CITY OF CARPINTERIA
PLANNING COMMISSION AGENDA

David Allen, Vice-Chair
Jane L. Benefield
John Callender, Chair
Glenn La Fevers
John Moyer

City Council Chamber
5775 Carpinteria Avenue
Carpinteria, CA 93013
Time: 5:30 p.m.
Agenda Posted: 11/02/17

NOVEMBER 6, 2017

THE PLANNING COMMISSION RESERVES THE RIGHT TO CHANGE THE ORDER IN WHICH ITEMS ARE HEARD. APPLICANTS NOT IN ATTENDANCE WHEN THEIR ITEM IS CALLED MAY HAVE THEIR ITEM CONTINUED TO THE NEXT REGULAR MEETING.

Any information presented to the Planning Commission by the public on any agenda item and during Public Comment using electronic must be arranged with staff for review of materials in advance of the meeting and no later than Thursday prior to the Planning Commission meeting.

Any written, printed or electronic material and/or exhibit presented at this meeting becomes the property of the City, and a copy must be provided to City staff.

This meeting will be broadcast live on Government Access Television Channel 21 and rebroadcast on Wednesday after the meeting at 8:00 p.m. and on Saturday at 5:00 p.m.

1. CALL TO ORDER and ROLL CALL

2. PLEDGE OF ALLEGIANCE

3. INTRODUCTIONS, PRESENTATIONS, ANNOUNCEMENTS

4. PUBLIC COMMENT

This time on the agenda provides an opportunity for the public to address the Planning Commission on items within the jurisdiction of the Commission and not listed on other sections of the agenda. Please limit comments to no more than five minutes. Depending on the number of speakers wishing to make comments, the Chair may further limit the time available to each speaker to control the amount of time spent on this part of the agenda. If you wish to speak on a **CONSENT CALENDAR** item, please do so during this part of the meeting.

Please be advised that California law does not allow the Planning Commission to discuss or take action on any issue presented by the public during this portion of the meeting. The Commission may ask a question for clarification, provide a brief response to public comment, refer the matter to staff for review and a later report or direct staff to place an item on a future agenda.

The City is not responsible for the content of statements made during the public comment period or the factual accuracy of any such statements.

5. CONSENT CALENDAR

Items on the Consent Calendar are considered to be routine and are normally enacted by one unanimous vote of the Commission. Individual items may be removed and considered separately at the request of a Commissioner. Any item removed from the Consent Calendar will be added to another section of the agenda.

a. Minutes of the regular Planning Commission meeting held October 2, 2017.

6. NEW PUBLIC HEARING

a. Green Heron Spring Residences **Planner: Nick Bobroff**
Project 16-1840-DP/CDP

Hearing on the request of Scott Dinovitz, Cravens Lane, LLC, to consider Project 16-1840-DP/CDP (application filed August 24, 2016) for approval of a Development Plan and Coastal Development Permit to dismantle an existing residence, barn and storage shed, remodel one existing residence (to remain) and construct 30 new residential condominium units within a 3.89-acre multifamily residential development in substantial conformance with the previously approved and still valid Vesting Tentative Tract Map under the provisions of the Planned Unit Development (PUD) Zone District; and to approve the Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) Guidelines. The MND and all documents may be reviewed at the Community Development Department, 5775 Carpinteria Avenue, Carpinteria. The MND is also available for review at the Carpinteria Branch of the Santa Barbara Public Library, 5141 Carpinteria Avenue, Carpinteria. The application involves APN 004-013-026, addressed as 1300 Cravens Lane.

1. Disclosure of Ex Parte Communications
2. Staff Presentation
3. Public Hearing
4. Planning Commission Action

b. 2017 Hazard Mitigation Plan Safety Element Amendment **Planner: Steve Goggia**
Project 17-1889-GPA

Hearing on the request of the City of Carpinteria to consider Project Number 17-1889-GPA, (application filed September 22, 2017) proposing to amend the Safety Element of the City's General Plan, incorporating by reference the 2017 Hazard Mitigation Plan, pursuant Government Code Sections 8685.9, 65302, and 65302.6; and to approve an Exemption pursuant to §15060(c)(2), 15060(c)(3) and 15061(b)(3) of the California Environmental Quality Act (CEQA) Guidelines. The application applies citywide.

1. Disclosure of Ex Parte Communications
2. Staff Presentation
3. Public Hearing
4. Planning Commission Action

7. OTHER BUSINESS

8. MATTERS PRESENTED BY COMMISSIONERS

9. DIRECTOR'S REPORT

a. Distributed Information

i. Action Minutes of the Architectural Review Board meeting of October 12, 2017

ii. City calendar for the month of November 2017

iii. Community Development Project Status Report as of October 31, 2017

iv. Construction Permit Report as of October 31, 2017

10. ADJOURNMENT

Notes
All actions of the Planning Commission may be appealed to the City Council. Appeals must be filed with the City Clerk within 10 calendar days of the Commission's action. Appeal deadline for items on this agenda: 5:00 p.m., November 16, 2017. The next regular Planning Commission meeting will be held on Monday, December 4, 2017 at 5:30 p.m. in the Council Chamber.

If you challenge any of the Planning Commission's decisions related to the agenda items above in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice or in written correspondence to the Planning Commission prior to the public hearing.

In compliance with the Americans with Disabilities Act, if you need assistance to participate in this meeting, please contact the Community Development Department by email at lorenae@ci.carpinteria.ca.us or by phone at (805) 755-4410 or the California Relay Service at (866) 735-2929. Notification two business days prior to the meeting will enable the City to make reasonable arrangements for accessibility to this meeting.

MINUTES, PLANNING COMMISSION
CITY OF CARPINTERIA
CARPINTERIA, CALIFORNIA

DRAFT

October 2, 2017
Regular Meeting
Council Chamber
5:30 P.M.

CALL TO ORDER and ROLL CALL Chair Callender called the meeting to order at 5:30 p.m. **Commissioners Present:** David Allen, Vice-Chair Jane L. Benefield John Callender, Chair Glenn La Fevers John Moyer **Others Present:** Steve Goggia, Community Development Director Approximately 10 interested persons	CALL TO ORDER & ROLL CALL
PLEDGE OF ALLEGIANCE - Chair Callender called for the flag salute.	PLEDGE OF ALLEGIANCE
INTRODUCTIONS, PRESENTATIONS, ANNOUNCEMENTS - None	ANNOUNCEMENTS
PUBLIC COMMENT - None	PUBLIC COMMENT
CONSENT CALENDAR **a. Minutes of the regular Planning Commission meeting held September 5, 2017** **MOTION** Upon a motion by Commissioner Benefield, seconded by Commissioner Allen, the Planning Commission voted 5-0 to approve the minutes of the regular Planning Commission meeting held September 5, 2017 as presented.	CONSENT CALENDAR
NEW PUBLIC HEARING **a. Canalino School Master Plan** **Planner: Steve Goggia** **Project 17-1881-DP/CDP** Hearing on the request of Jonathon Leech, ACIP, of Dudek, on behalf of Carpinteria Unified School District to consider Project 17-1881-DP/CDP (application filed on June 6, 2017) for approval of a Development Plan and Coastal Development Permit to allow the phased Canalino School Master Improvement Plan project, including but not limited to replacement of 10	NEW PUBLIC HEARING

individual classroom buildings with 10 classrooms housed in three new modular buildings, a new 2,400 square foot learning center, and a new pupil services and District office building, under the provisions of the Community Facility (CF) Zone District; and to approve an Exemption pursuant to §15301, 15302, 15304, 15314 of the California Environmental Quality Act (CEQA) Guidelines. This application involves APN 004-005-012 addressed as 1480 Linden Avenue.

DISCLOSURE OF EX PARTE COMMUNICATIONS
Chair Callender recused himself from all the hearings because his wife works for Carpinteria Unified School District.

Community Development Director Steve Goggia presented the staff report, with staff recommending approval of the project as presented.

Additional details about the project were provided by architect Robert Robles. He explained that the Canalino site committee felt exiting onto El Carro Lane would be safer and Public Works was in agreement. In addition, the change would allow for more staff parking. Regarding when all phases would be completed, he estimated there would be projects lingering through 2021.

PUBLIC HEARING OPENED
Vice-Chair Allen opened the public hearing at 5:53 p.m.

Consultant Jonathon Leech, AICP, of Dudek, said the first phase for all locations is simple replacement of aging portables with modular structures that have better appearance and durability. He said it is the interior of the campus where structures will be added, and there will be minimum disruption for the most part.

PUBLIC HEARING CLOSED
Vice-Chair Allen closed the public hearing at 5:56 p.m.

The commissioners expressed unanimous support for the project subject to amended findings indicating that the City Engineer has reviewed and approved the parking lot circulation improvements.

MOTION
Upon a motion by Commissioner La Fevers, seconded by Commissioner Moyer, the Planning Commission voted 4-0 (Allen, Benefield, La Fevers, and Moyer in favor) to adopt Resolution No. PC-17-011 thereby approving the Development Plan and Coastal Development Permit for the Canalino Elementary School with the amended findings.

b. Aliso School Master Improvement Plan
Planner: Steve Goggia
Project 17-1886-DP/CDP

Hearing on the request of Jonathon Leech, ACIP, of Dudek, on behalf of Carpinteria Unified School District to consider Project 17-1886-DP/CDP (application filed on July 24, 2017) for approval of a Development Plan and Coastal Development Permit to allow the phased Aliso School Master Improvement Plan, including but not limited to replacement of seven individual classroom buildings with six classrooms and a restroom housed in three new modular buildings, and a reconfiguration of the school parking lots and circulation system, under the provisions of the Community Facility (CF) Zone District; and to approve an Exemption pursuant to §15301, 15302, 15304, 15314 of the California Environmental Quality Act (CEQA) Guidelines. This application involves APNs 003-230-011 and 003-230-018 addressed as 4545 Carpinteria Avenue.

DISCLOSURE OF EX PARTE COMMUNICATIONS
Commissioner Benefield recused herself because she lives near the school.

Community Development Director Steve Goggia presented the staff report. He said staff was recommending approval of the resolution as proposed, along with additional language to the findings regarding circulation upgrades.

PUBLIC HEARING OPENED & CLOSED
Vice-Chair Allen opened the Public Hearing at 6:03 p.m. and with no members of the public coming forth to speak, he closed it.

The commissioners all expressed support for the project. Commissioner Moyer commented that he went to fourth and fifth grade at Aliso, and Vera Bensen was the most influential teacher he ever had.

MOTION
Upon a motion by Commissioner La Fevers, seconded by Commissioner Moyer, the Planning Commission voted 3-0 (Allen, La Fevers and Moyer in favor) to adopt Resolution No. PC-17-14 thereby approving the Development Plan and Coastal Development Permit for the Aliso Elementary School with additional findings indicating that the City Engineer has reviewed and approved the parking lot circulation improvements.

c. Carpinteria Middle School Master Improvement Plan
Planner: Steve Goggia
Project 17-1880-DP/CDP

Hearing on the request of Jonathon Leech, ACIP, of Dudek, on behalf of Carpinteria Unified School District to consider Project 17-1880-DP/CDP (application filed on June 6, 2017) for approval of a Development Plan and Coastal Development Permit to allow the phased Carpinteria Middle School Master Improvement Plan, including but not limited to removal and replacement of seven individual portable classroom buildings with seven classrooms and a restroom housed in two new modular buildings, and a replacement and reconfiguration of the school kitchen facility, under the provisions of the Community Facility (CF) Zone District; and to approve an Exemption pursuant to §15301, 15302, 15304, 15314 of the California Environmental Quality Act (CEQA) Guidelines. This application involves APNs 004-047-040, 004-047-041 and 003-028-001 addressed as 5351 Carpinteria Avenue.

Community Development Director Steve Goggia presented the staff report and said staff was recommending approval as presented. Architect Joe Wilcox of KZB Architects said the shade structures are being changed and trees will be used instead. He noted the original buildings get hot and could benefit from trees.

PUBLIC HEARING OPENED
Vice-Chair Allen opened the public hearing at 6:09 p.m.

Architect Joe Wilcox explained that with respect to the school colors of the modular buildings, the stucco is applied at the factory and it will try to match the school stucco color. He said the doors will be an accent color that matches the accent colors of the school.

PUBLIC HEARING CLOSED
Vice-Chair Allen closed the public hearing at 6:10 p.m.

The Planning Commission expressed unanimous support for the project.

MOTION
Upon a motion by Commissioner La Fevers, seconded by Commissioner Moyer, the Planning Commission voted 4-0 (Allen, Benefield, La Fevers and Moyer in favor) to adopt Resolution No. PC-17-013 thereby approving the Development Plan and Coastal Development Permit for the Carpinteria Middle School.

d. Carpinteria High School Master Improvement Plan **Planner: Steve Goggia** **Project 17-1882-DP/CDP** Hearing on the request of Jonathon Leech, ACIP, of Dudek, on behalf of Carpinteria Unified School District to consider Project 17-1882-DP/CDP (application filed on June 9, 2017) for approval of a Development Plan and Coastal Development Permit to allow the phased Carpinteria High School Master Improvement Plan, including but not limited to removal and replacement of six individual portable classroom buildings with five inter-connected class/lab spaces in a new science wing and two classroom/labs in a new computer wing in two new modular buildings, the construction of a new CHS administration and student services building, a remodel of the existing CHS administration building to serve the Rincon High School (RHS) program, the installation of new modular classroom for RHS, and construction of a new auditorium building, under the provisions of the Community Facility (CF) Zone District; and to approve an Exemption pursuant to §15301, 15302, 15304, 15314 of the California Environmental Quality Act (CEQA) Guidelines. This application involves APN 004-004-031 addressed as 4810 Foothill Road. Community Development Director Steve Goggia presented the staff report. He said staff was recommending approval as presented. PUBLIC HEARING OPENED & CLOSED Vice-Chair Allen opened the public hearing a 6:45 p.m. and with no members of the public coming forth to speak, closed it. Commissioner Allen said although he typically scrutinizes building heights above 30 feet, in this case he has no qualms, because it is a public facility situated in the interior of a site. MOTION Upon a motion by Commissioner Moyer, seconded by Commissioner Benefield, the Planning Commission voted 4-0 (Allen, Benefield, La Fevers and Moyer in favor) to adopt the Resolution for Project 17-1882-DP/CDP to allow phased improvements to Carpinteria High School.	
OTHER BUSINESS - None	OTHER BUSINESS
MATTERS PRESENTED BY COMMISSIONERS Commissioner Benefield asked when the Ellinwood Property (Green Heron Springs) would be coming before the Planning Commission. Community Development Director Steve Goggia estimated it would be two months.	MATTERS PRESENTED

Commissioner Moyer stated that Governor Brown just signed legislation pertaining to multi-family and affordable housing. He asked for a report on how it would play out in Carpinteria. Mr. Goggia said nothing had come across his desk but he would present information at the next meeting. A discussion followed about Accessory Dwelling Units and how some of the new legislation will not apply in the Coastal Zone. Commissioner Benefield expressed support for ADUs and said planners need to find housing, noting that lack of it leads to growing inequality and angry people. Commissioner Moyer said it's a crime young people are not able to stay near their families and allowing more ADUs will help. Commissioner Allen said he is worried that mandated affordable housing percentages will lead to loss of flexibility with respect to local planning. Mr. Goggia said that in most coastal cities, the Coastal Zone doesn't go nearly as far as it does in Carpinteria, and he clarified that all of Carpinteria is within the Coastal Zone.	
DIRECTOR'S REPORT a. Distributed Information i. Action Minutes of the Architectural Review Board meeting of September 14, 2017 ii. City calendar for the month of October 2017 iii. Community Development Project Status Report as of September 28, 2017 iv. Construction Permit Report as of September 28, 2017 Community Development Director Steve Goggia reviewed the distributed information. A discussion followed about whether Concha Loma's CC&Rs are enforceable. Goggia stated that the City does not enforce the CC&Rs. He suggested neighbors try to work together. Commissioner Benefield asked for an update on a nuisance property on Palm Avenue, and he said they are still working with the owner to get the residence painted.	DIRECTOR'S REPORT
ADJOURNMENT - Chair Moyer adjourned the meeting at 6:35 p.m. _____ Secretary, Planning Commission **ATTEST:** _____ Chair, Planning Commission	ADJOURNMENT

PLANNING COMMISSION STAFF REPORT

MEETING DATE: November 6, 2017

ITEM FOR CONSIDERATION

Green Heron Spring Residences
16-1840-DP/CDP

Request for a Development Plan and Coastal Development Permit to allow the dismantling of an existing residence, barn and storage shed, the remodel of one existing residence (to remain), and the construction of 30 new residential condominium units within a 3.89-acre multifamily residential development in substantial conformance with a previously-approved and still valid Vesting Tentative Tract Map.

Report prepared by: Nick Bobroff, Senior Planner
Community Development Department

SIGNATURE

Reviewed by: Steve Goggia, Director
Community Development Department

SIGNATURE

Owner: Scott Ellinwood

Applicant: Scott Dinovitz for Cravens Lane, LLC

Agent: Nancy Johns, Wildflower Development Services

Project Location: 1300 Cravens Lane

APN: 004-013-026

Zoning: Planned Unit Development (PUD)

General Plan Designation: Medium Density Residential (MDR)



I. RECOMMENDATION

Adopt the attached Resolution PC-17-015, thereby approving Project 16-1840-DP/CDP to allow the dismantling of an existing residence, barn and storage shed, the remodel of one existing residence (to remain), and the construction of 30 new residential condominium units within a 3.89-acre multifamily residential development.

II. PROPOSED PROJECT DESCRIPTION

Development Plan

The proposed project would redesign the 31-unit Green Heron Spring condominium project previously approved by the City Council in November 2007. The project would include dismantling an existing residence, barn and storage shed, the remodel of one residence (to remain), and the construction of 30 new residential condominium units on a 3.89-acre site. The contemplated redesign makes adjustments to the previously-approved site plan/building locations, building floor plans, bedroom counts for selected units, and building architecture/elevations. Updated landscaping, hardscapes, fencing and an entry monument are also included.

The current project description includes the following structures to be built:

- 10 two-bedroom units (Plans 1, 1X, 8 and 8X), ranging in size from 1,491 square feet to 1,760 square feet (inclusive of attached one-car garages). Four of these units (Plan 1X) would also include a den. These units would be configured in attached townhome clusters with other units and are all designed as single level flats. An additional uncovered parking space would be provided for each two-bedroom unit;
- 19 three-bedroom units (Plans 2, 3, 4, and 5), ranging in size from 2,207 square feet to 2,701 square feet (inclusive of attached two-car garages). Of these units, nine would be configured as part of multi-unit townhome buildings, six would be detached single family dwellings, and four would be configured as duplexes. The six single family dwellings (Plan 4) would also include a den;
- One detached, 2,723 square foot, four-bedroom single family dwelling (inclusive of attached two-car garage) (Plan 6);
- An addition to the existing single family residence (to remain) comprised of an attached 929 square foot three-car garage and a second floor recreation room above. The total gross square footage of the five-bedroom residence would be 4,445 square feet; and
- A 780 square foot open air pavilion to be located within the common village green area. The pavilion would include amenities such as a kitchenette, outdoor grill, fireplace lounge area and outdoor seating areas.

In all, the development would include 16 individual buildings (comprised of 15 residential buildings, including the existing residence to remain, and the new pavilion). The total combined gross square footage of all of the dwelling units would be 69,929 square feet. The cumulative building footprint of all structures would be 43,900 square feet. This equates to a building coverage ratio of approximately 26% of the 3.89-acre site.[1]

Pursuant to the City's Inclusionary Housing Ordinance, and consistent with the previously-approved project, four of the new units would be required to be set aside as affordable units designated for the upper-moderate income category. The four inclusionary units would be distributed throughout the

[1] For comparison purposes, the previously-approved iteration of the Green Heron Spring project had a gross total square footage of 66,436 square feet and a gross building footprint of 37,087 square feet. The net increase of 3,493 square feet of gross total square footage can be attributed to the slightly larger individual unit sizes and increased bedroom counts.

development and are made up of two- and three-bedroom townhome and duplex units. The inclusionary units would be designed to be architecturally consistent with the market rate units.

Vehicle access to the site will continue to be taken from Cravens Lane, at approximately the same location as the existing driveway serving the property. The private drive (Green Heron Spring Drive) will provide two-way access to/from a one-way drive loop around the central village green and pavilion. Two spurs will extend from the main drive and loop to provide access to additional units not fronting on the main drive. The spur off the southern end of the loop around the village green will also provide access to a secondary (gated) emergency access entry from the adjacent private roadway immediately bordering the southern edge of the project site.

A total of 74 parking spaces would be provided onsite. Of these, 53 spaces would be housed within garages attached to their respective units. The remaining 21 spaces would be provided as uncovered parking spaces spread throughout the development. Of the 21 uncovered spaces, 11 would provide visitor parking for the project, the remaining 10 spaces would provide the second required parking space for each of the development's two-bedroom units.

The project proposes to provide common open space areas including a community garden area (in the southeast corner of the project site), a centralized village green with an open air pavilion, an additional passive community open space with seating area at the northeast corner of the project site, native plant areas, walking paths and other passive recreation areas, similar to that of the previously approved project. Like the former iteration of the project, the existing agricultural pond would be enhanced and incorporated into the project as part of the development's common open space and to serve as an onsite stormwater retention feature. The area surrounding the pond would be revegetated with native plantings to replace the existing non-native species. In addition to common open space areas, the redesigned concept contemplates private fenced yard areas and/or porches for each unit.

Consistent with the requirements of the Ellinwood Parcel Overlay District, the project would be designed and constructed to comply with the standards for U.S. Green Building Council, LEED for homes, rating of "gold" or better. LEED building standards incorporated into the design include, but are not limited to, clustering development to maximize open space, utilizing native and drought tolerant landscaping throughout the project, collecting and reusing stormwater onsite, utilizing high efficiency building materials and appliances to reduce energy use, and utilizing rooftop photovoltaic systems on all units.

The project is also required to preserve existing native trees to the maximum extent feasible, restore the onsite pond (as previously described), and provide a permanent onsite bioretention/bioswale system to treat and retain storm water runoff onsite. The project has been designed to incorporate these required elements. Of the 59 specimen trees identified onsite, the project proposes to remove 13 and impact an additional 25 trees. Removed native trees are to be mitigated through replacement plantings. Trees to remain may require pruning, but will otherwise be protected in place. The project site has been designed to include permeable hardscape materials and landscaped swales to capture and retain onsite stormwater runoff. The onsite enhanced pond, as previously described, will also be used to capture and retain stormwater runoff.

Site grading, mainly to create level building pads and ensure the site drains toward the onsite wetland/pond calls for 1,348 cubic yards (cy) of cut and 2,916 cy of fill. All new utilities within the proposed development would be placed underground within the central loop drive. A storm drain system

is proposed to capture onsite stormwater overflow that does not percolate through permeable hardscape areas or planted bioswales/biofilters and convey it to the onsite wetland/pond. Perimeter fencing includes a mix of solid masonry walls (along the eastern rear and partial south side property lines), solid redwood fencing (along the northern side property line), and 42-inch high horizontal plank fencing along the Cravens Lane frontage and the southwestern half of the side property line. A five-foot high tubular steel fence would be used around the wetland/pond area, including to enclose the private rear yards of the units that back up to the wetland/pond. A decorative stone entry monument is proposed for the entrance to the development off Cravens Lane.

Offsite improvements associated with the project include the dedication of additional right-of-way for, and the widening of, Cravens Lane. The additional right-of-way width will provide sufficient area for the extension of a public sidewalk, parkway strip, on-street parallel parking and bicycle lane. Various utility and storm drain improvements are also required to either extend service to the project site, or tie into existing facilities in Cravens Lane.

A project description narrative prepared by the project applicant is included as Exhibit 2. The complete preliminary plan set packet is attached as Exhibit 1, Attachment B. The packet includes a detailed site plan and comparative site plan exhibit overlaying the current proposal on top of the previously approved site plan, current architectural plans including building floor plans, sections, roof plans and elevations for all proposed buildings, a comparative matrix of the unit types for the proposed redesign and the previously approved project, and a preliminary landscape and tree mitigation plan (including fencing, hardscape materials and irrigation). Preliminary civil and lighting plans are also included.

Representative story poles for several of the proposed buildings that would be located closest to Cravens Lane and along the southern boundary of the project site were erected in July. Due to the dense vegetation and existing structures onsite, not all corners of the proposed buildings could be accurately represented. Nevertheless, the story poles provide an approximate sense of the scale and location of the proposed townhome buildings. Photographs of the story poles taken from within and around the project site are included as Exhibit 3.

The proposed color/material boards (of which there are three) for the proposed buildings and proposed exterior site lighting standards are included as Exhibit 4. Additional details concerning the project's features compliance with the LEED gold standards is provided in Exhibit 5.

Coastal Development Permit

A Coastal Development Permit is required to allow the proposed development as described above.

III. BACKGROUND

Site Characteristics

The project site is a 3.89-acre site presently improved with two detached single family residences, a barn and miscellaneous accessory structures. The total footprint of all existing buildings is approximately 5,286 square feet, with a total floor area of approximately 6,475 square feet. In

addition to the structures, the property contains groves of mature oak, sycamore and eucalyptus trees, coastal redwoods, and an existing man-made pond.

To the north of the site is a Santa Barbara County Flood Control Basin and two single-family homes; to the east is a concrete-lined drainage channel, beyond which are greenhouses and a packing warehouse; to the south are multi-family residential developments (Franciscan Village and the Villas); and to the west is Cravens Lane (45-foot wide existing right-of way, 31-foot paved width), beyond which is Sandpiper Mobile Village. Of the surrounding uses, the properties to the north and east of the subject site are within unincorporated Santa Barbara County jurisdiction. The 20-foot wide drive that borders the site to the south is a portion of the property to the east within the County. The driveway provides private access to the greenhouse and packing operations to the east. The subject site is buffered from each of the adjacent properties by trees and other vegetation.

Regulatory Setting

The project site is zoned Planned Unit Development (PUD) and is subject to the following Overlay Districts: Ellinwood Parcel (EP) Overlay; Environmentally Sensitive Habitat (ESH) Overlay; Flood Hazard (FH) Overlay; and Coastal Appeals (CA) Overlay. The project site is designated for Medium Density Residential (MDR) in the City's General Plan/Coastal Plan Land Use Element.

The proposed multifamily residential development requires approval of a discretionary Development Plan and Coastal Development Permit by the Planning Commission. Due to the project's location within the CA Overlay, the City's final action on the project is appealable to the California Coastal Commission. The Vesting Tentative Tract Map previously approved by the City Council for the former iteration of the project remains valid and in effect.

Project History

The previous iteration of the Green Heron Spring project was originally submitted to the City in 2005 (as Project 05-1239-DP/TM/GPA/LCPA/RZ/CDP). At the time, the project proposed to construct 32 new units (instead of the 30 units which was ultimately approved), and included a proposal to annex the property into the City, rezone it to Planned Unit Development, and subdivide the property for condominium purposes through a Vesting Tentative Tract Map. The former project also required an amendment to the City's Local Coastal Program (LCP) to reconcile setback issues related to the existing onsite pond/wetland.

The project was preliminarily approved by the City Council in November 2007. The California Coastal Commission subsequently approved the LCPA for the project in February 2009. The Coastal Commission's action both approved the rezone to PUD and created the new Ellinwood Parcel Overlay District, which applies special development standards to the subject property (see Analysis section, below). Subsequent to the Coastal Commission's approval, the project returned for final approval of the project and acceptance of the Coastal Commission's action by the City Council in November 2009. The annexation of the property into the City was finalized by the Santa Barbara County Local Agency Formation Commission (LAFCO) in October 2009.

To reflect changes to the project required by the California Coastal Commission's approved LCPA, the Community Development Director approved minor changes to the approved site plan in March 2010. This revised approval was valid for two years (until March 2012). In February 2012, the

applicant requested and received a three-year time extension to the entitlements, giving the project until March 2015 to record the Final Map and obtain Building and Engineering Permits for construction. Ultimately, the project approvals expired as the applicant was unable to complete the recordation of the Map or obtain permits for construction before the March 2015 expiration date.

Due to the expiration of the Development Plan and Coastal Development Permit, the (current) project had to be submitted to the City as a new Development Plan and Coastal Development Permit application. The annexation, rezone, and LCPA, however, have been finalized by all applicable agencies and thus remain in effect. Likewise, the previously approved Vesting Tentative Tract Map is still valid as a result of various automatic time extensions to pending subdivision maps granted in recent years by the State Legislature.

Architectural Review Board (ARB)

November 17, 2016 ARB Concept Review

The current iteration of the project was reviewed at an early conceptual level by the Architectural Review Board (ARB) at the November 17, 2016 meeting. At the time, the architectural plans for the individual buildings had not been completed, so the Board's review was limited to considering the revised site plan, building floor plans and a pair of renderings and representative photos for two possible architectural treatments for the new buildings, one of a more contemporary modern style with shed roofs; the other of a contemporary farmhouse style using standing seam metal roofs.

Several members of the public shared their input on the project. While neighbors were generally comfortable with the direction the project was headed in, concerns over increased demands for parking on Cravens Lane were raised by several citizens. The applicant confirmed the project would include widening the Cravens Lane right-of-way and installing public improvements along the project frontage, including sidewalks, bike lanes and additional parallel parking spaces.

The ARB members were generally supportive of the revised site plan. Reactions to the architectural styles being considered and some of the floor plan layouts were varied. While all of the Boardmembers felt that a project developed in either of the presented styles could be successful, preferences were generally expressed for either the contemporary farmhouse vernacular (Boardmembers Gahan and Chappell) or returning to something more along the lines of the original approved architecture (Boardmember Reginato). Both Boardmembers Reginato and Chappell also indicated they felt the garages were far too prominent in the proposed floor plans and that the individual units' entries should be made more of a focal point.

March 16, 2017 ARB Concept Review

The project returned to the ARB for a second conceptual review with more fully developed architectural and landscape plans on March 16, 2017. The updated plans presented at the meeting were generally well received with both members of the public and ARB Boardmembers in attendance feeling the project was headed in a positive direction.

Pertinent comments received from the public and the ARB can generally be summarized as follows:

- Architecture/design/colors/materials generally headed in a favorable direction;

- Architectural coordination between the existing residence (to remain) and the new buildings appears appropriate;
- Consider planting trees in the rear yards of the residences, particularly along the southern (side) property line to serve as screening to/from adjacent residential development;
- Refer to previous comments from the California Coastal Commission concerning the onsite pond restoration and enhancement;
- Consider maintaining and incorporating the property's existing swale network into the project's drainage design;
- Articulated garage doors are preferred;
- Consider introducing siding into more of the side/rear elevations of the buildings so stucco features read as accents;
- Consider adjusting some building heights down slightly to add more variety to the mix of the buildings; and
- Be sensitive to, and address, privacy concerns between adjacent units.

August 31, 2017 ARB Preliminary Review

The project was reviewed by the ARB for preliminary review on August 31st. Additional plans and specifications were provided for civil improvements (grading, drainage, utilities, frontage, etc.), lighting, landscaping/irrigation, hardscape improvements, and colors/materials. Revisions were also incorporated into the plans in response to comments from the last conceptual review of the project. These included spreading out the placement of mitigation plantings throughout the rear yards of the residences, coordinating the wetland/pond planting plan with the recommendations of the project-specific Wetland Habitat Enhancement and Mitigation Plan (WHEMP), making some minor adjustments to building finishes and articulation, and studying and addressing areas for potential privacy impacts between adjacent units.

A couple members of the public spoke on the project concerning the proposed street widening and frontage improvements for Cravens Lane, the removal of the existing redwood tree at the northwest corner of the property, and the potential for the project to contribute to increased stormwater or flooding impacts to properties on lower Cravens Lane.

The Boardmembers were in agreement that the project was nicely designed. Suggested comments for further study were focused on individual building details, and included the following:

- Consider a smooth coat plaster in place of the sand finish on the building exteriors;
- Explore opportunities for a reduction in height for the two units closest to Cravens Lane;
- Select a more decorative garage door for Plan 4b (single family detached) and consider increasing building articulation on side and rear elevations;
- Reduce the spacing on board and batten siding from 18 inches to 12 inches;
- Utilize a 3"x8" board for fence rails and shape the top edge to shed water.

A copy of the Minutes from the March 16, 2017 ARB Concept Review Meeting is attached as Exhibit 6. The Minutes from the August 31, 2017 Preliminary Review ARB Meeting are attached to this report as Exhibit 7. A brief summary of changes being considered by the project architect to respond to the ARB's preliminary review comments is attached as Exhibit 8. The changes will be incorporated into the drawings that will be prepared for Final ARB review.

IV. ENVIRONMENTAL

Based on the findings of the City's Initial Study checklist and anticipated environmental impacts, the City prepared a Mitigated Negative Declaration (MND) for the project. The MND describes the proposed project and evaluates the potential for environmental impacts resulting from the project, and provides Mitigation Measures that would reduce identified project impacts to less-than-significant levels.

The MND identified Class II impacts (significant, but feasibly mitigated) for the following categories: Aesthetics, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Water Resources, Noise, and Transportation. With the incorporation of identified mitigation measures, all of these impacts would be reduced to a less than significant level. Additional Class III (less than significant) impacts were identified for Aesthetics, Agricultural Resources, Air Quality, Biological Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use Planning, Noise, Population and Housing, Public Services, Recreation, Transportation, and Utilities and Service Systems.

The Draft MND was available for a 30-day public review from September 14, 2017 through October 13, 2017. On September 28, 2017, the City's Environmental Review Committee held a public hearing on the Draft MND to receive comments on the adequacy of the document. No members of the public attended. The ERC recommended approval of the environmental document to the Planning Commission with various, mostly minor revisions, the most significant of which are summarized below :

- Include reference to the LEED "Gold" building design features in the project description;
- Stipulate through the project CC&Rs or similar that private yard areas located within the required 35-foot wetland/pond setback area must be maintained in accordance with the approved landscape plan and Wetland Habitat Enhancement and Monitoring Plan (WHEMP);
- Clarify tree replacement mitigation ratios for native trees (other than Coast Live Oak) that are to be removed as part of the project (per the Ellinwood Parcel Overlay, all native specimen trees to be removed are to be mitigated at a 10:1 replacement ratio);
- Consider impacts to non-listed/non-protected frogs resulting from draining and desilting of the wetland/pond;
- Heavy equipment should be parked over drip pans when not in use;
- Project CC&Rs should limit and restrict the types, quantities and circumstances under which pesticides, insecticides, rodenticides and similar products may be used to avoid unintended impacts to wildlife and/or pets;
- Require trucks entering/exiting the site carrying soils, construction waste or similar items to be tarped;
- Consider replacing Redwood mitigation plantings with another native tree species better adapted to the site; and
- Explore options to further spread out mitigation tree plantings throughout the project site.

Comment letters submitted during the 30-day review period were received from Jerry Van Wingerden (neighboring property owner at 1560 Cravens Lane), John McCann (nearby property

owner at 1222 Cravens Lane), the California Coastal Commission (CCC), and the Central Coast Regional Water Quality Control Board (RWQCB). Responses were prepared for all received comment letters and are included in Appendix M, Response to Comments, of the Proposed Final MND. Only minor clarifications to the environmental document were necessary to address the comments received from Messrs. Van Wingerden and McCann, and the CCC staff.

To address the comments from the RWQCB staff, additional information was added to the Hydrology and Water Quality discussion to describe in further detail the proposed project's suite of Low Impact Development (LID) stormwater strategies, and to demonstrate the project's compliance with the City's Post Construction Requirements (PCRs) and RWQCB permit requirements. Revisions were also incorporated into the Proposed Final MND to address the comments received by the ERC. These included adding additional elements to existing mitigation measures concerning compliance with the Tree Assessment and Protection Plan (TAPP) and WHEMP, and standard construction Best Management Practices (BMPs) related to air quality, erosion/sedimentation control, and water quality. Staff considered and reviewed Ms. Lohmus' comment concerning protection of (non-sensitive/non-protected) frog species with the project biologist, however due to the life cycle of Pacific chorus frogs, they can potentially breed year-round in the pond and thus there is no definitive time when no tadpoles would be present. Therefore, no further revisions were warranted in response to this comment. All revisions incorporated into the Proposed Final MND simply clarified or provided additional details concerning the project, or made other insignificant modifications to the Draft MND, and as such failed to rise to the level of requiring recirculation of the Draft MND pursuant to CEQA Guidelines §15088.5.

As part of the Planning Commission's action on the proposed project, the Commission must first act to approve and certify the proposed Final MND as being adequate for the purposes of complying with the California Environmental Quality Act (CEQA) before taking action on the proposed project. For more detail concerning the proposed project's environmental effects and required mitigation measures, please see the attached Proposed Final Mitigated Negative Declaration included as Exhibit 9.

V. ANALYSIS

The discussion below provides an analysis of the project in terms of its compliance with the development standards of Chapter 14, Zoning, of the Carpinteria Municipal Code, and with the policies and objectives of the General Plan/Coastal Land Use Plan. A discussion of how the current design of the project compares to the previously approved project is also provided.

The project is located in the Planned Unit Development (PUD) zone district and has a Medium Density Residential (MDR) land use designation. The project is also subject to several Overlay Districts including the Ellinwood Parcel Overlay, Environmentally Sensitive Habitat Overlay, Flood Hazard Overlay and Coastal Appeals Overlay.

Project Revisions

As discussed briefly in the project description section above, the current iteration of the project largely conforms to that of the previously-approved version of the project. The overall project density, site plan and unit layout/clustering, property line setbacks, key community open space areas

and important environmental features (i.e., LEED "Gold" building design/construction, preservation of significant numbers of native specimen trees, enhancement and restoration of the onsite wetland/pond, onsite stormwater retention improvements, and low intensity, night-sky friendly lighting) are all very similar to the previous approval.

Key differences between the previous approved project and the current proposal include the chosen architectural style for the new buildings, the particular mix of unit types and bedroom counts, the resultant number of required parking spaces, and overall increased building coverage and gross square footage of buildings on the property. Building coverage, for example, would increase from 37,087 square feet to 43,900 square feet, and total bedroom count would increase from 75 bedrooms to 81 bedrooms for the entire development. Total gross square footage for all residential units would increase modestly from 66,436 square feet to 69,929 square feet. Despite the slightly more intense nature of the current proposed version of the project, staff believes the project continues to be generally in keeping with the spirit and intent of the original Green Heron Spring project.

Carpinteria Municipal Code, Title 14. Zoning

Planned Unit Development (PUD) District, CMC §14.16

The purpose of the PUD district is to ensure a comprehensively planned development of large parcels that are intended primarily for residential use but that would also be appropriate for recreation, limited commercial uses and open space. The intent of the district is to:

1. *Promote flexibility and innovative design of residential development to provide efficient use of space and to preserve significant natural, scenic and cultural features of a site;*
2. *Encourage the clustering of structures to preserve a maximum amount of contiguous open space; to this end, the intent is to promote multiple residential development rather than single family subdivisions and to locate such development on a small portion of the parcel;*
3. *Allow for a diversity of housing types;*
4. *Provide recreational opportunities for the residents of the site and the public.*

Uses permitted in the PUD district subject to Development Plan approval, "*include residential units, either attached or detached, including single family dwellings, rowhouses, townhouses, apartments, condominiums, modular homes and mobile homes; provided that the units are clustered to the maximum extent feasible.*" Recreational facilities, "*including but not limited to, tennis courts, swimming pools, playgrounds, and parks for the private use of the prospective residents, provided such facilities are not operated for remuneration,*" are also permissible.

The proposed project can be found consistent with the types of uses anticipated in the PUD zone district as it includes a mix of detached single family dwellings, duplexes and townhomes of varying sizes and bedroom counts in a clustered multifamily development that provides a large amount of landscaped open space, including significant common areas like the village green and pavilion, community garden area, and enhanced wetland/pond and surrounding upland habitat. Additional private yard areas are also proposed for the units. Of the 3.89-acre site, approximately 63,340 square feet (equivalent to ~37% of the site) would be devoted to common open space areas with another 19,700 square feet set aside for private yard areas. Building coverage would occupy approximately 43,900 square feet (~26%) of the project site.

The following table defines the applicable development standards of the PUD district and describes the proposed project's conformance to those requirements.

Standard	Requirement/Allowance	Proposal
Setbacks	No standard setbacks or distances between buildings (front, side, or rear) shall be required in this district. Setbacks and siting of structures shall be approved as part of the development plan in order to protect and preserve property values of the site and adjacent properties, ensure compatibility of different uses, avoid nuisances, and advance the general welfare of the public. The following factors shall be considered: fire protection, safety from flooding and other geologic hazards, privacy, light and air, solar exposure, protection of identified environmentally sensitive habitat areas on or adjacent to the property, building configuration, aesthetics, and any other applicable provisions of the coastal land use plan, general plan, and specific plan(s).	Building setbacks and distances between buildings generally conform to those established by the previously approved project, as summarized below: Front (Cravens Ln): 12 feet min. Side (north): 8 feet min. Side (south): 14.4 feet min. Rear (east): 36 feet min. Minimum 35' building setbacks from the pond are maintained. Distance between buildings: 10 foot min.
Height	30 feet max.	Individual building heights vary from 27 feet 8 inches to 30 feet as shown on the site plan and building elevations
Building Coverage	30% max. (1.17 acres)	26% (1.01 acres)
Common Open Space	20% min. (0.78 acres)	37% (1.45 acres)- includes but not limited to, village green, community garden, pond area, walkways, & seating areas
Landscaping	Along each side or rear yard of the PUD district abutting property zoned other than PUD, an adequate buffer consisting of fencing, walls, plant materials, or any combination thereof shall be installed and maintained to protect adjacent properties from impacts of noise or lighting and to provide separation between different uses. Such buffer shall be included in the development plan.	In addition to common open space described above, an additional 0.45 acres (11.6% of site area) is set aside as private landscaped yard areas, mainly situated around the exterior perimeter of the property. Perimeter fencing is also proposed, including the following: Front (Cravens Ln): 42-inch high redwood fence Side (north): 6 foot redwood fence

		Side (south) & rear (east): 6 foot high masonry wall
Density	31 units max. (8.01 units/acre)	31 units (8.01 units/acre), consistent with previous approvals
Parking	73 spaces (2 parking spaces per unit [1 covered + 1 additional space] & 1 visitor parking space for every three units)	74 spaces (53 garage spaces + 21 uncovered spaces)

As proposed, the project would comply with the applicable minimum requirements of the PUD zone district. Where discretion is provided in terms of applicable development standards, such as building setbacks and landscaping, staff finds the proposed site plan to be in substantial conformance with what was previously approved by the City and CCC for this project site.

Ellinwood Parcel (EP) Overlay District, CMC §14.43

As part of the original approvals for the Green Heron Spring project, this Overlay District was created and adopted into the City's LCP to create specific standards of development for this particular parcel. The intent is to ensure a more precise level of planning for this parcel by establishing specific standards related to oak tree protection and mitigation, retention basin/drainage pond maintenance, wetland enhancement, permanent stormwater management, drainage plans and lighting.

Specifically, the following development standards apply to new development on this parcel:

1. *All new development shall be designed and constructed in a manner that complies with all current requirements of the U.S. Green Building Council, LEED for homes, rating of gold or better.*

   The applicant's project description letter, attached as Exhibit 2, provides a summary of some of the key design features and materials proposed to be incorporated into the project to comply with this requirement. Additionally, a LEED point summary (Exhibit 5) has been provided to demonstrate that the project's design and construction specifications would comply with the requirements for the LEED "gold" rating. A Condition of Approval requiring documentation and verification of the project's compliance with the U.S. Green Building Council's LEED for Homes, rating of "gold" or better, by a qualified LEED-Accredited Professional (AP), is included in the recommended Conditions of Approval.

2. *Exterior night lighting shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto any environmentally sensitive areas, wetland areas (including the existing retention basin/drainage pond), and adjacent parcels. A lighting plan incorporating these requirements and provisions for dimming lights after ten p.m. shall be provided prior to any development on the site.*

   A site lighting photometric plan is included in the attached plan set (sheet E-1.0). The plan shows the location of proposed light fixtures throughout the site (mainly concentrated along the drive aisles and pedestrian walkways) and demonstrates that spillover onto adjacent

properties and environmentally sensitive areas (including the wetland/pond) would be avoided. Cut sheets for the selected pole mounted lights and bollard walkway lighting is included in Exhibit 4. The proposed fixtures are appropriately scaled to their intended uses, utilize low intensity LED bulbs and are generally hooded and down-ward facing to minimize glare and spillover onto surrounding areas. A measure is included in the recommended Conditions of Approval requiring exterior site lighting to be outfitted with appropriate dimming capabilities as required by this standard. A separate condition requires all building-mounted exterior lighting to also be consistent with these requirements.

3. *To protect existing native trees, such as oaks, walnuts, and sycamores and to minimize adverse effects of grading and construction onsite, a tree protection and replacement plan, prepared by a qualified arborist or resource specialist, shall be implemented as part of any new development project. Development, including ground disturbance and grading, shall be designed to avoid native tree removal and encroachment within the dripline of any native tree to the maximum extent feasible. The tree protection and replacement plan shall include a detailed plan for any trees that must be removed, in accordance with the provisions below, and shall include an analysis of alternatives to protect or retain the tree(s) to the maximum extent feasible. The tree protection and replacement plan shall include the following:*
    a. *An exhibit showing the location, diameter and dripline of all native trees located onsite.*
    b. *Fencing of all trees to be protected shall be installed in a manner that provides for at least a five-foot setback outside the dripline of each tree. Fencing shall be at least three feet in height of chain link or other material acceptable to CDD and shall be staked every six feet. Signs stating "tree protection area" shall be placed at fifteen-foot intervals on the fence. Said fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to commencement of grading and/or construction and shall remain in place throughout all grading and construction activities.*
    c. *The tree protection plan shall clearly identify any areas where landscaping, grading, trenching or construction activities would encroach within the dripline of any native or specimen tree. All encroachment is subject to review and approval by CDD and shall be allowed only if there is no other feasible alternative.*
    d. *Construction equipment staging and storage areas shall be located outside of the protected areas identified on the tree protection plan and shall be depicted on project plans submitted for issuance of a grading or building permit. No construction equipment shall be parked, stored or operated within the protected area. No fill soil, rocks or construction materials shall be stored or placed within the protected area.*
    e. *All proposed utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are avoided.*
    f. *Any proposed tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the dripline of all protected trees unless specifically authorized.*
    g. *Any encroachment within the dripline of native trees shall adhere to the following standards:*
        (1) Any paving shall be of pervious material (gravel, brick without mortar or turf block).

(2) Any trenching required within the dripline of a protected tree shall be done by hand.

(3) Any roots one inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.

h. All trees located within twenty-five feet of buildings shall be protected from stucco and/or paint during construction.

i. No permanent irrigation shall occur within the dripline of any native tree. Drainage plans shall be designed so that tree trunk areas are properly drained.

j. Only trees designated for removal on the approved tree protection plan shall be removed.

k. Any native trees which are removed, relocated and/or damaged (including any encroachment into the dripline) shall be replaced onsite on a ten to one basis with saplings grown from seed obtained from the same watershed as the project site. Where necessary to remove a tree that is feasible to replant, trees shall be boxed and replanted. A drip irrigation system with a timer shall be installed. Trees shall be planted prior to issuance of occupancy clearance and irrigated and maintained until established (five years). The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing and gopher fencing during the maintenance period. Rodenticides containing any anticoagulant compounds (including, but not limited to, Warfarin, Brodifacoum, Bromadiolone or Diphacinone) shall not be used.

Consistent with these requirements, a Tree Assessment and Protection Plan (TAPP) has been prepared to catalog all existing native trees onsite, identify which ones would be impacted by the project, and to propose appropriate mitigation for those impacts. Specifically, the TAPP identified that 59 specimen trees are currently present onsite, most of which are native to the area, including Coast Live Oak, California Sycamore and Coast Redwood. Of these specimen trees, the proposed project would require the removal of 11 native trees (comprised of nine Coast Live Oak, one Coast Redwood and one California Sycamore) and two other non-native specimen trees. One other Coast Live Oak is proposed to be relocated. 25 additional specimen trees will be impacted by construction activities, although the project has been designed to minimize these impacts and additional mitigation and/or avoidance measures have been recommended in the TAPP. Mitigation plantings (at a 10:1 replacement ratio) are proposed to be located throughout the project for the removed trees. Additional protective measures, as required above or as recommended in the TAPP, will be incorporated into project conditions of approval via the required mitigation measures identified in the Proposed Final MND.

4. *Consistent with its permitted and historic use, the existing stormwater retention basin/drainage pond shall be incorporated into the site development to provide for onsite retention of storm water runoff, infiltration and groundwater recharge and shall be maintained for the life of the project by the homeowners' association. A final drainage plan showing the location and design of the retention basin/drainage pond and site infrastructure shall be submitted to CDD for review and approval. Installation and maintenance for five years shall be ensured through a performance security and long term maintenance requirements shall be specified in the homeowners' association's CC&Rs.*

The proposed plans show the protection and incorporation of the existing pond into the project. The proposed precise grading and drainage plan has been designed so that any stormwater runoff that does not percolate onsite would be directed via drainage swales and/or storm drains to the pond for onsite retention. Requirements for the restoration, enhancement and ongoing maintenance/monitoring of the pond area and surrounding upland habitat is addressed in the Wetland Habitat Enhancement and Monitoring Plan (WHEMP) discussed in more detail under item "5" below. Compliance with the recommendations and measures outlined in the WHEMP is included in the recommended project Conditions of Approval via incorporation of the required mitigation measures identified in the Proposed Final MND. Additional conditions are included requiring the posting of a performance security for the ongoing long-term maintenance of the wetland/pond, and requiring that long-term maintenance responsibilities for the wetland/pond be addressed and assigned in the project CC&Rs.

5. *The applicant shall implement a wetland habitat enhancement and monitoring plan, prepared by a qualified biologist or resource specialist, to restore the onsite pond habitat function and value. The wetland habitat enhancement and monitoring plan shall include specific measures to provide a transitional zone extending beyond the top of the pond bank and surrounding upland area by replanting with compatible native species to increase habitat complexity, species diversity, and improve the functional value of the habitat for native birds and wildlife, and, if necessary, dredging the accumulated silt and debris to restore the pond to its original depth. The wetland habitat enhancement and monitoring plan shall provide for the following:*
    a. *Habitat enhancement and restoration plans for all impacts to wetland and upland habitat areas with details of appropriate replacement/restoration acreage and location including the following:*
        (1) *A site plan of the entire habitat mitigation and restoration area which specifies that new development onsite (except at-grade permeable patios/decks, fencing, and second floor balconies/decks, shall be set back at least thirty-five feet from the retention basin/drainage pond. All wetland/upland areas within the thirty-five-foot setback shall be restored/enhanced to increase their habitat value.*
        (2) *A baseline ecological assessment of existing habitat and buffer area.*
        (3) *Goals, objectives, performance standards and quantifiable success criteria for the site, including specific coverage and health standards for areas to be restored/revegetated, the types, functions and values of habitat to be created, a schedule and procedures for determining when the goals and objectives of the plan have been met.*
        (4) *Details for required site preparation, final design, installation and maintenance schedule and methods to ensure mitigation and restoration efforts achieve the goals and objectives of the plan.*
        (5) *Detailed monitoring program including provisions for a five-year monitoring period, annual monitor reporting and contingency measures should the mitigation/restoration efforts fail to achieve quantitative performance criteria.*
    b. *Recommendations and measures to ensure the level of the pond will not be allowed to drop more than six inches below the elevation of the average water level (defined as the elevation where the surface water area equals four thousand four square feet), to ensure that the hydrological regime will be maintained as necessary to support the restored diversity of self-sufficient species in both the wetland and upland areas.*

c. *Recommendations and measures for maintaining the pond both as a drainage feature and as a functioning habitat meeting the objectives of the wetland restoration plan.*
d. *Landscaping of private yards for residential units located within thirty-five feet of the pond/stormwater detention basin shall be limited to appropriate native plants consistent with the goals and objectives of the wetland mitigation habitat enhancement and monitoring plan for establishing upland habitat in the vicinity of the pond/stormwater detention basin.*
e. *To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be wildlife permeable to small mammals and birds, but shall be designed so as to preclude cats and dogs from entering the pond buffer and surrounding native upland habitat area.*
f. *Implementation of the wetland habitat enhancement and monitoring plan shall be monitored for five years and shall be ensured through a performance security and where such long term maintenance requirements have been fully incorporated within the homeowners' association's CC&Rs to meet and maintain the functions and habitat values outlined in the wetland habitat enhancement and monitoring plan for the life of the project.*

As mentioned previously, a WHEMP has been developed to guide the restoration and enhancement of the onsite pond in a manner that is consistent with the above requirements. This includes draining and re-contouring the pond to increase its volume capacity and re-planting the pond and surrounding upland habitat with a more diverse native plant palette to improve habitat value. Maintenance and monitoring requirements have also been developed and are specified in the WHEMP. The WHEMP identifies performance standards for the restoration and enhancement of the wetland/pond, and reporting requirements for the minimum five-year monitoring phase.

The proposed project site plan and landscape plans have also been coordinated with the WHEMP to conform to the applicable development standards, such as maintaining a minimum 35-foot setback from the wetland/pond for all new buildings, utilizing wildlife permeable fencing for private yard areas around the pond, and landscaping adjacent private yards areas with an appropriate mix of native plantings. Compliance with the recommendations and measures outlined in the WHEMP is included in the recommended project Conditions of Approval via incorporation of the required mitigation measures identified in the Proposed Final MND. Additional conditions are included requiring the posting of a performance security for the ongoing long-term maintenance of the wetland/pond, and requiring that long-term maintenance responsibilities for the wetland/pond be addressed and assigned in the project CC&Rs.

6. *Any new development shall include an onsite permanent biofilter/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professional to ensure that the retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by the city to be infeasible. Invasive plants shall not be used in the biofilter. A biofilter design plan, including the plant palette and the source of*

plant material, on grading and drainage and landscape plans, and a maintenance plan shall be submitted to the city for review and approval as part of any new development project. In addition, as part of any new development project, a performance security to ensure installation and five-year maintenance and long-term maintenance shall be required through the CC&Rs.

The proposed grading, drainage and landscape plans address this requirement. Throughout the project site, permeable paving materials will be used for walkways, driveways, and uncovered parking areas to allow infiltration of runoff. Additionally, landscaped areas adjacent to paved surfaces and structures are designed to collect, treat, and retain runoff. Any overflow would be collected in a series of stormdrains that traverse the property and deposit storm flows into the restored and enhanced wetland/pond for retention. An emergency overflow is provided for the wetland/pond in the event of large storm events exceeding the pond's volume capacity. The overflow would be piped through Cravens Lane and connect to the existing storm drain system near the intersection of Via Real and Cravens Lane. All planting areas, including bioswales, utilize a mix of native and non-invasive drought tolerant plantings. Additional requirements, as needed to comply with this development standard, have been included in the project Conditions of Approval.

Environmentally Sensitive Habitat Area (ESH) Overlay District, CMC §14.42

Current and previous biological assessments of the onsite wetland/pond and native trees found that despite their presence onsite, these resources did not meet CCC criteria for Environmentally Sensitive Habitat due to the generally poor habitat quality provided and lack of sensitive and/or supported species. Nevertheless, coastal wetlands and native trees are still considered important resources that are protected under the CA Coastal Act and the City's certified Local Coastal Program. Thus, while the project is not designed to meet the requirements of the ESH Overlay, the project does meet the project site-specific requirements of the Ellinwood Parcel Overlay district (discussed above), which were developed and adopted by the City and CCC for the redevelopment of this particular property. These measures are intended to protect these important coastal resources, while still accommodating the future redevelopment of the property.

Flood Hazard (FH) Overlay District, CMC §14.40

The eastern portion of the project site is located within the 100-year flood plain (Zone A) according to the current FEMA Flood Insurance Rate Map (FIRM) for the area. Consistent with the City's flood plain requirements, no new construction is proposed within any floodway. Furthermore, the project must either demonstrate compliance with minimum freeboard requirements for conditioned living spaces to be built within the flood zone, or obtain approval of a Conditional Letter of Map Revision (CLOMR) through FEMA by demonstrating that the property should not be located within Zone A pursuant to a site-specific drainage study. Presently, the applicant is working through the requisite CLOMR process with FEMA. The project has been conditioned to require approval of the CLOMR or compliance with the City's standard floodplain requirements (including minimum freeboard requirements), prior to issuance of any grading or building permits for the project.

Coastal Appeals (CA) Overlay District, CMC §14.48

The proposed project requires approval by the City of a discretionary Coastal Development Permit. Due to the Coastal Commission-defined wetland status of the existing onsite pond, the City's final action(s) concerning the Coastal Development Permit for this project are subject to appeal to, or by, the California Coastal Commission.

Carpinteria General Plan/Coastal Plan

The project site has a General Plan/Coastal Land Use Plan designation of Medium Density Residential (MDR). The project site is in Design Sub-area 3 (Santa Monica, Canalino and El Carro Neighborhoods) in the Community Design Element of the City's General Plan/Coastal Plan. The project is subject to the following General Plan/Coastal Plan policies:

Land Use Element

Objective LU-1: *Establish the basis for orderly, well planned urban development while protecting coastal resources and providing for greater access and recreational opportunities for the public.*

Policy LU-1a: *The policies of the Coastal Act (Public Resources Code Section 30210 through 30263) are hereby incorporated by reference (and shall be effective as if included in full herein) as the guiding policies of the land use plan.*

Policy LU-1d: *Ensure that the type, location and intensity of land uses planned adjacent to any parcel designated open space/recreation or agriculture (as shown on Figure LU-1) are compatible with these public resources and will not be detrimental to the resource.*

The proposed project is described as being an environmentally-responsible multifamily residential development that incorporates LEED "gold" design features, protects existing sensitive resources onsite, and provides a significant amount of open space for the benefit of future residents. The project has been designed in terms of layout, density and character to serve as a transitional residential development between the high density, more urban residential developments to the south, and the intensive agricultural operations (greenhouse and packinghouse) to the north and east.

The project has been designed to comply with the property-specific requirements of the Ellinwood Parcel Overlay established by the City and CCC during the original iteration of the Green Heron Spring project. These include providing a minimum 35-foot setback for all buildings from the onsite wetland/pond, minimizing impacts/removals of native specimen trees to the maximum extent feasible, and providing adequate buffers/separation from adjoining agricultural uses. Overall, the current iteration of the project can be found to be largely conforming to the previously-approved Green Heron Spring project in terms of the overall site plan concept and layout, habitat protection measures, and environmentally responsible design features. For these reasons, the project can be found to be consistent with the above Objective and Policies.

Objective LU-2: *Protect the natural environment within and surrounding Carpinteria.*

Policy LU-2a: *Reduce the density or intensity of a particular parcel if warranted by conditions such as topography, geologic or flood hazards, habitat areas or steep slopes. This can be achieved in part*

by establishing an environmentally sensitive area overlay district in the Zoning Ordinance. This overlay district will include maximum density and parcel size criteria for determining the appropriate intensity of these areas.

Policy LU-2b: *Regulate all development, including agriculture, to avoid adverse impacts on habitat resources. Standards for habitat protection are established in the Open Space, Recreation & Conservation Element policies.*

The project site contains an existing manmade wetland/pond and dense stands of native specimen trees, including Coast Live Oak, Sycamore and Redwood. In order to protect these sensitive resources while still allowing for appropriate, future redevelopment of the site, the City and CCC established the Ellinwood Parcel Overlay, which applies specific development standards to this property in order to minimize impacts to the wetland/pond and native trees and require their careful integration into a master-planned multifamily residential concept. As described above under the Zoning Analysis section of this report, the proposed project, which largely conforms to the previously-approved version of this project, can be found to be in compliance with the applicable habitat protection standards of the Ellinwood Parcel Overlay. Therefore, the project is consistent with the above Objective and Policies.

Objective LU-3: *Preserve the small beach town character of the built environment of Carpinteria, encouraging compatible revitalization and avoiding sprawl development at the City's edge.*

Policy LU-3a: *New development shall occur contiguous to existing developed areas of the city. Higher density in certain residential neighborhoods and for residential uses in commercial districts shall be provided as a means to concentrate development in the urban core consistent with zoning designations, particularly where redevelopment of existing structures is proposed.*

Policy LU-3c: *Work cooperatively with the County to strive to achieve a jobs/housing balance in the Carpinteria Valley.*

The project site was previously identified as being an appropriate site for annexation into the City and rezoning to a multifamily residential use to accommodate an infill residential development project in an area bordered by established high density residential uses and intensive agricultural development (e.g., packinghouse and greenhouse). As proposed, the project would provide 29 net new family-sized units, ranging in size from two to four-bedrooms, and including four inclusionary units. These new units would help to contribute to the larger goal of achieving a jobs-housing balance for the South Coast.

Policy LU-3f: *Encourage the remodeling and revitalization of neighborhoods and commercial areas in accordance with principles established in the Community Design Element.*

The project has been reviewed by CDD staff and the City's ARB, and found to conform to the applicable design criteria established in the Community Design Element of the General Plan/Coastal Plan. A more detailed analysis of the project's conformance with these Objectives and Policies is provided later in this report.

Policy LU-3h: *Develop land uses that encourage the thoughtful layout of transportation networks, minimize the impacts of vehicles in the community, and encourage alternative means of transportation.*

The proposed project would utilize the existing driveway location on Cravens Lane as the entrance into the new development. The interior private drive (Green Heron Spring Drive) utilizes a single two-way approach to a one-way loop around a central village green to provide vehicular access to all 31 units within the development, while allowing the bulk of the property to be uninterrupted by roads or driveways. Pedestrian pathways connect the residences to the shared common open spaces areas.

As part of the project, new street and frontage improvements, including widening Cravens Lane to accommodate new sidewalk, bike lane and public parallel parking is required. These improvements will aid residents of the future development by providing safe pedestrian/bicycle access to Via Real, bus stops and nearby commercial uses (such as the neighborhood "Kim's Market").

Policy LU-3l: *Land use designations established on the City's land use map that permit a range of residential densities should not be interpreted to permit development that is incompatible with the existing development pattern in an area. A density within the allowable range that is most compatible with the predominant pattern of development in the area should be used as the guide for determining the appropriateness of the proposed development.*

The original Green Heron Spring project was approved with a residential density of 8.01 dwelling units per acre (du/ac). This density falls within the allowable range for MDR-designated properties (e.g., 4.7 du/ac to 20 du/ac), and is notably less than the approved densities for the adjacent Villas (14.24 du/ac) and Franciscan Village (10.24 du/ac) residential developments. This reduced density was found to be appropriate by the City and CCC for this site, allowing it to function as a transitional land use between the higher density residential developments to the south, and the greenhouse and packing operations to the north and east, and to preserve sufficient space to reasonably protect the onsite wetland/pond and native specimen trees. The proposed project, which includes a total of 31 units on a 3.89-acre property maintains the previously-established density of 8.01 du/ac. Therefore, the project can be found consistent with this Policy.

Policy LU-3n: *Setbacks shall be created between agricultural and urban uses. The responsibility of providing the buffer shall rest with the property intensifying its use. The buffer shall be adequate to prevent impacts to adjacent agricultural production. Such impacts include increased limitations on the use of chemicals and fertilizers and increased conflicts between the urban use and the adjacent agricultural operation.*

The proposed project maintains the same setbacks from the northerly (side) and easterly (rear) property lines as the previously-approved iteration of the project. Individual building setbacks from the northerly side yard range from a minimum of eight feet to upwards of 18 feet. A 36-foot setback is provided for all four of the units that are located adjacent to the property's easterly (rear) boundary. Mitigation measure AG-1 identified in the Proposed Final MND requires the installation of site perimeter walls along property lines adjoining agricultural lands. The proposed plans call for the use of a solid masonry wall for the rear and southerly side property boundaries. In order to minimize potential impacts and conflicts with existing and proposed landscape plantings along the northerly side property line, an alternative solid fencing material with only intermediate posts (as opposed to a continuous footing like a standard block wall) will be used. In addition to the described physical

buffers, mitigation measure AG-2 from the Proposed Final MND requires the recordation of a buyer disclosure statement for each unit within the development informing owners that nuisance complaints resulting from normal agricultural operations will not be treated by the City or County staff as a nuisance activity requiring extraordinary actions by adjacent landowners, their lessees, or City or County staff.

Objective LU-7: *Adopt and amend as necessary a Sphere of Influence that serves to establish the basis for annexation of certain land contiguous to city limits (Figure LU-3).*

Policy LU-7a: *The Sphere of Influence shall be established in support of the urban/rural limit line and in anticipation of annexing identified properties that are either already developed in urban use or meet the strict requirements of the Coastal Act for conversion from agricultural to urban use.*

As summarized elsewhere in this report, the project site was previously identified in the City's Sphere of Influence, and successfully annexed to the City in 2009 and rezoned to multifamily residential land use/zoning designations as part of the original Green Heron Spring project approval. As such, the project is consistent with this Objective and Policy.

Community Design Element

Objective CD-1: *The size, scale and form of buildings, and their placement on a parcel should be compatible with adjacent and nearby properties, and with the dominant neighborhood or district development pattern.*

The project site is located at the northwest corner of the City, immediately adjacent to unincorporated Santa Barbara County agricultural lands to the north and east. To the south of the project site is the Villas and Franciscan Village multifamily residential developments, and to the west, across Cravens Lane is the Sandpiper Mobile Home Park. The previously approved Green Heron Spring project, which the current iteration largely conforms to, was found to be of an appropriate density and layout to function as a transitional development between the more dense residential developments in the City and the surrounding agricultural lands in the unincorporated County. Building layouts, designs, sizes and scale for the current project remain appropriate to the site and surroundings, and serve as a suitable transitional multifamily residential land use.

Objective CD-2: *Architectural designs based on historic regional building types should be encouraged to preserve and enhance the unique character of the city.*

The existing residence (to remain) was originally built in the early 1900s and significantly modified in the 1970s. While it has lost any historical significance it may have once had, it continues to be a charming example of an early 1900s farmhouse. The proposed development would remodel and add on to the residence, and construct 30 new additional units in a multi-family residential setting. The new residences exhibit a more contemporary "coastal farmhouse" aesthetic, however there is enough continuity in materials and treatments between the new and existing residences to infer a coordinated architectural theme for the development based on the rural, farming history of the property and its surroundings.

Objective CD-3: *The design of the community should be consistent with the desire to protect views of the mountains and the sea (California Coastal Act of 1976 §30251).*

The project site is densely vegetated with 59 specimen trees and a large amount of mature shrubs and smaller non-specimen trees. Much of this vegetation is located around the perimeter of the site such that mountain views from Cravens Lane over/through the project site are not easily available.

The proposed project would construct 14 new residential buildings, most of which would be situated around the perimeter of the site. The buildings would range in height from approximately 27 feet eight inches to 30 feet. The buildings located closest to the Cravens Lane right-of-way would be set back a minimum of 12 feet from the property line. Much of the existing mature vegetation around the perimeter of the site is proposed to remain. In light of these design features, it is not expected that the project would significantly alter the availability of mountain views from Cravens Lane. Views of the ocean are not available from this location due to existing development and vegetation.

Objective CD-5: *The streets of neighborhood interiors should be designed to be the "living rooms" of the neighborhood, where children and adults can safely play or walk. The design and details of streets, frontages and buildings should support this objective.*

Policy CD-5a: *Main entrances to homes should be oriented to the street. Entry elements such as porches, stoops, patios and forecourts are encouraged. Such entry elements should be selected for their compatibility with the adjacent houses and the general neighborhood pattern.*

Policy CD-5b: *Garages should not dominate views from any public street.*

Policy CD-5c: *Low walls, low fences and hedges should be encouraged along the frontages to define the edge of the private yard area, where appropriate.*

Policy CD-5d: *Houses within a neighborhood may vary in materials and style, but strong contrasts in scale, color and roof forms should generally be avoided.*

The interior of the project site is designed around a central private loop road, "Green Heron Spring Drive." Individual residential buildings have been designed with decorative entry porches accessed from separated walkways leading from the private drive. Residential garages, which include a mix of one- and two-car bays, are oriented toward the drive, but feature a mix of treatments and are staggered and separated on the larger multifamily townhome buildings to avoid building frontages being dominated by garage doors. Interior fencing within the development is generally low in height and of an open design, with the exception of privacy fencing for private rear yard areas. A cohesive "coastal farmhouse" architecture and complementary suite of color palettes have been developed for all of the new residential buildings. The existing residence to remain would be remodeled to incorporate similar exterior materials and detailing.

Objective CD-6: *Existing transitional neighborhood edges should be maintained and incorporated into new neighborhood designs.*

Objective CD-8: *To encourage and facilitate pedestrian and bicycle pathways.*

Policy CD-8a: *All streets should be designed with safe and pleasant pedestrian ways at their edge. Pedestrian ways shall be spatially separated from vehicular traffic by elements such as trees, other plantings, streetlights, and/or parked cars.*

The project site is located on the edge of the City and is not presently served by sidewalks or bicycle lanes. As part of the project, additional road right-of-way would be granted to the City and improved with a new public sidewalk, parkway, on-street parallel parking and bicycle lane. The parkway, sidewalk and remaining right-of-way between the sidewalk and private property line would be landscaped and improved in a manner that is sensitive and appropriate to the semi-rural character of the area.

Policy CD-9a: *The City shall promote the planting of appropriate street trees in existing and new neighborhoods to define and enhance the city's streetscape.*

Policy CD-9b: *Neighborhood streets should be planted with street trees in parkway strips between the sidewalk and curb. It may be appropriate to plant street trees in easements behind sidewalks. The scale, type and spacing of trees will be selected to provide strong spatial definition of the street, and to frame axial views.*

Policy CD-9c: *In city-edge neighborhoods with rural characteristics, street standards may include roads with gravel shoulders, earthen ditches, picturesque tree plantings, and lot frontages built with low wood or stone fences.*

The proposed interior circulation for the project would be provided by a private 25-foot wide loop drive. A series of meandering walkways through the development would provide pedestrian access to individual units and to common open space areas. A mix of protected, mature native trees (primarily Coast Live Oaks) and new (mostly native and/or fruit) trees would be planted throughout the project site, including along the edges of the private drive and communal walkways. A preliminary planting plan and plant list is provided in the attached plan set.

Objective CD-10: *Areas with attractive frontage designs should be maintained. New development should be carefully planned with frontage areas which maintain and enhance the quality of Carpinteria's streetscape.*

Policy CD-10a: *Minor variations in front yard building alignments within a block are encouraged. Relatively steady setback patterns clearly define the public space of the street and reinforce small town character.*

Policy CD-10b: *Frontages where residential uses abut a major thoroughfare should include buffering elements such as yards, forecourts, courtyards, and tree rows. Sound walls are the most primitive form of buffer and should be used only where other methods are impractical. If sound walls are used they should be attractive and well landscaped.*

Policy CD-10d: *Frontages in city-edge neighborhoods should reflect the rural or semi-rural character of those places by the use of narrow roads detailed in a rural manner. Rural detailing could include unpaved verges, and yards bounded by low fences or native stone walls, and irregular rows of trees historically found in the rural California landscape.*

Presently, the project's street frontage is enclosed by a chain link fence and large, dense vegetation. As part of the project, additional road right-of-way would be granted to the City and improved with, among other elements, a new public sidewalk and bicycle lane. Many of the existing mature, native

specimen trees along the Cravens Lane frontage would be retained and incorporated into the project design to help retain the rural, natural appearance of the site. New fencing along the street frontage would be comprised of a 42-inch high horizontal redwood plank fence. A decorative stone entry monument would bookend the private drive access from Cravens Lane. Residences would be set back a minimum of 12 feet from the property line and oriented such that vehicle access would be on the Cravens Lane side of the buildings, but individual entries and private outdoor living areas would be oriented toward the interior of the development, where they would be further buffered from vehicle activity on Cravens Lane and help to foster a sense of neighborhood within the development.

Objective CD-11: *Existing public spaces should be maintained, and new public spaces should be incorporated into neighborhoods and districts as an important aspect of their design.*

Policy CD-11a: *Open space, in the form of parks and greens should be an integral part of each neighborhood plan, not configured as residual space unusable by the residents.*

Policy CD-11c: *All public spaces and facilities should reflect quality design.*

Policy CD-11d: *Small neighborhood parks and greens (or micro-parks) suitable for unstructured play and relaxation should be provided in each neighborhood. Larger parks should be sited on larger streets along neighborhood edges.*

A major component of the project design is the provision of ample common open space areas throughout the development, including but not limited to, a central village green with outdoor pavilion (equipped with a kitchenette, outdoor grill, fireplace and seating areas), a community garden space, passive seating areas, restoration and enhancement of an onsite wetland/pond and meandering walkways and landscape areas throughout the project interior. The open spaces lend themselves to the semi-natural/rural character of the development and are part of a cohesive design for the development. Overall, more than 1/3 of the site is dedicated to common open space areas.

Objective CD-12: *Development should fit quietly into the area's natural and introduced landscape, deferring to open spaces, existing natural features and native and sensitive habitats.*

Policy CD-12a: *Landscape planning shall be respectful of the natural character of the City and enhance existing native plant communities and environmentally sensitive habitat areas.*

CD-12-Implementation Policy 1: *Use of native, locally adapted species shall be encouraged and shall be required within and adjacent to ESHA.*

Two major element of the project's design are to: 1) preserve and enhance the onsite wetland/pond; and 2) preserve to the maximum extent feasible, existing native specimen trees. New development has been sited with these features in mind. A proposed planting plan has been developed for the project and includes a mix of native and drought tolerant, non-invasive plantings for the entire development. Appropriate plantings are proposed for the restoration area around the pond, and for areas immediately under, or adjacent to, the driplines of sensitive specimen trees. Overall, the planting plan and palette appear to be consistent with these policies.

Objective CD-13: *Ensure that lighting of new development is sensitive to the character and natural resources of the City and minimizes photopollution to the maximum extent feasible.*

Policy CD-13a: *Lighting for development adjacent to an ESHA shall be designed to further minimize potential impacts to habitat.*

Policy CD-13b: *Lighting shall be low intensity and located and designed so as to minimize direct view of light sources and diffusers and to minimize halo and spillover effects.*

A preliminary site lighting plan has been provided and demonstrates that lighting locations and designs have been developed to result in minimal spillover onto adjacent properties or sensitive habitat areas. Site lighting is primarily limited to pole mounted lights along the private road and driveways, and low pedestrian bollard lighting along walkways and common areas. Cut sheets and details for the proposed fixtures are included in Exhibit 4 and appear to be consistent with the City's requirements for hooded, downward-oriented, low intensity lighting. Separate cut sheets for the building mounted lighting have not been provided at this time but have been conditioned to be consistent with these requirements. Said lighting will be reviewed by the ARB as part of final design review.

Objective CD-14: *Protect and preserve natural resources by reducing energy consumption.*

Policy CD-14a: *To ensure the effective utilization of energy resources, design measures shall be incorporated into project design that allow for development projects to comply with and exceed the minimum energy requirements of the City's Uniform Codes.*

CD-14-Implementation Policy 7: *Building orientation shall be designed to maximize natural lighting and passive solar heating and cooling.*

CD-14-Implementation Policy 8: *Landscaping shall be designed to maximize the use of native drought-tolerant species and deciduous trees to shade buildings in summer and allow for passive solar heating in winter.*

CD-14-Implementation Policy 9: *Energy efficient street lighting shall be used, with consideration of safety, visual impacts, and impacts to wildlife and sensitive habitat.*

As required by the Ellinwood Parcel Overlay District, the project has been designed to meet the requirements of the U.S. Green Building Council LEED "gold" rating for residential developments. A number of design features and amenities are incorporated into the project to reach this ranking, and include but are not limited to, clustering development to maximize open space, use of native and drought tolerant landscaping, use of permeable hardscape materials, swales and the onsite wetland/pond for stormwater retention, and use of energy efficient building materials and appliances, including rooftop solar for all units. Additional details concerning the environmentally responsible design features of the project are provided in Exhibits 2 and 5.

Subarea 3 (Santa Monica, Canalino and El Carro Neighborhoods)

Objective CDS3-2: *Preserve and enhance the existing residential neighborhood and ensure that new development enhances the neighborhood character.*

Objective CDS3-3: *Ensure that new development is sensitive to the scale and character of the existing neighborhoods, and consistent with the city's "small beach town" image.*

Policy CDS3-a: *Ensure that new development adjacent to designated city edges, abutting agricultural lands outside the city limits, are designed with rural and semi-rural elements and details, providing an appropriate transition and connection of the town to the countryside.*

Policy CDS3-b: *Enhance the pedestrian character of the neighborhoods' streets, parks and lanes.*

CDS3-Implementation Policy 38: *Residential streets near the town edge should be more rural in character, with unpaved verges and street tree plantings rather than sidewalks and formal rows of trees. These frontages are generally associated with larger residential lots with deep front yards. Fences that define the yard edge while allowing views into the yard are encouraged.*

As described previously, the proposed project is located at the edge of the City and serves as a transitional development between higher density residential uses within the City and agricultural uses outside of the City. The overall project density, layout, design of the buildings and project amenities have been designed with this semi-rural transitional character in mind. Much of the site would be retained in common open space and many of the existing native specimen trees are to be maintained and incorporated into the project design. New complementary landscaping would further enhance the site and support the overall design concept. Internal pedestrian circulation has been largely separated from the private drive that provides vehicle access to individual units. Pedestrian pathways wander through the development to provide access from the individual units to shared common open space amenities.

CDS3-Implementation Policy 39: *New development along the edge of the city should be planned with public circulation routes or open spaces along the urban/rural edge. Streets, linear parks and other public parks are appropriate for this purpose, providing both buffers to the residential uses, and access so that all may enjoy the rural vistas.*

As is typical for larger multifamily PUD developments, the project is designed to be largely oriented toward the interior of the site with vehicle access provided by a shared central loop drive and pedestrian access to units provided via shared communal walkways. The project's Cravens Lane street frontage would be heavily landscaped and feature a low decorative redwood plank fence and stone entry monument. Buildings located closest to the street are generally situated such that their entries and private living areas are somewhat buffered from the street. A portion of the project site would be dedicated to the City as additional road right-of-way and improved with new landscaping, sidewalk, on-street parallel parking and bicycle lanes. These improvements would tie into similar street improvements to the south on Cravens Lane.

CDS3-Implementation Policy 40: *As a part of new development projects, fences fronting on collector and arterial streets shall be decorative and set back sufficiently to provide for landscaping that enhances the street corridor and eliminates potential for the fencing to cause a sight-distance obstruction. Existing wire or wood fencing along arterial streets shall either be replaced to comply*

with the setback and landscaping requirement above, or screened with landscaping (shrubs or vines) where feasible.

CDS3-Implementation Policy 41: *Open wood fences, including split rail and picket types, are appropriate on frontage lines. Solid fences and walls should be limited to side and rear lot lines.*

Sufficient additional right-of-way would be granted to the City such that a landscape buffer area would be planted in between the inside edge of the (new) public sidewalk and the private property line. A low 42-inch high horizontal redwood plank fence would be erected on the property line to define the boundary of the development. A decorative stone entry monument would be constructed around the project's main entry off Cravens Lane.

CDS3-Implementation Policy 43: *Utility hardware, such as water meters and backflow preventers, electrical transformers, and similar devices should be located underground or in parkway strips whenever possible. These elements are not attractive in front yards. Parkway strips can also accommodate fire hydrants, traffic control signs and traffic signal controllers, keeping them away from sidewalks and pedestrians.*

CDS3-Implementation Policy 44: *Community mailboxes should be located in specially designed locations that are comfortable for the user. These locations should be visible from adjacent streets and houses to enhance security.*

All new utilities would be placed underground and located within the central private loop drive. Community mailboxes would be centrally located adjacent to the pavilion in the village green space.

CDS3-Implementation Policy 46: *Front building facades for commercial and multifamily residential buildings should face the street.*

The project layout is oriented such that vehicle access to the individual units' garages are facing the private drive. The main entries to the residences are either set back from the road, or located on a side elevation, and are generally accessed by separated walkway paths. The overall layout of the project is intended to allow pedestrians to move through the property using these walkways that traverse large, communal open space areas. As all building elevations are visible from many of these common areas, all of the building facades have been well articulated and use a variety of materials and colors to create an attractive, pleasant environment.

Circulation Element

Objective C-3: *Provide a balanced transportation network with consistent designations and standards for roadways that will provide for the safe and efficient movement of goods and people through the community.*

Policy C-3c: *Review new development proposals to improve neighborhood circulation patterns and enhance the inter-neighborhood routing characteristics of the city's master plan.*

Policy C-3h: *Require all new projects to demonstrate safe traffic flow integration with the Master Plan of Streets as well as street/drainage improvements function. This shall include construction traffic and the designation of construction routes.*

Implementation Policy 1: *Projects contributing PHT's (peak hour trips) to intersections that operate at an estimated future level of service that is better than LOS C shall be found consistent with this implementation measure unless the project results in a change in V/C (volume/capacity) ratio greater than 0.20 for an intersection operating at LOS A or 0.15 for an intersection operating at LOS B. See Table C-1 for the applicable relationship of LOS to V/C ratio for this and the following measures.*

For intersections operating at an estimated future level of service that is less than or equal to LOS C, a project must meet the following criteria in order to be found consistent with this measure:

a. *For intersections operating at an estimated future LOS C, no project shall result in a change of V/C ratio of greater than 0.10.*
b. *For intersections operating at an estimated future LOS D, no project shall contribute 15 or more PHT's.*
c. *For intersections operating at an estimate future LOS E, no project shall contribute 10 or more PHT's.*
d. *For intersection operating at an estimated future LOS F, no project shall contribute 5 or more PHT's.*

A project-specific traffic study was prepared for the project by Associated Transportation Engineers (ATE) dated May 26, 2017. The study estimates the number of average daily trips (ADTs) associated with the proposed project and distributes them onto area roadways based on expected and observed vehicle travel patterns to determine what, if any, the impacts to area roadways and intersections would be as a result of the proposed project.

Based on the number and mix of unit types, the study anticipates that the project would result in 201 ADTs with 15 vehicle trips occurring during the a.m. peak hour and 19 vehicle trips occurring during the p.m. peak hour. Area roadways (i.e., Cravens Lane and Via Real) were found to have sufficient remaining capacity to accommodate these additional vehicle trips without resulting in any significant traffic impacts. Additionally, the ATE study found that the additional vehicle trips added to area roadway segments and intersections, including the Santa Monica Road/Via Real/U.S. 101 intersection, during both the a.m. and p.m. peak hours, would not exceed the City's traffic impact thresholds. Cumulative traffic impacts for all anticipated projects (including the subject project) were also found to remain below the thresholds for significance.

While the project was not found to result in any significant traffic impacts requiring mitigation, the project would still be required to pay Development Impact Fees to pay for the new units' incremental increased demands on public infrastructure and services, including area roadways, interchanges/ bridges, and traffic facilities.

The project will also dedicate 23 feet of additional road right-of-way to allow for the widening of Cravens Lane. The additional road right-of-way width would allow the extension of sidewalks, bicycle lanes and public on-street parallel parking up to the project site's northerly boundary. The

widening also allows the driveway entrance into the proposed development to have sufficient line of sight up and down Cravens Lane to allow for safe turning movements in/out of the development.

Policy C-7b: *Develop safe and direct pedestrian accessibility between residential areas, schools, parks, and shopping areas in both new and existing urban areas.*

Policy C-7c: *Provide safe mobility for the physically handicapped through the design of street improvements and public facilities.*

Policy C-7e: *Provide continuous sidewalks, where appropriate, for safe pedestrian circulation and consider creative alternatives for such issues.*

Objective C-8: *Support and develop safe, direct and well-maintained bicycle and pedestrian systems and recreational boating facilities that serve all segments of the public.*

Policy C-8b: *Provide adequate right-of-way and improvements for bicycle lanes, when called for in future street dedications.*

As noted above, the additional right-of-way area to be dedicated to the City and improved as part of the project would provide for a new extended public sidewalk and bicycle lanes to the northerly boundary of the proposed project. These improvements would tie into existing street improvements to the south on Cravens Lane and would be designed to comply with current accessibility design standards.

Objective C-9: *Promote the use of public transit systems that provide mobility to all city residents, and reduce automobile congestion within the capabilities of the community.*

Policy C-9g: *Continue cooperation with SBMTD to ensure frequent, predictable, safe and reliable neighborhood shuttle bus service.*

Policy C-9n: *Require new development plans to include significant attention to alternative modes of transportation.*

The new sidewalk and bicycle lane extensions would provide safe pedestrian/cyclist access from the project site to the nearest MTD bus stops on Via Real near the Cravens Lane intersection. Funds from the payment of the City's transportation-related Development Impact Fees for the project could be put toward future improvements to nearby bus stops.

Open Space, Conservation and Recreation Element

Objective OSC-1: *Protect, preserve and enhance local natural resources and habitats.*

Policy OSC-1a: *Protect Environmentally Sensitive Habitat Area(s) (ESHA) from development and maintain them as natural open space or passive recreational areas.*

Policy OSC-1b: *Prohibit activities, including development, that could damage or destroy ESHA.*

OSC-1-Implementation Policy 9: *Prior to issuance of a development permit, all projects shall be found to be in compliance with all applicable habitat protection policies of the General Plan/Local Coastal Plan and implementing policies and regulations of the Coastal Access and Recreation Program, Carpinteria Bluffs Access Recreation Master Open Space Program, and any other implementing plan for these policies that has been certified as an amendment to the City's LCP.*

OSC-1-Implementation Policy 11: *Require City Biologist review and recommendation for all development projects that the Community Development Department has determined have the potential for impacts on ESHA or water quality.*

The project site contains both a manmade wetland/pond and stands of native, mature specimen trees, including both Coast Live Oak and Sycamore. As part of the current iteration of the project, an updated Biological Resources Assessment (BRA) report was prepared. The BRA report found that while wetland habitat and native trees were present, no state- or federal-listed sensitive species were found to be present or expected to be present onsite, outside of the seasonal potential for nesting birds, including raptors. The report also found that the existing wetland and many of the native trees were of limited habitat value in their current degraded condition. Therefore, despite the presence of the wetland/pond and native trees, neither resource meets the CCC or City definition of Environmentally Sensitive Habitat. Nevertheless, these features are still considered important coastal resources that are protected under the CA Coastal Act and the City's Local Coastal Program.

A Tree Assessment and Protection Plan (TAPP) was completed to catalog all existing trees, identify those specimen trees that are proposed to be removed, and where applicable, to outline protective measures necessary for trees to remain but that may be impacted by construction activities. The TAPP concluded that 13 of the 59 existing specimen trees are to be removed, including nine Coast Live Oak, one Sycamore, one Coast Redwood and two additional non-native specimen trees. In addition, all existing non-specimen trees would be removed from the property. Replacement plantings (at a greater than 10:1 replacement ratio, including a mix of one-gallon and larger box replacement plantings) are called for in the Tree Mitigation Plan.

A Wetland Habitat Enhancement and Monitoring Plan (WHEMP) was prepared to guide the restoration, enhancement and long-term monitoring of the onsite wetland/pond. The WHEMP calls for the desilting and re-contouring of the existing pond to increase its capacity, replanting the pond and surrounding upland habitat with a mix of native species to improve habitat value, establishing methods for maintaining minimum sufficient water levels, and establishing criteria for the long-term monitoring and maintenance of the wetland/pond.

The City Biologist has reviewed the project MND and technical appendices, including the BRA, TAPP and WHEMP; provided comments have been incorporated into subsequent iterations of these reports. All aspects of the project affecting these important coastal resources have been designed in conformance with the applicable requirements of the Ellinwood Parcel Overlay district, which was adopted by the City and CCC to establish specific development standards for the future redevelopment of this specific property. The current project design is also generally in conformance with the previously-approved Green Heron Spring project. Therefore, staff believes the project can be found to be consistent with the above OSC Objective and Policies.

Objective OSC-3: *Preserve and restore wetlands such as the Carpinteria Salt Marsh.*

Policy OSC-3c: *Development adjacent to the required buffer around wetlands should not result in adverse impacts including but not limited to sediment, runoff, chemical and fertilizer contamination, noise, light pollution and other disturbances.*

OSC-3-Implementation Policy 12: *Maintain a minimum 100-foot setback/buffer strip in a natural condition along the upland limits of all wetlands. No structures other than those required to support light recreational, scientific and educational uses shall be permitted within the setback, where such structures are consistent with all other wetland development policies and where all feasible measures have been taken to prevent adverse impacts. The minimum setback may be adjusted upward to account for site-specific conditions affecting avoidance of adverse impacts.*

The project site contains a manmade pond constructed by the property owner in 1978 under a Coastal Development Permit issued directly from the CCC. The pond has since been found to qualify as a wetland despite containing only degraded wetland habitat and not supporting any sensitive species; and therefore not meeting the City or CCC definition of ESHA. The wetland/pond is still however, considered an important (and protected) coastal resource. In light of the unique history of the property, including the construction of the pond itself, and the lack of ESH-designated areas associated with the pond, the City and CCC previously adopted a Local Coastal Plan Amendment to create the Ellinwood Parcel Overlay district, which applies exclusively to this property, and provides specific development standards for the redevelopment of this property to ensure the coastal wetland remains protected (and is enhanced) while still accommodating a possible multifamily residential development. The proposed project has been designed to comply with these more specific provisions of the Ellinwood Parcel Overlay district.

Objective OSC-7: *Conserve native plant communities.*

Policy OSC-7a: *Oak trees and oak woodlands, because they are particularly sensitive to environmental conditions, as well as walnut, sycamore, and other native trees, shall be protected through appropriate development standards.*

Policy OSC-7b: *When sites are graded or developed, areas with significant amounts of native vegetation shall be preserved. Structures shall be sited and designed to minimize the impact of grading, paving construction of roads, runoff and erosion on native vegetation. Sensitive resources that exhibit any level of disturbance shall be maintained, and if feasible, restored. New development shall include measures to restore any disturbed or degraded habitat on the project site. Cut and fill slopes and all areas disturbed by construction activities shall be landscaped or revegetated at the completion of grading. Plantings shall be of native, drought-tolerant plant species consistent with the existing native vegetation on the site. Invasive plant species that tend to supplant native species shall be prohibited.*

A Tree Assessment and Protection Plan (TAPP) was completed to catalog all existing trees, identify those specimen trees that are proposed to be removed, and where applicable, to outline mitigation measures necessary for trees to remain but that may be impacted by construction activities. The TAPP also compared the proposed tree impacts for the current project to those anticipated for the previously-approved iteration of the project. The TAPP concluded that 13 of the 59 identified specimen trees are to be removed, including nine Coast Live Oak, one Sycamore, one Coast Redwood and two additional non-native specimen trees. In addition, all existing non-specimen trees

would be removed from the property. To mitigate these impacts, the TAPP calls for the replacement of the 11 native specimen trees at a minimum of a 10:1 replacement ratio. The current Tree Mitigation Plan calls for the planting of 90 one-gallon Coastal Live Oak, one 84-inch box Coast Live Oak, 10 one-gallon Sycamore, 18 24-inch box Sycamore, three 24-inch box Coast Redwood, and 10 24-inch box Western Redbud. The proposed mitigation plantings would more than meet the minimum requirements of the Ellinwood Parcel Overlay.

For existing specimen trees that are to remain, the TAPP identifies which trees have the potential to be impacted by construction activities, and provides recommendations for protective measures to be implemented during the construction phase. Protective measures include, but are not limited to, protective fencing, adjusting grading in/around the tree dripline, installing low gravity walls around trees, and limiting the allowed amount of pruning of existing canopies. All tree work would be supervised by the consulting arborist.

Overall, the current TAPP did a more thorough job of cataloging existing specimen trees (identifying 20 trees not previously disclosed in the previous iteration of the project), while also resulting in the removal of fewer native specimen trees (11 trees total versus 16 trees previously identified in 2005). As such, staff believes the proposed project can be found consistent with the above Objective and Policies.

Objective OSC-9: *Encourage and promote open-field agriculture as an independent, viable industry to meet the needs of present and future populations and to preserve the Carpinteria Valley's rural, open space character.*

OSC-9-Implementation Policy 43: *Develop buffer zones to minimize land use conflicts between agricultural operations and urbanized land uses.*

OSC-9-Implementation Policy 44: *Adopt a Right-to-Farm Ordinance requiring disclosure of agricultural practices to homeowners contiguous to or near farm operations to discourage farm operations complaints. [10-year]*

As describe elsewhere in this report, the project site is located adjacent to the existing agricultural operations (packinghouse and greenhouse) to the north and east. In order to minimize the potential for conflicts between the new residential land use and the existing agricultural operations, the MND identified several required mitigation measures. These measures include constructing a solid fence/wall around the perimeter of the site to separate the new residences from adjoining agricultural operations, and the requirement that an informational "right to farm" Notice be recorded against the title for each of the units of the proposed project informing owners of the existing agricultural operations, and acknowledging that nuisance complaints resulting from ongoing routine agricultural operations will not be considered a public nuisance requiring extraordinary efforts to address on the part of the property owners, their tenants, the City, or the County of Santa Barbara. These mitigation measures are incorporated into the project Conditions of Approval. In addition, physical separation of the new units from the property lines shared with the adjoining agricultural uses have been maintained consistent with those previously approved for this project site. With the successful incorporation of these measures, the project can be found to be consistent with the above Objective and Policies.

Objective OSC-10: *Conserve all water resources, and protect the quality of water.*

Policy OSC-10c: *Degradation of the water quality of groundwater basins, nearby streams or wetlands, or any other waterbody shall not result from development. Pollutants such as sediments, litter, metals, nutrients, chemicals, fuels or other petroleum hydrocarbons, lubricants, raw sewage, organic matter and other harmful waste shall not be discharged into or alongside any waterbody during or after construction.*

OSC-10-Implementation Policy 52: *Ensure that soil erosion and the off-site deposition of soils is not exacerbated through development.*

OSC-10-Implementation Policy 53: *Provide storm drain stenciling and signage for new stormdrain construction in order to discourage dumping into drains. Signs shall be provided at creek public access points to similarly discourage creek dumping.*

OSC-10-Implementation Policy 54: *The City shall adopt and implement a Storm Water Management Plan (SWMP) to minimize the water quality impacts of runoff from development in the City. The City's SWMP shall satisfy the requirements established by EPA's Final Phase II National Pollutant Discharge Elimination System (NPDES) regulations, which will be implemented by the Phase II general permit administered by the Central Coast Regional Water Quality Control Board. The City's SWMP shall, at a minimum, include Best Management Practices (BMPs) in the following categories:*

- *Public Education and Outreach*
- *Public Participation and Involvement*
- *Illicit Discharge Detection and Elimination*
- *Construction Site Runoff Control*
- *Post-Construction Runoff Control*
- *Pollution Prevention and Good Housekeeping in Municipal Operation.*

The proposed project contains a number of design features intended to capture, treat and retain stormwater runoff. These features include use of permeable hardscape materials for the drive aisle, uncovered parking spaces and pedestrian walkways, the utilization of the planting areas adjacent to paved areas and houses to capture, treat and retain runoff, and an integrated stormdrain system that captures overflow runoff and coveys it to the onsite wetland/pond for storage and retention. As designed, the project would comply with the requirements of the Ellinwood Parcel Overlay district, which requires the preservation/enhancement of the pond and its use for stormwater retention, and the use of bioswales/biofilters to treat and capture stormwater runoff. These design features have also been demonstrated to comply with the Post Construction Requirements (PCRs) of the City's Stormwater Management Plan, including a requirement that there be a net reduction in the amount of run-off leaving the site in the post-construction condition for all size storm events up to, and including, a 100-year storm event.

To address temporary construction-related impacts, a number of stormwater best management practices are required through the mitigation measures developed for the project MND, which are in turn, incorporated into the project conditions of approval. These measures include, but are not limited to, preparation and adoption of a Stormwater Pollution Prevention Program (SWPPP),

implementation of erosion control measures and spill/equipment storage containment measures, stenciling all project-related stormdrains, and a requirement that the applicant apply for and obtain any required approvals from the Regional Water Quality Control Board prior to issuance of any permits for construction. With these construction-phase and operational-phase measures adhered to, the project can be found consistent with this Objective and Policies.

Policy OSC-11a: *Carefully review development that will significantly impact air quality.*

Policy OSC-11c: *Promote use of solar heating and energy efficient building design to reduce stationary source emissions.*

Policy OSC-11d: *Encourage the improvement of air quality in the Carpinteria Valley by implementing measures in the South Coast Air Quality Attainment Plan. For air quality enhancement, measures will include but not be limited to, measures to reduce dependence on the automobile and encourage the use of alternative modes of transportation such as buses, bicycles and walking.*

A project-specific air quality and greenhouse gas (GHG) emissions report was prepared to evaluate the project's compliance with local air quality and GHG emissions requirements. The analysis concluded that the operational phase of the project would not result in any exceedances of local air quality standards or conflict with ongoing GHG emissions reduction strategies. Construction design and materials proposed to be included in the project in order to comply with the Ellinwood Parcel Overlay's requirement that the project meet or exceed LEED "gold" residential standards would further reduce long-term air quality and GHG emissions impacts associated with the project. It was also found that by complying with standard construction best management practices (BMPs) related to dust and diesel exhaust controls, temporary construction-phase air quality impacts could be reduced to less than significant levels. Compliance with these BMPs are required mitigation measures in the MND prepared for the project and thereby incorporated into the project Conditions of Approval. Therefore, the project would be consistent with the above Objective and Policies.

Objective OSC-13: *Preserve Carpinteria's visual resources.*

Policy OSC-13g: *Require new development to protect scenic resources by utilizing natural landforms and native vegetation for screening structures, access roads, building foundations, and cut and fill slopes in project design which otherwise complies with visual resources protection policies.*

Policy OSC-13h: *Plans for development shall minimize cut and fill operations. Plans that do not minimize cut and fill shall be denied.*

Policy OSC-13i: *Design all new development to fit the site topography, soils, geology, hydrology, and other existing conditions and be oriented so that grading and other site preparation is kept to an absolute minimum. Preserve all natural landforms, natural drainage systems, and native vegetation. Require all areas on the site not suited to development, as evidenced by competent soils, geology and hydrology investigation and reports remain as open space.*

The project site slopes gently from the northeast to the southwest, and is presently heavily vegetated with dense stands of mature trees, particularly around the perimeter of the property. The proposed project would retain many of the mature specimen trees and plant over 100 new trees as required

mitigation for native specimen trees that must be removed to accommodate the project. Site grading only to create level building pads and direct flows toward the onsite pond for retention, is proposed, with an estimated 1,348 cubic yards (cy) of cut and 2,916 cy of fill. The project layout and density has been designed to maintain a maximum amount of open space, and to preserve as many of the existing specimen trees as possible. The overall size, scale and character of the proposed residential buildings would be comparable to the multifamily residential developments to the south (e.g., the Villas and Franciscan Village), but at a lower overall density. The proposed architectural style and colors/materials were selected for their ability to blend into the surroundings and lend themselves to the semi-rural character of the area. The project has been reviewed by the ARB and recommended for preliminary approval with only minor comments for adjustments to the design.

Objective OSC-14: *Provide for adequate park and recreation facilities to meet the needs of the community and visitors.*

Policy OSC-14b: *Provide for passive recreation uses of natural open space areas, such as along creeks and the Bluffs 1 areas, where such uses would not damage the resources being protected.*

The proposed project includes the provision of a number of common open spaces areas for the benefit of the project's future residents. These amenities include a central village green space with pavilion (including an outdoor kitchen, grills, seating and fireplace feature), community garden space (including edible fruit trees), an additional passive seating area in the northeast corner of the project site, and a restored onsite wetland/pond that will include a walkway and passive seating areas around its perimeter. These spaces have been designed to provide attractive, high quality communal open spaces for residents of the development, while also being sensitive to the onsite native stands of trees, and the restored/enhanced wetland/pond feature.

In addition to providing the onsite private recreational amenities, the project is required to pay Development Impact Fees for the 29 new net units. Included within the City's DIF Program are fee categories for public parkland acquisition, park facilities, and aquatics facilities. The collected fees would go towards future parkland improvements that serve new and existing residents of the City.

Objective OSC-16: *Preserve Carpinteria's cultural resources.*

Policy OSC-16a: *Carefully review any development that may disturb important archaeological or historically valuable sites.*

OSC-16-Implementation Policy 76: *Review all proposals for development in or adjacent to cultural resource areas for their potential to impact the resource. Give special consideration to development of facilities that enhance the cooperation, enjoyment or maintenance of these areas.*

Project-specific Phase I Historic Resources and Archaeological Investigation reports were completed for the project site. The Historic Resources report concluded that despite the advanced age and history of the existing residence, it had been significantly modified over the years such that it no longer retained sufficient integrity to qualify as a historic resource at the local, state, or national levels. None of the other structures existing on site were found to have any historic merit. Nevertheless, the existing primary residence will be retained, remodeled and incorporated into the proposed project.

The Phase I archaeological investigation failed to find any notable evidence of past Native American occupation, and concluded that if any cultural resources were present, they would have likely been previously disturbed due to the site's developed status and past history of agricultural practices. Nevertheless, as there remains the possibility for undiscovered archaeological resources to be present, the City's standard construction activity discovery measure was adopted as a required mitigation measure in the project MND and thereby incorporated into the project Conditions of Approval.

Safety Element

Objective S-1: *Minimize the potential risks and reduce the loss of life, property and the economic and social dislocations resulting from fault surface rupture in the planning area, from ground shaking due to an earthquake along a fault in the planning area or in the region, from seismically-induced liquefaction in the planning area, and from seismically-induced tsunamis.*

Policy S-1a: *Seismic design criteria for habitable building structures, including critical facilities, should utilize the maximum credible earthquake calculated for each of the faults mentioned above, as well as the distance from the building site to each fault, to calculate or determine maximum ground acceleration.*

Policy S-1c: *Development in areas identified as having high seismically-induced liquefaction potential shall follow structural engineering foundation design parameters outlined in the Uniform Building Code or obtained through an independent structural engineering study.*

S-1-Implementation Policy 2: *Site specific geotechnical studies are required to more accurately determine the potential for liquefaction. These studies shall be performed prior to new construction and for the retrofit of critical facilities. The studies should include site-specific depth to groundwater and soil composition. Areas having liquefiable sediments should be identified, and structures should be designed to withstand liquefaction.*

A 2005 project-specific geotechnical engineering report and subsequent update in 2017 were prepared for the project by Earth Systems Southern California. The reports found that existing soils fall within the "low" expansion range. Liquefaction analysis predicts there would be no ground damage, but that there is the potential for differential settlement. In order to minimize impacts to the buildings resulting from seismic activity, the project MND requires construction and grading to be completed in compliance with all recommendations outlined in the 2005 and 2017 update reports.

Objective S-3: *Minimize the potential risks and reduce the loss of property and the economic and social dislocations resulting from expansive soils, soil settlement, subsidence, and hydrocompaction.*

Policy S-3b: *All new development will comply with the Uniform Building Code, local City building ordinances, and geotechnical recommendations related to construction in areas identified as having a high potential for expansive soils or soil settlement.*

S-3-Implementation Policy 7: *Geotechnical investigations shall be performed on properties proposed to be developed in areas identified as having high potential for expansive soils or soil settlement.*

S-3-Implementation Policy 8: *Foundation recommendations made by a geotechnical engineer, based on field and laboratory testing and observations, shall be incorporated into the design of any proposed buildings in areas identified as having a high potential for expansive soils or soil settlement.*

Similar to the discussion above for seismically-induced liquefaction, the project MND requires compliance with the recommendations of the 2005 geotechnical engineering report and subsequent 2017 update. Compliance with the findings of the reports during grading and construction would reduce the potential for building damage due to expansive soils.

Objective S-4: *Minimize the potential risks and reduce the loss of life, property and the economic and social dislocations resulting from flooding.*

Policy S-4a: *All new development proposed in the 100-year floodplain must adhere to the County of Santa Barbara Floodplain Management Ordinance, Chapter 15-A of the County Code.*

Policy S-4c: *Setbacks from flood control channels, as determined by the Santa Barbara County Flood Control District, will be required to allow access to maintain and enable proper operation of the channels.*

Policy S-4d: *The City should conduct a floodplain study for the west end of the planning area and confer with FEMA in an attempt to update the 100- and 500-year flood zones in that area.*

S-4-Implementation Policy 10: *Compliance with the City's Floodplain Management Measures will be required prior to issuance of building permits for any type of individual development project proposed in the 100-year floodplain.*

S-4-Implementation Policy 11: *All subdivision projects proposed in the 100-year floodplain must be reviewed by the Santa Barbara County Flood Control District prior to the issuance of grading and/or building permits.*

The eastern half of the project is located within the 100-year floodplain (Zone A) according to the current FEMA Flood Insurance Rate Map for the area. The flood zone for this area is associated with a historic drainage pattern whereby stormflows from the foothills north of the project site sheet flow in a southerly direction toward the Carpinteria Salt Marsh. Various flood control facilities including the "Franciscan Debris Basin" and "Kim's Drain" have been constructed in the area over the years to help capture sediments and curb flood flows. A concrete-lined channel runs parallel to the project site's rear property line connecting the above-named flood control facilities.

The applicants are pursuing a Conditional Letter of Map Revision (CLOMR) from FEMA to remove the subject property from the 100-year floodplain. The effort, if successful, requires demonstrating through detailed modeling of the affected watershed, that the project site would not be impacted in the event of a 100-year storm event. If successful, the CLOMR would remove the Zone A designation from the subject property. Otherwise, the units that would be located within the flood zone would need to be designed to meet the City's current floodplain requirements. A mitigation measure is included in the MND, which requires that the applicants either: 1) provide proof of an approved CLOMR from FEMA prior to issuance of grading permits; or 2) design the project to comply with the

City's current floodplain requirements. This measure has been incorporated into the project Conditions of Approval.

Objective S-5: *Minimize the potential risks and reduce the loss of life, property and economic and social dislocation resulting from urban and wildland fires.*

Policy S-5a: *All new structures must adhere to the Carpinteria-Summerland Fire Protection District Ordinance and the Santa Barbara County Fire Department Ordinances, where applicable.*

Policy S-5b: *All new structures, whether within or outside the urban limit zone, must adhere to the city Fire Sprinkler Ordinance.*

Policy S-5c: *Roads shall be installed or improved to the standards specified in the County of Santa Barbara Private Road and Driveway Standard, Section 8 of the County of Santa Barbara Municipal Code.*

S-5-Implementation Policy 17: *Prior to construction of new developments, applicants must submit plans to the Carpinteria-Summerland Fire Protection District.*

S-5-Implementation Policy 18: *The Carpinteria-Summerland Fire Protection District should be consulted when new development or redevelopment plans are being considered, or when code violation or code enforcement issues arise.*

The project site is located in a "Non- Very High Fire Hazard Severity Zone" area according to Santa Barbara County's most recent Fire Severity Zone Map, and is not located in close proximity to wildlands.

The project has been reviewed and conditionally approved by the Carpinteria-Summerland Fire Protection District. This includes review and approval in concept of the private road serving the proposed development, the secondary gated emergency access to the private drive immediately south of the project site, and the placement/location of new fire hydrants within and around the development. Additionally, all new residences will be outfitted with a fire sprinkler system. The project has been conditioned to require the developer to secure a permanent easement for the emergency access gate and use of the private drive south of the project site as a secondary emergency access. As such, the project can be found to be consistent with these measures.

Objective S-6: *Minimize the potential risks and reduce the loss of life, property and the economic and social dislocations resulting from hazardous materials accidents at large industrial facilities, at facilities handling acutely hazardous materials, and along transportation corridors.*

Policy S-6d: *The City shall support protective measures against the spillage of hazardous materials, including crude oil, gas and petroleum products, and shall support effective containment and cleanup facilities and procedures for accidental spills that occur.*

S-6-Implementation Policy 23: *New residences shall not be located adjacent to known handlers of acutely hazardous materials. Further, prior to development of any site identified as having been used for the storage of hazardous materials or activities involving the use of hazardous materials, the city shall require the developer to submit documentation sufficient to demonstrate that testing has been*

conducted as necessary to determine the existence and extent of soil and/or groundwater contamination and that based on the results of said testing an appropriate clean-up program is established and completed.

Soil samples collected in and around the existing barn on the property back in 2007 found limited evidence of soils contaminated with lead, petroleum hydrocarbons and dieldrin (a type of insecticide). The contamination levels did not exceed State or Federal screening levels, but did exceed Santa Barbara County investigation levels and residential cleanup goals. It is believed the contamination stems from the parking of vehicles/tractors and storage of chemicals in the barn, associated with the historic agricultural operations on the property.

More recently in 2017, the property owner has worked with the County's Hazardous Materials Site Mitigation Unit (SMU) to draft and approve a Soil Sampling Work Plan, which will guide efforts to determine the lateral and vertical extent of the contaminants previously identified onsite. Once this effort is completed, a remediation plan for the proper clean-up and removal of the contaminated soils can be executed. A mitigation measure is included in the project MND and thereby incorporated into the project Conditions of Approval, which requires that evidence of required remediation and case closure by SMU be submitted to the City prior to issuance of any grading permits.

Noise Element

Objective N-1: *The City will minimize noise impacts of Highway 101 traffic on residential and other sensitive land uses.*

Objective N-3: *The City will minimize the adverse effects of traffic generated noise from City streets on residential and other sensitive land uses.*

N-3-Implementation Policy 1: *The City will use the land use/noise compatibility matrix shown on Figure N-3 to determine the appropriateness of land uses relative to roadway noise.*

N-3-Implementation Policy 2: *An acoustical study showing the ability to meet state noise insulation standards will be required for any development proposed in an area where noise exceeds the "normally acceptable" level shown on Figure N-3.*

N-3-Implementation Policy 3: *The City will enforce the California Noise Insulation Standards (Title 25 California Administrative Code) to ensure an acceptable interior noise level of 45 CNEL in habitable rooms.*

A site specific acoustical study performed for the project confirmed that the project site is located in an area defined as being conditionally acceptable for multifamily residential uses pursuant to the City's land use/noise compatibility matrix. Based on noise measurement samples taken at the project site, the attenuation of ambient noise over distance, and accounting for modern construction techniques and materials, the acoustical study confirmed that both outdoor and indoor living areas would comply with their respective noise thresholds. Ambient noise levels would be further reduced from adjacent agricultural operations and truck traffic through the use of solid fences/walls around the perimeter of the project site. Similarly, the proposed project would not create a significant source of, or types of, noise, including that affiliated with vehicle traffic, that would result in new significant noise impacts for existing residential developments in the area.

Objective N-4: *Minimize noise spillover from industrial operations into adjacent residential neighborhoods and other sensitive uses.*

Policy N-4d: *The City will work with the agricultural industry and County government to address conflicts on a case-by-case basis and develop noise mitigation as practicable.*

The adjacent greenhouse and packing house business (Westland Floral Company, Inc.) operates under a Conditional Use Permit issued by the County of Santa Barbara in 1990 (89-CP-51). The CUP required certain measures to be implemented to limit the potential for noise impacts on nearby residences, including limiting the hours of use for the outdoor loading docks, a requirement that refrigeration units on all operators' trucks be shut down upon entering the property, and that there be no audible radio noise, loudspeakers, or other unnecessary noise from the packinghouse facility.

Nevertheless, the potential for noise conflicts between the existing agricultural operations and new residential uses remains. Therefore, to further address these concerns, the project MND requires the construction of a permanent separation (i.e., fence/wall) around the perimeter of the project site to further attenuate noise impacts to residents. Additionally, a "right to farm" notice is required to be recorded against the title for each individual units notifying owners of the existing agricultural operations and their ability to continue with routine agricultural operations without rising to the level of being deemed a public nuisance requiring further action by the City, County, property owner(s), or their tenant(s).

Objective N-5: *The City will minimize the effects of nuisance noise effects on sensitive land uses.*

Policy N-5b: *The City will require that construction activities adjacent to sensitive noise receptors be limited as necessary to prevent adverse noise impacts.*

Policy N-5c: *The City will require that construction activities employ techniques that minimize the noise impacts on adjacent uses.*

The project specific acoustical study found the potential for short-term, temporary construction impacts to periodically exceed City noise thresholds, particularly for those residences located in closest proximity to the project site. To address these impacts, the MND prescribes a number of required mitigation measures, including limiting construction hours to Monday through Friday from 7:00 a.m. to 5:00 p.m., installing a sound curtain along the southern property line boundary to be maintained throughout construction activities, ensuring all construction equipment is properly maintained and outfitted with appropriate noise reduction equipment (e.g., mufflers, shrouds, etc.), limiting vehicle idling to no more than five minutes when not in use, requiring loud stationary equipment to be located and buffered so as to not constitute a nuisance, limiting the volume of workers' radios so as to not be audible offsite, and assigning a noise disturbance coordinator responsible for responding to, and addressing, noise complaints. With the incorporation of these measures, the project can be found consistent with the above Objective and Policies.

Public Facilities and Services Element

Objective PF-5: *To provide a high quality and broad range of public services, facilities and utilities to meet the needs of all present and future residents of the Carpinteria Planning Area.*

Policy PF-5b: *The City will require proposed new developments to pay a fair share of the cost of needed public facilities and services. Further, in areas of the city designated for non-residential use but where residential use may be permitted, the City shall monitor total residential development and report annually to the School, Fire, Water and Sanitary districts to permit proper facilities planning by these special districts.*

Policy PF-5c: *The City will ensure that new development will not adversely impact services and facilities provided to existing development.*

Policy PF-5k: *The City shall require proposed developments to demonstrate that adequate water supply, water systems and sewer facilities are or will be available to serve the project site.*

The proposed project has been reviewed by the pertinent Special Districts and City Departments to ensure compliance with all standards for new development are met. As part of the project, the developer will be installing a new sewer main extension and lateral(s), water main extension, new meters and laterals, new underground utilities, and new underground storm drainage facilities. The project also includes dedication of right-of-way and frontage improvements for the widening of Cravens Lane. All service providers have indicated an ability to serve the new project without adversely affecting existing development. In addition to the physical improvements required of the project, the project would be required to pay Development Impact Fees (DIFs) and similar mitigation fees to the City and affected Special Districts to offset the impacts and demands of new residential development on public infrastructure improvements. The project DIFs and some of the Special District mitigation fees are estimated below in Section VI, Development Impact Fees.

Objective PF-6: *To ensure that new development is adequately served by utilities and does not impact existing service areas in the community.*

Policy PF-6b: *Development projects shall not result in a quantifiable reduction in the level of public services provided to existing development, nor shall new development increase the cost of public services provided to existing development.*

Policy PF-6c: *Development projects within Carpinteria shall be required to:*

1. *Construct and/or pay for the new on-site capital improvements that are required to support the project;*
2. *Ensure that all new off-site capital improvements that are required by the project are available prior to certificate of occupancy;*
3. *Be phased so as to ensure that the capital facilities that will be used by the new development are available prior to certificates of occupancy;*
4. *Ensure that, in the event that public services or off-site capital facilities are impacted prior to development, the level of service provided to existing development will not be further impacted by the new development; and*
5. *Provide for the provision of public services, and shall not increase the cost of public services provided to existing development.*

As discussed above, the project has been reviewed by the pertinent service providers, all of whom indicated sufficient capacity to serve the proposed development without impacts to the quality or levels of services provided to existing service areas. Also noted previously, the project

includes extension of, and installation of, underground utility infrastructure up to, and within, the project site in order to serve the proposed development. All of these improvement costs are borne by the developer, and said improvements are required to be completed and operational prior to issuance of certificate of occupancy for any of the units.

VI. DEVELOPMENT IMPACT FEES

A series of ordinances and resolutions adopted by the City Council require the payment of various development impact fees. If the project were approved as submitted, it would be subject to the fees as shown in the following table. The amounts shown are estimates only. The actual amounts will be calculated in accordance with the fee resolutions in effect when the fees are paid. The Fees are updated annually in July.[2]

The developer of a project that is required to pay development impact fees may apply to the City Council for a reduction, adjustment or waiver of any of those fees based on the absence of any reasonable relationship or nexus between the impacts of the proposed development and either the amount of the fee(s) charged or the type of facilities to be financed. The application must be in writing and must be submitted to the city clerk either ten days prior to the public hearing on the development permit for the project, or if no development permit is required, at the time of building permit application.

Estimated Development Impact Fees as of October 31, 2017

The following is an estimate for 6 net new single family residences & 23 multifamily residences.

Fee Type	Fee Per Unit Unless noted otherwise	Total Fee
Streets and Thoroughfares	$559.71 (x 6 SFDs) $367.65 (x 23 MFDs)	$11,814.21
Highway Interchanges & Bridges	$4,737.97 (x 6 SFDs) $3,112.20 (x 23 MFDs)	$100,008.42
Traffic Control Facilities	$885.67 (x 6 SFDs) $581.76 (x 23 MFDs)	$18,964.50
General Facilities & Equipment	$1,786.75 (x 6 SFDs) $1,351.09 (x 23 MFDs)	$41,795.57
Storm Drainage Facilities	$10,754.61/acre (x 3.89 ac)	$41,835.43
Parkland Acquisition Fees	$13,991.59 (x 6 SFDs) $10,580.06 (x 23 MFDs)	$327,290.92
Parks and Recreational Facilities	$5,324.39 (x 6 SFDs) $4,026.16 (x 23 MFDs)	$124,548.02
Aquatics Facilities	$477.59 (x 6 SFDs) $361.15 (x 23 MFDs)	$11,171.99
TOTAL		**$677,159**

[2] The Vesting Tentative Tract Map (VTTM) previously approved for the Green Heron Spring project remains valid and in effect as a result of automatic time extensions granted to approved Tentative Maps by the State Legislature. The valid VTTM vests the project to, among other things, the City's Development Impact Fee Program that was in place at the time of the original VTTM approval. The fee estimates shown in the DIF table in this section reflect the same DIF program fees previously attributed to the project, adjusted by the requisite annual inflation indices.

Other Estimated Fees

Fee Type	Fee Per Unit Unless noted otherwise	Total Fee
Carp.-Summerland Fire District Fire Protection Certificate Mitigation Fee	 $205.00 (x 31 units) TBD	$6,355.00
Carpinteria Sanitary District Plan Check Fees ($300.00 + 1.5% of project cost) Permit Fees Project Inspection Fees (3.5% estimated cost) Development Impact Fees	 $2,212.00 $25.00 $4,462.00 $4,600.00 (x 31 units)	$149,299.00
Carpinteria Water District Main Line Extension Agreement Capital Cost Recovery Fees	 $TBD $TBD	$TBD
School District	$2.05/ habitable sq. ft. (54,410 sq. ft.) $0.33/ non- habitable sq. ft. (12,003 sq. ft.)	$115,501.49
New Construction Tax	$500.00	N/A
Landscape Bond	$500.00 or $0.03/sq. ft.	$2,500.00
TOTAL		**$273,655.49**

VII. ACTION OPTIONS

1. Adopt Resolution PC-17-15, thereby accepting the project-specific Mitigated Negative Declaration prepared for the project, approving Project 16-1840-DP/CDP to allow construction of the 31-unit Green Heron Spring multifamily residential development, and adopting the Findings in Exhibit 1, Attachment A and Conditions of Approval as proposed in Exhibit 1, Attachment C. (staff's recommendation)

2. Direct the applicant to prepare project revisions and return to the next Commission meeting.

3. Conceptually deny the project as proposed. Direct staff to return with findings for denial to the Planning Commission's next meeting.

VIII. ATTACHMENTS

Exhibit 1 Resolution PC-17-15
- Attachment A – Findings for Approval
- Attachment B – Preliminary Plans
- Attachment C – Recommended Conditions of Approval

Exhibit 2 Project Description Letter prepared by Applicant

Exhibit 3 Story Pole Photographs

Exhibit 4 Color & Materials, and Light Standards

Exhibit 5 U.S. Green Building Council LEED "Gold" Point Summary

Exhibit 6 March 16, 2017 ARB Concept Review Meeting Minutes

Exhibit 7 August 31, 2017 ARB Preliminary Review Meeting Minutes

Exhibit 8 Revisions to Plans in Response to ARB Comments prepared by Architect

Exhibit 9 Proposed Final Mitigated Negative Declaration (MND)

Exhibit 1
Resolution PC-17-015

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

RESOLUTION NO. PC-17-015

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF CARPINTERIA APPROVING DEVELOPMENT PLAN AND COASTAL DEVELOPMENT PERMIT 16-1840-DP/CDP TO CONSTRUCT THE 31-UNIT GREEN HERON SPRING MULTIFAMILY RESIDENTIAL DEVELOPMENT LOCATED AT 1300 CRAVENS LANE (APN 004-013-026).

REQUESTED BY SCOTT DINOVITZ, CRAVENS LANE, LLC

WHEREAS, the City of Carpinteria City Council previously approved in 2009 a Development Plan, Coastal Development Permit, Rezone, General Plan/Local Coastal Plan Amendment and Vesting Tentative Tract Map for Project 05-1239-DP/VTTM/GPA/LCPA/RZ/CDP to annex the subject property into the City of Carpinteria, rezone the property to Planned Unit Development (PUD), adopt a General Plan/Local Coastal Plan Amendment to establish the Ellinwood Parcel Overlay, allow the construction of the 31-unit Green Heron Spring multifamily residential development, and subdivide the property for condominium purposes; and

WHEREAS, subsequent to an approved project revision in 2010 and granted three-year time extension in 2012, the Development Plan and Coastal Development Permit entitlements for the original Green Heron Spring project expired in 2015 prior to acceptance and recordation of the Final Map, or initiation of substantial physical construction; and

WHEREAS, the previously approved Annexation, Rezone, General Plan/Local Coastal Plan Amendment and Vesting Tentative Tract Map approvals granted to the original project remain valid and in full effect; and

WHEREAS, the Planning Commission of the City of Carpinteria has considered an application for a Development Plan and Coastal Development Permit to allow an updated version of the 31-unit Green Heron Spring multifamily residential project, filed by Nancy Johns, Wildflower Development Services on behalf of Scott Dinovitz, Cravens Lane, LLC on August 24, 2016; and

WHEREAS, the application was subsequently deemed complete and accepted by the City as being consistent with the applicable submittal requirements on August 28, 2017; and

WHEREAS, the Carpinteria Architectural Review Board has considered the proposed project on August 31, 2017 and recommended preliminary; and

WHEREAS, the Planning Commission has conducted a noticed public hearing and

received evidence regarding the application for the Development Plan and Coastal Development Permit; and

WHEREAS, in accordance with the California Environmental Quality Act (CEQA), a Mitigated Negative Declaration (MND) dated October 2017 has been prepared for the project and has been noticed and subject to public review as required under CEQA; and

WHEREAS, the Planning Commission has reviewed the policies of the General Plan/Coastal Plan and the Zoning Code standards that are relevant to the project.

NOW, THEREFORE, THE PLANNING COMMISSION HEREBY RESOLVES AS FOLLOWS:

1. The Development Plan and Coastal Development Permit are approved making the findings outlined in Attachment A.

2. The Development Plan and Coastal Development Permit consistent with the plans shown in Attachment B are approved subject to the conditions of approval set forth in Attachment C.

PASSED, APPROVED AND ADOPTED this 6th day of November 2017, by the following vote:

AYES: **COMMISSIONERS:**

NOES: **COMMISSIONER(S):**

ABSENT: **COMMISSIONER(S):**

ABSTAIN: **COMMISSIONER(S):**

_____
John Callender, Chair

ATTEST:

_____
Steve Goggia, Secretary

I hereby certify that the foregoing Resolution was duly and regularly introduced and adopted at a regular meeting of the Planning Commission of the City of Carpinteria held the 6th day of November 2017.

Exhibit 1
Attachment A: Findings for Approval

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

ATTACHMENT A: FINDINGS

PLANNING COMMISSION HEARING
PROJECT 16-1840-DP/CDP
NOVEMBER 6, 2017

GREEN HERON SPRING
MULTIFAMILY RESIDENTIAL DEVELOPMENT

FINDINGS PURSUANT TO GOVERNMENT CODE, LOCAL COASTAL PLAN, GENERAL PLAN, AND TITLE 14 OF THE CARPINTERIA MUNICIPAL CODE

1.0 Administrative Findings

The Planning Commission hereby incorporates by reference as though set forth in full all Community Development Department staff reports and attachments thereto presented to the Planning Commission and all comments made or received either orally or in writing at the public hearings on this project.

1.1 Procedures

Pursuant to the California Coastal Act, the Administrative Regulations of the California Coastal Commission and the City's Local Coastal Program, it has been found that the process for public review of the subject Local Coastal Development Permit has been properly conducted as follows:

a. An application for a Development Plan and Coastal Development Permit was submitted on August 24, 2016, and deemed complete and accepted by the City as being consistent with the applicable submittal requirements on August 28, 2017. Said application and all related material have been available for public review at City offices since the date of submittal.

b. The application has been evaluated and found to conform to the applicable zone district and to be consistent with the City's Local Coastal Program Land Use Plan, the Interpretive Guidelines of the Coastal Commission and the California Coastal Act.

c. The project has been reviewed by the City's Architectural Review Board at a duly noticed public hearing which included, but is not limited to, mailed notice to all property owners within 300 feet of the subject property and residents within 100 feet of the property.

d. The project has been reviewed by the City's Planning Commission at a duly noticed public hearing which included, but is not limited to, mailed notice to all property owners within 300 feet of the subject property, residents within 100 feet of the property and publication in the local newspaper, the Coastal View News.

1.2 California Environmental Quality Act

California Environmental Quality Act (CEQA) findings pursuant to CEQA (California Public Resources Code Sections 21081, 21081.6) and State CEQA Guidelines (California Code of Regulations Sections 15091, 15096, 15097, 15162, 15164):

a. The Mitigated Negative Declaration dated October 2017 was presented to the Planning Commission and all voting members of the Commission have reviewed and considered the MND prior to approving this project. The MND reflects the independent judgment of the Planning Commission and is adequate for this proposed project.

b. The Planning Commission finds and certifies that the MND dated October 2017 constitutes a complete, accurate, adequate and good faith effort at full disclosure under CEQA. The Planning Commission further finds and certifies that the MND has been completed in compliance with CEQA.

c. The documents and other materials which constitute the record of proceeding upon which this decision is based are in the custody of the Planning Commission Secretary located at 5775 Carpinteria Ave, Carpinteria, CA.

d. Adoption of Environmental Reporting and Monitoring Program. The project description, and conditions of approval, with their corresponding permit monitoring requirements, are hereby adopted as the monitoring program for this project to ensure compliance during project implementation.

e. Design features incorporated as part of the project description and mitigation measures applied as conditions of project approval would result in the avoidance or reduction to insignificant levels the following environmental impacts identified in the MND. These findings are supported by substantial evidence in the record, including the MND dated October 2017, and associated appendix materials. The MND identified the potential for Class II, significant but mitigable impacts in the areas of Aesthetics, Agricultural Resources, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Tribal Cultural Resources.

    i. Aesthetics/Visual Resources: The project would result in the removal of 13 identified specimen trees and several existing buildings including one residence and a barn from the site; new construction would add 30 new residences (29 net)

to the project site, altering the rural, largely undeveloped character of the lot as viewed from adjacent properties and the Cravens Lane public right-of-way resulting in a potentially significant impact. New exterior lighting associated with the project may increase nighttime illumination levels in the area which may also contribute to more a more urban appearance.

With the incorporation of the identified mitigation measures as project conditions of approval, all impacts would be reduced to a less than significant level. Measure Aest-1 requires the design, scale and character of the project architecture to be compatible and blend harmoniously with vicinity development, that existing beneficial screening be maintained, and that the project be reviewed and approved by the City's Architectural Review Board. Measure Aest-2 requires the use of natural building materials and colors compatible with surrounding terrain. Measure Aest-3 requires the removal of all excess construction debris. Measure Aest-4 explicitly specifies that no signs are approved as part of the project and any future signage requires its own Sign Permit. Measure Aest-5 requires any exterior night lighting to be low intensity, low glare design, minimum height, hooded and directed downward onto the project site to prevent spill-over, and designed in compliance with the requirements of the Ellinwood Parcel Overlay District.

ii. Agricultural Resources: The project site is no longer zoned, or used, for agricultural purposes; the site is however located immediately adjacent to properties located outside of the City of Carpinteria that are still used and zoned for agricultural operations. The construction and occupation of a 31-unit multifamily residential development in proximity to existing agricultural operations could result in nuisance impacts resulting from the types of activities typically associated with agricultural operations (noise, dust, odors, light, etc.). Ongoing conflicts between such land uses, if not addressed, could interfere with or disrupt the viability of the adjacent agricultural operations. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use.

Potential project impacts associated with agricultural resources would be mitigated to less than significant levels through mitigation measures applied as conditions of approval. Measure Ag-1 requires the installation of a site perimeter wall around the side and rear boundaries of the property to protect agricultural land from residential intrusion for the life of the project. Measure Ag-2 requires the recordation of a buyer notification on the title of all individual units within the development to disclose to owners that nuisance complaints resulting from the existing and ongoing agricultural operations will not be considered by the City to be a nuisance requiring extraordinary actions by the adjacent agricultural operators, the County of Santa Barbara, or landowners. Any inconvenience or

discomfort from properly conducted agricultural operations, including noise, lights, odor, dust, and chemicals, will not be deemed a nuisance.

iii. Air Quality: To further mitigate identified less than significant impacts related to dust generation and diesel emissions resulting from temporary construction impacts, the following recommended mitigation measures were identified. Measures AQ-1 and AQ-2 require steps to be taken to control dust generation during grading and construction activities. Measure AQ-3 calls for the designation of a dust control monitor responsible for overseeing dust control measures.

iv. Biological Resources: In December 2016, a Biological Resources Assessment was conducted for the project site. An updated Tree Assessment and Protection Plan (TAPP) was prepared in 2016/17. A USFWS protocol level red-legged frog survey, sensitive amphibian and reptile evaluation, reconnaissance survey for fairy shrimp, and California red-legged frog night-time survey have also previously been completed. Listed surveys failed to identify the presence of any special status plant or wildlife species. Surveys also concluded that due to the general poor quality of onsite habitat and lack of connectivity to other habitat areas, the project is not expected to have a substantial adverse effect on any special status species or qualify as environmentally sensitive habitat areas. Nevertheless, the onsite manmade pond contains (degraded) wetland habitat and biologically valuable native specimen trees, both of which are coastal resources afforded protection under City and California Coastal Commission regulations. Impacts to these resources could therefore be potentially significant.

Potential project impacts associated with biological resources would be mitigated to less than significant levels through mitigation measures and other requirements applied as conditions of approval. Measure Bio-1 requires clearing, grading and construction activities to begin outside of nesting bird season(s) if feasible. Otherwise, a pre-construction nesting bird survey must be completed and avoidance measures incorporated into construction activities as warranted. Measure Bio-2 requires the restoration and enhancement of the onsite pond/wetland in conformance with the measures outlined in the Final Wetland Habitat Enhancement and Monitoring Plan (WHEMP). Measure Bio-3 requires compliance with the recommendations contained within the Final TAPP. Measure Bio-4 requires perimeter fencing in the vicinity of the onsite pond/wetland to be designed to be wildlife permeable.

v. Cultural Resources: The project site has been previously partially developed and disturbed by former agricultural operations. A Phase I Archaeological Resources Survey failed to find any evidence of cultural, archaeological, geological or paleontological resources and concluded that any resources that may have been present at one time have likely been disturbed. Nevertheless, due to the large

project area, intact cultural deposits could potentially be present, which could be disturbed by construction activities. To mitigate and reduce this potentially significant impact to a less than significant level, Measure CR-1 has been included in the project Conditions of Approval. Measure CR-1 requires that work be stopped and a qualified archaeologist retained in the event of any archaeological remains being encountered during grading or construction. An archaeological monitor shall attend a pre-construction meeting and provide training to all work crews.

vi. Geology and Soils: The project site is located in an area that is seismically active and that may be impacted by expansive soils and/or liquefaction resulting in a potentially significant impact. Potential for erosion and/or sedimentation impacts associated with grading and construction activities could also result in potentially significant geological impacts. Geology and Soils-related impacts would be reduced to less than significant levels through the implementation of mitigation measures included in the project Conditions of Approval.

Measure Geo-1 requires all construction and grading activities to be completed in compliance with the recommendations outlined in the project-specific geotechnical engineering reports. Measure Geo-2 requires the applicant to obtain and comply with RWQCB Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System (NPDES) and prepare a Stormwater Pollution Prevention Program (SWPPP) to be adhered to during grading and construction activities. Measure Geo-3 requires implementation of an erosion control plan. Measure Geo-4 requires all exposed graded surfaces to be reseeded with ground cover vegetation to minimize erosion.

vii. Hazards and Hazardous Materials: Trace evidence of soil contamination associated with lead, petroleum hydrocarbons, and dieldrin (an insecticide) was found in the vicinity of the onsite barn. Contamination levels did not exceed Cal/EPA screening levels, but the concentrations did exceed Santa Barbara County investigation levels and residential cleanup goals. Because a determination of the full extent of the contamination and subsequent cleanup has yet to occur, impacts remain potentially significant. Required compliance with Measures Haz-1 and Haz-2, which are included in the project Conditions of Approval, would reduce impacts to less than significant levels. Measure Haz-1 requires proof of remediation and case closure issued by Santa Barbara County Public Health Department be submitted to the City prior to issuance of any construction or grading permits. Measure Haz-2 requires that work be stopped in the event that any signs of contaminated, odorous or discolored soil or water is encountered during construction until it can be properly evaluated by the Santa Barbara County Public Health Department.

viii. Water Resources: Project-related construction activities and storm runoff from construction areas could result in sediment and/or pollutant-laden runoff leaving the construction site and entering City waterways. Increased impervious surfaces in the post-construction phase of the project could increase the amount of urban runoff leaving the site during storm events, thereby increasing the potential for downstream flooding and water quality impacts. The eastern half of the project site is located within the 100-year floodplain according to the most recent FEMA Flood Insurance Rate Map for the area. In the event of a 100-year storm event, the units within this flood hazard zone could be susceptible to flood damage. The applicants are pursuing a Conditional Letter of Map Revision (CLOMR) from FEMA if it can be demonstrated through hydrologic modeling that the project site is not vulnerable to 100-year flood hazards and therefore should not be included in the flood hazard zone.

Mitigation of hydrology and water quality impacts would be addressed through the following mitigation measures which have been incorporated into the project conditions of approval. Measure Hyd-1 requires submittal of, and adherence to, a drainage plan that incorporates the use of the onsite pond into an overall stormwater retention, infiltration and recharge system that must be maintained for the life of the project. The Homeowners' Association would be responsible for monitoring and maintenance of the system. Measure Hyd-2 requires submittal of proof of having obtained RWQCB permits and preparation of a SWPPP. Measure Hyd-3 requires all new storm drains to be stenciled with "no dumping" warnings. Measure Hyd-4 requires the design and maintenance of a permanent onsite bioswale/biofilter system to treat onsite stormwater runoff. Measure Hyd-5 requires the use of pervious materials into the project design for hardscape areas. Measure Hyd-6 requires the Homeowners' Association to be responsible for the long-term maintenance of all water quality measures. Measure Hyd-7 addresses water quality impacts during construction related to disposal/containment of construction materials and leak/spill protections. Measure Hyd-8 requires the applicant to either submit proof of FEMA approval of the CLOMR for the project site, or demonstrate compliance with City floodplain requirements, prior to issuance of any permits.

ix. Noise: Demolition, grading and construction activities would temporarily generate noise levels that have the potential to exceed City thresholds for nearby sensitive receptors. Mitigation includes Measure N-1, which limits noise producing construction activities to the hours between 7:00 a.m. and 5:00 p.m. Monday through Friday. Measure N-2 requires the installation of a sound curtain along the southerly property line for the duration of construction activities. Measure N-3 requires all construction equipment to be properly maintained and outfitted with appropriate noise reducing measures. Measure N-4 limits the idling

of equipment/machinery not in use to less than five minutes. Measure N-5 requires stationary, loud equipment to be located and buffered so as to not unduly impact neighboring residences. Measure N-6 requires all workers' radios to be maintained at a low enough volume to not be audible by nearby sensitive receptors. Measure N-7 calls for the designation of a noise disturbance coordinator who is responsible for responding to, and addressing, any noise complaints. These measures would reduce noise impacts to less than significant levels and have been incorporated into the project conditions of approval.

x. Tribal Cultural Resources: Grading and construction activities could potentially impact unknown sites and places with ties to Chumash ancestry and their predecessors present on site. Mitigation of these impacts would be addressed through adherence to Measure CR-1 previously discussed in the Cultural Resources section.

1.3 Development Plan Findings

a. *The proposed development is in conformance with the provisions of the applicable zoning district, Local Coastal Plan and implementation programs, and General Plan.*

As discussed in the Planning Commission staff report dated November 6, 2017 and hereby incorporated by reference, the project can be found consistent with all applicable Objectives and Policies of the City's General Plan/Coastal Plan and Zoning Code. The use of the property for a clustered 31-unit multifamily residential development is consistent with the types of development permissible under the site's Planned Unit Development (PUD) zoning designation and the Medium Density Residential (MDR) land use designation. As designed, the project meets all required development standards of the PUD zone and complies with all requirements of the applicable Overlay districts, including the Ellinwood Parcel Overlay, and Flood Hazard Overlay.

b. *The proposed development is sited and designed to avoid risks to life and property due to geologic, flood, or fire hazards and that the proposed density of development is consistent with these objectives.*

The subject parcel is not located within any known areas of high fire hazards. The project site is known to have the potential for impacts from seismic activity related to expansive soils and liquefaction. Mitigation measures are included in the project conditions of approval requiring the grading and construction activities be completed in accordance with the recommendations outlines in the project specific geotechnical engineering reports to address these concerns. The eastern half of the project is presently identified as being within a 100-year floodplain hazard area. A mitigation measure is included in the project conditions of approval requiring the applicants to either demonstrate compliance with City floodplain requirements, or show proof of approval from FEMA of a CLOMR

that removes the project site from the flood hazard area, prior to issuance of any grading or construction permits.

At 31 units spread over a 3.89-acre site, the project has an overall density of 8.01 units/acre. This density falls within the allowable unit densities of the PUD zone district and the densities anticipated in the MDR land use category. The proposed project density and overall layout is also in conformance with the previous version of the Green Heron Spring multifamily residential development which was approved by the City Council and California Coastal Commission in 2009.

c. *The proposed development will not cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.*

As discussed in the Planning Commission staff report dated November 6, 2017 and the Mitigated Negative Declaration dated October 2017, and herein incorporated by reference, the project would not cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat. The Mitigated Negative Declaration prepared for the project identified potentially significant impacts to Aesthetics, Agricultural Resources, Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Hazardous Materials/Safety, Hydrology/Water Quality, Noise, and Tribal Cultural Resources. The MND contains mitigation measures to reduce all environmental impacts of the proposed project to less than significant levels. All of these measures have been incorporated into the project conditions of approval.

The project has also been designed to comply with the site specific requirements of the Ellinwood Parcel Overlay, which include special development standards calling for the restoration and enhancement of the onsite pond/wetland, and the minimization of impacts to native specimen trees. Necessary plans and reports (i.e., Wetland Habitat Enhancement and Monitoring Plan; and Tree Assessment and Protection Plan) outlining the strategies and measures necessary to protect and/or enhance these resources are included in the technical appendices of the MND. Final versions of the reports will be reviewed and approved by CDD prior to issuance of any permits for clearing or initiating grading/construction.

d. *The proposed development will not conflict with any recorded easements acquired by the public at large for access through the property or use of the property or any easements granted to any public agency or required as a condition of approval.*

There are no known recorded easements on the property for public access; therefore, the project does not have the potential to conflict with any access easements. Review of the submitted Title Report and property survey for the subject property and the conditions of approval required by the affected public agencies confirms that the proposed development will not conflict with any recorded easements.

e. *The proposed development will not adversely affect necessary community services and values including but not limited to traffic circulation, sewage disposal, fire protection, water supply, and police protection.*

The project does not have the potential to adversely affect these services in that, with the exception of the Carpinteria Sanitary District, the services identified above are currently available to the two existing single-family residences on the property and would continue to serve the 31-unit project. The property was successfully annexed to the Carpinteria Sanitary District in 2010 in anticipation of the redevelopment of this property. As part of the project, the District's main line would be extended up Cravens Lane to serve the 31-unit development.

As part of the project, the developer would dedicate an additional 25 feet of land to the City for the widening of Cravens Lane. The right-of-way widening is not necessary to address traffic circulation concerns, but would provide sufficient right-of-way width to extend public sidewalks, bicycle lanes and on-street public parking to the new project.

The proposed 29 net new units would not place an additional demand on community services significant enough to adversely affect the availability of these services. Agencies potentially affected by this project have been notified and have indicated an ability to serve the project. Requirements of the Carpinteria-Summerland Fire Protection District, Carpinteria Sanitary District, and Carpinteria Valley Water District have been included in the attached conditions.

f. *The proposed development will not be detrimental to the peace, health, safety, comfort, convenience, property values, or general welfare of the neighborhood.*

The project will not be detrimental to the peace, health, safety, comfort, convenience, property values, or general welfare of the neighborhood as presented in the staff report prepared for the Planning Commission hearing of November 6, 2017, and the Mitigated Negative Declaration dated October 2017; herein incorporated by reference. The project has been reviewed by the Architectural Review Board at a public hearing to ensure architectural compatibility with surrounding developments. The Board determined that the improvements would be compatible with the surrounding neighborhood in terms of size, density, height, design and scale.

The project proposes four residential units along the site's east (rear) property boundary, which is adjacent to neighboring greenhouse and packinghouse operations. The minimum distance from the residential structures to the property line is approximately 35 feet. A County of Santa Barbara Flood Control channel and access road approximately 25 feet in width combined, help to buffer the agricultural operations to the east from the proposed residences. Thus, the minimum total distance between these units and the neighboring structures is approximately 75 feet of land that will dissipate noise, dust, odor and light

impacts between the properties. In order to further reduce impacts to these new residences, a six-foot tall concrete fence (wall) would be installed along the property's eastern boundary.

The project proposes 12 residential units along the site's northern (side) property boundary, which is adjacent to property under a 100-year easement held by the County of Santa Barbara Flood Control District and operated as a siltation basin. This passive use requires only occasional maintenance so it avoids many of the noise, dust, odor and light impacts typically associated with agricultural uses. Nevertheless, the structures are separated by approximately 40 feet from the siltation basin. Coast Live Oak and Sycamore trees will be planted along both the project's north and east property boundary to act as an additional buffer.

A buyer notification alerting future homeowners that the subject property is located adjacent to property zoned for agricultural uses and in an area that has been planned for agricultural uses is also required. Any inconveniences or discomfort resulting from properly conducted agricultural operations and County of Santa Barbara Flood Control District siltation basin maintenance activities, including noise, odors, dust, and chemicals, will not be deemed a nuisance. This buyer notification, intended to protect the operators of the adjacent agricultural operations from unwarranted complaints, would record with the Map, appear on the future property owners' Title Report and be included in the project CC&Rs.

The spatial distance, landscape features and wall, and buyer notification measures create a clearly defined buffer area that will minimize conflicts between the agricultural and urban units. With these additional measures in place, the development will not be detrimental to the general welfare of the surrounding neighborhood.

1.4 Coastal Development Permit Findings

Pursuant to the California Coastal Act, the Administrative Regulations of the California Coastal Commission and the City's Local Coastal Program, it has been found that the permit requested may be issued based on the following findings:

a. *The proposed development is in conformity with the City's certified Local Coastal Program.*

As presented in the staff report prepared for the Planning Commission hearing of November 6, 2017, and herein incorporated by reference, the proposed development is in conformance with the provisions of the PUD zone district and Ellinwood Overlay District of the City's Zoning Code and the City's General Plan/Coastal Plan. The project involves the dismantling of an existing residence, barn and storage shed, the remodeling of one residence and the construction of 30 new residential units, for a project total of 31

residential units. Four of these units would be affordable as required by the City's Inclusionary Housing Ordinance. The project is also found to substantially conform to the previously approved and still valid Vesting Tentative Tract Map for the Green Heron Spring multifamily residential development (Tract No. 25178).

Exhibit 1
Attachment B: Preliminary Plan Set

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

See attached bound plan set

Exhibit 1
Attachment C: Recommended Conditions of Approval

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

PLANNING COMMISSION HEARING
PROJECT 16-1840-DP/CDP
1300 CRAVENS LANE
APN 004-013-026
NOVEMBER 6, 2017

ATTACHMENT C: CONDITIONS OF APPROVAL GREEN HERON SPRING MULTIFAMILY RESIDENTIAL DEVELOPMENT

The Conditions set forth in this permit affect the title and possession of the real property that is the subject of this permit and shall run with the real property or any portion thereof. All the terms, covenants, conditions and restrictions herein imposed shall be binding upon and inure to the benefit of the owner (applicant, developer), his or her heirs, administrators, executors, successors and assigns. Upon any sale, division or lease of real property, all the conditions of this permit shall apply separately to each portion of the real property and the owner (applicant, developer) and/or possessor of any such portion shall succeed to and be bound by the obligations imposed on the owner (applicant, developer) by this permit.

PROJECT DESCRIPTION

1. This Development Plan and Coastal Development Permit is based upon and limited to compliance with the project description, the hearing exhibits (Exhibit 1, Attachment B to the staff report dated November 6, 2017) and conditions of approval set forth below. Any deviations from the project description, exhibits or conditions must be reviewed and approved by the City for conformity with this approval. Deviations may require approved changes to the permit and/or further environmental review. Deviations without the above described approval will constitute a violation of permit approval.

   The project description is as follows:

   The proposed project would redesign the 31-unit Green Heron Spring condominium project previously approved by the City Council in November 2007. The project would include dismantling an existing residence, barn and storage shed, the remodel of one residence (to remain), and the construction of 30 new residential condominium units on a 3.89-acre site. The contemplated redesign makes adjustments to the previously-approved site plan/building locations, building floor plans, bedroom counts for selected units, and building architecture/elevations. Updated landscaping, hardscapes, fencing and an entry monument are also included.

   The current project description includes the following structures to be built:

- *10 two-bedroom units (Plans 1, 1X, 8 and 8X), ranging in size from 1,491 square feet to 1,760 square feet (inclusive of attached one-car garages). Four of these units (Plan 1X) would also include a den. These units would be configured in attached townhome clusters with other units and are all designed as single level flats. An additional uncovered parking space would be provided for each two-bedroom unit;*
- *19 three-bedroom units (Plans 2, 3, 4, and 5), ranging in size from 2,207 square feet to 2,701 square feet (inclusive of attached two-car garages). Of these units, nine would be configured as part of multi-unit townhome buildings, six would be detached single family dwellings, and four would be configured as duplexes. The six single family dwellings (Plan 4) would also include a den;*
- *One detached, 2,723 square foot, four-bedroom single family dwelling (inclusive of attached two-car garage) (Plan 6);*
- *An addition to the existing single family residence (to remain) comprised of an attached 929 square foot three-car garage and a second floor recreation room above. The total gross square footage of the five-bedroom residence would be 4,445 square feet; and*
- *A 780 square foot open air pavilion to be located within the common village green area. The pavilion would include amenities such as a kitchenette, outdoor grill, fireplace lounge area and outdoor seating areas.*

In all, the development would include 16 individual buildings (comprised of 15 residential buildings, including the existing residence to remain, and the new pavilion). The total combined gross square footage of all of the dwelling units would be 69,929 square feet. The cumulative building footprint of all structures would be 43,900 square feet. This equates to a building coverage ratio of approximately 26% of the 3.89-acre site.

Pursuant to the City's Inclusionary Housing Ordinance, and consistent with the previously-approved project, four of the new units would be required to be set aside as affordable units designated for the upper-moderate income category. The four inclusionary units would be distributed throughout the development and are made up of two- and three-bedroom townhome and duplex units. The inclusionary units would be designed to be architecturally consistent with the market rate units.

Vehicle access to the site will continue to be taken from Cravens Lane, at approximately the same location as the existing driveway serving the property. The private drive (Green Heron Spring Drive) will provide two-way access to/from a one-way drive loop around the central village green and pavilion. Two spurs will extend from the main drive and loop to provide access to additional units not fronting on the main drive. The spur off the southern end of the loop around the village green will also provide access to a secondary (gated) emergency access entry from the adjacent private roadway immediately bordering the southern edge of the project site.

A total of 74 parking spaces would be provided onsite. Of these, 53 spaces would be housed within garages attached to their respective units. The remaining 21 spaces would be provided as uncovered parking spaces spread throughout the development. Of the 21 uncovered spaces, 11 would provide visitor parking for the project, the remaining 10 spaces would provide the second required parking space for each of the development's two-bedroom units.

The project proposes to provide common open space areas including a community garden area (in the southeast corner of the project site), a centralized village green with an open air pavilion, an additional passive community open space with seating area at the northeast corner of the project site, native plant areas, walking paths and other passive recreation areas, similar to that of the previously approved project. Like the former iteration of the project, the existing agricultural pond would be enhanced and incorporated into the project as part of the development's common open space and to serve as an onsite stormwater retention feature. The area surrounding the pond would be revegetated with native plantings to replace the existing non-native species. In addition to common open space areas, the redesigned concept contemplates private fenced yard areas and/or porches for each unit.

Consistent with the requirements of the Ellinwood Parcel Overlay District, the project would be designed and constructed to comply with the standards for U.S. Green Building Council, LEED for homes, rating of "gold" or better. LEED building standards incorporated into the design include, but are not limited to, clustering development to maximize open space, utilizing native and drought tolerant landscaping throughout the project, collecting and reusing stormwater onsite, utilizing high efficiency building materials and appliances to reduce energy use, and utilizing rooftop photovoltaic systems on all units.

The project is also required to preserve existing native trees to the maximum extent feasible, restore the onsite pond (as previously described), and provide a permanent onsite bioretention/bioswale system to treat and retain storm water runoff onsite. The project has been designed to incorporate these required elements. Of the 59 specimen trees identified onsite, the project proposes to remove 11 and impact an additional 25 trees. Removed trees are to be mitigated through replacement plantings. Trees to remain may require pruning, but will otherwise be protected in place. The project site has been designed to include permeable hardscape materials and landscaped swales to capture and retain onsite stormwater runoff. The onsite enhanced pond, as previously described, will also be used to capture and retain stormwater runoff.

Site grading, mainly to create level building pads and ensure the site drains toward the onsite wetland/pond calls for 1,348 cubic yards (cy) of cut and 2,916 cy of fill. All new utilities within the proposed development would be placed underground within the central loop drive. A storm drain system is proposed to capture onsite stormwater overflow that does not percolate through permeable hardscape areas

or planted bioswales/biofilters and convey it to the onsite wetland/pond. Perimeter fencing includes a mix of solid masonry walls (along the eastern rear and partial south side property lines), solid redwood fencing (along the northern side property line), and 42-inch high horizontal plank fencing along the Cravens Lane frontage and the southwestern half of the side property line. A five-foot high tubular steel fence would be used around the wetland/pond area, including to enclose the private rear yards of the units that back up to the wetland/pond. A decorative stone entry monument is proposed for the entrance to the development off Cravens Lane.

Offsite improvements associated with the project include the dedication of additional right-of-way for, and the widening, of Cravens Lane. The additional right-of-way width will provide sufficient area for the extension of a public sidewalk, parkway strip, on-street parallel parking and bicycle lane. Various utility and storm drain improvements are also required to either extend service to the project site, or tie into existing facilities in Cravens Lane.

The grading, development, use, and maintenance of the property, the size, shape, arrangement, and location of structures, parking areas and landscape areas, and the protection and preservation of resources shall conform to the project description above and the hearing exhibits and conditions of approval below. The property and any portions thereof shall be sold, leased or financed in compliance with this project description and the approved hearing exhibits and conditions of approval hereto. All plans (such as Landscape Plans) must be submitted for review and approval and shall be implemented as approved by the City.

MITIGATION MEASURES FROM THE PROJECT MND

2. **Aest-1** The design, scale and character of the project architecture shall be compatible and blend harmoniously with vicinity development. In addition, the project shall maintain as much of the beneficial screening as possible, with structures located to take advantage of the natural landforms and screening. **Plan Requirement and Timing:** The applicant shall submit architectural, landscape and grading plans of the project for final review by the Architectural Review Board prior to approval of any Building Permit for physical development. **Monitoring:** CDD shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect prior to, and during the construction phase.

3. **Aest-2** Natural building materials and colors compatible with surrounding terrain (earthtones and non-reflective paints) shall be used on exterior surfaces of all structures. **Plan Requirement:** Materials shall be denoted on building plans. **Timing:** Structures shall be painted prior to occupancy clearance. **Monitoring:** CDD shall inspect prior to occupancy clearance.

4. **Aest-3** The developer shall clear the project site of all excess construction debris. **Plan Requirement:** This requirement shall be noted on final building plans.

Timing: Debris clearance shall occur prior to occupancy clearance. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

5. **Aest-4** No signs of any type are approved with this action unless otherwise specified. All signs require a separate Sign Permit and review by the Architectural Review Board and shall comply with the City Zoning Code, Chapter 14.58 (Sign Regulations).

6. **Aest-5** Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the project site and prevent spill-over onto adjacent parcels. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. **Plan Requirements**: The locations of all exterior lighting fixtures and an arrow showing the direction of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector shall inspect structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.

7. **Ag-1** In order to protect the existing agricultural operations from encroaching development, site perimeter walls shall be installed along property lines as shown on the proposed site plan and maintained to protect agricultural land from residential intrusion for the life of the project. **Plan Requirement and Timing:** Plans shall be submitted prior to issuance of a Grading or Building Permit; the walls shall be installed prior to Occupancy of the first unit.

8. **Ag-2** The following buyer notification shall be recorded on a separate informational sheet with the Final Map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Reports, provided to County Planning and Development to be noted on the Assessor's Parcel Map pages and included in the project CC&Rs:

   IMPORTANT: BUYER NOTIFICATION
   This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural growing, packing and shipping operations are located east and north of the property. Delivery trucks use the adjacent 20-foot driveway located south of the property to service the packing shed just east of the project site. Approximately 2.5 acres of the adjacent parcel to the north is occupied by a County of Santa Barbara Flood Control District siltation basin operating under a long term easement agreement. While the Green Heron Spring project design includes site walls and landscape buffers to reduce possible noise, light, odors and dust from impacting residents of the Green Heron project, future buyers are to be notified that these are existing conditions and will not be considered by the City of Carpinteria to be a nuisance

requiring extraordinary actions by the adjacent agricultural operators, County of Santa Barbara Flood Control District or landowners. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.

9. **AQ-1** If the construction site is graded and left undeveloped for over three weeks, the applicant shall employ the following methods immediately to inhibit dust generation:
   a. seeding and watering to revegetate graded areas; and/or
   b. spreading of soil binders; and/or
   c. any other methods deemed appropriate by Community Development.

   Plan Requirements: These requirements shall be noted on all plans. **Timing:** Plans are required prior to issuance of a Grading or Building Permit. **Monitoring:** Grading Inspector shall perform periodic site inspections.

10. **AQ-2** Dust generated by development activities shall be kept to a minimum with a goal of retaining dust on the site by following the dust control measures listed below. During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.
    a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.
    b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.
    c. During construction, all trucks entering or exiting the site carrying soil or debris shall be tarped.

    Plan Requirements: All requirements shall be shown on grading and building plans. **Timing:** Condition shall be adhered to throughout all grading and construction activities. **Monitoring:** CDD shall ensure measures are on plans. CDD Grading and Building Inspectors shall spot check; Grading and Building Inspectors shall ensure compliance on- site. APCD inspectors shall respond to nuisance complaints.

11. **AQ-3** The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. **Plan Requirements:** The name and telephone number of such persons shall be provided to the APCD and the Community Development Department. **Timing:** The dust monitor shall be designated prior to

issuance of a Grading or Building Permit. **Monitoring:** CDD shall contact the designated monitor as necessary to ensure compliance with dust control measures.

12. **Bio-1** To avoid disturbance of nesting and special-status birds, including raptor species protected by the MBTA and CFGC, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30), if feasible. If construction must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 14 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the Project Boundary, including a 300-foot buffer (500-foot for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. The qualified biologist shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program. A report summarizing the results of the nesting bird survey and monitoring activities shall be prepared and submitted to CDD once all survey and monitoring activities are completed.

13. **Bio-2** In order to protect the existing pond and improve its habitat functions and values, the applicant shall implement the Wetlands Mitigation Program contained within the Wetlands Mitigation Habitat Enhancement and Monitoring Plan. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Wetlands Mitigation Program to CDD for review and approval. The Final Wetland Mitigation Program shall address all required Plan elements as prescribed in the Carpinteria Municipal Code Chapter 14.43.030(5)- Ellinwood Parcel Overlay Development Standards, and shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision requiring all landscape areas within the mandatory 35-foot setback from the onsite pond/wetland, including private yards of individual residences, be maintained in, and limited to, appropriate native plants, and shall be enforced and maintained by

the Homeowners' Association. All aspects of the Program shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee successful re-establishment of the wetland and upland habitat. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD shall conduct site inspections throughout all phases of development to ensure compliance with the Program. Release of performance security requires CDD staff signature.

14. **Bio-3** In order to protect existing native trees and minimize adverse effects of grading and construction onsite, the applicant shall implement the recommendations contained within the Tree Assessment and Protection Plan. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Tree Protection and Replacement Plan to CDD for review and approval. The Final Tree Protection and Replacement Plan shall address all required Plan elements as prescribed in the Carpinteria Municipal Code Chapter 14.43.030(3)- Ellinwood Parcel Overlay Development Standards, and shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision prohibiting the use of rodenticides containing anticoagulant compounds, and shall be enforced and maintained by the Homeowners' Association. All aspects of the plan shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable *to* CDD to guarantee tree replacement. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD, or a qualified monitor acceptable to the CDD, shall conduct site inspections throughout all phases of development to ensure compliance with all tree protection and replacement measures. Release of performance security requires CDD staff signature.

15. **Bio-4** To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be modified to be wildlife permeable (i.e., with a wooden (not wire) rail at the top and with a space greater than 14 inches between the ground and the bottom rail). **Plan Requirements and Timing:** The applicant shall provide a detail of the wildlife permeable fence sections and the location of where the fence would be installed on the construction and/or grading and building plans. **Monitoring:** CDD shall check plans prior to issuance of a Building Permit and staff shall site inspect throughout the construction period to ensure proper installation.

16. **CR-1** In the event archaeological remains are encountered during grading, work shall be stopped immediately or redirected until a CDD-qualified archaeologist and Native American representative are retained by the applicant to evaluate the significance of the find pursuant to Phase 2 investigation specifications of the City

Archaeological Guidelines. If remains are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. The qualified archaeologist and a Native American monitor shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program.

17. **Geo-1** Project construction and grading shall comply with all recommendations outlined in the 2005 and 2016 Updated Geotechnical Engineering Report prepared by Earth Systems Southern California, to the satisfaction of the City Engineer. **Plan Requirements:** Grading and building plans shall include all required measures as determined by the City Engineer. **Timing:** Prior to issuance of building and grading permits and during grading and construction. **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.

18. **Geo-2** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP. All provisions and mitigation control measures in the Stormwater Pollution Prevention Plan (SWPPP) shall be implemented. **Timing:** Continuous throughout site preparation, grading and construction activities.

19. **Geo-3** Grading, erosion and sediment control plans shall be implemented to minimize erosion. Efforts shall include the following:
    a. Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins and spot grading shall be used to reduce erosion and siltation during grading and construction activities.
    b. All entrances/exits to the construction site shall be stabilized (e.g., using rumble plates, gravel beds or other best available technology) to reduce transport of sediment off site. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods.
    c. Storm drain inlets shall be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters and excavated inlet sediment traps.
    d. Graded areas shall be revegetated within 3 weeks of final grading activities with deep rooted, native, drought-tolerant species to minimize slope failure

and erosion potential. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

Plan Requirements: The grading, erosion and sediment control plan shall be submitted for review and approved by CDD prior to issuance of a Grading Permit. The plan shall be designed to address erosion and sediment control during all phases of development of the site. The applicant shall notify CDD prior to commencement of grading. **Timing**: Components of the grading plan shall be implemented prior to occupancy clearance. Erosion and sediment control measures shall be in place throughout grading and development of the site until all disturbed areas are permanently stabilized. **Monitoring**: CDD shall inspect revegetation and ensure compliance with plan. Grading inspector shall monitor installation and maintenance of erosion control measures throughout all grading and construction activities.

20. **Geo-4** All exposed graded surfaces shall be reseeded with ground cover vegetation to minimize erosion. **Plan Requirements:** This requirement shall be noted on all grading and building plans. **Timing:** Graded surfaces shall be reseeded within 3 weeks of final grading completion, with the exception of surfaces graded for the placement of structures. These surfaces shall be reseeded if construction of structures does not commence within 3 weeks of grading completion. **Monitoring:** CDD shall site inspect during grading and 3 weeks after grading to verify reseeding and to verify the construction has commenced in areas graded for placement of structures.

21. **Haz-1** The applicant shall provide proof that required remediation has been completed and that the County of Santa Barbara Public Health Department has closed the case or the applicant shall conduct additional assessments, complete the remediation work including removal of contaminated soils, and have the case formally closed by the Public Health Department. **Plan Requirements:** The plan and completion remediation shall be certified by the County of Santa Barbara Public Health Department. **Timing:** Shall be completed prior to issuance of grading permits on the site. **Monitoring:** CDD shall review the documentation prior to issuance of a grading permit.

22. **Haz-2** In the event any contaminated, odorous or discolored soil or groundwater/surface water is encountered during grading, work shall be stopped immediately and the Hazardous Materials Division of the County Public Health Department shall be called at 805-346-8460. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

23. **Hyd-1** The project has been designed to provide for on-site retention of storm water runoff, infiltration, and recharge utilizing an environmentally enhanced onsite pond. The pond would be designed in accordance with the WHEMP, and

the procedures outlined in mitigation measure Bio-2. The pond shall be maintained for the life of the project by the Homeowners' Association. Recharge systems shall be developed in conjunction with Public Works and CDD. **Plan Requirements:** A Final Drainage Plan showing the location and design of the pond/retention basin and site infrastructure shall be submitted to CDD and Public Works for review and approval.

Installation and maintenance for five years shall be ensured through a performance security provided by the applicant. Long term maintenance requirements shall be specified in the Homeowners' Association's CC&Rs. **Timing:** The retention system shall be installed (landscaped and irrigated subject to CDD and Public Works approval) prior to occupancy clearance. **Monitoring:** CDD shall site inspect for installation and maintenance of landscaping. Public Works approval is required on final grading/drainage plans, and CDD approval is required for release of the performance security.

24. **Hyd-2** The applicant shall submit proof of exemption or a copy of the Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System issued by the California Regional Water Quality Control Board, and if determined to be applicable, a copy of the Section 401 Water Quality Certification from the Regional Water Quality Control Board. **Plan Requirements and Timing:** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent, a copy of the Section 401 Water Quality Certification (if applicable), and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP and other RWQCB permits, as applicable.

25. **Hyd-3** To prevent illegal discharges to storm drains, all on-site storm drain inlets, whether new or existing, shall be labeled to advise the public that the storm drain discharges to the ocean and that dumping waste is prohibited (e.g., "Don't Dump - Drains to Ocean"). The information shall be provided in English and Spanish. **Plan Requirements and Timing:** Location of storm drain inlets shall be shown on site, building and grading plans prior to approval of grading permits. Labels shall be installed prior to occupancy clearance.

    Standard labels are available from Public Works or other label designs shall be shown on the plans and submitted to CDD and Public Works prior to approval of grading permits. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

26. **Hyd-4** The project has been designed to provide for an on-site permanent biofilter/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professional to ensure that the

retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by CDD to be infeasible. Invasive plants shall not be used in the biofilter. Biofilters shall not replace existing riparian vegetation or native vegetation unless otherwise approved by CDD. **Plan Requirements and Timing:** The applicant shall include the biofilter design, including the plant palette and the source of plant material, on the grading and drainage and landscape plans, and depict it graphically. The applicant shall submit a maintenance plan for the biofilter to CDD for review and approval. A performance security shall be required to ensure installation and five-year maintenance. Long-term maintenance shall be the responsibility of the Homeowners' Association. Maintenance requirements shall be specified in the CC&Rs. The plans and a copy of the long-term maintenance program shall be submitted to CDD and Public Works for review prior to approval of a Grading Permit/Building Permit. **Monitoring:** CDD and Public Works shall site inspect for installation and periodically inspect for maintenance throughout the five-year performance period. Performance security release requires CDD approval.

27. **Hyd-5** To reduce runoff from impervious areas and allow for infiltration, the applicant shall incorporate pervious materials or surfaces (e.g., porous pavement or unit pavers on sand) into the project design. **Plan Requirements and Timing:** Pervious surfaces shall be described and depicted graphically on the site, building, grading and landscape plans. The plans shall be submitted to CDD for review prior to issuance of a Grading/Building Permit. **Monitoring:** CDD shall site inspect for installation.

28. **Hyd-6** A Homeowners' Association shall be responsible for the long-term maintenance of the water quality conditions of approval. **Plan Requirements and Timing:** The proposed maintenance responsibilities and schedule shall be included in the CC&Rs. The CC&Rs shall be submitted for review by CDD and Public Works prior to recordation of the Final Map. Annual records of the maintenance activities shall be maintained by the HOA and submitted to CDD upon request. **Monitoring:** CDD shall review the maintenance records or site inspect, as needed. Costs shall be borne by the Homeowners Association.

29. **Hyd-7** Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Additionally, all heavy equipment that is parked on the site overnight or during the weekends shall be parked over plastic or drip pans. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials, and the required use of drop pans under parked heavy equipment shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities.

30. **Hyd-8** The applicant shall submit proof of a CLOMR prior to issuance of Grading/Building Permits.
OR
If the project's CLOMR is not approved, all Grading/Building Plans must be designed to show compliance with City floodplain requirements as reviewed and approved by City Floodplain Administrator.

31. **N-1** Construction activity for site preparation and for future development shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions. **Plan Requirements:** Two signs stating these restrictions shall be provided to the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** Building Inspector shall spot check and respond to complaints.

32. **N-2** A temporary sound curtain shall be installed and maintained along the southern property line throughout the duration of all construction activities on the project site. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing:** The sound curtain shall be in place prior to the beginning of and throughout all demolition, grading, and construction activities. **Monitoring:** Building inspector shall spot check and respond to complaints.

33. **N-3** Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer shall require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

34. **N-4** Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

35. **N-5** Stationary construction equipment that generates noise that exceeds 60 dBA Leq at the boundaries of the nearby residential uses shall be shielded. **Plan Requirements:** Temporary noise barriers used during construction activity shall be

made of noise resistant material sufficient to achieve a Sound Transmission Class (STC) rating of STC 40 or greater, based on sound transmission loss data taken according to ASTM Test Method E90. Such a barrier may provide as much as a 10 dB insertion loss, provided it is positioned as close as possible to the noise source or to the receptors. To be effective, the barrier must be long and tall enough (a minimum height of eight feet) to completely block the line-of-site between the noise source and the receptors. The gaps between adjacent panels must be filled-in to avoid having noise penetrate directly through the barrier. The recommended minimum noise barrier or sound blanket requirements would reduce construction noise levels by at least 10 dB. **Timing/Monitoring:** The equipment area with appropriate acoustical shielding shall be designated on building and grading plans. Equipment and shielding shall remain in a designated location throughout construction activities.

36. **N-6** All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

37. **N-7** A disturbance coordinator shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. **Plan Requirements:** A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

PROJECT SPECIFIC CONDITIONS

38. This project shall be in substantial conformance to the previously approved and still valid Vesting Tentative Tract Map associated with Project 05-1239-DP/VTTM/RZ/GPA/LCPA/CDP (Tract No. 25178). All Map/Subdivision conditions associated with the approval of Vesting Tentative Tract Map no. 25178, specifically Engineering Conditions 21- 28, and Map Conditions Map1- Map-5 as shown in the Conditions of Approval prepared for City Council Resolution No. 5359 dated February 27, 2012, remain valid and in full effect, and are hereby incorporated into this project approval by reference.

39. The project shall be designed and constructed in a manner that complies with all current requirements of the U.S. Green Building Council, LEED for homes, rating of gold or better. **Plan Requirements and Timing:** Verification and documentation of compliance prepared by an LEED-Accredited Professional (AP) shall be provided prior to the issuance of Building Permits, and again after construction is completed and prior to issuance of Certificates of Occupancy for all

units. **Monitoring:** CDD shall confirm receipt of verification and documentation, and review for compliance with this requirement.

40. All exterior night lighting shall be designed and maintained in compliance with the requirements of the Carpinteria Municipal Code (CMC) Chapter 14.43 Ellinwood Parcel Overlay, specifically §14.43.030(2), which requires all night lighting to be low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto any environmentally sensitive areas, wetland areas (including the existing pond) and adjacent parcels. **Plan Requirements:** A final lighting plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. shall be provided. **Timing:** Said plan and specifications shall be submitted to CDD for review and approval prior to issuance of any Building Permits. **Monitoring:** CDD shall review plans for compliance with this condition prior to Building Permit issuance. CDD shall site inspect for compliance prior to issuance of Certificates of Occupancy for all units.

41. Cut sheets for all building mounted exterior lighting shall be submitted for review and approval. **Plan Requirements and Timing:** Building mounted exterior lighting fixtures shall be in compliance with the above Condition (no. 40). Locations for exterior building mounted lighting shall be shown on electrical plans included in the plan set submitted for Final ARB review. **Monitoring:** CDD and ARB shall review and approve exterior building mounted light fixtures. CDD shall verify compliance with approved fixtures during construction, and prior to issuance of Certificates of Occupancy.

42. Facilities for the disposal of solid waste (trash, recycling, green waste) shall be stored and screened from all views except when staged for servicing by the City's franchise solid waste hauler. For individual units, solid waste bins shall be stored in individual units' garages or private fenced yard areas. If common, shared solid waste facilities are proposed, their location(s) and design shall be shown on the plans submitted for final ARB review.

43. All mechanical equipment (i.e., air conditioning units, etc.) shall be visually screened from all views and shall not interfere with required emergency ingress/egress to individual units.

44. Final plans shall include the location of all above ground and vaulted appurtenances including, but not limited to, utility vaults, gas meters, fire backflow prevention systems, and check valves. The location of such appurtenances shall be approved by CDD and may be required to be located and/or screened to as to minimize aesthetic impacts.

45. Project Conditions, Covenants and Restrictions (CC&Rs) prepared for the project shall include all necessary provisions to address and satisfy the required long-term

monitoring and maintenance responsibilities for all mitigation tree plantings, the restored/enhanced onsite pond/wetland and its required buffer, and the onsite permanent bioswale/biofilter system, as prescribed in CMC 14.43.030- Ellinwood Parcel Overlay Development Standards. **Plan Requirements and Timing:** CC&Rs shall be submitted to CDD for review and approval prior to acceptance of the Final Map. **Monitoring:** CDD shall be responsible for reviewing and verifying the CC&Rs comply with this requirement.

46. Applicant shall post performance securities to guarantee installation and five years of maintenance costs for the required restoration/enhancement of the onsite pond and permanent bioswale/biofilter system. The amounts of the securities shall be determined by a licensed civil engineer and shall be reviewed and approved by the Community Development Department. **Plan Requirements and Timing:** Posting of performance securities shall be completed prior to issuance of any Grading or Building Permits. **Monitoring:** CDD shall be responsible for ensuring this requirement has been satisfied.

47. Project Conditions, Covenants, and Restrictions (CC&Rs) prepared for the project shall address future construction of additions and/or building modifications/remodels to individual units, and the placement/erection of accessory structures (including but not limited to, spas/hot tubs, outdoor kitchens, outdoor fireplaces, and patio structures) in the private yard areas associated with any units. Said provisions shall comply with the minimum requirements of the PUD zone district (CMC §14.16), the Ellinwood Parcel Overlay District (CMC §14.43), and City development standards for accessory structures (CMC §14.50.020) and pools (CMC 14.50.040), as applicable. **Plan Requirements and Timing:** CC&Rs shall be submitted to CDD for review and approval prior to acceptance of the Final Map. **Monitoring:** CDD shall be responsible for reviewing and verifying the CC&Rs comply with this requirement.

48. Adequate space shall be made available to allow vehicles to be parked within garages. This requirement shall be written into the project CC&Rs and enforced by the Homeowners' Association.

49. A minimum of 21 uncovered parking spaces shall be provided and maintained for the life of the project. The 11 required visitor spaces shall be permanently marked as such, and remain available for guests and visitors of the residents. This requirement shall be written into the project CC&Rs and enforced by the Homeowners' Association.

50. An easement required for the establishment of the fire/emergency access gate and use of the southerly adjoining private drive (part of APN 004-013-024) shall be secured. **Plan Requirements and Timing:** Proof of recorded easement to satisfy this requirement shall be submitted to CDD for review and acceptance prior to

recordation of the Final Map. **Monitoring:** CDD shall be responsible for ensuring this requirement has been met.

51. Sixty-five percent (65%) or more of all construction and demolition debris generated shall be diverted from the landfill, as mandated by Carpinteria Municipal Code. Demolition and/or excess construction materials shall be separated onsite for reuse/recycling or proper disposal (e.g., concrete asphalt). During demolition and grading, separate bins for recycling of construction materials and brush shall be provided onsite. **Plan Requirements:** This requirement shall be printed on demolition plans. Applicant shall submit a Waste Management Plan (WMP) prior to demolition and provide Public Works with a completed WMP, including receipts for recycled materials to demonstrate compliance with the City's Construction and Demolition Program's 65% mandatory diversion rates. **Timing:** Materials shall be recycled as necessary throughout demolition and grading activities. **Monitoring:** Public Works shall review and approve a completed WMP prior to issuance of a Building Permit.

52. To prevent construction and/or employee trash from blowing offsite, appropriate receptacles shall be provided onsite prior to commencement of grading or construction activities. Waste shall be picked up weekly or more frequently as directed by CDD staff. **Plan Requirements and Timing:** Prior to Building Permit issuance, applicant shall designate and provide to CDD the name and phone number of a contact person to monitor trash/waste and organize a clean-up crew. Trash control shall occur throughout all grading and construction activities. **Monitoring:** CDD shall inspect periodically throughout grading and construction activities.

53. Applicant shall ensure that the project complies with all approved plans and all project conditions including those which must be monitored after the project is built and occupied. To accomplish this, applicant agrees to contact CDD at least two weeks prior to commencement of construction activities to schedule an onsite pre-construction meeting with the owner, other agency personnel and with key construction personnel.

AFFORDABLE/INCLUSIONARY HOUSING CONDITIONS

54. Prior to Final Map clearance, the applicant shall enter into and record an *Agreement to Provide Affordable Housing*, which shall include a model *Restrictive Covenant and Preemptive Right*. The *Covenant* shall be executed and recorded by each purchaser of an affordable unit. The *Agreement* and *Covenant* shall be based on the City's model documents, as they may be amended from time to time, and subject to the review and approval of CDD and the City Attorney. These shall specify the affordability terms described in Condition No. 1. In addition, the *Agreement* and *Covenant* shall include provisions describing marketing and lottery requirements for the initial sale of units; requiring income eligibility of prospective buyers to be determined by the City or its designee; requiring prospective buyers of the

affordable units to sign an *Intent to Reside* statement; requiring a *Notice of Default* and *Notice of Sale*, as well as the *Covenant*, be recorded with the original and all subsequent deeds, and stating the maximum sales rate for the affordable units shall not exceed the maximum levels established by the City Council, consistent with the provisions of the City's Housing Element and state law.

55. Affordable units shall be constructed concurrent with the construction of the market rate units in each phase of development. Occupancy clearance for no more than 50% of the market rate units in a given phase shall be allowed prior to occupancy clearance for all the affordable units for that same phase of development. **Plan Requirements & Timing:** Prior to final map clearance, this requirement shall be included in the *Agreement to Provide Affordable Housing* and shall be printed on all grading and building plans. **Monitoring:** CDD shall ensure compliance during construction.

DEVELOPMENT PLAN CONDITIONS

56. Approval of the Final Development Plan shall expire two years after approval by the Planning Commission, unless prior to the expiration date, substantial physical construction has been completed on the development, or a time extension has been applied for by the applicant in a written request, including a statement of reasons for the time limit extension request. The decision maker with jurisdiction over the project may, upon good cause shown, grant a time extension.

57. No permits for development, including grading, shall be issued except in conformance with an approved Final Development Plan. The size, shape, arrangement, use and location of buildings, walkways, parking areas and landscaped areas shall be developed in conformity with the approved Development Plan marked Exhibit 1, Attachment B, dated November 6, 2017. Substantial conformity shall be determined by the Community Development Department Director.

58. On the date a subsequent Development Plan is approved for this site, any previously approved but unbuilt plans shall become null and void.

59. If the applicant requests a time extension for this permit, the permit may be revised to include updated language to standard conditions and/or mitigation measures and additional conditions and/or mitigation measures which reflect changed circumstances or additional identified project impacts. Mitigation fees shall be those in effect at the time of issuance of a Building Permit.

60. No permits for development, including grading, shall be issued prior to recordation of Tract No. 25178. Tree removal and demolition are excluded from this requirement, provided a Final Tree Assessment and Protection Plan has been submitted and approved by CDD, and a Demolition Permit obtained.

61. Prior to the issuance of any Building Permits, the applicant shall submit final plans to the City for review by the Architectural Review Board. Final plans shall include but not be limited to complete construction drawings and details concerning lighting, colors and exterior materials, landscaping and irrigation.

62. All materials and colors used in construction and all landscape materials shall be as represented to the Architectural Review Board and any deviation will require the express review of the Board.

63. Prior to the issuance of any Building Permits, the applicant shall post a landscape security bond of $2,500.00 and comply with the following requirements:
    a. All landscaping and irrigation plans shall be prepared by a State licensed landscape architect or similar professional as determined appropriate by CDD.
    b. The landscaping shall be maintained in good condition for the life of the project. After landscaping has become established at three years and found to be in good condition, the security will be released.
    c. Landscaping shall be drought resistant, low water species.
    d. Where feasible, locally adapted native plants shall be required.
    e. Prior to Occupancy Clearance, all landscaping and planting shall be installed; and
    f. Specimen trees shall be appropriate to the site and shall be maintained in good condition so as to attain a full and healthy mature appearance.

64. An approval granted by the Planning Commission does not constitute a Building Permit or authorization to begin any construction. An appropriate permit issued by the Building Division must be obtained prior to constructing, enlarging, moving, converting, or demolishing any building or structure within the City.

65. The conditions of this approval supersede all conflicting notations, specifications, dimensions, and the like which may be shown on submitted plans.

DEPARTMENTAL/SPECIAL DISTRICT CONDITIONS

66. Compliance with the attached Departmental and District letters is required as follows. Where not specified otherwise, Conditions shall be met prior to issuance of Grading or Building Permits:

    a. Carpinteria Public Works Department letter dated October 31, 2017
    b. Carpinteria Valley Water District letter dated October 26, 2017
    c. Carpinteria Sanitary District letter dated October 6, 2017
    d. Carpinteria-Summerland Fire Protection District letter dated April 21, 2017
    e. Santa Barbara County Air Pollution Control District letter dated June 26, 2017

67. The applicant shall pay the statutory school fees in effect at the time of issuance of Building Permits to the Carpinteria Unified School District. **Plan Requirements and Timing:** The applicant shall submit final square footage calculations and the required fee payment to the School District prior to issuance of Building Permits. **Monitoring:** CDD shall ensure payment is made prior to issuance of a Building Permit.

CITY RULES & REGULATIONS/LEGAL REQUIREMENTS

68. Before using any land or structure, or commencing any work pertaining to the erection, moving, alteration, enlarging, or rebuilding of any building, structure, or improvement, the applicant shall obtain a Building Permit. These Permits are required by ordinance and are necessary to ensure implementation of the conditions required by the Planning Commission. Before any Permit will be issued by Community Development, the applicant must obtain written clearance from all departments having conditions; such clearance shall indicate that the applicant has satisfied all pre-construction conditions. A form for such clearance is available from Community Development.

69. If, at any time, the City or Planning Commission determines that there has been, or may be, a violation of the findings or conditions of this Development Plan and Coastal Development Plan, or of the Municipal Code regulations, a public hearing may be held before the Planning Commission to review this permit. At said hearing, the Planning Commission may add additional conditions, or recommend enforcement actions, or revoke the permit entirely, as necessary to ensure compliance with the Municipal Code, and to provide for the health, safety, and general welfare of the City. The applicant shall reimburse the City for all costs associated with gaining compliance with the original conditions of approval.

70. Any minor changes may be approved by the City Manager and/or Community Development Director. Any major changes will require the filing of a modification application to be considered by the Planning Commission.

71. All requirements of the City of Carpinteria (including but not limited to public improvements as defined in the City of Carpinteria Municipal Code (CMC), Section 15.16.110) and any other applicable requirements of any law or agency of the State and/or any government entity or District shall be met.

72. The standards defined within the City's adopted model Building Codes (UBC; NEC; UMC; UFC; UPC; UHC) relative to the building and occupancy shall apply to this project.

73. Any and all damage or injury to public property resulting from this development, including without limitation, City streets, shall be corrected or result in being repaired and restored to its original or better condition.

74. No building permits shall be issued for this project prior to meeting all required terms and conditions listed herein. When not specified herein, all conditions shall be satisfied prior to issuance of a building permit or prior to occupancy when allowed by the Community Development Director.

75. To allow time for the utility companies to locate and mark their facilities for the contractor, the applicant shall telephone Underground Service Alert (USA) toll free at 1-800-227-2600 a minimum of 48 hours prior to the start of construction. For best response, provide as much notice as possible, up to 10 working days.

76. All applicable conditions of approval and mitigation measures shall be printed in their entirety on applicable pages of construction or building plans submitted to CDD. The approved set of plans shall be retained at the construction site for review by the Building Inspector during the course of construction.

77. Prior to issuance of a Building Permit, the applicant shall provide a signed copy of the Conditions or Approval on a form acceptable to Community Development. Such form may be obtained from the CDD office.

78. Prior to issuance of a Building Permit, the applicant shall pay all applicable CDD permit processing fees in full.

79. In accordance with Chapter 15.80 of the Carpinteria Municipal Code, the applicant shall pay Development Impact Fees to the City prior to Occupancy Clearance for each phase. The amount of the fees will be determined at the time the fees are paid, and in compliance with the Fee Program in place at the time of Vesting Tentative Tract Map approval for Tract No. 25178.

80. The owner/applicant ("Owner") hereby agrees to defend, indemnify and hold harmless the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any claim, action or proceeding ("Claims") against the City and the City's Agents to attack, review, set aside, void or annul, in whole or in part, the City's approval of the Development Plan and Coastal Development Permit (the "Project"), or any condition attached thereto, or any proceedings, acts or determinations taken, done or made prior to the approval that were part of the approval process. Owner further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorneys' fees or court costs made in connection with any Claim. Owner further agrees to pay any and all City costs, permits, attorneys' fees, engineering fees, license fees and taxes arising out of or concerning the Project, whether incurred prior to or subsequent to the date of approval and that the City's costs shall be reimbursed prior to this approval becoming valid. These commitments of defense and indemnification are material conditions of the approval of the Project. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and

the City's Agents shall bear their own attorneys' fees, expenses and costs of that independent defense.

81. In the event that any Condition of Approval imposing a fee, exaction, dedication or other mitigation measure is challenged by Applicant/Owner/Permittee in an action filed in a court of law or threatened to be filed therein which action is brought within the time period provided by law, this approval shall be suspended pending dismissal of such action, the expiration of the limitation period applicable to such action, or final resolution of such action. If any Condition of Approval is invalidated by a court of law, the entire project shall be reviewed by the City and substitute Conditions of Approval may be imposed.

Approved by the Planning Commission on November 6, 2017

I HAVE READ AND UNDERSTOOD, AND I WILL COMPLY WITH ALL ABOVE STATED CONDITIONS OF THIS PERMIT

_____

Applicant/Developer Date

CITY OF CARPINTERIA, CALIFORNIA

Department of Public Works
Memorandum

To: Nancy Johns, Wildflower Development Services

From: Matt Maechler
Department of Public Works

Date: October 31, 2017

Subject: Green Heron Spring, Public Works Conditions of Approval

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The Department of Public Works (DPW) has reviewed the project submittal and has prepared the following conditions of approval. Other City departments and agencies may have additional requirements.

GENERAL ENGINEERING CONDITIONS

1. The applicant shall submit grading, drainage and street improvement plans prepared by a California Registered Civil Engineer in conformance with City Standards. Said plans shall include but not be limited to street, utility, and storm drain improvements and shall be submitted to the Community Development Department for review and approval prior to recordation of the Tract Map, and prior to issuance of a grading/engineering permit.

2. Prior to issuance of Engineering Permits, an Engineering Cost Estimate shall be submitted with the Grading and Improvement Plans. Each page of the Cost Estimate shall be signed and stamped by the applicant's engineer.

3. Prior to or issuance of grading/engineering permits, faithful performance, and labor and material bonds (each to be 100% of the City Engineer's estimate) shall be filed with the City to cover all public improvements and any on-site grading and retaining walls. A cash deposit in the amount of 10% of the bond amount shall be submitted with each bond.

4. At the time of acceptance of public improvements, the applicant shall submit a set of "Record Drawings" showing any and all changes made to the design plans during the construction period. The "Record Drawings" shall be the original construction tracings or permanent mylar copies of a quality acceptable to the City Engineer.

UTILITIES

5. Prior to occupancy of the project, all new and existing utility services shall be placed underground and completed prior to any paving required for the project. No new utility poles shall be installed.

6. Existing overhead transmission and distribution lines located along the edges of the property shall be placed underground. The undergrounding shall extend along the project street frontage to the nearest utility pole(s) outside of the project limits. Feed points shall be as approved by the City Engineer. All costs of undergrounding existing utility lines and service laterals shall be borne by the applicant.

7. Existing and proposed easements for all utilities shall be located and described on the engineering plans or the architectural drawings prior to issuance of building permits. New utility meters shall be shown on plans submitted for building permit to be checked by the City Engineer for approval.

STREET IMPROVEMENTS

8. Plans shall be submitted for frontage improvements prior to issuance of building permits for review by the City Engineer. Frontage improvements, including monolithic 6" curb, gutter, sidewalk, handicap ramp(s), driveway aprons, paving, street lights, fire hydrants, street signs, street trees, and other facilities as determined by the City Engineer, are to be installed in conformance with the standards, specifications, and policies of the City at the locations shown on the improvement plans. Unless otherwise specified, the City utilizes the County of Santa Barbara Engineering Standards.

9. Paving and curbs and gutters shall transition into existing public improvements as required by the City Engineer. Transition plans shall be submitted prior to issuance of grading/engineering permits for review by the City Engineer and shall include all needed striping, signing and guardrail. Construction shall be completed prior to issuance of the first Certificate of Occupancy.

10. All improvements in the public right of way shall be completed to the satisfaction of the City Engineer prior to the issuance of the first Certificate of Occupancy by the Community Development Department.

GRADING

11. A Soils Report shall be submitted with Improvement Plans and Grading/Drainage Plans for review and approval by the City Engineer. The Soils Report shall be prepared by a California Registered Geologist or Soils Engineer and submitted to the Public Works Department. The Report shall address soils engineering and compaction requirements, R-values, and other soils and geology related issues (including liquefaction) and shall contain recommendations as to foundation design, retaining wall design, and paving sections, where applicable for the project.

12. At the time that Improvement and/or Grading and Drainage Plans are submitted for review and approval by the City Engineer, hydrology/hydraulic calculations shall be submitted by the applicant's engineer determining the adequacy of the proposed drainage system and the adequacy of the existing downstream system. A rain fall frequency of twenty-five (25) years shall be used for sizing piping and inlet structures. If no overland escape is available, 100 year flows shall be used as the basis of design. Santa Barbara County Engineering Design

Standards shall be used. Easements required for drainage shall be described and shown on the Improvement Plans.

13. Prior to performing any grading, the developer shall obtain a Grading Permit from the City Engineer and pay the required grading permit deposits/fees. For all projects over 1 acre in size, a separate Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System (or exemption from this permit) is required to be obtained from the Central Coast Regional Water Quality Control Board.

STORMWATER MANAGEMENT

14. Applicant shall submit an erosion and sediment control plan prior to project and grading permit approval. The plan shall contain site-specific best available erosion and sediment control measures to be implemented before demolition or construction activities occur. All erosion and sediment control plans shall be reviewed and approved by Public Works prior to start of work.

15. This project is subject to the requirements of the County of Santa Barbara Technical Guide for Low Impact Development for the project site, which shall include any frontage or right-of-way improvements. The applicant shall submit a Storm Water Control Plan (SWCP) complying with the Technical Guide that includes the following elements: identification of potential pollutant sources that may affect the quality of the storm water discharges; the proposed design and placement of structural and non-structural PCRs to address identified pollutants; a proposed Operation and Maintenance Plan; a method for ensuring maintenance of all PCRs over the life of the project; and certification by a licensed civil engineer, architect, or landscape architect.

16. Development shall be undertaken in accordance with conditions and requirements of the State of California Regional Water Quality Control Board. Project Grading and Storm Drain Improvement Plans shall identify and incorporate Best Management Practices (BMP's) appropriate to the uses conducted on-site and during construction to effectively mitigate storm water pollution.

COUNTY FLOOD CONTROL DISTRICT / FEMA REQUIREMENTS

17. The project is subject to the City's Floodplain Ordinance. Prior to issuance of building permits, the applicant shall be responsible for proving that the project complies with said Ordinance.

18. Prior to occupancy clearance, the developer shall apply for and obtain a Conditional Letter of Map Revision (CLOMR), based on fill, with the Federal Emergency Management Agency (FEMA).

End of Conditions

Carpinteria Valley Water District

1301 Santa Ynez Avenue • Carpinteria, CA 93013
Phone (805) 684-2816

BOARD OF DIRECTORS

Polly Holcombe
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Matthew Roberts
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Shirley L. Johnson
Alonzo Orozco
Case Van Wingerden

GENERAL MANAGER

Robert McDonald, P.E. MPA

October 26th, 2017

Cravens Lane LLC
23622 Calabasas Rd#220
Calabasas, CA 91372

SUBJECT: 1300 Cravens Lane LLC, APN 004-013-026 PROJECT REVIEW INTENT TO SERVE LETTER

Hello Cravens Lane LLC,

This letter is good for one year from the date of the letter.

The District has reviewed the preliminary plans for 31- unit multifamily residential development on the 4.1-acre site, from plans received by the city on June 2nd 2017 and consecutively, follow up plan checks through emails. The district has no issues with the project proceeding forward. However, the district has the following items below that will need to be completed before the district will sign-off on the building permit and final occupancy.

Prior to sign-off of building permit:

- The Owner will need to supply the District a set of approved Fire Sprinkler calculations certified by a fire Protection Engineer to verify required max fire flow water demand.
- The Owner will need to enter into a Main-Line Extension agreement with the district for all construction aspects of the project.
- The Owner will make good faith effort to stay in contact with the district through the plan check phase until the civil plans are adequate to district standards. This will require a final signature sign-off from the District Engineer.
- The Owner will submit one set of signed plans by the City of Carpinteria to the District.
- The owner will ensure all fees are paid in full stipulated from the Main-Line Extension agreement.
- The district will require a letter of terms (if any) set forth by the Carpinteria-Summerland Fire Department at the expense of the owner.

Prior to sign-off of final occupancy:

- The district will require one set of As-Builts to the degree of standard acceptable to the district engineer. In the event As-Builts are subpar, the district will use staff time to get As-Builts to acceptable form. Final occupancy will not be signed prior to this.
- The district will require all necessary capital cost recovery fees and any remaining outstanding balances to be paid to the district prior to signoff.

If you have any questions, please contact me at jeremy@cvwd.net or 805-684-2816x103.

Thank you,
Carpinteria Valley Water District

Jeremy W. Rentch, P.E.
Associate Engineer

C: File Copy
nickb@ci.carpinteria.ca.us

CARPINTERIA
Sanitary District

5300 Sixth Street
Carpinteria, CA 93013
Phone (805) 684-7214 • Fax (805) 684-7213

October 6, 2017

RECEIVED
OCT 09 2017
CITY OF CARPINTERIA

Nick Bobroff
Community Development Department
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, California 93013

RE: Project No. 16-1840 DP/CDP
1300 Cravens Lane (APN: 004-013-026)
Applicant: 1300 Craven's Lane, LLC
Agent: Wildflower Development Services

Dear Mr. Bobroff:

Thank you for the opportunity to provide comments on the subject project. The Carpinteria Sanitary District (District) has reviewed preliminary plans and offers the following comments to provide the applicant with direction and information related to the provision of sanitary sewer service for the proposed development.

- The Owner of Record shall enter into an Agreement for Construction of Wastewater Conveyance Facilities with the District. This agreement will establish specific requirements for proposed improvements and subsequent dedication of infrastructure. All fees and performance bonds required by this agreement are due to the District prior to construction.

- Prior to construction, the developer shall record all necessary easements for public sewer facilities. Such easements shall be centered on all public sewers and not be less than twenty (20) feet in width unless a lesser width is approved by the District. All easement rights for access and services including indemnification for the District from all other parties sharing the same easement shall be provided in the recorded easement. Preparation of required easement documents shall be the sole responsibility of the applicant and reviewed and approved by the District.

- No permanent structures shall be constructed on any portion of the easements. Deep rooting trees shall not the District's recorded easements. The easements should be illustrated on the site plans.

- Any sewer improvements shall conform to approved District construction standards for materials and methods.

- A sewer construction permit is required for any and all work on the sewer improvements for the proposed project. The permit shall be procured and applicable fees paid prior to issuance of Building permits. The applicant shall submit an engineered drawing to the District showing any proposed sewer connections, alterations or additions. During the construction, it is the applicant's and contractor's responsibility to notify the District for inspection and of any sewer improvements or modifications not noted on the approved plans.

- Provide a note on the utility plans to inform the Contractor that a permit from the District is required prior to any sewer construction work. Please allow at least 48 hour advanced notice to the District for inspections. The District can be reached at (805) 684-7214 x13.

The District has calculated applicable fees for the main sewer extension proposed to serve 31 residential units located at 1300 Cravens Lane (Green Heron Springs). The fees are based on the Engineers Construction Estimate from United Civil, Inc. dated August 8, 2017.

1300 Craven's Lane LLC (Developer) shall construct approximately 1,115 linear feet of 8-inch diameter gravity sewer, 195 linear feet of 6-inch private sewer, thirty-one sewer lateral connections with property line cleanouts, ten standard sewer manholes, five sewer main cleanouts and one connection to an existing sewer manhole in accordance with District specifications.

The applicable fees are summarized below:

Permit Fees	Total
Plan Check ($300.00 plus 1.5% of project cost)	$2,212.00
Permit	$25.00
Project Inspection (3.5% estimated cost)	$4,462.00
Development Impact Fee (31 EDUs @$4600.00)	$142,600.00
Total Fees Due	**$149,299.00**

The project inspection costs are an estimate. Actual costs of construction observation and inspection by District staff or District contractor(s) will be billed to the project. If observation and inspection are less than the estimated cost, the project will be credited. If additional time is required, the project may be billed.*

*The rates and fees listed above are valid through June 30, 2018.

In addition to the DIF and permit fees, a performance bond, or letter of credit, in the

amount of 100% of the cost of the public improvements will be required before a sewer construction permit is issued. The performance bond or letter of credit will be in the amount of the total engineers estimated construction cost **($127,493.00)**. The bond or letter of credit shall guarantee faithful performance of the required sewer improvements per District standards and specifications and per approved construction plans.

District sewer service charges (SSCs) are collected through the County of Santa Barbara property tax rolls on an annual basis. Prior to obtaining a certificate of occupancy, the applicant may be required to pay District applicable SSCs due for the period between building occupancy and the following June 30th.

If you have questions or comments regarding any of the conditions provided, please contact me at (805) 684-7214 x13, or lancel@carpsan.com. Thank you.

Sincerely,
Carpinteria Sanitary District

Lance Lawhon
Engineering Technician

C: Scott Dinovitz – 1300 Craven's Lane LLC
Nancy Johns – Wildflower Development Services

CARPINTERIA~SUMMERLAND FIRE PROTECTION DISTRICT

RECEIVED
APR 2 4 2017
CITY OF CARPINTERIA

April 21, 2017

Lucy Grahanm
Associate Planner
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: Green Heron Springs Condominium
Project No.16-1840-DP/CDP
APN 004-013-026

Dear Lucy Graham:

The following items are necessary for fire protection:

1. Access to all structures shall conform to the requirements for private roads and driveways set forth in the Santa Barbara County Private Roads & Driveway Standards, Section 8. Minimum paved roadway width of twenty-four feet shall be provided for two way traffic and 20 feet of paved roadway surface shall be provided for the one way loop section.

2. Approved signs and markings shall be provided for fire apparatus access roads. Roadway clearance shall be maintained in accordance with the provisions of Vehicle Code 22500.

3. A secondary means of access shall be provided. Such access roadway shall conform to the requirements for private roads and driveways as set forth in the Santa Barbara County Private Road & Driveway Standards, Section 8.

4. When access ways are gated, a Fire District approved key box or switch shall be installed in an accessible location. Prior to installation, the Fire District shall approve the location and type.

5. Roof access must meet the requirements stated in the Carpinteria Municipal Code.

6. Visible street address must be posted at the on the buildings. Numbers shall be a minimum 4 inches high on a contrasting background.

7. Public fire hydrants supplying the required fire flow within the required driving distance from the structures shall be provided. Both the Fire District and the applicable Water District shall approve the type of hydrant and the exact location. The new fire hydrant(s) shall be installed and in-service prior to any construction.

8. All new buildings structures shall be protected by an approved automatic fire sprinkler system. Prior to installation, plans for the proposed fire sprinkler system shall be designed by a qualified person and submitted to the prevention bureau for approval.

9. Any future changes, including further division, intensification of use, or increase in hazard classification, may require additional conditions in order to comply with applicable fire district development standards.

10. Per Carpinteria-Summerland Fire District Ordinance No. 2003-01 pertaining to fees and service charges, a permit application fee is assessed on all plans reviews.

11. Pursuant to C.S.F.P.D. Ordinance No. 92-02 and Carpinteria City Ordinance No. 599, prior to issuance of a "Certificate of Occupancy", the Carpinteria-Summerland Fire Protection District mitigation fee must be paid.

If you need additional information on Fire District conditions, please contact me at 566-2451.

Sincerely,

Ed Foster

Ed Foster
Fire Marshal
Fire Prevention Bureau

Santa Barbara County
Air Pollution Control District

June 26, 2017

Nick Bobroff
City of Carpinteria
Community Development Department
5775 Carpinteria Avenue
Carpinteria, CA 93013

Re: APCD Suggested Conditions on Green Heron Spring, 16-1840-DP/CDP

Dear Mr. Bobroff:

The Air Pollution Control District (APCD) has reviewed the referenced project, which consists of a proposed 31-unit multifamily residential development. The project consists of 8 single-family detached homes, 13 townhomes, and 10 stacked flats. One existing residence on the property would remain and integrated into the project and all of the remaining existing buildings would be dismantled to accommodate new construction. There will also be site improvements like grading for development, stormwater improvements, a private circular drive, provision of community open space areas/amenities, restoration and enhancement of an agriculture pond/wetland, and site landscaping. The subject property, a 4.1-acre parcel zoned PUD (Planned Unit Development) and identified in the Assessor Parcel Map Book as APN 004-013-026, is located at 1300 Cravens Lane in the City of Carpinteria.

Air Pollution Control District staff offers the following suggested conditions:

1. Standard dust mitigations (**Attachment A**) are recommended for all construction and/or grading activities. The name and telephone number of an on-site contact person must be provided to the APCD prior to grading/building permit issuance.

2. APCD Rule 345, *Control of Fugitive Dust from Construction and Demolition Activities* establishes limits on the generation of visible fugitive dust emissions at demolition and construction sites. The rule includes measures for minimizing fugitive dust from on-site activities and from trucks moving on- and off-site. The rule can be viewed at www.ourair.org/wp-content/uploads/rule345.pdf.

3. The State of California considers particulate matter emitted by diesel engines carcinogenic. Therefore, during project grading, construction, and hauling, construction contracts must specify that contractors shall adhere to the requirements listed in **Attachment B** to reduce emissions of particulate matter (as well as of ozone precursors) from diesel equipment. Recommended measures should be implemented to the maximum extent feasible.

4. All portable diesel-fired construction engines rated at 50 bhp or greater must have either statewide Portable Equipment Registration Program (PERP) certificates or APCD permits prior to grading/building permit issuance. Construction engines with PERP certificates are exempt from APCD permit, provided they will be on-site for less than 12 months.

5. Advisory: The applicant should determine whether any structure(s) proposed for demolition or renovation contains asbestos that is friable or has the potential to become friable during demolition or disposal. If any structure does contain friable asbestos, the asbestos should be removed by a contractor that is state certified for asbestos removal. For more information on asbestos in construction, please see www.ourair.org/asbestos/.

6. Natural gas-fired fan-type central furnaces with a rated heat input capacity of less than 175,000 Btu/hr and water heaters rated below 75,000 Btu/hr must comply with the emission limits and certification requirements of APCD Rule 352. Please see www.ourair.org/wp-content/uploads/rule352.pdf for more information.

7. Small boilers and water heating units (rated between 75,000 and 2.0 million Btu/hr) must comply with the emission limits and certification requirements of APCD Rule 360. Combinations of units totaling 2.0 million Btu/hr or greater are required to obtain a District permit prior to building permit issuance. Please see www.ourair.org/wp-content/uploads/rule360.pdf for more information and a list of certified boilers (note: any units fired on fuel(s) other than natural gas must be certified by the APCD on a case-by-case basis, even if the unit is certified when fired on natural gas).

8. At a minimum, prior to occupancy, any feasible greenhouse gas reduction measures from the following sector-based list should be applied to the project:
   - Energy use (energy efficiency, low carbon fuels, renewable energy)
   - Water conservation (improved practices and equipment, landscaping)
   - Waste reduction (material re-use/recycling, composting, waste diversion/minimization)
   - Architectural features (green building practices, cool roofs)

9. Asphalt paving activities shall comply with APCD Rule 329, *Cutback and Emulsified Asphalt Paving Materials*.

If you or the project applicant have any questions regarding these comments, please feel free to contact me at (805) 961-8893 or via email at NightingaleK@sbcapcd.org.

Sincerely,

Krista Nightingale

Krista Nightingale,
Air Quality Specialist
Technology and Environmental Assessment Division

Attachments: Fugitive Dust Control Measures
Diesel Particulate and NO_x Emission Measures

cc: Nancy John, Wildflower Development Services
TEA Chron File

Santa Barbara County
Air Pollution Control District

ATTACHMENT A
FUGITIVE DUST CONTROL MEASURES

These measures are required for all projects involving earthmoving activities regardless of the project size or duration. Proper implementation of these measures is assumed to fully mitigate fugitive dust emissions.

- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.

- Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.

- If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

- Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

- After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to grading/building permit issuance and/or map clearance.

  Plan Requirements: All requirements shall be shown on grading and building plans and/or as a separate information sheet listing the conditions of approval to be recorded with the map. **Timing**: Requirements shall be shown on plans prior to grading/building permit issuance and/or recorded with the map during map recordation. Conditions shall be adhered to throughout all grading and construction periods.

  MONITORING: Lead Agency shall ensure measures are on project plans and/or recorded with maps. Lead Agency staff shall ensure compliance onsite. APCD inspectors will respond to nuisance complaints.

Santa Barbara County
Air Pollution Control District

ATTACHMENT B
DIESEL PARTICULATE AND NO_x EMISSION REDUCTION MEASURES

Particulate emissions from diesel exhaust are classified as carcinogenic by the state of California. The following is a list of regulatory requirements and control strategies that should be implemented to the maximum extent feasible.

The following measures are required by state law:

- All portable diesel-powered construction equipment shall be registered with the state's portable equipment registration program OR shall obtain an APCD permit.
- Fleet owners of mobile construction equipment are subject to the California Air Resource Board (CARB) Regulation for In-Use Off-Road Diesel Vehicles (Title 13, California Code of Regulations (CCR), §2449), the purpose of which is to reduce oxides of nitrogen (NOx), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. Off-road heavy-duty trucks shall comply with the State Off-Road Regulation. For more information, see www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.
- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use (On-Road) Heavy-Duty Diesel-Fueled Vehicles (Title 13, CCR, §2025), the purpose of which is to reduce DPM, NOx and other criteria pollutants from in-use (on-road) diesel-fueled vehicles. On-road heavy-duty trucks shall comply with the State On-Road Regulation. For more information, see www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.
- All commercial off-road and on-road diesel vehicles are subject, respectively, to Title 13, CCR, §2449(d)(3) and §2485, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

The following measures are recommended:

- Diesel equipment meeting the CARB Tier 3 or higher emission standards for off-road heavy-duty diesel engines should be used to the maximum extent feasible.
- On-road heavy-duty equipment with model year 2010 engines or newer should be used to the maximum extent feasible.
- Diesel powered equipment should be replaced by electric equipment whenever feasible.
- Equipment/vehicles using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel, should be used on-site where feasible.
- Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
- All construction equipment shall be maintained in tune per the manufacturer's specifications.
- The engine size of construction equipment shall be the minimum practical size.
- The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
- Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.

Plan Requirements: All requirements shall be shown on grading and building plans and/or as a separate information sheet listing the conditions of approval to be recorded with the map. **Timing:** Requirements shall be shown on plans prior to grading/building permit issuance and/or recorded with the map during map recordation. Conditions shall be adhered to throughout all grading and construction periods.

MONITORING: Lead Agency shall ensure measures are on project plans and/or recorded with maps. Lead Agency staff shall ensure compliance onsite. APCD inspectors will respond to nuisance complaints.

Exhibit 2
Project Description Letter
Prepared by Applicant

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

GREEN HERON SPRING PROJECT DESCRIPTION

I. PROJECT APPLICANT

1300 CRAVENS LANE, LLC
23622 Calabasas Road, Suite 220
Calabasas, California 91302

II. PROJECT DESCRIPTION/ SETTING/ EXISTING CONDITIONS

The proposed "GREEN HERON SPRING" project provides for a new Carpinteria community to be developed on a ~4-acre site at the northwest end of the City. The project vision embraces a low intensity residential development tucked within a natural environmental setting. Implementation of the proposed project consists of the removal and dismantling of one residence, several abandoned outbuildings and a barn associated with a prior use at the site, and grading for land development. An existing residence to remain will be remodeled and finished with a complementary architectural style to the thirty new residences. The Green Heron Spring project is comprised of two development components: residential, and community/open space. These development components are outlined below:

Green Heron Spring Residential Component. The for-sale project offers a new residential neighborhood, consisting of eight (8) single-family detached homes, thirteen (13) townhomes, and ten (10) stacked flats, each linked via driveway/pathways to a central open-air pavilion with supporting community amenities. Four (4) affordable units will be provided as part of the development, serving low-income qualified residents.

Green Heron Spring Community/Open Space Component. The site plan provides for the preservation of existing mature native trees and open spaces by setting aside green pocket areas interspersed throughout the property. These urban open spaces include a community garden, passive seating areas and an enhanced and restored pond with a looping trail system, and are integral to the project design in a natural park-like setting.

The project site is generally located on the northwest side of the City with the nearest intersection located south of the site at Craven's Lane and Via Real, in the City of Carpinteria, County of Santa Barbara, California.

A. Regional, Local, and Project Setting

Regional Setting
Santa Barbara County was one of the state's original counties and was incorporated in 1850. The County has a total land area of 3,789 square miles with a 2010-estimated population of approximately 425,000 residents. The County is geographically defined by its proximity to the Pacific Ocean, and includes the City of Santa Barbara and four of the five Channel Islands.

Santa Barbara County is bordered by Ventura County to the south, San Luis Obispo County to the north; Kern County to the east; and the Pacific Ocean to the west. The City of Carpinteria is located at the southern end of Santa Barbara County.

Local Setting
The City of Carpinteria is an ocean-side City located adjacent to the foothills of the Santa Ynez Mountains. The City was incorporated in 1965 and covers 7.3 square miles (2.6 square miles of land and 4.7 square miles of tidelands) with a recorded population of 13,040 (2010).

Project Setting
The project is located at the northwest end of the City of Carpinteria. The site consists of one parcel, identified as assessor's parcel number 004-013-26. The site acreage is 3.89 acres and has generally flat topography.

The existing barn was built in the 1920's, however, there are no documented historic structures located onsite (per a Phase I Historic Resources Report). Prior to its current use, the site was formerly used for avocado farming. The current use consists of two single-family residences, an old barn, outbuildings (vacant to be demolished), and a water tower. There is also an existing pond located onsite.

The pond is located on the southwestern portion of the subject site. This provides for a natural site amenity as well as a drainage feature. A private dirt road bisects the center of the property leading to the existing main house.

B. Site Access and Traffic Circulation

U.S. 101 is the primary access route serving the City of Carpinteria and the subject site. Regional access to the Carpinteria Valley is provided by U.S. 101, which is the main transportation corridor providing access between Ventura and Santa Barbara Counties. General access and circulation throughout the City of Carpinteria is provided by a number of north/south and east/west thoroughfares connecting to U.S. 101.

The project site is located less than one-quarter mile east of U.S. 101. Access to the freeway can be gained from the Santa Monica Road and Padaro Lane interchanges.

Local street access to the project site will be provided via a new private street ("Green Heron Spring Drive") which will be accessed directly off of Craven's Lane.

C. Existing Land Uses and Surrounding Area Land Uses

Existing Land Uses
The subject property is currently developed with two single-family homes, outbuildings, an old barn, storage sheds and a pond. There are numerous oak, sycamore, and redwood trees situated throughout the site. Many of these native trees are in fair to poor health (per a recent assessment by an arborist).

Surrounding Land Uses
North of the site is a County of Santa Barbara Flood Control District detention basin, with Westland Floral, an orchid farmer further to the north. West of the site, across Craven's Lane is a mobile home park,

known as "Sandpiper Mobile Village". East of the site is Florabundance, a warehouse distribution facility that ships wholesale flowers nationwide. South of the site, across a private driveway serving the Florabundance property, are the Villas and Franciscan Village condominium developments.

III. PROPOSED PROJECT

A. Development Plan

Site Preparation

Site preparation for construction involves the removal of one of the existing residences, all of the existing outbuildings, and clearing and grubbing of the site. The project Tree Report inventories and identifies the removal of thirteen specimen trees and the relocation of one oak tree as part of project development (along with proposed onsite mitigation for the loss of these trees). All remaining specimen trees will be protected in place to be incorporated into the project design. Impacts during construction to these remaining trees will be minimized or avoided pursuant to the measures described in the Tree Report. Land development includes grading the site to create rough graded pads for new construction. Earthwork quantities pertaining to site grading include 1,348 cubic yards of cut and 2,917 cubic yards of fill, with a net import of 1,569 cubic yards.

Project Components

Project development of Green Heron Spring includes the construction of 59,926 livable square feet of residential uses. The Project will provide the local community with an additional 30 residences, including four affordable residences. Common area improvements include the following project amenities; a nature loop trail, passive seating areas, pavilion, picnic areas, community garden, driveway, walkways, and landscaping and lighting.

Project Breakdown

Residential Component

The project proposes 30 new homes, totaling 69,929 SF of new construction. The proposed plan types offer two and three bedroom homes, and one four-bedroom residence, ranging in size from ~1,300 SF to ~2,300 SF.

PRODUCT TYPE	UNIT COUNT	LIVABLE SF
Flats		
Plan 1: 2 Bedroom/2Bath/1 Car Garage =	4 Units	1,313 SF
Plan 1x: 2 Bedroom + Den/2Bath/1 Car Garage =	4 Units	1,545 SF
Plan 8: 2 Bedroom/2Bath/1 Car Garage =	1 Unit	1,274 SF
Plan 8x: 2 Bedroom/2Bath/1 Car Garage =	1 Unit	1,427 SF
Townhomes		
Plan 2: 3 Bedroom/2.5 Bath/2 Car Garage =	4 Units	2,013 SF
Plan 3: 3 Bedroom/3.5 Bath/2 Car Garage =	5 Units	1,864 SF
Duplex		
Plan 5: 3 Bedroom/2.5 Bath/2 Car Garage =	4 Units	1,728 SF

Single-Family Detached		
Plan 4: 3 Bedroom +Den /2.5 Bath/2 Car Garage =	6 Units	2,282 SF
Plan 6: 4 Bedroom/3 Bath/2 Car Garage =	1 Unit	2,301 SF
Existing Residence Remodel*	1 Unit	3,516 SF
*Total Livable Area		
Totals	**31 Units**	**59,926 SF***

The Development Plan provides for four affordable units (12% of the total project units) to be sold to qualifying low-income residents. These four units, identified on the site plan, designed with the same architecture as the market rate units, will be interspersed within the residential community.

Project Parking
The proposed development plan provides for a total of 74 parking spaces. This includes 53 residential spaces located within private garages and 21 uncovered on-street parking spaces sprinkled throughout the development to provide additional parking for residences and required visitor/guest spaces. The proposed project is consistent with the City parking code requirements. Additionally, a handful of new, public on-street parking spaces will be provided along the site frontage on Craven's Lane.

Project Access
Project access will be provided by a new private street, "Green Heron Spring Drive" from Cravens Lane. The site design provides for one point of access via a single entrance/exit driveway, which loops through the project site, around the central Pavilion. A secondary emergency access is also provided, which will be gated with a knox box for authorized emergency vehicle use only providing access to the private driveway to the south of the subject property.

Project Design and Amenities
The Green Heron Spring project consists of quality designed homes set amongst mature trees in a park-like setting. These two, three, and four bedroom homes feature a great room, efficiently designed kitchens with high quality appliances, spacious master bedrooms and bathrooms, patios and balconies for indoor/ outdoor living, and private yards. The architectural style is Coastal Farmhouse, which provides a balance of rustic elements mixed with refined elegance complementary to the modern California lifestyle.

The homes will share a cohesive, complementary architectural theme. Several Coastal Farmhouse style architectural features have been implemented into the overall plan, including the following:

- Low to Medium Roof Pitches (4:12)
- Siding Material with Board and Batten Appearance
- Metal Roof Accents Providing Rustic Element
- Combined Use of Wood and Metal Architectural Details
- Wrought Iron Juliet Balconies
- Porches with Wood Beams
- Recessed Doors and Windows
- Earth Tones/Natural Color Palette

Integrated Site Design
The project concept design promotes site walkability by the inclusion of walking paths and community gathering spaces throughout the development. Further, the plan proposes the enhancement of the pond, with a native plant zone provided around the wetland and the reestablishment of this natural drainage feature.

Private community amenities include a centralized open-air pavilion with social areas including a kitchenette, outdoor grill, fireplace lounge area, and outdoor seating areas. The site plan also showcases a unique garden area, which will provide several defined planter areas for the community to grow their own fresh produce and herbs. Another lounging area is located in the northeast corner of the site, which is accessed by a natural pathway off the pavilion loop over a wooden bridge to a passive seating area. The decomposed granite walking path around the pond includes a picnic table with benches providing another peaceful gathering space within the development. The Green Heron Spring Homeowner's Association will maintain all private common spaces.

B. Leadership In Energy & Environmental Design (LEED)

The project is sensitive to environmental design and incorporates the principals of sustainable design and energy efficiency based on the proposed conceptual design.

The Green Heron Spring Project is designed to meet LEED "gold" standards through the implementation of integrated green building techniques. The blend of single-family and multi-family housing is consistent with compact development design by occupying less horizontal space, thereby reducing the conversion of undeveloped land. Project landscaping will emphasize native and drought-tolerant plant species and provide landscape buffers in the form of native mature trees, community gardens, and ample gathering spaces to define specific land uses within the development. Further, the project design supports a pedestrian and bicycle-friendly environment with connectivity among neighbors within the community.

Notable green building design features include:

- Water Efficient Bathroom/Kitchen Fixtures
- Energy Star Appliances (Kitchen and Laundry)
- Foil Backed Roof Sheathing
- 2 x 6 Exterior Wall Construction and Higher Insulation Values
- Solar Panels on Roofs
- LED Lights throughout Project
- Electric Car Chargers in Each Garage
- Strive to Achieve 15% Above Current Title 24 Code for Energy Efficiency
- Develop a Construction Air Quality Management Plan Detailing Requirements to Manage Indoor Air Quality and Exhaust. Install MERV 6 or Higher Return Air Filters Prior to Occupancy.
- Provide Roof Drainage and Downspout Systems that Collect Water in Pipes and Disperse Away From Building Foundations
- Strive to Achieve High Percentage of Construction Waste Recycling and Diversion from Landfill.
- Native, Drought Tolerant Plants Reducing the Reliance on Potable Water Resources.
- Low Water Consumption Irrigation System and Irrigation Metering Devices, Weather/Soil Based and Compliance with MWELO

- Reuse of Nutrient Rich Top Soils for Onsite Plantings, Where Feasible.
- Community Gardens to Promote the Cultivation of Edible Produce.
- Repurposing of Early 1920's Barn Siding and Doors to Reuse in Existing Residence.

C. Project Schedule

Land development site improvements will take an estimated 4 months for rough grading, street, utilities, and common area improvements. Project vertical construction is estimated to occur over 20 months in three phases with approximately 10 units per phase. Project build out is estimated to be 24 months.

D. Required Project Approvals

Development of the Green Heron project will require the following City approvals:

- Development Plan
- Coastal Development Permit
- Final Tract Map Approval
- Building Permit(s)
- Grading/Engineering Permit

As mandated by State law, the project is subject to the California Environmental Quality Act (CEQA) statute. The CEQA environmental review process imposes both procedural and substantive requirements, with the City of Carpinteria designated as the lead agency.

Exhibit 3
Story Pole Photographs

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

Building Layout



Buildings 13, 14 & 15





Buildings 14 & 15





Building 13 (left); Buildings 9, 10, 11 (right)





Building 1





Building 15 from Cravens Lane





Buildings 9 & 11 from adjacent properties





Exhibit 4
Color & Material Boards, And Exterior Light Standards

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

ROOFING

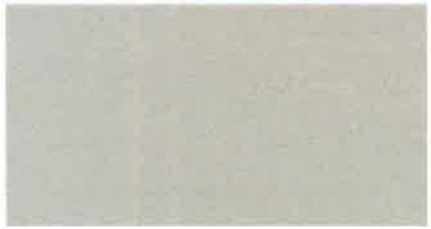


METAL AWNING

FASCIA & TRIM



SIDING



STUCCO

GARAGE DOOR

RAILING



GREEN HERON SPRINGS

CARPINTERIA, CALIFORNIA

2/28/17

1

2016101

VALDIN, LLC.

WILLIAM HEZMALHALCH ARCHITECTS INC © 2017

For exact color refer to manufacturers' actual samples.

WILLIAM HEZMALHALCH ARCHITECTS INC

January 10, 2017

VALDIN, LLC

GREEN HERON SPRING

Carpenteria, California

Project #2016101

EXTERIOR COLOR & MATERIALS

***SCHEME 1** of 3*

MATERIAL	COLOR	MANUFACTURER
ROOFING: Composition Roof Tile	COOL WEATHERED WOOD	GAF
[1] **METAL AWNING**	ZINCALUME	CUSTOM-BILT METALS
GUTTERS & DOWNSPOUTS *(Factory Finish)*	TBD	TBD
VINYL WINDOWS *(Factory Finish)*	TBD	SEMCO
STUCCO COLOR	SW 9166 DRIFT OF MIST	SHERWIN WILLIAMS
SIDING COLOR *(applied to):* Corner Boards, Horizontal Siding, Vertical Siding	SW 6171 CHATROOM	SHERWIN WILLIAMS
TRIM COLOR #1 *(applied to):* Barge Boards, Eaves, Fascia, Posts, Rafter Tails, Secondary Doors, Trim	SW 9108 DOUBLE LATTE	SHERWIN WILLIAMS
TRIM COLOR #2 *(applied to):* Garage Doors	SW 9165 GOSSAMER VEIL	SHERWIN WILLIAMS
FRONT DOOR	LIGHT OAK	THERMA TRU
METAL RAILING	SW 7020 BLACK FOX	SHERWIN WILLIAMS
GARAGE DOOR WEATHER STRIP *(Factory Finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact Karen Moyer.

William Hezmalhalch Architects, Inc. © 2017

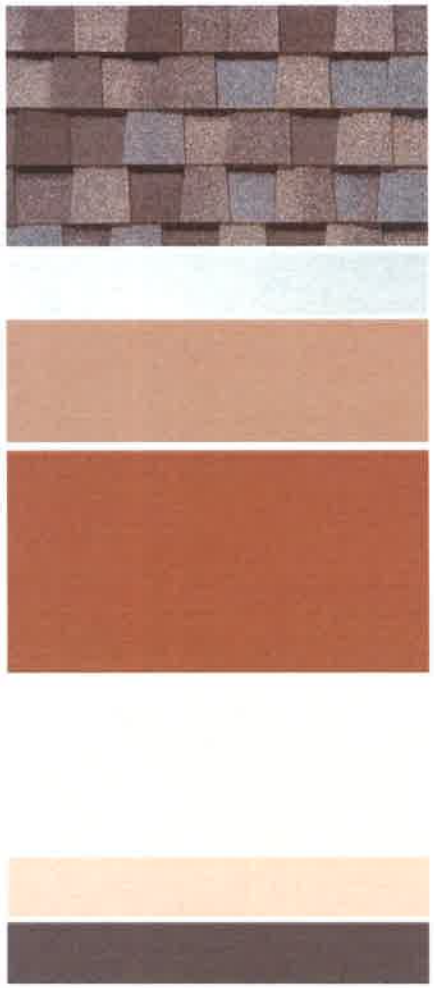
REVISIONS:

REVISION NO.	DATE	DESCRIPTION
1	2/28/17	Garage door colors and metal awning added.

2850 Redhill Avenue Suite 200 Santa Ana CA 92705-5543
Tel 949 250 0607 Fax 949 250 1529

www.wharchitects.com

5000 Executive Parkway Suite 375 San Ramon CA 94583-4210
Tel 925 463 1700 Fax 949 250 1529



GREEN HERON SPRINGS

CARPINTERIA, CALIFORNIA

2/28/17

2

2016101

VALDIN, LLC.

WILLIAM HEZMALHALCH ARCHITECTS INC © 2017

For exact color refer to manufacturers' actual samples.

WILLIAM HEZMALHALCH ARCHITECTS INC

January 10, 2017

VALDIN, LLC

GREEN HERON SPRING

Carpenteria, California

Project #2016101

EXTERIOR COLOR & MATERIALS

***SCHEME 2** of 3*

MATERIAL	COLOR	MANUFACTURER
ROOFING: Composition Roof Tile	COOL WEATHERED WOOD	GAF
METAL AWNING	ZINCALUME	CUSTOM-BILT METALS
GUTTERS & DOWNSPOUTS *(Factory Finish)*	TBD	TBD
VINYL WINDOWS *(Factory Finish)*	TBD	SEMCO
STUCCO COLOR	SW 9166 DRIFT OF MIST	SHERWIN WILLIAMS
SIDING COLOR *(applied to):* Corner Boards, Horizontal Siding, Vertical Siding	Match Dunn Edwards DEA 160 HOPE CHEST	SHERWIN WILLIAMS
TRIM COLOR #1 *(applied to):* Barge Boards, Eaves, Fascia, Posts, Rafter Tails, Secondary Doors, Trim	SW 9108 DOUBLE LATTE	SHERWIN WILLIAMS
TRIM COLOR #2 *(applied to):* Garage Doors	SW 9110 MALABAR	SHERWIN WILLIAMS
FRONT DOOR	LIGHT OAK	THERMA TRU
METAL RAILING	SW 7020 BLACK FOX	SHERWIN WILLIAMS
GARAGE DOOR WEATHER STRIP *(Factory Finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact Karen Moyer.

William Hezmalhalch Architects, Inc. © 2017

REVISIONS:

REVISION NO.	DATE	DESCRIPTION
1	2/28/17	Garage door colors and metal awning added.

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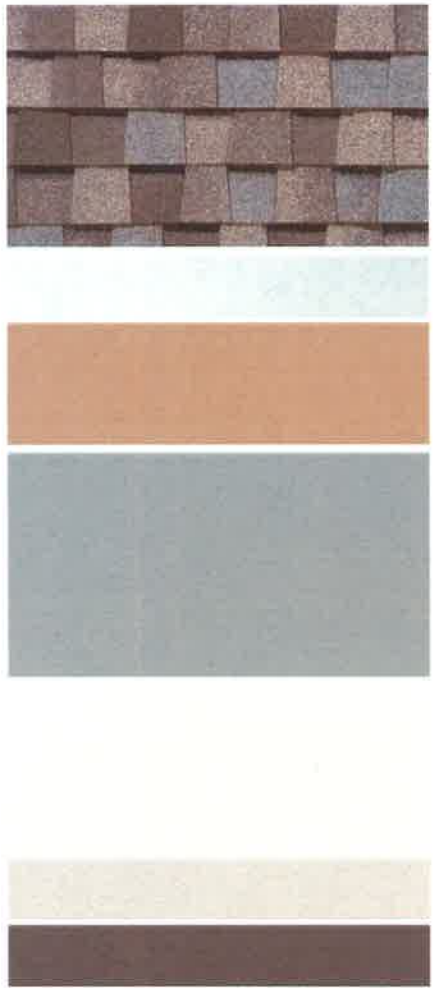
www.whahitects.com

5000 Executive Parkway Suite 375 San Ramon, CA 94583-4310
Tel 925 463 1700 Fax 949 250 1529



GREEN HERON SPRINGS

CARPINTERIA, CALIFORNIA

2/28/17

3

2016101

VALDIN, LLC.

WILLIAM HEZMALHALCH ARCHITECTS INC © 2017

For exact color refer to manufacturers' actual samples.

WILLIAM HEZMALHALCH ARCHITECTS INC

January 10, 2017

VALDIN, LLC

GREEN HERON SPRING

Carpenteria, California

Project #2016101

EXTERIOR COLOR & MATERIALS

***SCHEME 3** of 3*

MATERIAL	COLOR	MANUFACTURER
ROOFING: Composition Roof Tile	COOL WEATHERED WOOD	GAF
[1] **METAL AWNING**	ZINCALUME	CUSTOM-BILT METALS
GUTTERS & DOWNSPOUTS *(Factory Finish)*	TBD	TBD
VINYL WINDOWS *(Factory Finish)*	TBD	SEMCO
STUCCO COLOR	SW 9166 DRIFT OF MIST	SHERWIN WILLIAMS
SIDING COLOR *(applied to):* Corner Boards, Horizontal Siding, Vertical Siding	SW 9163 TIN LIZZIE	SHERWIN WILLIAMS
TRIM COLOR #1 *(applied to):* Barge Boards, Eaves, Fascia, Posts, Rafter Tails, Secondary Doors, Trim	SW 9108 DOUBLE LATTE	SHERWIN WILLIAMS
TRIM COLOR #2 *(applied to):* Garage Doors	[1] SW 1015 SKYLINE STEEL	SHERWIN WILLIAMS
FRONT DOOR	LIGHT OAK	THERMA TRU
METAL RAILING	SW 7020 BLACK FOX	SHERWIN WILLIAMS
GARAGE DOOR WEATHER STRIP *(Factory Finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact Karen Moyer.

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REVISIONS:

REVISION NO.	DATE	DESCRIPTION
1	2/28/17	Garage door colors and metal awning added.

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5000 Executive Parkway Suite 375 San Ramon CA 94583-4210
Tel 925 463 1700 Fax 949 250 1529

LIGHTING FIXTURE SCHEDULE

TYPE(WATT)	MOUNTING	MANUFACTURER	LAMP	DESCRIPTION
A 53W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P6 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1300.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 18' 10 1/4"; LIGHT SOURCE HEIGHT 15'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00074 REV A) ANCHOR BOLTS 3/4" DIAMETER, 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2"; BOLT CIRCLE 5 7/8"	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED FOR (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN
A1 39 W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P4 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1300.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 18' 10 1/4"; LIGHT SOURCE HEIGHT 15'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00074 REV A) ANCHOR BOLTS 3/4" DIAMETER, 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2"; BOLT CIRCLE 5 7/8"	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED WITH (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN
B 27W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P2 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1300.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 9' 3/4"; LIGHT SOURCE HEIGHT 10'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00071 REV A) ANCHOR BOLTS 3/4" DIAMETER; 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2" X 5 7/8" BOLT CIRCLE.	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED FOR (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN
C 41 W	BOLLARD	LIGMAN EURASIA 1 BOLLARD UEU - 10026 - 41W - 1 (DOME) - O (OPAL DIFFUSER) - W30 (3000K LED) - 02 (DARK GREY - RAL 7043) - 120V - STEP SD2 - 120 TRPP - (BI LEVEL INTEGRAL STEP DIMMING DRIVER - THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - ANCHOR BOLT KIT REFER TO MANUFACTUERER'S DATA SHEET FOR FASTENING WITH ANCHOR BOLTS AND FOOTING DETAILS	LED 3000K	48" H (24 LBS) 3000K LED BOLLARD LIGHTING FIXTURES MUST BE WIRED FOR (2) HOTS: FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN. IP 55 & IK08 RATED.

LIGHTING FIXTURE NOTES:

EXTERIOR NIGHT LIGHTING SAHLL BE OF LOW INTENSITY, LOW GLARE DESIGN, MINIMUM HEIGHT AND SHALL BE HOODED TYPE TO DIRECT LIGHT DOWNWARD ONTO THE SUBJECT PARCEL AND PREVENT SPILL-OVER ONTO ANY ENVIORNMENTAL SENSITIVE AREAS, WETLAND AREAS INCLUDING THE EXISTING RETENTION BASIN/DRAINAGE POND) AND ADJACENT PARCELS. THE LIGHT FXITURE CIRCUITING SHALL BE PROVIDED TO BE DIMMED AFTER 10 PM

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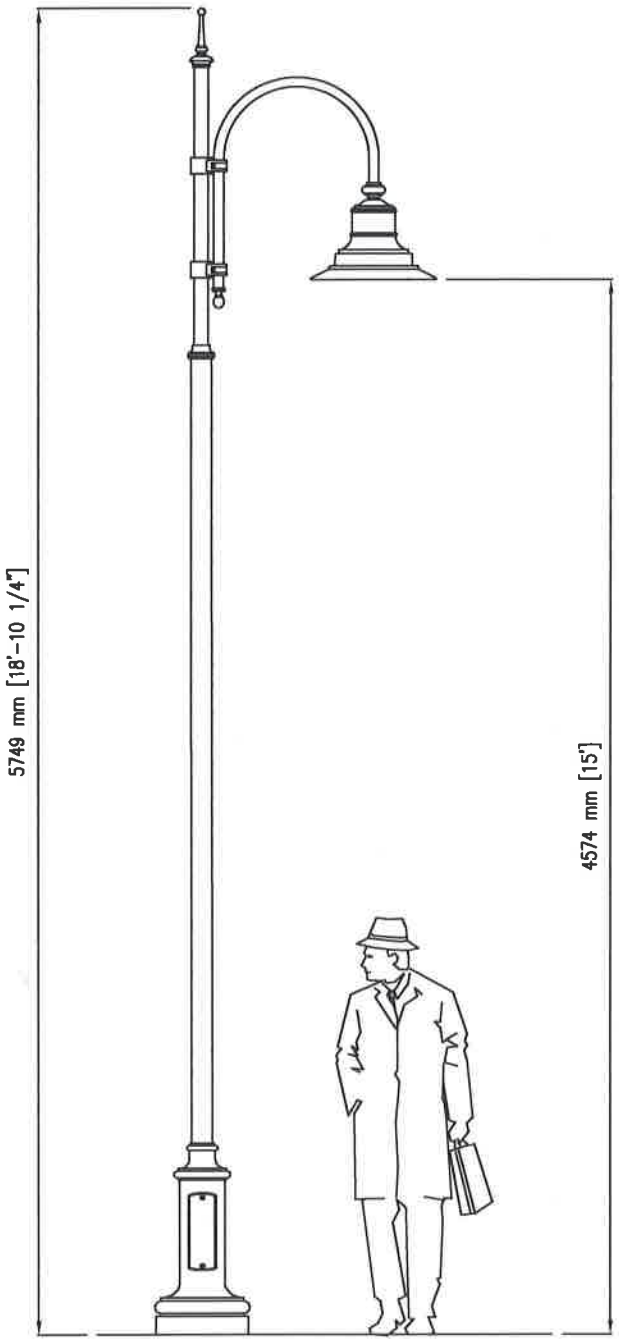
Custom

FIXTURE TYPE A & A1



POSTS

Models

Post: 1300.401 (custom)
Top: 4102.170.500
Lantern: SU213L
Scale: 1:25

Dimensions

Total height: 18' ft 10-1/4" in
Light source height: 15' ft --" in
Pole height: 13' ft 3/4" in
Bracket lenght from pole center
to lantern fixing point: 2' ft 5.5" in
Drawing Number US-00074
Rev A
Page number: 1/1

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NERI

Project location:			
Project name:			
Model #:	1300.401.201	Date	

Fixture type:	

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Rev. 3 - 08/2015

Code 1300.401.201
Pole in steel with cast iron base - (Height 12')

Dimension - Weight:

Height	Length	Width	Diameter	Weight
12' (3655 mm)	-	-	1' 3 3/4" (400 mm)	170.38 lb (77.3 Kg)

EPA Rating in accordance with AASHTO 2009 standards

80 mph	90 mph	100 mph	110 mph	120 mph	130 mph	140 mph	150 mph
21.58 ft²	16.64 ft²	13.11 ft²	11.59 ft²	9.43 ft²	7.75 ft²	6.42 ft²	5.34 ft²

Materials:
- Steel (ASTM A283 A570Gr33), hot dip galvanized (ASTM F1554) standard.
- Cast iron (ASTM A48: 2003 - class 25).
- Cast aluminium (ASTM B179-82).

Description
- Pole (A) in hot dip galvanized steel, composed with a tube and a circular flange, welded together. Weight 80.0 lb (36.3 Kg).
  The pole is equipped with:
  - a grounding nut (G);
  - a hand hole (B) 132 X 38 mm - 5 1/4" X 1/1/2";
  - a hand hole cover (C) in cast aluminium (prot. rating IP54);
- Base in cast iron with circular plan equipped with inspection door and three screws at the top for securing to the pole, shaped and decorations as shown in the drawing. Weight 90.38 lb (41 Kg).

Fastening
- Circular flange for fastening with anchor bolts to the foundation plinth (P).

Diameter	Thickness	Bolt Holes	Center hole opening	Bolt Circle
8 1/2" (216 mm)	19/32" (15 mm)	n. 4 X 7/8" X 1 1/4" (n.4 X 22 X 32.5 mm)	3 1/2" (90 mm)	5 7/8" (150 mm)

- Measures and material for anchor bolts (see reference drawing):

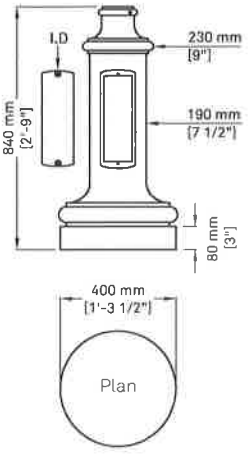
D - (Diameter)	L - (Length)	H - (Hook)	F - (Threaad)
3/4"	30"	3"	4"

- Hot dip galvanized steel to ASTM F1554 Standard.
- Galvanized to ASTM A-153
- Anchor bolts must be with a minimum guaranteed yield strength of 50,000 psi, and to have upper part threaded.
- Keep 3.00" of threading above ground for nuts and washer.

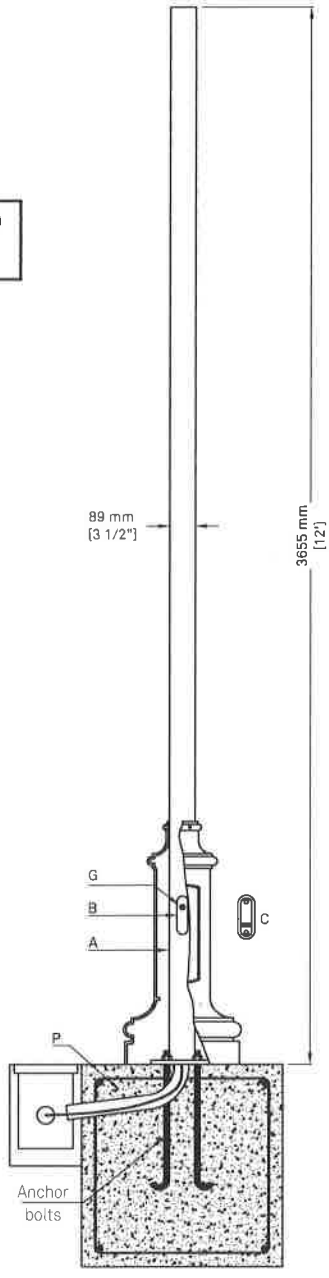
Finish:
- Standard colour is dark grey NERI type.
- Information about paint steps used on this product in specific technical sheet.

Note:
- NERI will not accept any responsabilty for incorrect anchorage placement.

Height of the pole to match page 1

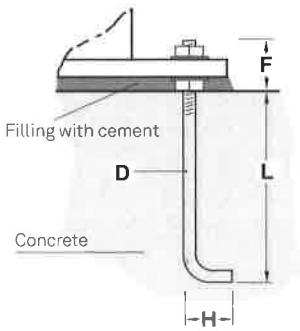


Exploded

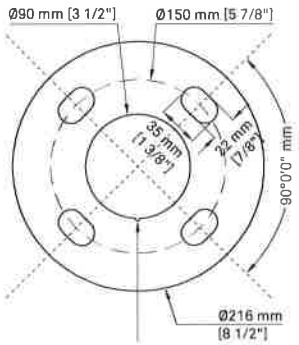


Section

Anchor bolts - scheme



4 anchor bolts with 8 nuts and washers



Hand hole position (B)

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Use
Suitable support for suspended light fixtures.

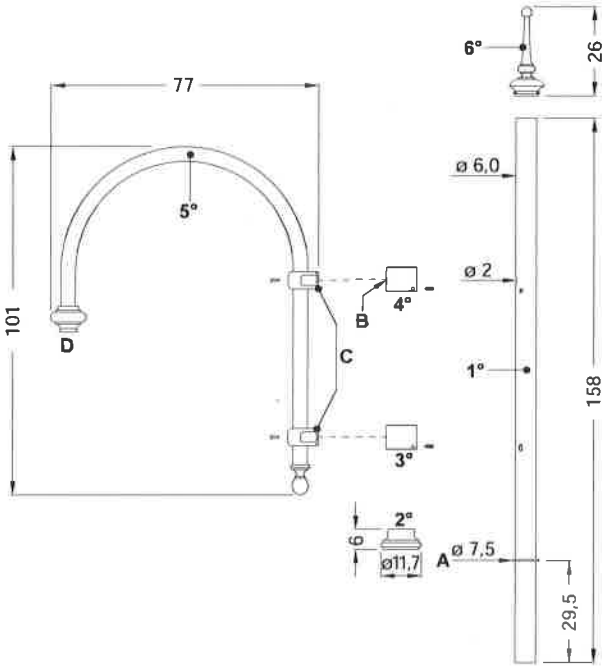
Materials
Made in UNI EN 1561 cast iron, UNI EN 1563 nodular cast iron and S235J UNI EN 10219-1 steel, hot dip galvanized according to UNI EN ISO 1461. Screws in stainless steel.

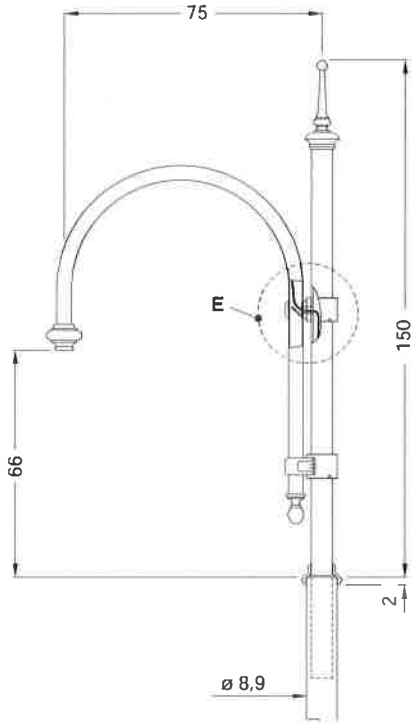
Description
The top section is made up of the following elements:

1°) A hot-galvanised steel tube height 158 cm (diam. 6 cm) for the coupling on the posts with 8.9 cm of diameter; it is provided of a flange (A - diam. 7.5 cm) and a hole (diam. 2 cm) for the passage of power supply cable.
2°) Cast iron junction cast in a single piece, height 6.0 cm.
3°) A ring in hot-galvanised steel for lower support of the suspension brackets. It is secured to the supporting tube (1°) with two M8 grubs.
4°) A ring in hot-galvanised steel for upper support of the suspension brackets. The ring has four holes (B - Ø 1.8 cm) for the passage of power supply cable. It is secured to the supporting tube (1°) with two M8 grubs.
5°) A suspension bracket, height 101 cm with a protrusion of 75 cm. Structurally the bracket is composed of a tube in steel (diam. 4,2 cm.), and support attachments (C) in spheroidal cast iron.
The bracket is fixed to the support rings 3°- 4° with four M8 screws and has at his end an internal thread G3/4" for attaching the light fixture (D).
The power cables pass inside the suspension bracket (E).
The entire assembly is hot-galvanised.
6°) A terminal element in cast iron height 26 cm fixed onto element (1°) and is secured with three M6 screws.

Dimensions - Weight
Height cm 150
Width cm 75
Weight Kg 23

Protection surfaces
Please refer to the specifi cation on painting procedures of the materials.





NB: The measurements are in millimeters.

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Project location:			
Project name:			
Model code #:		Date	

Fixture type:	

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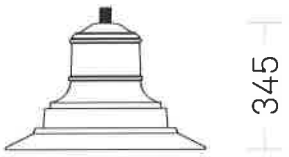
Rev. A - 11/2015

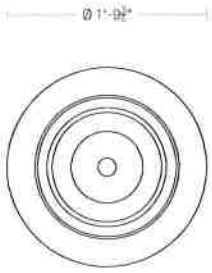
DESCRIPTION:
Circular light fixture in cast and sheet aluminium for suspended mounting. The lower frame is tilting for acces to auxiliary and optic compartment.
Electrical components are mounted on easily removable plate. Optic system with refractive lens in polycarbonate (UV resistant) with also function of screen.
Light source with LED module (power led's), combined to a internal large heat sink in aluminium for optimal control of temperature and self regulating power rated for a operative life of over 80,000 hours (15 years). The Light 21, require low-maintenance due to Leds sources and IP66, and is ideally for illuminating urban streets, cycle paths or pedestrian walkways.
The suggested height of installation from 11,5' to 16,5'.

LIGHT 21

LED Source - Comfort range - Contemporary
Voltage = 120-277, 50/60 Hz

EPA = 0,484 ft²
Weight = 17,63 lb
Height (A) = 11' - 1/8"
Diameter (Ø) = 1' - 9 3/4"





c UL us
Compliance:
UL Standard 1598 CSA C22.2 no.250.0-8

MODEL:
code sample: **SU213L021P202**

Mounting	Series	Optic system	CCT	Lumen output	Driver function
SU = Suspended	213L = Series with flat screen	02 = type III Very Short 06 = type V Short	1 = 3,000K 3 = 4,000K	P2 = 2,500 lm P4 = 3,500 lm P6 = 4,500 lm	02 = 1-10V + NCL 06 = DALI + NCL 14 = 6 hours, aut. flux red. + NCL 71 = Manual dimming xx = Bi-level dimming

SPECIFICATIONS:

Construction:
- Upper frame shaped and a visor in aluminum sheet.
- Lower frame ring in aluminum for the support of the Led module and screen.
- Suitable for wet location (IP 66).

Materials:
- Die-cast aluminium (ASTM B179-82)
- Sheet aluminium
- Hot galvanized steel
- Screen in acrylic frosted (shock resistance IK06).
- Brass and stainless steel screws.

Finish:
- Standard colour is dark grey NERI type.
- Information about paint steps used on this product in specific technical sheet.

Fastening:
- Suspended installation with threaded tube (G 3/4" -UNI 338;ISO 228/1).

Operation and maintenance:
- Follow the instructions for operation and maintenance.
- No maintenance is required, except a periodic cleaning of the screen from dust.

TECHNICAL DATA:

Electrical:
- Voltage:120-~~277V (universal)~~
- Rated power: from 26W to 53W
- Frequency: 50/60Hz.
- Potectionrating: IP43
- Operating temp.: -22F°+104F°(-30°C +40°C).
- Electronic ballast with self-diagnostic functions and monitoring of over temperatures.
- Estimate life :B10 at 80.000 hours.

Optical Features:
- Light source: power leds.
- Lumen output:from 2.500 to 4,500 lm
- Colour temperature: 3,000K or 4.000K
- Chromatic Rendering Index: CRI>70.
- Estimated life: 80,000 hours (L85 - Ta 25°C).
- Protection rating:IP66 (Optic).
- Heat sink in aluminium extruded for a optimal control of temperature with electronic sensor on LED plate for the control of over temperaures.
- Refractive lens in PC (UV resistant).
- IES classification: cat off.
- Shock resistance of screen:IK10

On demand features
- Painting:colour of RAL range.
- Information about paint steps used on this product in specific technical sheet.

CONFIGURATION TABLES:

Configuration tables of luminous fluxes.
The efficacy (lm/W) on table refers to the complete system.

3,000 K - Colour temperature			
Code	lm output	Watt	lm/W
1P2	2,500	27	93
1P4	3,500	39	90
1P6	4,500	53	85

4,000 K - Colour temperature			
Code	lm output	Watt	lm/W
3P2	2,500	26	96
3P4	3,500	36	97
3P6	4,500	48	94

Configuration of driver functions

Code	Driver function
02	1-10V control + constant flux control (1-10V + NCL)
06	DALI control + constant flux control (DALI + NCL)
14	6 hours aut. flux reduction -30% + constant flux control (6H NVL + NCL)
71	Optional: Internal manual dimming control allowing up to 50% light reduction. Setup by qualified operator and with powerline disconnected.

Note:
- NCL: constant flux control is standard with all driver functions.

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NERI

Project location:	
Project name:	
Model code #:	Date

Fixture type:

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Rev. A - 11.2015

LIGHT 21

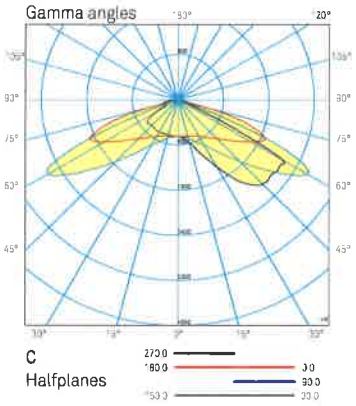
LED Source - Comfort range

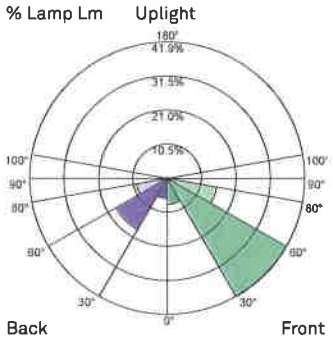
Contemporary

PHOTOMETRIC VALUE

LM-79 test and reports are performed in accordance with IESNA standards.

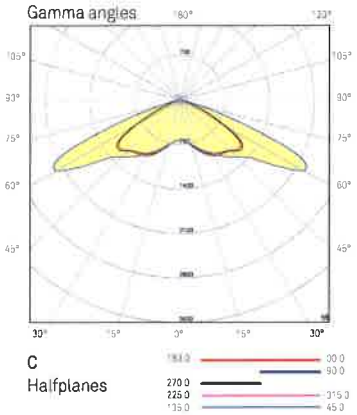
OPTIC NLG 02 - Type III Short

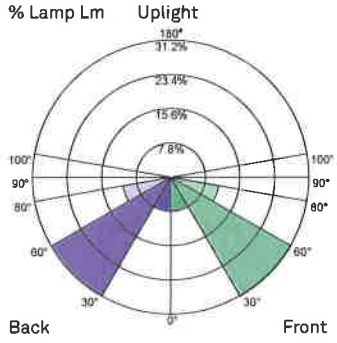




Luminaire Classification System (LCS)			
LCS Zone	Angles	% Lamp	% Lum
FL	0° - 30°	7.6%	7.8%
FM	30° - 60°	40.6%	41.6%
FH	60° - 80°	15.6%	15.9%
FVH	80° - 90°	1.1%	1.1%
BL	0° - 30°	5.6%	5.7%
BM	30° - 60°	14.9%	15.3%
BH	60° - 80°	8.4%	8.6%
BVH	80° - 90°	1.4%	1.5%
UL	90° - 100°	1.4%	1.5%
UH	100° - 180°	1.0%	1.0%
Totals		97.7%	100%
P2 - BUG: B1 U0 G1			
P4 - BUG: B1 U0 G1			
P6 - BUG: B1 U0 G1			

OPTIC NLG 06 - Type VS Short





Luminaire Classification System (LCS)			
LCS Zone	Angles	% Lamp	% Lum
FL	0° - 30°	11.9%	12.5%
FM	30° - 60°	29.7%	31.1%
FH	60° - 80°	5.9%	6.2%
FVH	80° - 90°	0.1%	0.1%
BL	0° - 30°	11.9%	12.5%
BM	30° - 60°	29.8%	31.3%
BH	60° - 80°	5.9%	6.2%
BVH	80° - 90°	0.1%	0.1%
UL	90° - 100°	0.0%	0.0%
UH	100° - 180°	0.0%	0.0%
Totals		95.2%	100%
P2 - BUG: B1 U0 G0			
P4 - BUG: B2 U0 G0			
P6 - BUG: B2 U0 G0			

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SD2-120 Step-Dimming Module

Bi-Level dimming control module for use with 0-10V dimmable LED Drivers

Electrical Specifications

Input Voltage Range:	**120 Vac Nom. (100-132 V Min/Max)**
Frequency:	**50/60 Hz Nom. (47-63 Hz Min/Max)**
Max Pass Current:	**1.0A @ 120Vac Input**
Max LED Driver Power:	**100W**
Max Insertion Loss:	**<1.5W @ 100W LED Driver**
Class 2 Control Output:	**0-10V (Current Sinking only, 50mA max)**
Warranty:	**5 years**

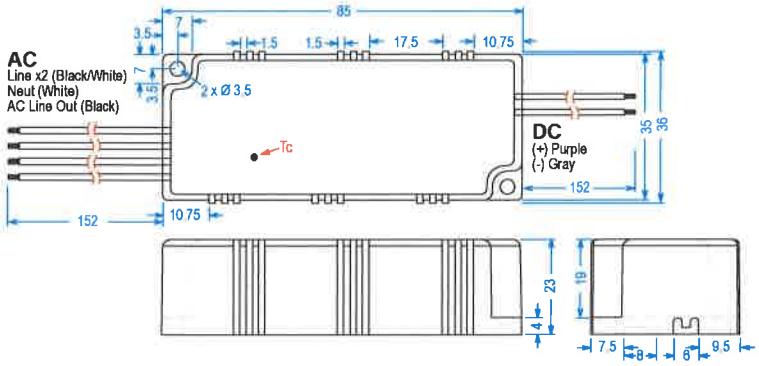
Environmental Specifications

Storage Temperature:	**-40°C to +85°C**
Max Case Temp:	**75°C**
Min Operating Temp:	**-40°C**
Humidity:	**5% to 95%**
Lifetime:	**1,000,000 Switching Cycles**



The SD2 works with two standard wall switches to provide quick switching between 100% and 50% light output from LED luminaires.

- Works with 0-10V dimmable LED drivers
- Eliminates need for expensive dimmer unit
- Works with occupancy sensors
- Class 2 Output



SD2-120 Step-Dimming Operation		
Switch Position		Driver Current Output
S1	S2	
Closed	Closed	100%
Closed	Open	<50%
Open	Closed	<50%
Open	Open	0%

Contact TRP for custom output variants!

For wiring diagrams, see next page

c UL us E359020 RoHS IP66

NOTES:

1. *Compatibility with 0-10V dimmable drivers manufactured by companies other than Thomas Research Products cannot be assured. Please contact your sales representative for a list of compatible drivers.*
2. *This device is designed to operate with standard wallbox switches only.*
3. *UL requires that these modules be installed within the luminaire enclosure.*

Specifications subject to change without notice.

Rev 11-16-16

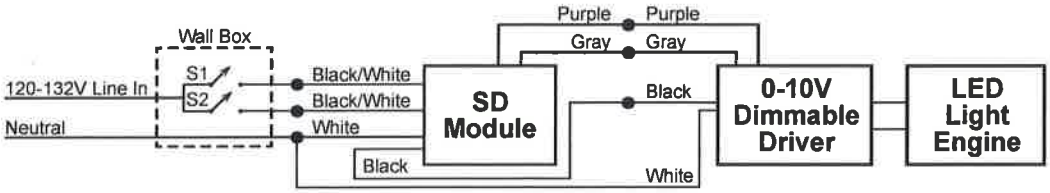
Wiring Diagrams

Standard Wiring:

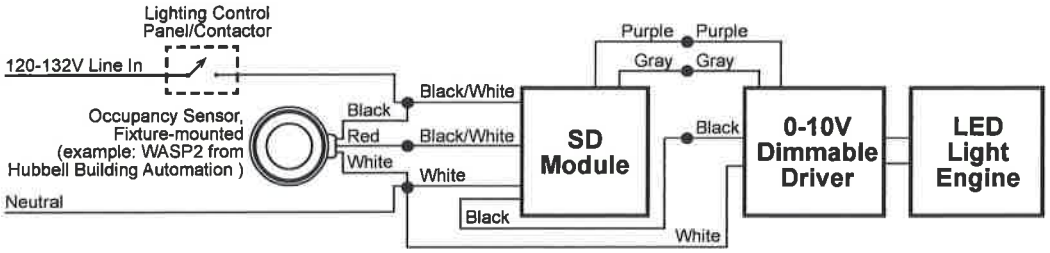
Notes:

Lead placement on wiring diagram is optimized for clarity, and not intended to reflect actual lead exit locations on SD case.

Wall switches S1 & S2 should be located next to each other to allow for Full ON / Low ON / OFF control.



Wiring with Occupancy Sensor:



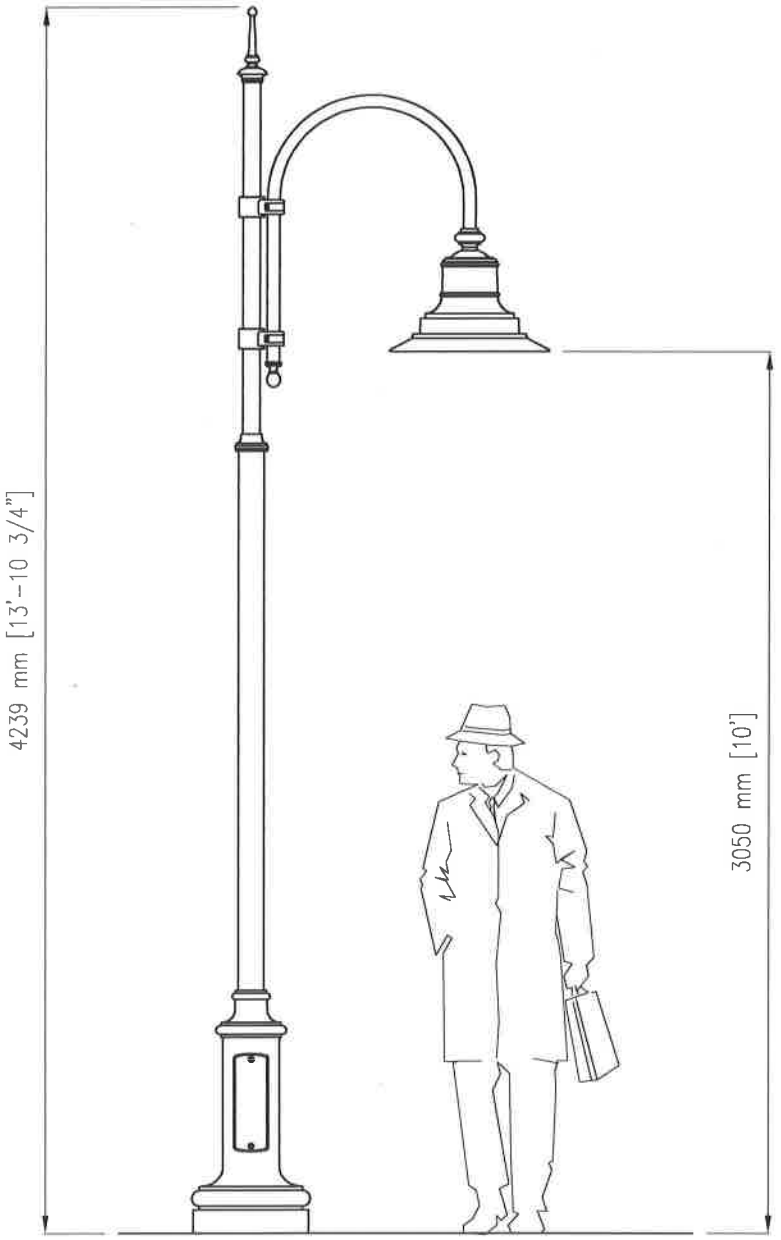
Note:

Incoming power from branch must be on same phase. Do not use with multiple phases.

NERI

Custom

TYPE B



POSTS

Models

Post: 1300.401 (custom)
Top: 4102.170.500
Lantern: SU213L
Scale: 1:25

Dimensions

Total height: 13' ft 10.75 in
Light source height: 10' ft --" in
Pole height: 9' ft 0.75 in
Bracket lenght from pole center
to lantern fixing point: 2' ft 5.5" in
Drawing Number US-00071
Rev A
Page number: 1/1

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NERI

Project location:			
Project name:			
Model #:	1300.401.201	Date	

Fixture type:

nerinorthamerica.com

Rev. 3 - 08/2015

Code 1300.401.201
Pole in steel with cast iron base - (Height 12')

Dimension - Weight:

Height	Length	Width	Diameter	Weight
12' (3655 mm)	-	-	1' 3 3/4" (400 mm)	170.38 lb (77.3 Kg)

EPA Rating in accordance with AASHTO 2009 standards

80 mph	90 mph	100 mph	110 mph	120 mph	130 mph	140 mph	150 mph
21.58 ft²	16.64 ft²	13.11 ft²	11.59 ft²	9.43 ft²	7.75 ft²	6.42 ft²	5.34 ft²

Materials:
- Steel (ASTM A283 A570Gr33), hot dip galvanized (ASTM F1554) standard.
- Cast iron (ASTM A48: 2003 - class 25).
- Cast aluminium (ASTM B179-82).

Description
- Pole (A) in hot dip galvanized steel, composed with a tube and a circular flange, welded together. Weight 80.0 lb (36.3 Kg).
  The pole is equipped with:
  - a grounding nut (G);
  - a hand hole (B) 132 X 38 mm - 5 1/4" X 1/1/2";
  - a hand hole cover (C) in cast aluminium (prot. rating IP54);
- Base in cast iron with circular plan equipped with inspection door and three screws at the top for securing to the pole, shaped and decorations as shown in the drawing. Weight 90.38 lb (41 Kg).

Fastening
- Circular flange for fastening with anchor bolts to the foundation plinth (P).

Diameter	Thickness	Bolt Holes	Center hole opening	Bolt Circle
8 1/2" (216 mm)	19/32" (15 mm)	n. 4 X 7/8" X 1 1/4" (n.4 X 22 X 32.5 mm)	3 1/2" (90 mm)	5 7/8" (150 mm)

- Measures and material for anchor bolts (see reference drawing):

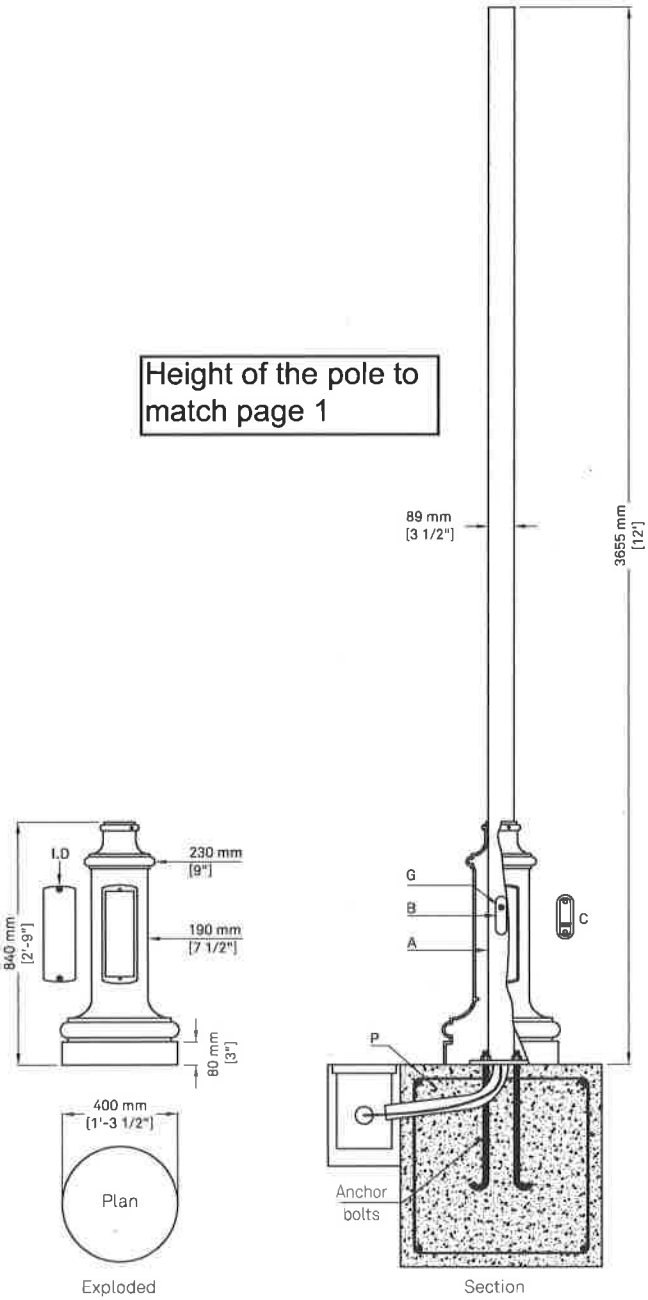
D - (Diameter)	L - (Length)	H - (Hook)	F - (Threaad)
3/4"	30"	3"	4"

- Hot dip galvanized steel to ASTM F1554 Standard.
- Galvanized to ASTM A-153
- Anchor bolts must be with a minimum guaranteed yield strength of 50,000 psi, and to have upper part threaded.
- Keep 3.00" of threading above ground for nuts and washer.

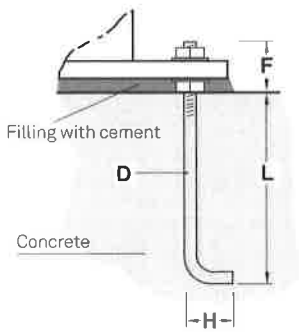
Finish:
- Standard colour is dark grey NERI type.
- Information about paint steps used on this product in specific technical sheet.

Note:
- NERI will not accept any responsabilty for incorrect anchorage placement.

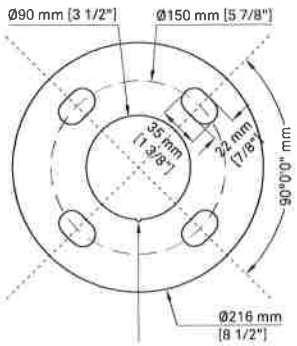
Height of the pole to match page 1



Anchor bolts - scheme



4 anchor bolts with 8 nuts and washers



Hand hole position (B)

Exploded

Section

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Use
Suitable support for suspended light fixtures.

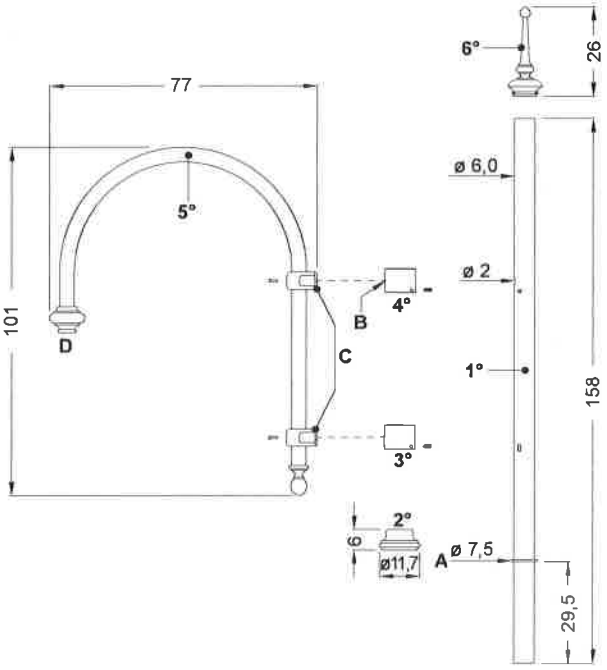
Materials
Made in UNI EN 1561 cast iron, UNI EN 1563 nodular cast iron and S235J UNI EN 10219-1 steel, hot dip galvanized according to UNI EN ISO 1461. Screws in stainless steel.

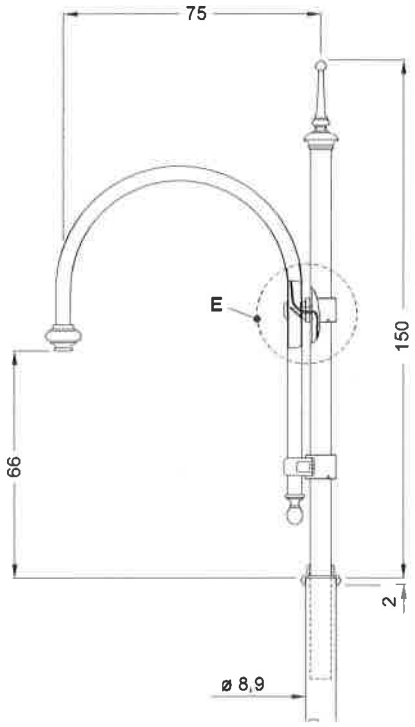
Description
The top section is made up of the following elements:

1°) A hot-galvanised steel tube height 158 cm (diam. 6 cm) for the coupling on the posts with 8.9 cm of diameter; it is provided of a flange (A - diam. 7.5 cm) and a hole (diam. 2 cm) for the passage of power supply cable.
2°) Cast iron junction cast in a single piece, height 6.0 cm.
3°) A ring in hot-galvanised steel for lower support of the suspension brackets. It is secured to the supporting tube (1°) with two M8 grubs.
4°) A ring in hot-galvanised steel for upper support of the suspension brackets. The ring has four holes (B - Ø 1.8 cm) for the passage of power supply cable. It is secured to the supporting tube (1°) with two M8 grubs.
5°) A suspension bracket, height 101 cm with a protrusion of 75 cm. Structurally the bracket is composed of a tube in steel (diam. 4,2 cm.), and support attachments (C) in spheroidal cast iron.
The bracket is fixed to the support rings 3°- 4° with four M8 screws and has at his end an internal thread G3/4" for attaching the light fixture (D).
The power cables pass inside the suspension bracket (E).
The entire assembly is hot-galvanised.
6°) A terminal element in cast iron height 26 cm fixed onto element (1°) and is secured with three M6 screws.

Dimensions - Weight
Height cm 150
Width cm 75
Weight Kg 23

Protection surfaces
Please refer to the specifi cation on painting procedures of the materials.





NB: The measurements are in millimeters.

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NERI

Project location:			
Project name:			
Model code #:		Date	

Fixture type:	

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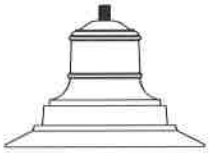
Rev. A - 11/2015

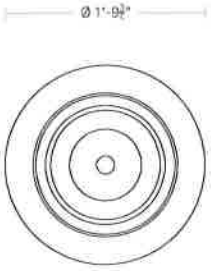
DESCRIPTION:
Circular light fixture in cast and sheet aluminium for suspended mounting. The lower frame is tilting for acces to auxiliary and optic compartment.
Electrical components are mounted on easily removable plate. Optic system with refractive lens in polycarbonate (UV resistant) with also function of screen.
Light source with LED module (power led's), combined to a internal large heat sink in aluminium for optimal control of temperature and self regulating power rated for a operative life of over 80,000 hours (15 years). The Light 21, require low-maintenance due to Leds sources and IP66, and is ideally for illuminating urban streets, cycle paths or pedestrian walkways.
The suggested height of installation from 11,5' to 16,5'.

LIGHT 21

LED Source - Comfort range - Contemporary
Voltage = 120-277, 50/60 Hz

EPA = 0.484 ft²
Weight = 17.63 lb
Height (A) = 11' - 1/8"
Diameter (Ø) = 1' - 9 3/4"





c UL us
Compliance:
UL Standard 1598 CSA C22.2 no.250.0-8

MODEL:
code sample: **SU213L021P202**

Mounting	Series	Optic system	CCT	Lumen output	Driver function
SU = Suspended	**213L** = Series with flat screen	**02** = type III Very Short **06** = type V Short	**1** = 3,000K **3** = 4,000K	**P2** = 2,500 lm **P4** = 3,500 lm **P6** = 4,500 lm	**02** = 1-10V + NCL **06** = DALI + NCL **14** = 6 hours aut. flux red. + NCL **71** = Manual dimming **xx** = Bi-level dimming

SPECIFICATIONS:

Construction:
- Upper frame shaped and a visor in aluminum sheet.
- Lower frame ring in aluminum for the support of the Led module and screen.
- Suitable for wet location (IP 66).

Materials:
- Die-cast aluminium (ASTM B179-82)
- Sheet aluminium
- Hot galvanized steel
- Screen in acrylic frosted (shock resistance IK06).
- Brass and stainless steel screws.

Finish:
- Standard colour is dark grey NERI type.
- Information about paint steps used on this product in specific technical sheet.

Fastening:
- Suspended installation with threaded tube (G 3/4" -UNI 338;ISO 228/1).

Operation and maintenance:
- Follow the instructions for operation and maintenance.
- No maintenance is required, except a periodic cleaning of the screen from dust.

TECHNICAL DATA:

Electrical:
- Voltage:120-277V ~~(drive:sal)~~
- Rated power: from 26W to 53W
- Frequency: 50/60Hz.
- Potectionrating: IP43
- Operating temp.: -22F°+104F°(-30°C +40°C).
- Electronic ballast with self-diagnostic functions and monitoring of over temperatures.
- Estimate life :B10 at 80.000 hours.

Optical Features:
- Light source: power leds.
- Lumen output:from 2,500 to 4,500 lm
- Colour temperature: 3,000K or 4,000K
- Chromatic Rendering Index: CRI>70.
- Estimated life: 80,000 hours (L85 - Ta 25°C).
- Protection rating:IP66 (Optic).
- Heat sink in aluminium extruded for a optimal control of temperature with electronic sensor on LED plate for the control of over temperaures.
- Refractive lens in PC (UV resistant).
- IES classification: cat off.
- Shock resistance of screen:IK10

On demand features
- Painting:colour of RAL range.
- Information about paint steps used on this product in specific technical sheet.

CONFIGURATION TABLES:

Configuration tables of luminous fluxes.
The efficacy (lm/W) on table refers to the complete system.

3,000 K - Colour temperature			
Code	lm output	Watt	lm/W
1P2	2,500	27	93
1P4	3,500	39	90
1P6	4,500	53	85

4,000 K - Colour temperature			
Code	lm output	Watt	lm/W
3P2	2,500	26	96
3P4	3,500	36	97
3P6	4,500	48	94

Configuration of driver functions

Code	Driver function
02	1-10V control + constant flux control (1-10V + NCL)
06	DALI control + constant flux control (DALI + NCL)
14	6 hours aut. flux reduction -30% + constant flux control (6H NVL + NCL)
71	Optional: Internal manual dimming control allowing up to 50% light reduction. Setup by qualified operator and with powerline disconnected.

Note:
- NCL: constant flux control is standard with all driver functions.

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NERI

Project location:	
Project name:	
Model code #:	Date

Fixture type:

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Rev. A - 11.2015

LIGHT 21

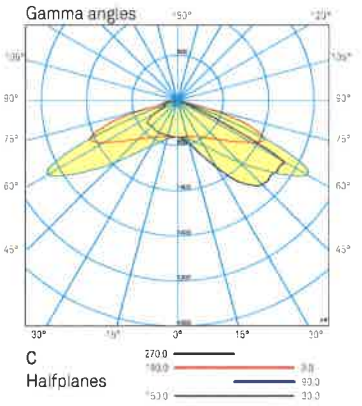
LED Source - Comfort range

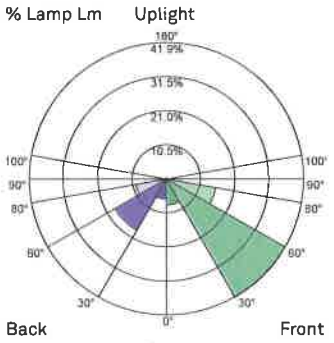
Contemporary

PHOTOMETRIC VALUE

LM-79 test and reports are performed in accordance with IESNA standards.

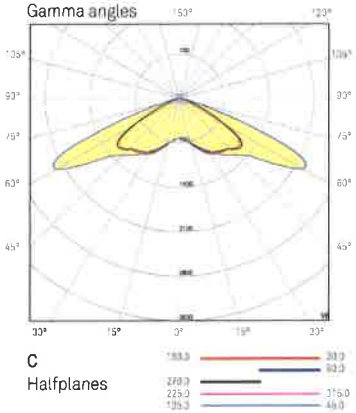
OPTIC NLG 02 - Type III Short

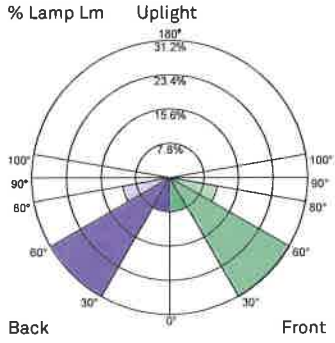




Luminaire Classification System (LCS)			
LCS Zone	Angles	% Lamp	% Lum
FL	0° - 30°	7.6%	7.8%
FM	30° - 60°	40.6%	41.6%
FH	60° - 80°	15.6%	15.9%
FVH	80° - 90°	1.1%	1.1%
BL	0° - 30°	5.6%	5.7%
BM	30° - 60°	14.9%	15.3%
BH	60° - 80°	8.4%	8.6%
BVH	80° - 90°	1.4%	1.5%
UL	90° - 100°	1.4%	1.5%
UH	100° - 180°	1.0%	1.0%
Totals		97.7%	100%
P2 - BUG: B1 U0 G1			
P4 - BUG: B1 U0 G1			
P6 - BUG: B1 U0 G1			

OPTIC NLG 06 - Type VS Short





Luminaire Classification System (LCS)			
LCS Zone	Angles	% Lamp	% Lum
FL	0° - 30°	11.9%	12.5%
FM	30° - 60°	29.7%	31.1%
FH	60° - 80°	5.9%	6.2%
FVH	80° - 90°	0.1%	0.1%
BL	0° - 30°	11.9%	12.5%
BM	30° - 60°	29.8%	31.3%
BH	60° - 80°	5.9%	6.2%
BVH	80° - 90°	0.1%	0.1%
UL	90° - 100°	0.0%	0.0%
UH	100° - 180°	0.0%	0.0%
Totals		95.2%	100%
P2 - BUG: B1 U0 G0			
P4 - BUG: B2 U0 G0			
P6 - BUG: B2 U0 G0			

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SD2-120 Step-Dimming Module

Bi-Level dimming control module for use with 0-10V dimmable LED Drivers

Electrical Specifications

Input Voltage Range:	**120 Vac Nom. (100-132 V Min/Max)**
Frequency:	**50/60 Hz Nom. (47-63 Hz Min/Max)**
Max Pass Current:	**1.0A @ 120Vac Input**
Max LED Driver Power:	**100W**
Max Insertion Loss:	**<1.5W @ 100W LED Driver**
Class 2 Control Output:	**0-10V (Current Sinking only, 50mA max)**
Warranty:	**5 years**

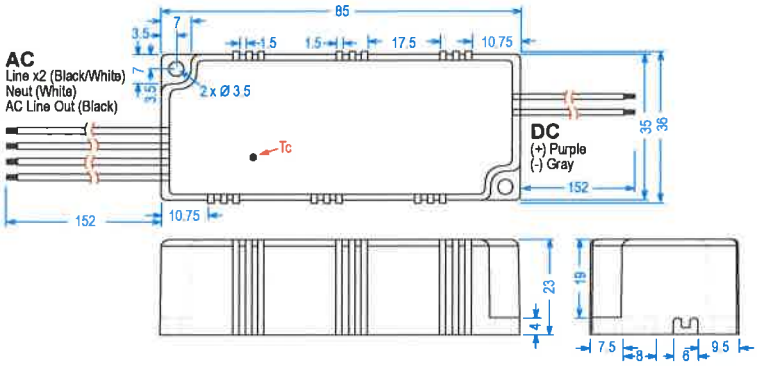
Environmental Specifications

Storage Temperature:	**-40°C to +85°C**
Max Case Temp:	**75°C**
Min Operating Temp:	**-40°C**
Humidity:	**5% to 95%**
Lifetime:	**1,000,000 Switching Cycles**



The SD2 works with two standard wall switches to provide quick switching between 100% and 50% light output from LED luminaires.

- Works with 0-10V dimmable LED drivers
- Eliminates need for expensive dimmer unit
- Works with occupancy sensors
- Class 2 Output



SD2-120 Step-Dimming Operation		
Switch Position		Driver Current Output
S1	S2	
Closed	Closed	100%
Closed	Open	<50%
Open	Closed	<50%
Open	Open	0%

Contact TRP for custom output variants!

For wiring diagrams, see next page

c UL us E359020 RoHS IP66

NOTES:

1. *Compatibility with 0-10V dimmable drivers manufactured by companies other than Thomas Research Products cannot be assured. Please contact your sales representative for a list of compatible drivers.*
2. *This device is designed to operate with standard wallbox switches only.*
3. *UL requires that these modules be installed within the luminaire enclosure.*

Specifications subject to change without notice.

Rev 11-16-16

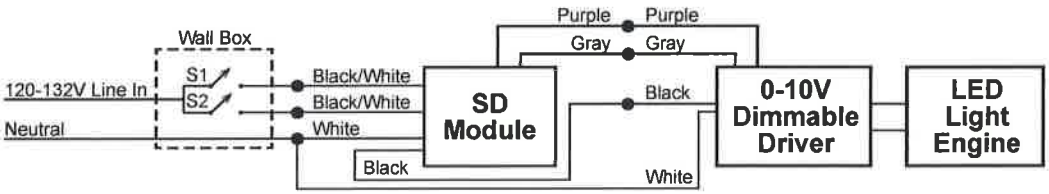
Wiring Diagrams

Standard Wiring:

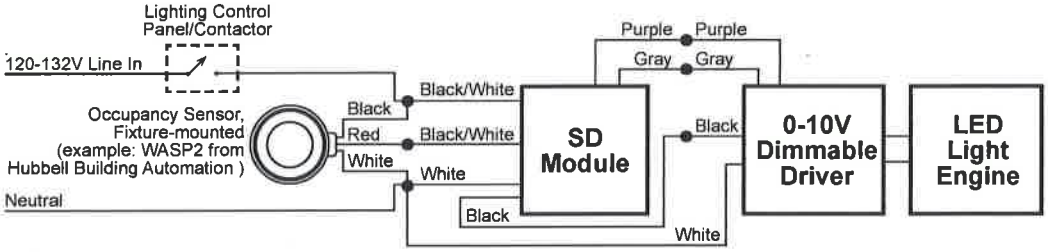
Notes:

Lead placement on wiring diagram is optimized for clarity, and not intended to reflect actual lead exit locations on SD case.

Wall switches S1 & S2 should be located next to each other to allow for Full ON / Low ON / OFF control.



Wiring with Occupancy Sensor:



Note:

Incoming power from branch must be on same phase. Do not use with multiple phases.

Bollard

UEU-10026

Eurasia 1

TYPE C

LIGMAN LIGHTING USA



A decorative bollard with a symmetrical light distribution. Developed to compliment the Eurasia range of pillar light, post top and wall light luminaires. Designed for various applications including entrances, gardens, precincts and pathways. Extruded aluminum column and low copper content die cast housing with high corrosion resistance. Stainless steel screws. Durable silicone rubber gasket and clear and opal impact resistant UV stabilized polycarbonate diffuser. Housing is treated with a chemical chromatized protection before powder coating, ensuring high corrosion resistance. Integral control gear Anodized high purity aluminum reflector with the clear diffuser option.

Physical Data

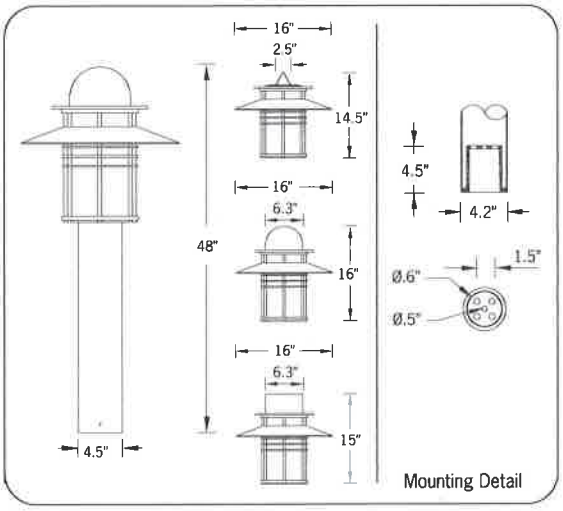
Length • 16"

Height • 48"

Weight • 24lbs

IP55 • Suitable For Wet Locations

IK08 • Impact Resistant (Vandal Resistant)



Aluminum
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket.
Provided with special injection molded **"fit for purpose"** long life high temperature **memory retentive silicon gaskets.** Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management.
LM6 Aluminum is used for its **excellent mechanical strength and thermal dissipation properties** in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint.
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C.
This process ensures that Ligman products can withstand harsh environments.
Rated for use in natatoriums.

Hardware.
Provided Hardware is **Marine grade 316 Stainless steel.**

Anti Seize Screw Holes
Tapped holes are infused with a **special anti seize compound** designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

High Impact Acrylic Lens.
Manufactured with Ultra High Impact, Naturally UV Stabilized Injection Molded Acrylic.

Optics & LED
Precise optic design provides **exceptional light control and precise distribution of light.**
LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

Standard Options

Lamp
41w LED 1009 Lumens

Top
1 • Dome Top | 2 • Flat Top | 3 • Pointed Top

Lens
C • Clear Lens | O • Opal Lens

LED Color
W27 • 2700K
W30 • 3000K
W40 • 4000K

Finish Color
01 • Black • RAL 9011
02 • Dark Grey • RAL 7043
03 • White • RAL 9003
04 • Metallic Silver • RAL 9006
05 • Matte Silver • RAL 9006
06 • Bronze • RAL 6014
07 • Custom RAL

Voltage
120/277 • 120/277v
Other • Specify

Options (Consult Factory for Pricing)
STEP • Step Dimming - SD2-120 TRPP (120v Only)
HGT • Custom Height

Ordering Example : UEU - 10026 - 41w - 1 - C - W30 - 02 - 120/277v

	Lamp	Top	Lens	LED Color	Color	Voltage	Options
UEU	10026	41w LED					
		1 Dome	C Clear	W27 2700K	01 Black	120/277v	STEP Step Dimming
		2 Flat	O Opal	W30 3000K	02 Dark Grey	Other (Specify)	HGT Custom Height
		3 Pointed		W40 4000K	03 White		
					04 Metallic Silver		
					05 Matte Silver		
					06 Bronze		
					07 Custom RAL		

PROJECT: DATE: QUANTITY:

TYPE: NOTE:

Ligman Lighting USA reserves the right to change specifications without prior notice, please contact factory for latest information.
Due to the continual improvements in LED technology data and components may change without notice.

Head Office:
7144 NW Progress Ct
Hillsboro, Oregon 97124
Tel: 503-645-0500
Fax: 503-645-8100
www.ligmanlightingusa.com

Intertek

SD2-120 Step-Dimming Module

Bi-Level dimming control module for use with 0-10V dimmable LED Drivers

Electrical Specifications

Input Voltage Range:	**120 Vac Nom. (100-132 V Min/Max)**
Frequency:	**50/60 Hz Nom. (47-63 Hz Min/Max)**
Max Pass Current:	**1.0A @ 120Vac Input**
Max LED Driver Power:	**100W**
Max Insertion Loss:	**<1.5W @ 100W LED Driver**
Class 2 Control Output:	**0-10V (Current Sinking only, 50mA max)**
Warranty:	**5 years**

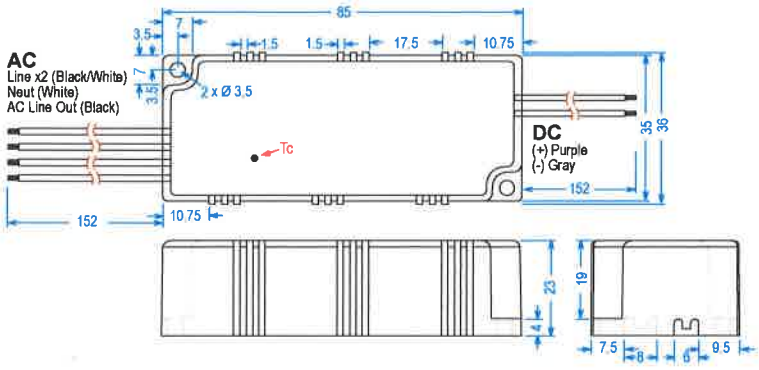
Environmental Specifications

Storage Temperature:	**-40°C to +85°C**
Max Case Temp:	**75°C**
Min Operating Temp:	**-40°C**
Humidity:	**5% to 95%**
Lifetime:	**1,000,000 Switching Cycles**



The SD2 works with two standard wall switches to provide quick switching between 100% and 50% light output from LED luminaires.

- Works with 0-10V dimmable LED drivers
- Eliminates need for expensive dimmer unit
- Works with occupancy sensors
- Class 2 Output



SD2-120 Step-Dimming Operation		
Switch Position		Driver Current Output
S1	S2	
Closed	Closed	100%
Closed	Open	<50%
Open	Closed	<50%
Open	Open	0%

Contact TRP for custom output variants!

For wiring diagrams, see next page

c UL us E359020 RoHS IP66

NOTES:

1. *Compatibility with 0-10V dimmable drivers manufactured by companies other than Thomas Research Products cannot be assured. Please contact your sales representative for a list of compatible drivers.*
2. *This device is designed to operate with standard wallbox switches only.*
3. *UL requires that these modules be installed within the luminaire enclosure.*

Specifications subject to change without notice.

Rev 11-16-16

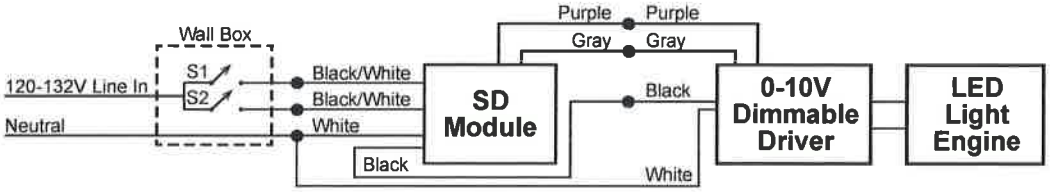
Wiring Diagrams

Standard Wiring:

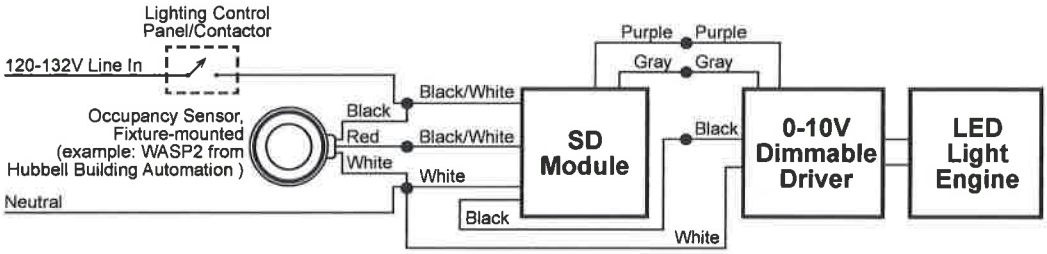
Notes:

Lead placement on wiring diagram is optimized for clarity, and not intended to reflect actual lead exit locations on SD case.

Wall switches S1 & S2 should be located next to each other to allow for Full ON / Low ON / OFF control.



Wiring with Occupancy Sensor:



Note:

Incoming power from branch must be on same phase. Do not use with multiple phases.

Exhibit 5
U.S. Green Building Council LEED "Gold" Point Summary

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

Project: 1300 Craven's Lane
Carpinteria, CA

Certifying Agency: City of Carpinteria

GREEN HERON SPRING LEED POINT SUMMARY

LEED v4 HOMES - Checklist Credit Narrative

Certification Summary

Leadership in Energy and Environmental Design (LEED) is an internationally recognized green building certification system for the design, construction, and operation of high performance green buildings and emerging green building technologies.

LEED is administered by the Green Building Certification Institute (GBCI) and is comprised of the following categories:

☑Sustainable Sites credits encourage strategies that minimize the impact on ecosystems and water resources.

☑Water Efficiency credits promote smarter use of water, inside and out, to reduce potable water consumption.

☑Energy & Atmosphere credits promote better building energy performance through innovative strategies.

☑Materials & Resources credits encourage using sustainable building materials and reducing waste.

☑Indoor Environmental Quality credits promote better indoor air quality and access to daylight and views.

NOTE: The City of Calabasas is a self-certifying agency and GBCI certification is not mandated. The CMC follows GBCI's formal process for certification through the City's Planning Dept.

Checklist Credits		Credit Notes
LOCATION & TRANSPORTATION		
Floodplain Avoidance	REQ	As part of the previous project conditions of approval, the proposed project will seek to reclassify a portion of the site to be excluded from the floodplain zone, through FEMA. This map revision will be obtained prior to grading or building permit issuance.
Site Selection	YES	The site is entitled for 31 homes, including the existing residence. The City's land use and zoning for this site is planned for a mix of residential development and open space/pond/community gardens. The site is not designated prime farmland by USDA. Site qualifies as a preferred location since it is a previously developed site. Further, the overall project plan sets-aside areas for preservation of natural space and restoration and protection of natural resources and not designated public parkland. Existing utility infrastructure is in place for water and sewer nearby the site. Additionally, the technical studies indicated that the site are no species on federal or state threatened or endangered lists at the site.
Compact Development	YES	The residential buildings/units have been designed on a smaller footprint, with vertical development to occupy less land, and promote community livability. Project qualifies as a moderate density development based on an average density of 7 units per acre of available development/buildable area.
Community Resource/Transit	YES	Project site plan includes open spaces to encourage walking, physical activity, and time spent outdoors. There is a community garden in the southeastern corner of the site, a gathering space for active and passive recreation in the northeastern portion of the site, along with a loop trail through the driveway and footpath around the pond. Site is located near community services for easy access to basic community resources.
SUSTAINABLE SITES		
Site Stewardship	YES	Project is required to implement proper construction activity pollution prevention measures. Adherence to these measures will reduce pollution from construction by controlling soil erosion, sedimentation, and airborne dust generation. Further, the site minimized disturbed areas for trees, pond and open spaces by design.
No Invasive Plants	YES	Landscape palette will not include any invasive plant species within the project boundary. The proposed plant palette includes native, drought tolerant plants and wetland plants as indicated near the pond for reestablishment of wetlands habitat.
Local Heat Island Effects	YES	Heat island reduction (thermal gradient differences between developed and undeveloped areas) will be accomplished through a combination of landscape shading and pervious hardscape materials. Project design limits the use of impervious hardscape areas and the preservation of a number of mature trees.
Rainwater/Surface Water Management	YES	Civil engineer designed site to minimize erosion and runoff from the homes/site. The existing drainage of the site sheet flows southwesterly and is intercepted by an existing pond. In the proposed condition, the existing pond will remain in place, and will be modified to 4:1 slope, and will be sized to capture the increase in volume of storm water runoff up to 100-yr storm event.
Non-Toxic Pest Control	YES	Design includes features to minimize the need for poisons to control insects, rodents, and other pests through specific construction techniques (keep wood above soil by 12", seal all cracks, joints, penetrations, to prevent points of entry).
WATER EFFICIENCY		
Water Conserving Plumbing Fixtures & Fittings	YES	The flow rates for all new plumbing fixtures shall be Water Sense rated by the EPA or equivalent. Each plumbing fixture will achieve a 20% reduced flow rate (when compared to standard), using advanced technologies where possible. A waster baseline will be established and reductions will be calculated based on flow and flush fixtures installed per home.
Landscape Irrigation	YES	Landscape irrigation controllers for the common areas maintained by the HOA shall be a smart technology controller, either soils or weather based, with data download capabilities. Further, native and drought tolerant plants are included in the landscape planting plan which reduce the demand for potable water for landscaping. Sprinklers will be maintained to prevent spray directly on all common area walls, structures, and driveways.
ENERGY & ATMOSPHERE		

Minimum Energy Performance	REQ	Project will strive to improve the overall energy performance of the homes and will meet or exceed the performance of ENERGY STAR for Homes to meet the minimum requirements for HERS or other applicable index, including third party inspections. This credit will be further evaluated through the design process.
Insulation	REQ	Mandate the requirement for installation (based on design) to minimize heat transfer and thermal bridging. Insulation shall meet or exceed the R values set forth for credit compliance.
Education of the Homeowner	REQ	As part of LEED Education Awareness, Builder will provide *Basic Home Operations Training* will be provided to the buyers as part of closing documents. An Operations & Maintenance binder will be prepared for each unit which includes the LEED checklist and LEED for Homes features and product manufacturer's manuals .
Heating & Cooling Distribution System	YES	High efficiency HVAC systems will be incorporated in the design of the homes with proper sizing for the given space to heat and cool . The systems will be designed with the proper building envelope and system requirements for optimal thermal comfort of the occupants. This system will take into consideration the following items; air temperature, radiant temperature, air speed, and relative humidity. Building systems design will provide for a high level of thermal comfort through control systems. The goal is to minimize energy consumption due to thermal bridges or leaks in the heating and cooling distribution systems within the homes.
Efficient Domestic Hot Water Equipment	YES	It is anticipated that hot water heater equipment will be located in a linen closet or similar space for efficient distribution and to avoid the additional insulation requirements to connect to units placed in a garage (typical). Equipment will be high efficiency hot water units.
Lighting	YES	Various uses within the homes require a wide range of lighting level alternatives. For the most part, individual rooms and common and private spaces will have the capability of being independently operable. Individual lighting controls coupled with specific task lighting adjustable through dimmers or occupant sensors for specific lighting needs. High effiency indoor lighting fixtures will be installed throughout the homes. Outdoor lighting will meet the dark skies requirements with shielding and directional lighting poles and bollards, but provide enough lighting for security and
High Efficiency Appliances	YES	Refrigerators, dishwashers, clothes washers, and ceiling fans and other applicable appliances will energy star compliant and specified in the construction documents in an effort the reduce appliance energy consumption.
Renewable Energy	YES	N/A
MATERIALS & RESOURCES		
Certified Tropical Wood	REQ	Mandating the use of certified wood in building home construction encourages environmentally responsible forest management. If any tropical woods are in the design of the units, the builder will utilize FSC certified wood.
Durability Management	REQ	Selected materials will have a long service life with minimal deterioration anticipated under the conditions of use. Site walls will be built with weather resistant materials and installed per manufacturer's installation recommendations.
Durability Management Verification	MAYBE	Compliance with this credit will be reviewed as part of the design process.
Environmentally Preferable Products	YES	Increase demand for environmentally preferable products and products or building components that are extracted, processed, and manufactured within the region. Home construction materials will include the use of rapidly renewable plant materials (10 year cycle or shorter), as determined through the design process. This will support the effort to reduce the use and depletion of finite raw materials and long-cycle renewable materials.
Construction Waste Management	YES	The project will recycle or salvage 75% (total by weight) of the construction and land clearing debris. The developer will contract with the City's approved waste hauler to sort and haul the construction waste and provide supporting documentation verifying construction waste diversion from landfills or incinerators. Units will have trash and recycling
Material Efficient Framing	YES	Efficient framing techniques will be reviewed during the design process and, to the extent feasible, construction documents will incorporate these methods the home design, providing the necessary structural support with reduced amount framing material (waste). Multi-family units with stacked flats and will provide for efficient framing implementation in some of the units.
INDOOR ENVIRONMENTAL QUALITY		
Checklist Credits		Credit Notes
Ventilation	REQ	Homes will be designed to reduce occupant exposure to indoor pollutants through ventilating with outdoor air.
Combustion Venting	REQ	Homes will be designed to minimize the leakage of combustion gases into the occupied space of the home. Carbon monoxide units will be installed on each floor.
Garage Pollutant Protection	REQ	No HVAC will be in unit garages; all air-handling equipment and ductwork will be installed outside the fire-rated envelope. The main house will have a detached garage. Further, construction documents will require Tightly seal shared surfaces between the garage and conditioned spaces.
Radon Resistant Construction	REQ	N/A. Project site is not within a designated moderate or high risk area for radon.
Air Filtering	REQ	Units design includes forced air for cooling. In order to reduce particulate matter from the air supply system; MERV 13 air filters will be installed and verify that air system housings are airtight to prevent bypass and leakage.
Environmental Tobacco Smoke	REQ	The project common area spaces will be designated as "smoke-free". Enforcement will be achieved through signage.
Enhanced Ventilation	MAYBE	All residential spaces will all be mechanically ventilated. System design will meet the intent of the credit by increasing breathing zone outdoor air ventilation rates to all occupied areas by a at least 30% above the minimum ASHRAE standards.

Contaminant Control	YES	An Indoor Air Quality Management Plan will prepared to address HVAC system protection during construction and control and filter air pollutant sources. The plan will specify the correct sequence of installation of products and materials in order to reduce contamination of absorptive materials. Further, the filtration system will be replaced prior to occupancy in accordance with ASHRAE standard 52.2-1999. Prior to occupancy, MERV 13 air filters will be installed.
Balancing of Heating & Cooling Distribution System	YES	MEP Consultant will work with the Builder during design to provide appropriate distribution of space heating and cooling in the home with the end goal to improve thermal comfort and energy performance within each unit. Builder will inspect, test, and verify prior to occupancy.
Enhanced Compartmentalization	MAYBE	Potential credit as part of design process.
Enhanced Combustion Venting	MAYBE	Credit achieved by NOT installing fireplace or wood stoves within homes.
Enhanced Garage Pollutant Protection	MAYBE	Potential for additional credits as determined through the design process.
INNOVATION IN DESIGN		
Checklist Credits		Credit Notes
Mandate Green Cleaning Products	YES	The HOA Maintenance Company will use only Green Seal approved or equivalent environmentally friendly cleaning products as part of ongoing community space maintenance.
Storage & Collection of Recyclables in Common Areas	YES	Collection of common area generated recyclables will be located in a designated areas within the pavilion, with easy access to separate containers.
Leed Accredited Professional (AP)	YES	A LEED accredited professional has been working with the Applicant and project team since the early design stages. The LEED AP will support and encourage the design integration required by LEED for Homes to facilitate the design and documentation requirement to comply with the Project Requirements.
Based on the above analysis, the project will be in compliance with the CMC. Ongoing evaluation, verification, and documentation will be required from design through post-construction until the City accepts the project for final LEED certification.		

LEED v4 for Building Design and Construction: Homes and Multifamily Lowrise
Project Checklist

Project Green Heron
Date: July 27, 2017

Y	?	N			
2			Credit	Integrative Process	2
12	0	0	**Location and Transportation**		15
Y			Prereq	Floodplain Avoidance	Required
			PERFORMANCE PATH		
15			Credit	LEED for Neighborhood Development Location	15
			PRESCRIPTIVE PATH		
8			Credit	Site Selection	8
3			Credit	Compact Development	3
2			Credit	Community Resources	2
2			Credit	Access to Transit	2
6	0	0	**Sustainable Sites**		7
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	No Invasive Plants	Required
2			Credit	Heat Island Reduction	2
3			Credit	Rainwater Management	3
2			Credit	Non-Toxic Pest Control	2
9	0	0	**Water Efficiency**		12
Y			Prereq	Water Metering	Required
			PERFORMANCE PATH		
12			Credit	Total Water Use	12
			PRESCRIPTIVE PATH		
6			Credit	Indoor Water Use	6
4			Credit	Outdoor Water Use	4
26	3	0	**Energy and Atmosphere**		38
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Energy Metering	Required
Y			Prereq	Education of the Homeowner, Tenant or Building Manager	Required
			PERFORMANCE PATH		
29			Credit	Annual Energy Use	29
			BOTH PATHS		
4			Credit	Efficient Hot Water Distribution System	3
2			Credit	Advanced Utility Tracking	2
1			Credit	Active Solar Ready Design	1
1	1		Credit	HVAC Start-Up Credentialing	1
			PRESCRIPTIVE PATH		
Y			Prereq	Home Size	Required
2	2		Credit	Building Orientation for Passive Solar	3
3			Credit	Air Infiltration	2
2			Credit	Envelope Insulation	2
2			Credit	Windows	3
4			Credit	Space Heating & Cooling Equipment	4
			EA PRESCRIPTIVE PATH (continued)		
4			Credit	Heating & Cooling Distribution Systems	3
3			Credit	Efficient Domestic Hot Water Equipment	3
2			Credit	Lighting	2
2			Credit	High Efficiency Appliances	2
4			Credit	Renewable Energy	4
9	1	0	**Materials and Resources**		10
Y			Prereq	Certified Tropical Wood	Required
Y			Prereq	Durability Management	Required
	1		Credit	Durability Management Verification	1
4			Credit	Environmentally Preferable Products	4
3			Credit	Construction Waste Management	3
2			Credit	Material Efficient Framing	2
13	0	0	**Indoor Environmental Quality**		16
Y			Prereq	Ventilation	Required
Y			Prereq	Combustion Venting	Required
Y			Prereq	Garage Pollutant Protection	Required
Y			Prereq	Radon-Resistant Construction	Required
Y			Prereq	Air Filtering	Required
Y			Prereq	Environmental Tobacco Smoke	Required
Y			Prereq	Compartmentalization	Required
2			Credit	Enhanced Ventilation	3
1			Credit	Contaminant Control	2
3			Credit	Balancing of Heating and Cooling Distribution Systems	3
1			Credit	Enhanced Compartmentalization	1
2			Credit	Enhanced Combustion Venting	2
2			Credit	Enhanced Garage Pollutant Protection	2
3			Credit	Low Emitting Products	3
4	0	0	**Innovation**		6
Y			Prereq	Preliminary Rating	Required
3			Credit	Innovation	5
1			Credit	LEED AP	1
0	0	0	**Regional Priority**		4
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
79	4	0	**TOTALS**	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

Exhibit 6
March 16, 2017 ARB Concept Review Meeting Minutes

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

Public Comment: None.

Boardmember Discussion:
Boardmember Ellinwood thought the revised project was a good response to the Board's previous feedback. He suggested the containers be painted a dark natural shade green to help obscure them.

Boardmember Reginato indicated that while he still would prefer to see a permanent building solution, he could lend his support to the current proposal with some additional refinements. He agreed the containers should be painted dark green and that the doors should not be adorned with logos. Instead efforts should be made to obscure the doors. He thought that adding large potted plants around the perimeter to help provide screening and possibly making the two ends of the screening structure look more like a permanent building (i.e., solid plaster wall painted to match the primary building) would further enhance the project. He recommended the double beams be of a 3x6 dimension rather than 2x6 as shown.

Boardmember Johnson recommended using blocked 3x4s for the horizontal trellis pickets. He suggested the climbing vines be trained up the trellis structure too. He agreed with the suggestion for the inclusion of potted plants but did not agree with the different treatment for the ends of the screening structure citing its minimal visibility at the back of the lot.

ACTION: Motion by Boardmember Ellinwood, seconded by Boardmember Reginato to recommend preliminary approval of the project to the Planning Commission with the following comments:

- Containers to be painted a natural dark green shade;
- Container doors to be obscured; no painted logos;
- Use large potted plants around screen perimeter;
- Train climbing vines onto trellis members;
- Double beams to be 3x6; horizontal pickets to be blocked 3x4.

VOTE: 3-0

PROJECT REVIEW

5) Applicant: Scott Dinovitz, Cravens Lane, LLC
Project: 16-1840-DP/CDP
Planner: Nick Bobroff
Project Location: 1300 Cravens Lane
Zoning: Planned Unit Development (PUD)

Hearing on the request of Scott Dinovitz, Cravens Lane, LLC to consider Case 16-1840-DP/CDP for conceptual review of a proposal to redesign the Green Heron Spring condominium project previously approved by the City Council in November 2007. The proposed project would dismantle an existing residence, barn and storage shed, remodel one residence and construct 30 new residential units. The contemplated redesign would make adjustments to the previously approved site plan/building locations, building floor plans, bedroom counts for selected units and building architecture/elevations. The property is a 3.87-acre site zoned Planned Unit Development (PUD) and shown as APN 004-013-026, located at 1300 Cravens Lane.

Staff presented the revised project to the Board. Staff asked that the Board comment on the revised building architecture including height, privacy concerns, entry locations, garage prominence, massing/articulation, and colors/materials. The Board was also asked to review and comment on the conceptual landscape plan.

Scott Dinovitz, project proponent, and his design team, walked the Board through the changes made to the project design and an updated preliminary landscape plan. They discussed the selected "Ranch" style architecture and the subtle variations between the models using colors and materials. They explained they had made the entries more prominent, where feasible, and were using the landscape plan to help further enhance entry areas.

The project landscape architect described the preliminary plan for the project, using larger-sized specimen trees throughout to give the project a more established appearance from the start. In the restoration area and around the perimeter of oak trees to be protected, they would use appropriate plantings and materials. Outside of these more sensitive areas, they would introduce more decorative (while still drought tolerant) plantings into the planting plan.

Public Comment:
Richard Johnson, Villas resident, believed the architecture was headed in a good direction. He thought the existing residence to remain and the new units were suitably compatible in terms of style, colors and materials. He recommended trees be planted in the back yards of the units, particularly those along the south (side) property line that abut the adjacent Villas residential development.

Scott Ellinwood, property owner, suggested the landscape architect look into the CCC comments and directions concerning the pond restoration to ensure appropriate plant materials are being used. He also pointed out the water level is back up at its historic "normal" level if the landscape architect wants to come by and take a look. He also explained that the drainage pattern for the property goes from the NE to the SW with an overflow out to Cravens Lane via the adjacent private driveway to the south. He recommended the existing swales through the property be maintained and incorporated into the project.

Boardmember Discussion:
Boardmember Reginato felt the project was headed in a good direction. He felt the design of the individual unit entries was enhanced from that previously presented to the Board. Concerning the building designs, he thought the differences in architecture between the existing residence to remain and the new buildings were okay as there was enough commonalities between the designs to tie them together still. He noted he generally preferred the more articulated garage doors to the simpler ones shown on some of the homes and suggested on the larger buildings, some of the garage doors could instead be covered in siding. He noted on side and rear elevations, more siding materials should be introduced so that the plaster finishes are more of an accent feature. He also suggested the heights of some of the buildings could come down slightly to add a little more variety throughout the development. He noted privacy issues would be a concern and deserve attention.

ACTION: Public comments received and conceptual feedback from the ARB provided.

VOTE: N/A

Exhibit 7
August 31, 2017 ARB Preliminary Review Meeting Minutes

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

Bedroom # __, asked that the Plan Check Examiner confirm that the size is acceptable per Code.

ACTION: Motion by Boardmember Ellinwood, seconded by Boardmember Chappell to recommend final approval with the comments noted and reviewed prior to issuance of a Building Permit.

VOTE: 4-0 (Reginato absent)

PROJECT REVIEW

2) Applicant: Carpinteria Unified School District
Project: 17-1881-DP/CDP
Planner: Steve Goggia
Project Location: 1480 Linden Avenue
Zoning: Community Facility District (CF)

Hearing on the request of the Carpinteria Unified School District to consider Project 17-1881-DP/CDP for preliminary/final review of a proposal for phased improvements to Canalino Elementary School that would replace ten (10) existing portable classrooms housed in individual buildings with the same number of classrooms housed in three (3) modular structures. The reconfiguration of the existing parking lot to add 17 staff parking spaces is also proposed in addition to minor landscape modifications. The Canalino School campus is zoned Community Facility District (CF) and shown as APN 004-005-012, addressed as 1480 Linden Avenue.

Staff presented the overall master plan for the campus improvements, noting that the State Architect would be reviewing and approving the proposal. The Board was asked to specifically comment on the American Modular Systems (AMS) Gen-7 buildings proposed for all of the school campuses. Representing the District Robert Robles and Johnathan Leech responded to questions about the modular structures and clarifying that the drop-off and pick-up arrangement would be much improved with the Phase 3 improvements to the circulation. Jonathan Leech also explained that should the Gen-7 modulars not be used for some of the later phased larger structures, the design theme would be carried through.

Public Comment: None

ACTION: Motion by Boardmember Johnson, seconded by Boardmember Reginato to recommend final approval.

VOTE: 5-0

PROJECT REVIEW

3) Applicant: Scott Dinovitz, Cravens Lane, LLC
Project: 16-1840-DP/CDP
Planner: Nick Bobroff
Project Location: 1300 Cravens Lane
Zoning: Planned Unit Development (PUD)

Hearing on the request of Scott Dinovitz, Cravens Lane, LLC to consider Project 16-1840-DP/CDP for preliminary review of the revised Green Heron Spring condominium project

previously approved by the City Council in November 2007. The proposed project would dismantle an existing residence, barn and storage shed, remodel one residence and construct 30 new residential units. The project includes new site landscaping, community open space areas, fencing, storm drainage improvements, enhancement and restoration of the onsite pond, and road right-of-way improvements to Cravens Lane. The contemplated redesign would make adjustments to the previously approved site plan/building locations, building floor plans, bedroom counts for selected units and building architecture/elevations. The property is a 3.89-acre site zoned Planned Unit Development (PUD) and shown as APN 004-013-026, located at 1300 Cravens Lane.

Staff presented a brief introduction followed by a more thorough discussion presented by the project representatives.

Public Comment: Paulene Reyes requested clarification about the widening of Cravens Lane. The Project representatives explained that Cravens would be widened within the right-of way along the project frontage, without requiring land from the Sandpiper Mobile Home Park. She also inquired about the fate of the large redwood tree growing alongside the existing cottage at the project entrance. The applicant's team replied that a consulting arborist said the tree's roots are so intermingled with the cottage, it would not survive the removal of the cottage and that it would be replaced by three redwood trees.

John McCann questioned the project's impact to areawide flooding during a large storm event. Project representatives indicated that due to State requirements for keeping storm water on site for a longer time period and the increased pond size, flooding impacts would not be exacerbated by the project.

Boardmember Discussion:

Boardmember Cox commented that it is a well done, fantastic project.

Boardmember Chappell agreed, saying that he would like to see a smooth plaster used rather than a sand finish.

Boardmember Reginato also agreed, although he would like to see the two units closest to Cravens Lane reduced in height. He would also like to see a replacement for the Unit 4b garage door and the elevation of this unit modified to increase articulation. Overall, he thought the board and batt spacing should be reduced from 18 inches to 12 inches to provide more shadow play. Lastly, he indicated that a 3"x8" board be used as the fence rails, with the top edge shaped to shed water.

ACTION: Motion by Boardmember Chappell, seconded by Boardmember Cox to recommend preliminary approval of the project to the Planning Commission.

VOTE: 3-0 (Boardmembers Johnson and Ellinwood absent)

OTHER BUSINESS: None

Exhibit 8
Revisions to Plans Memo in Response to ARB Comments prepared by Architect

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

WHA.

October 27, 2017

Nick Bobroff, Senior Planner
CITY OF CARPINTERIA, CA
5775 Carpinteria Avenue,
Carpinteria, CA 93013-2603

Subject: **GREEN HERON SPRING RESIDENCE- CRAVENS LANE, LLC** *Project #2016101*
Response Letter – Architectural Review Board Action Minutes, dated 08/31/17
City of Carpinteria, CA

The following is WHA's Response to Boardmember comments.

COMMENTS:	**RESPONSE:**
Boardmember Reginato also agreed, although he would like to see the two units closest to Cravens Lane reduced in height.	Plan 3, Building 100 closest to Cravens Lane - Roof form has been changed from a gable end to a partial hip/dutch gable roof to lower the height of the building at this edge. In addition, The single story porch entry roof has been expanded in front of the 2 story massing at this edge to soften the building massing along this edge. Plan 6- Closest to Cravens Lane - The roof of plan 6 has been modified to a partial hip/dutch gable roof to lower the height of the building at this edge. A single story garage roof remains at this edge.
He would also like to see a replacement for the Unit 4b garage door and the elevation of this unit modified to increase articulation.	A different garage door for Unit 4B has been selected. Siding material has been added to the Plan 4A and 4 B Right Side Elevations as additional articulation.
Overall, he thought the board and batt spacing should be reduced from 18 inches to 12 inches to provide more shadow play.	Board and Batt Spacing - Spacing has been reduced to from 18" oc to 16" oc.

Regards,

WILLIAM HEZMALHALCH ARCHITECTS, INC.

Donald A. White
AIA, Senior Principal

/AM

Exhibit 9
Proposed Final Mitigated Negative Declaration (MND)

Green Heron Spring Residences
1300 Cravens Lane

PC Hearing, November 6, 2017

See attached bound Proposed Final MND,
CD containing MND Technical Appendices, &
MND Response to Comments

GREEN HERON SPRING

Carpinteria, California

APPLICANT: CRAVEN'S LANE, LLC
ARCHITECT: WILLIAM HEZMALHALCH ARCHITECTS, INC.
LANDSCAPE: L.A. GROUP DESIGN WORKS
CIVIL: UNITED CIVIL INC.
LIGHTING: MDC Engineers Inc.
July 26, 2017

2016101

WILLIAM HEZMALHALCH
ARCHITECTS INC.

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Project Summary

Total Site Area: ± 3.89 Acres

Total Units: 31 Homes
- (10) Flats
- (13) Townhomes
- (7) Single Family Detached Homes
- (1) Existing SFD to be Remodeled

Density: 8.0 Homes per Acre

Parking:

Required: 73 Spaces (2.35 spaces per home)
- (24) 2+ Bdrm TH x 2.0 Spaces = 48 Spaces
- (7) 2+ Bdrm SFD x 2.0 Spaces = 14 Spaces
- (31) Guest x 0.33 Spaces = 11 Spaces

Provided: 74 Spaces (2.39 spaces per home)
- Garage: 53 Spaces
- Head In: 21 Spaces (9' x 18')

Bedrooms: 81 Total Bedrooms
- Plan 1 — 2 Bdrm x 4=8
- Plan 1X — 2 Bdrm x 4=8
- Plan 2 — 3 Bdrm x 4=12
- Plan 3 — 3 Bdrm x 5=15
- Plan 4 — 3 Bdrm x 6=18
- Plan 5 — 3 Bdrm x 4=12
- Plan 6 — 4 Bdrm x 1=4
- Plan 7 — 0 Bdrm (Pavillion)
- Plan 8 — 2 Bdrm x 1=2
- Plan 8X — 2 Bdrm x 1=2

Site Coverage

Building Coverage:	43,900 SF
Private Open Space:	25,519 SF
Private Porches:	3,778 SF
Private Yards:	19,700 SF
Private Decks:	2,041 SF
Common Open Space:	63,340 SF
Hardscape:	33,974 SF
Total Livable Area:	57,926 SF
Total Gross Area:	69,929 SF (Livable+Garages)
Gross Area- Previous Plan:	66,436 SF
Oak Trees to Remain:	◎
Accessible Units:	ADA
Affordable Units:	(Aff.)

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

Illustrative Concept Site Plan

SP.1

Green Heron Spring

Carpinteria, CA

CRAVEN'S LANE, LLC

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Concept Site Plan

SP.2

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Existing Approved Site Plan

SP.3

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Gross Area- Previous Plan:	66,436 SF
Oak Trees to Remain:	◎
Accessible Units:	ADA
Affordable Units:	(Aff.)

Proposed Site Plan	43,900 SF Building Footprint
Overlap	
Existing Approved Site Plan	37,087 S.F. Building Footprint

Concept Site Plan Overlap

SP.4

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Building Coverage: 43,900 SF
Total Livable Area: 57,926 SF
Total Gross Area: 69,929 SF (Livable+Garages)

Gross Area- Previous Plan: 66,436 SF

Oak Trees to Remain

Primary Windows

Secondary Windows

Privacy Window Treatment Locations (Opaque Glazing)

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Second Floor Window Conflicts Analysis

SP.5

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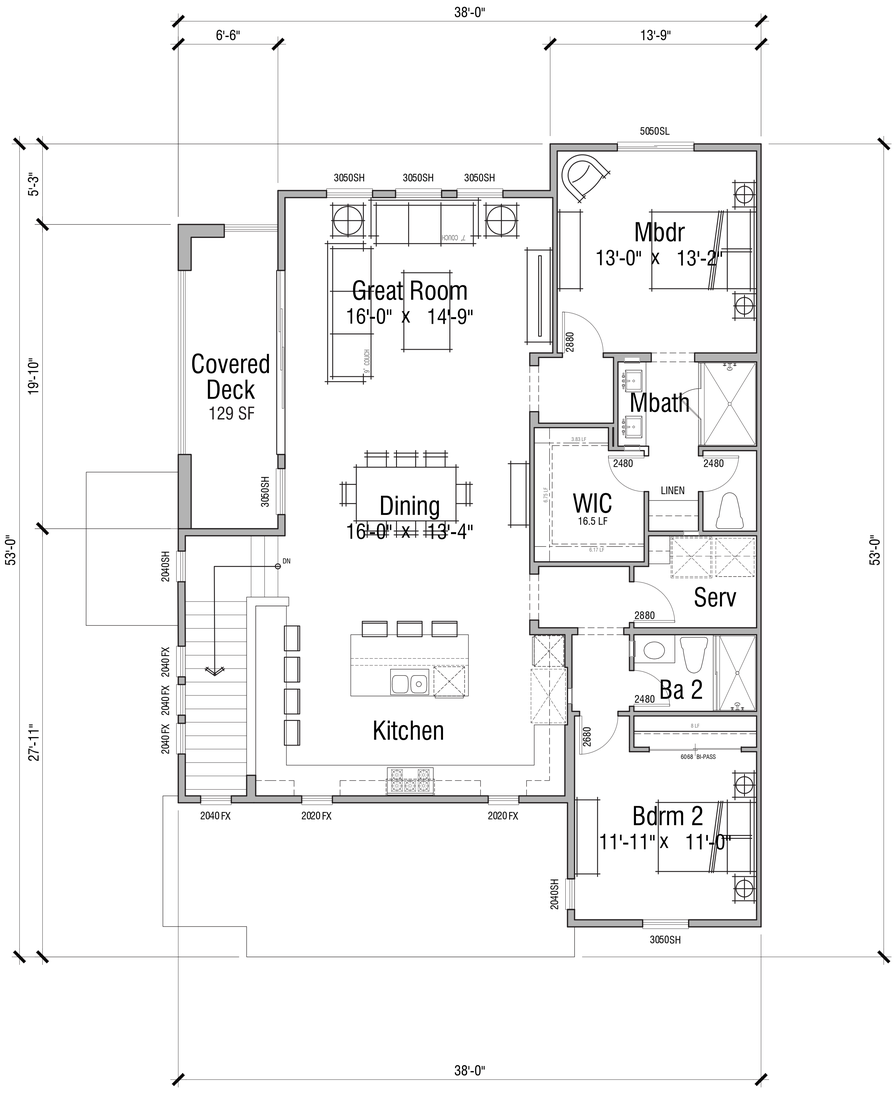
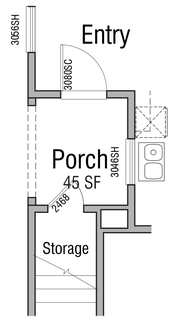
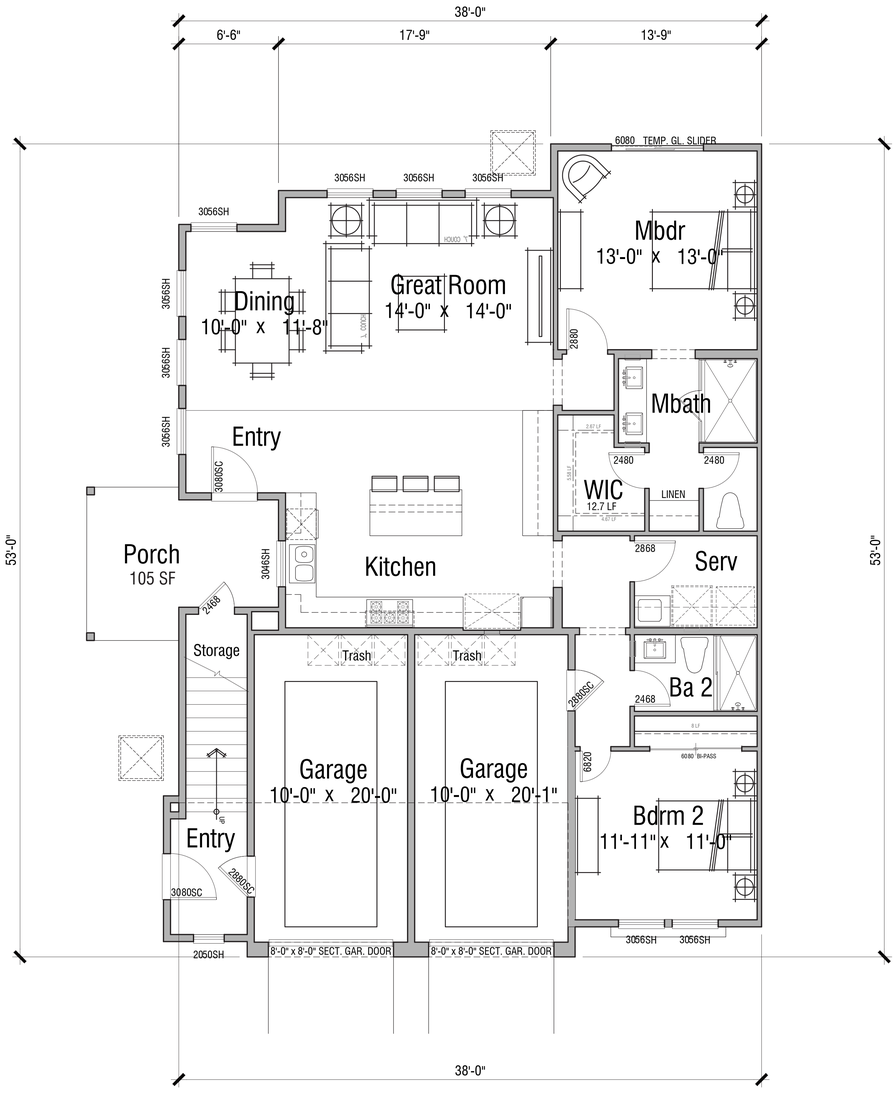




Porch Alternate



Plan 1X

1,568 SF
2 Bdrm/2 Ba/1 Car Garage
Multi-Family - Upper Level Flat

Plan 1

1,313 SF
2 Bdrm/2 Ba/1 Car Garage
Multi-Family - Lower Level Flat

Unit Floor Plans

A1.1

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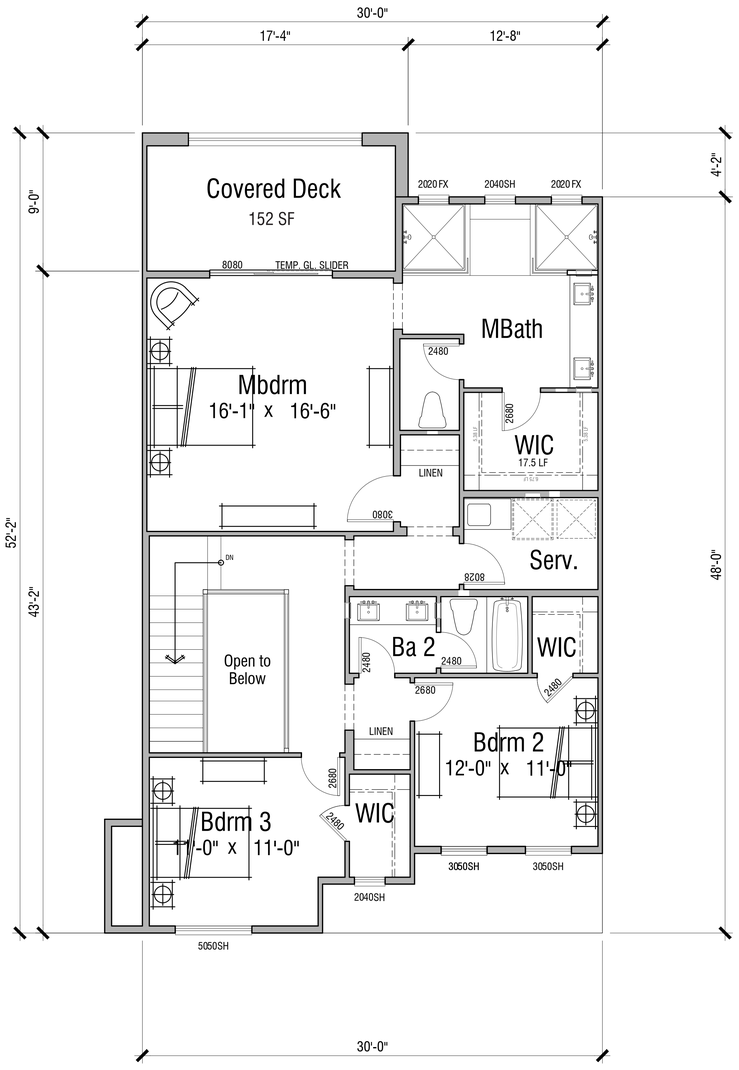

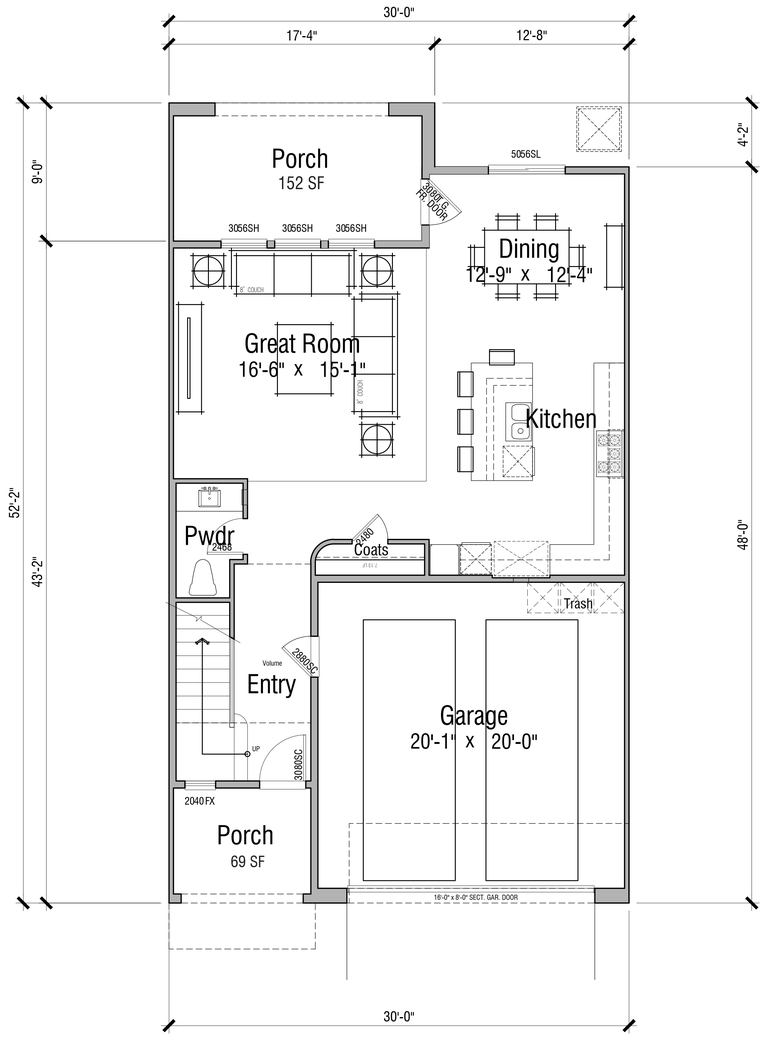

Plan 2

2,013SF
3 Bdrm/2.5 Ba
2 Car Garage
Multi-Family - Townhome: Interior Unit

Unit Floor Plans

A1.2

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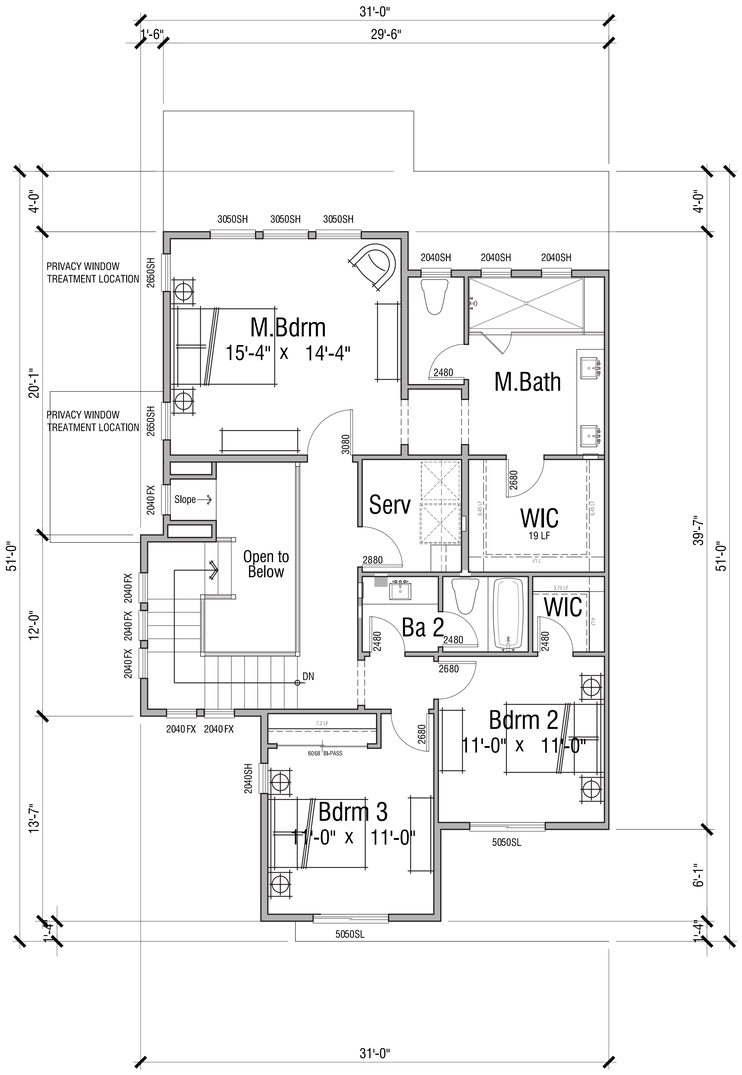
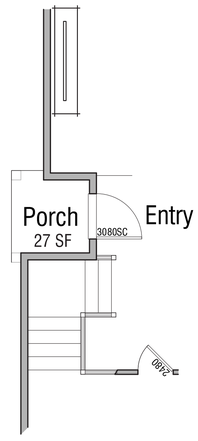
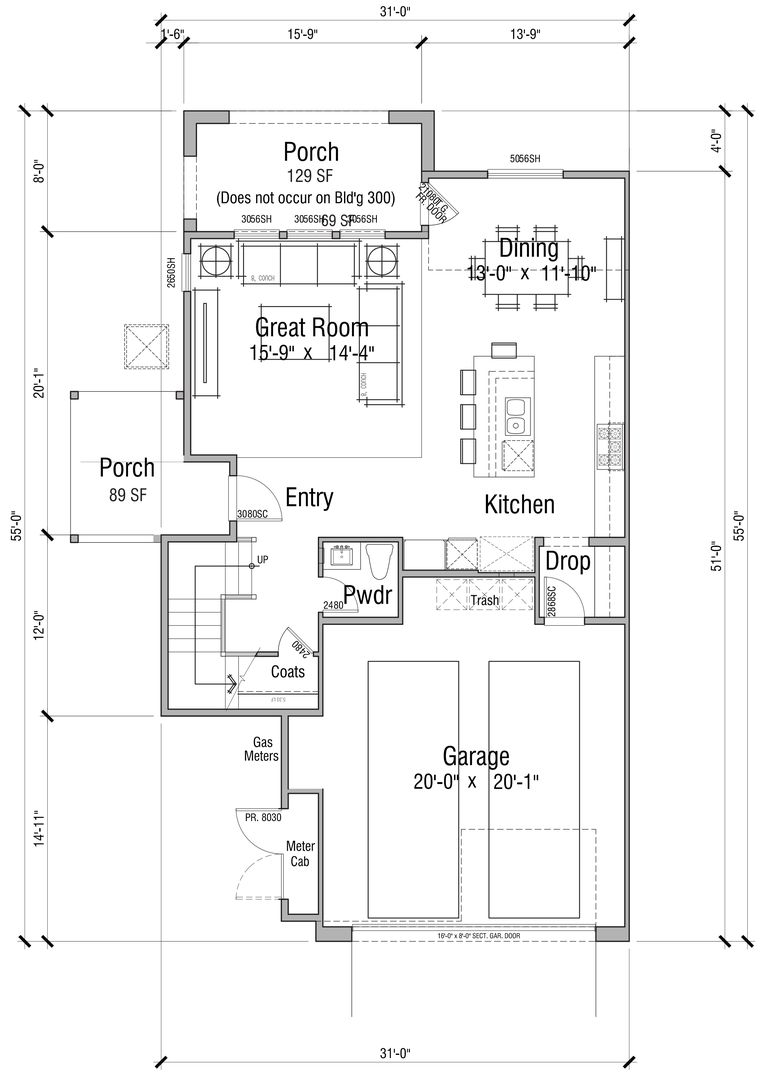




Porch Alternate



Plan 3

1,864 SF
3 Bdrm /2.5 Ba
2 Car Garage
Multi-Family - Townhome: End Unit

Unit Floor Plans

A1.3

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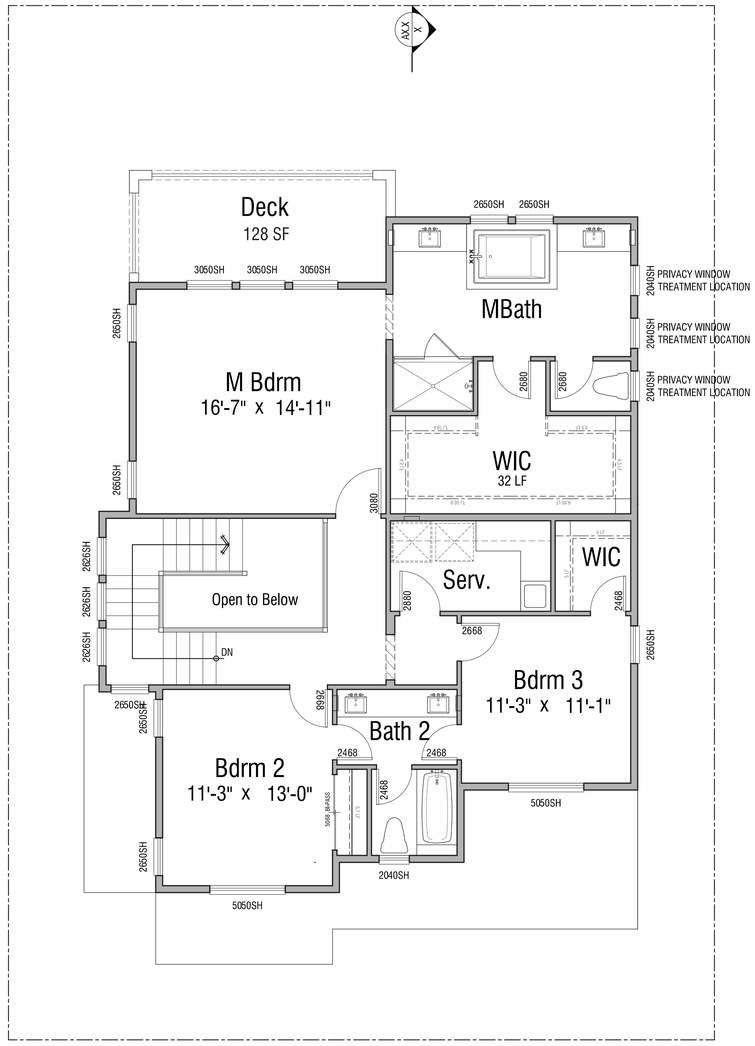

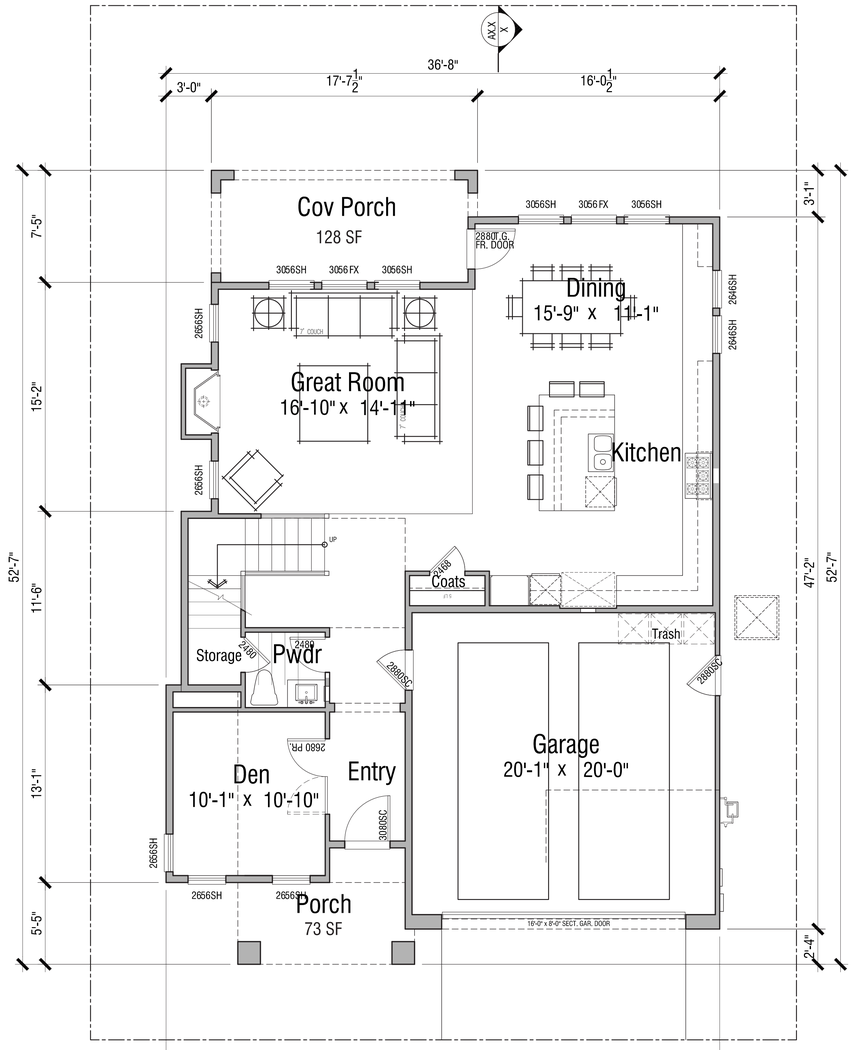

Plan 4

2,282 SF
3 Bdrm+Den/Br 4/3 Ba
2 Car Garage
Single Family Detached

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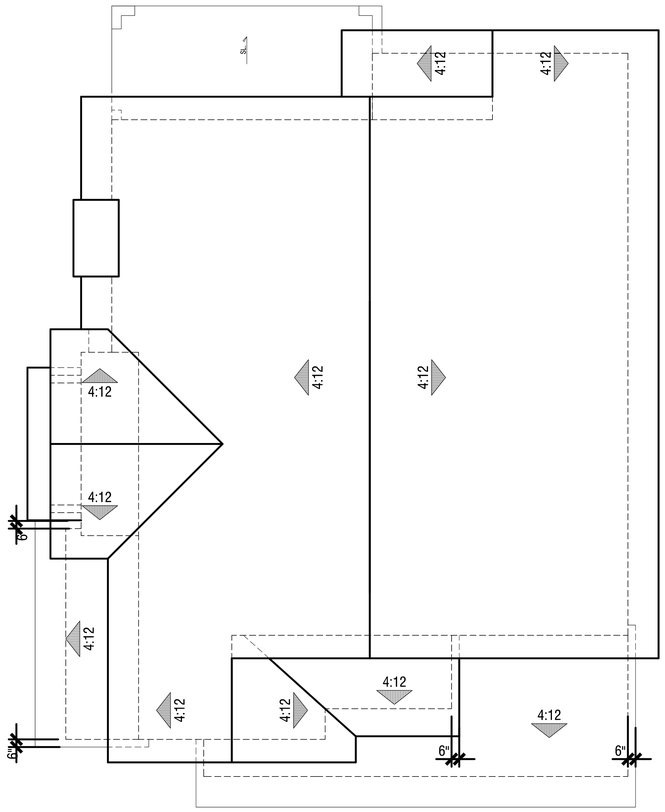
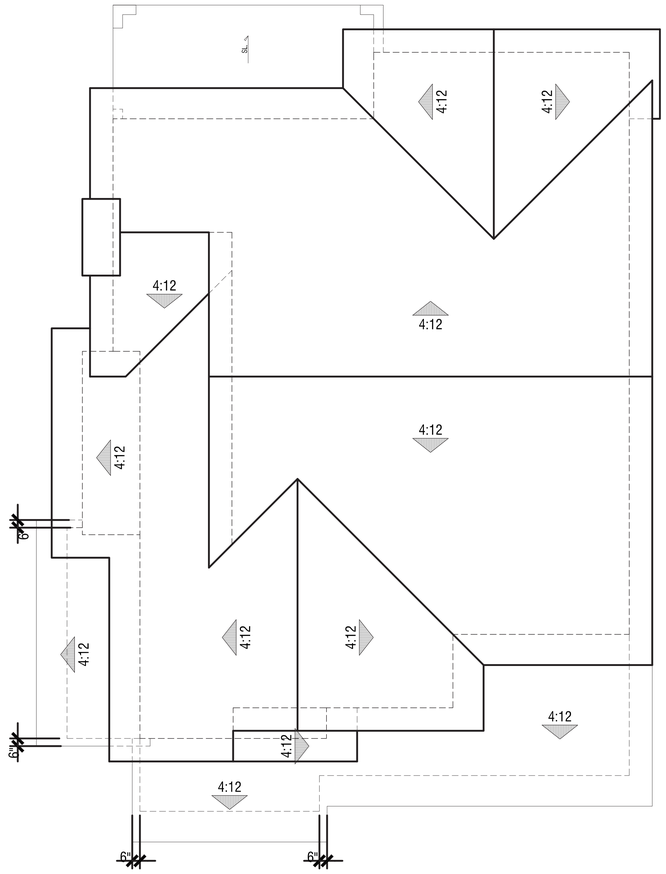


Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Roof Plan 4B



Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Roof Plan 4A

Plan 4

Single Family Detached

Roof Plans

Eaves - 24": Eave Overhang U.N.O. 2X6 Wood Eaves and 2X4 Facia W/ 1X6 Wood Starter Board

Rakes-18": Rake Overhang U.N.O. W/ 2X 6 Barge Board and 1X4 Shadow Board W/ 1X6 Wood Starter Board

A1.5

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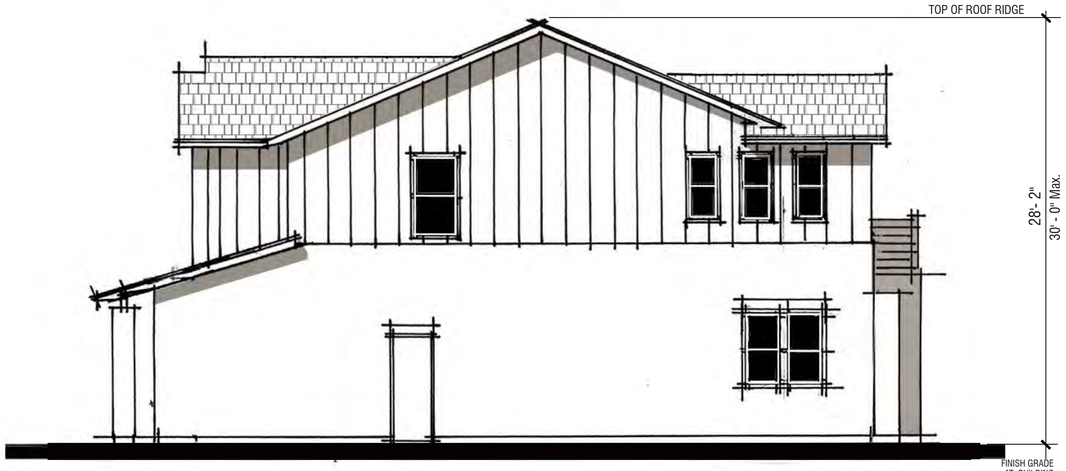
Left



Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

Front



Right



Rear

EXTERIOR MATERIALS:

1	Roof:	Composition Roof Tile Metal Roof Entry Accents	
2	Exterior Stucco:	Sand Finish Exterior Stucco	
3	Exterior Siding #1:	Vertical Board And Batt Siding - 1X2 Batts At 18" OC	
4	Deck Railings:	Metal Horizontal Deck Railing	
5	Window & Door Trim:	At Siding Locations - 2X2 Trim	
6	Window & Door Trim:	At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim	
7	Garage Doors:	Pre-Manufactured Roll-Up Garage Doors	
8	Front Doors:	Stain Grade Front Doors With Lites Per Elevation	
9	Windows:	Pre-Manufactured Metal Frame Windows	

Plan 4A

Single Family Detached

Elevations

A1.6

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Left



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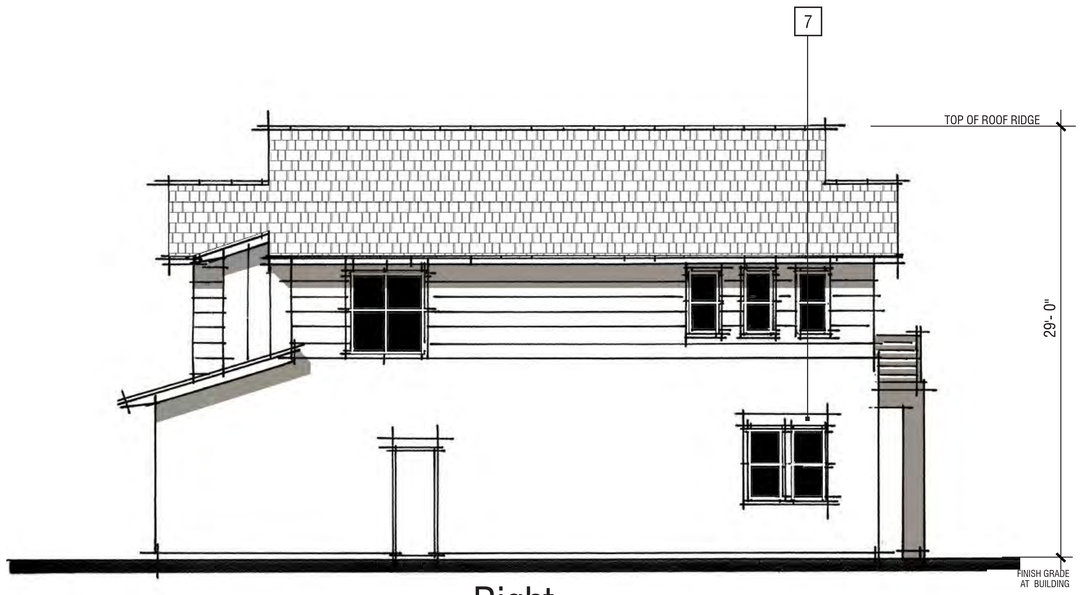

Right



Rear

Plan 4B

Single Family Detached

Elevations

EXTERIOR MATERIALS:

1	Roof: Composition Roof Tile, Metal Roof Entry Accents	7	Window & Door Trim: At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim
2	Exterior Stucco: Sand Finish Exterior Stucco	8	Garage Doors: Pre-Manufactured Roll-Up Garage Doors
3	Exterior Siding #1: Vertical Board And Batt Siding - 1X2 Batts At 18" OC	9	Front Doors: Stain Grade Front Doors With Lites Per Elevation
4	Exterior Siding #2: Horizontal Channel Groove Siding- 8"	10	Windows: Pre-Manufactured Metal Frame Windows
5	Deck Railings: Metal Horizontal Deck Railing		
6	Window & Door Trim: At Siding Locations - 2X2 Trim		

A1.7

Green Heron Spring

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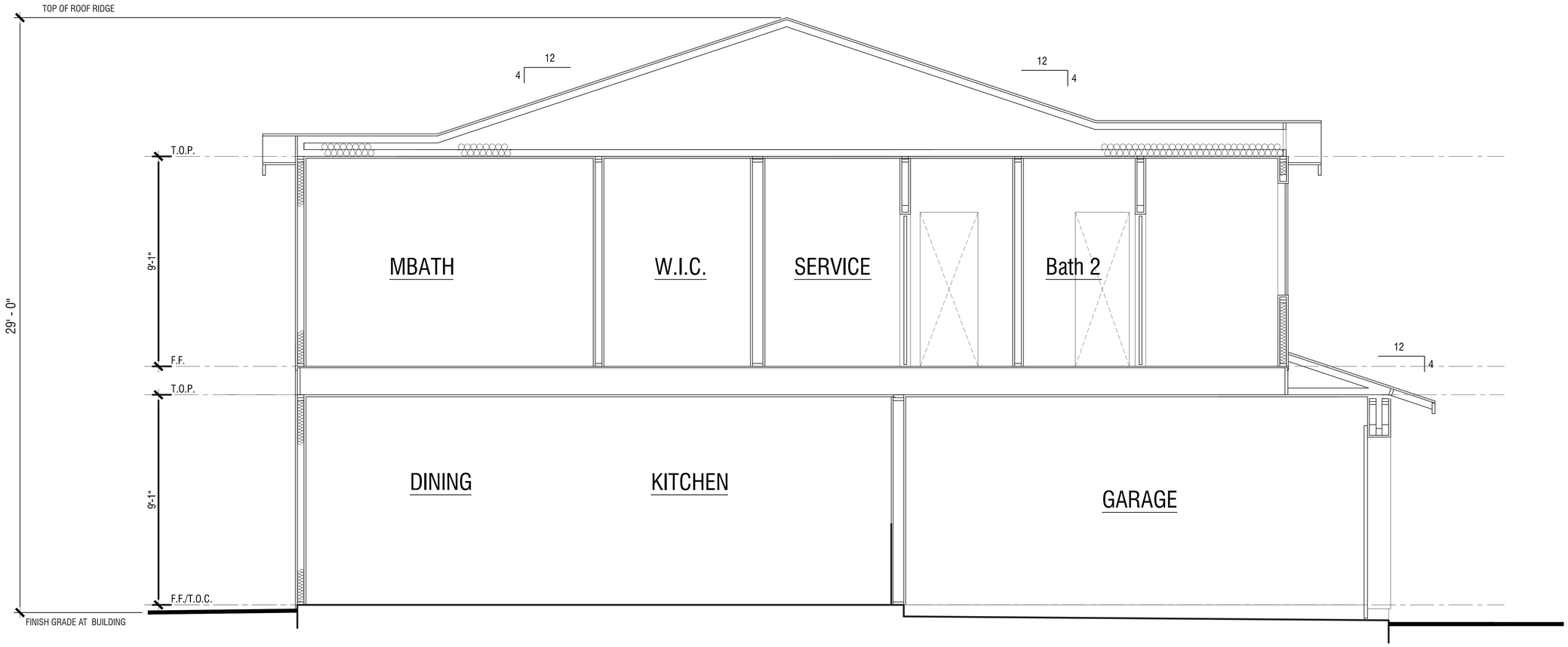

Plan 4

Single Family Detached

Building Section

A1.8

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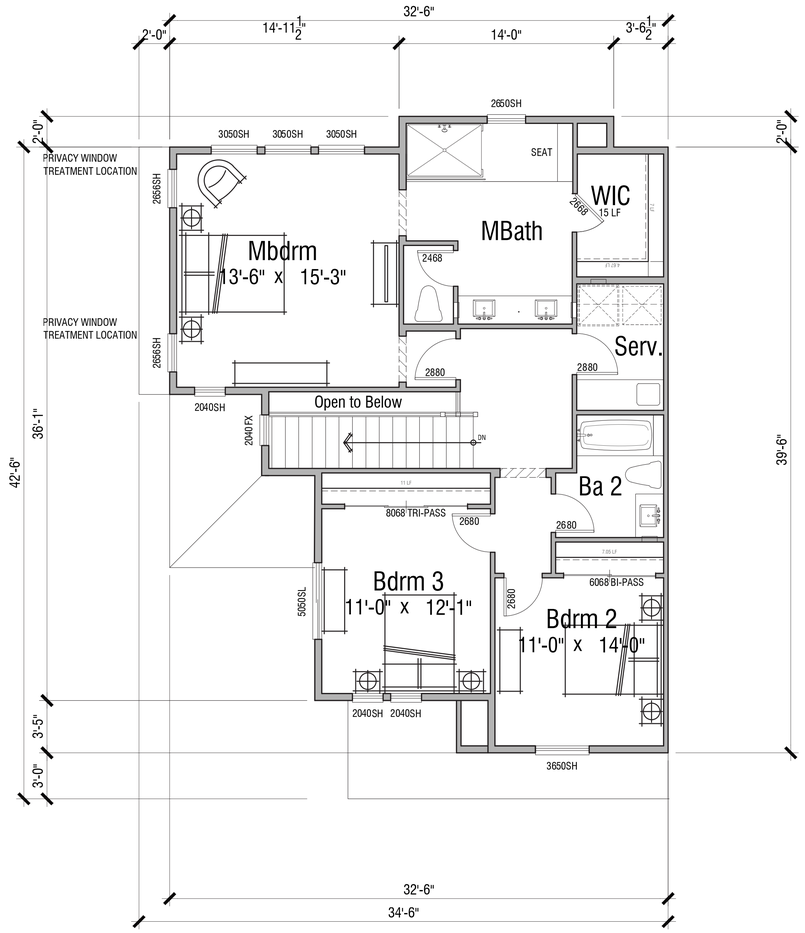

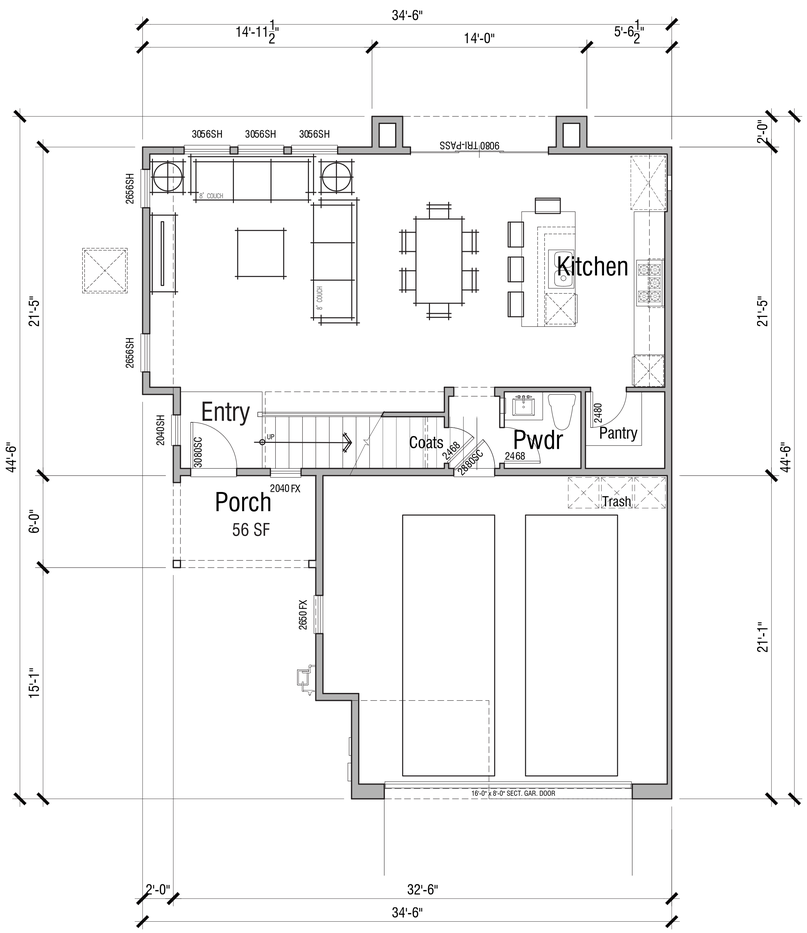

Plan 5

1,728 SF
3 Bdrm/2.5 Ba
2 Car Garage
Multi-Family: Duplex

Unit Floor Plans

A1.9

Green Heron Spring

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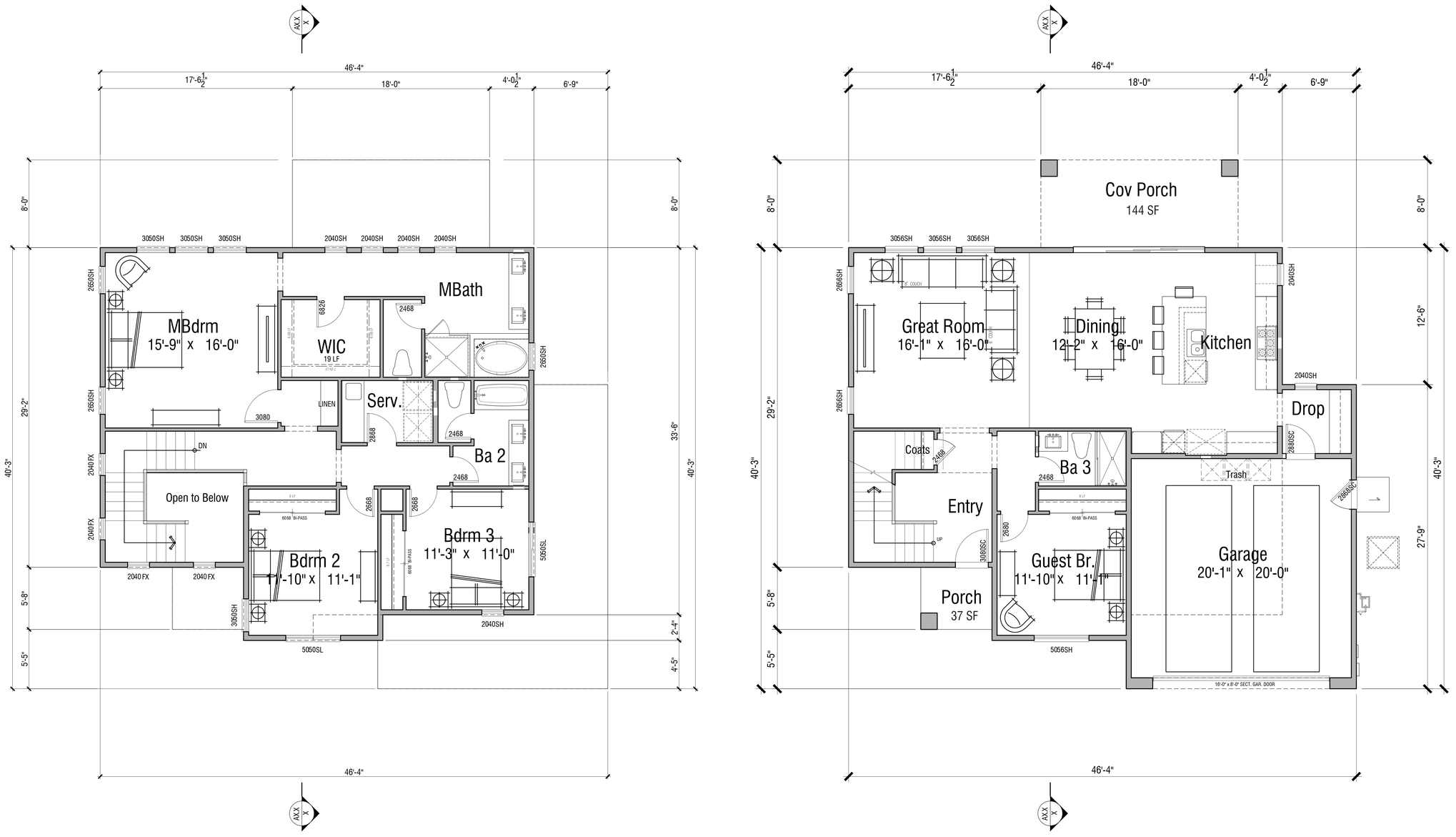

Plan 6

2301 SF
4 Bdrm/3 Ba
2 Car Garage
Single Family Detached

Unit Floor Plans

A1.10

Green Heron Spring

Carpinteria, CA
CRAVEN'S LANE, LLC

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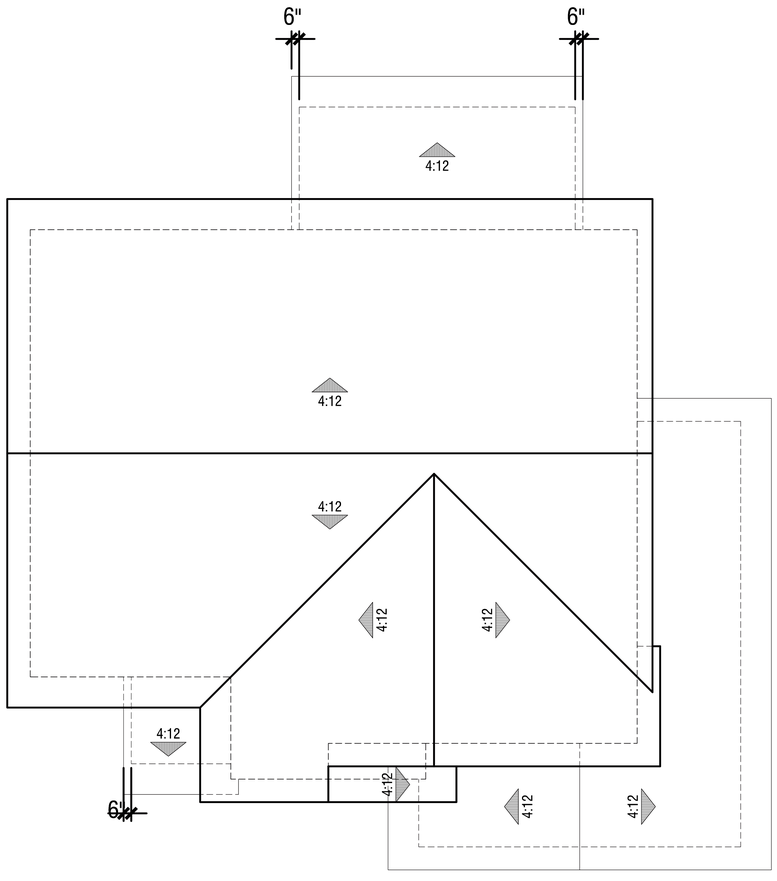

Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Plan 6

Single Family Detached

Roof Plans

Eaves - 24": Eave Overhang U.N.O. 2X6 Wood Eaves and 2X4 Facia W/ 1X6 Wood Starter Board

Rakes-18": Rake Overhang U.N.O. W/ 2X 6 Barge Board and 1X4 Shadow Board W/ 1X6 Wood Starter Board

A1.11

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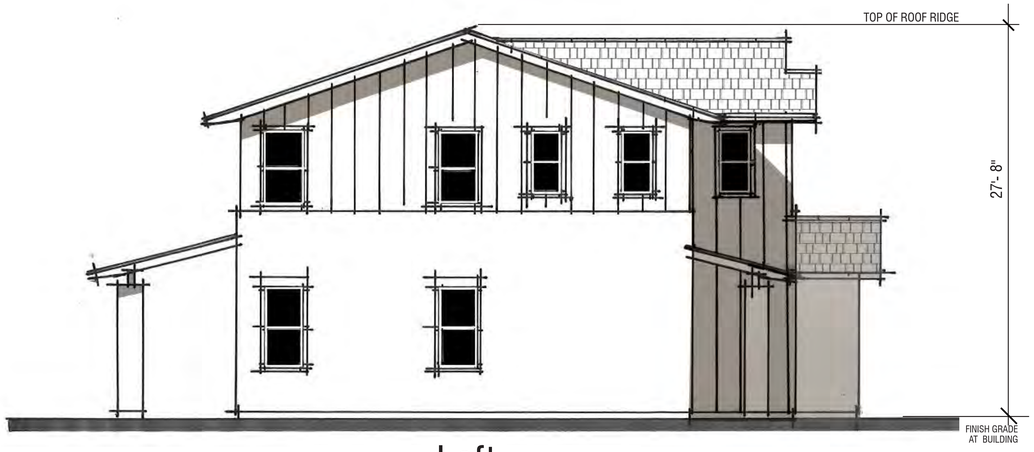
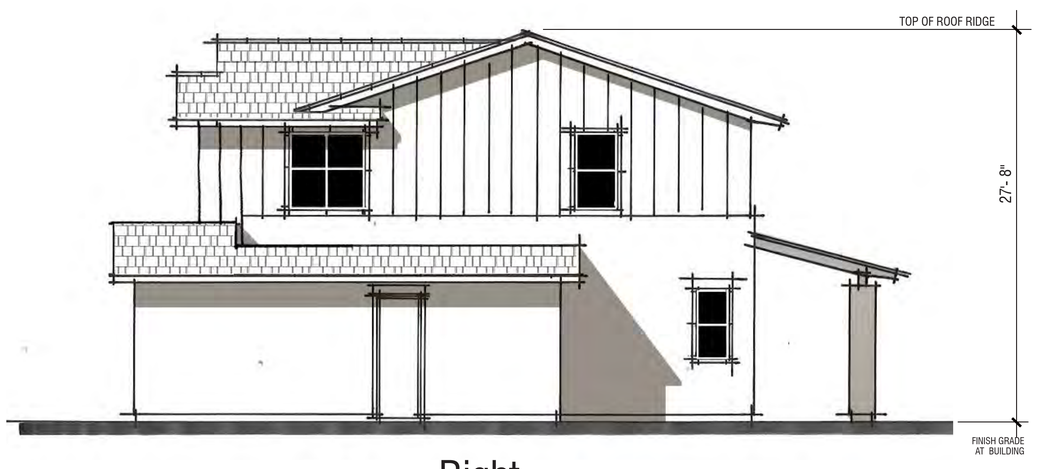


Left



Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

Front



Right



Rear

Plan 6

Single Family Detached

Elevations

EXTERIOR MATERIALS:

1	Roof: Composition Roof Tile Metal Roof Entry Accents	7	Window & Door Trim: At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim
2	Exterior Stucco: Sand Finish Exterior Stucco	8	Garage Doors: Pre-Manufactured Roll-Up Garage Doors
3	Exterior Siding #1: Vertical Board And Batt Siding - 1X2 Batts At 18" OC	9	Front Doors: Stain Grade Front Doors With Lites Per Elevation
4	Exterior Siding #2: Horizontal Channel Groove Siding- 8"	10	Windows: Pre-Manufactured Metal Frame Windows
5	Deck Railings: Metal Horizontal Deck Railing		
6	Window & Door Trim: At Siding Locations - 2X2 Trim		

A1.12

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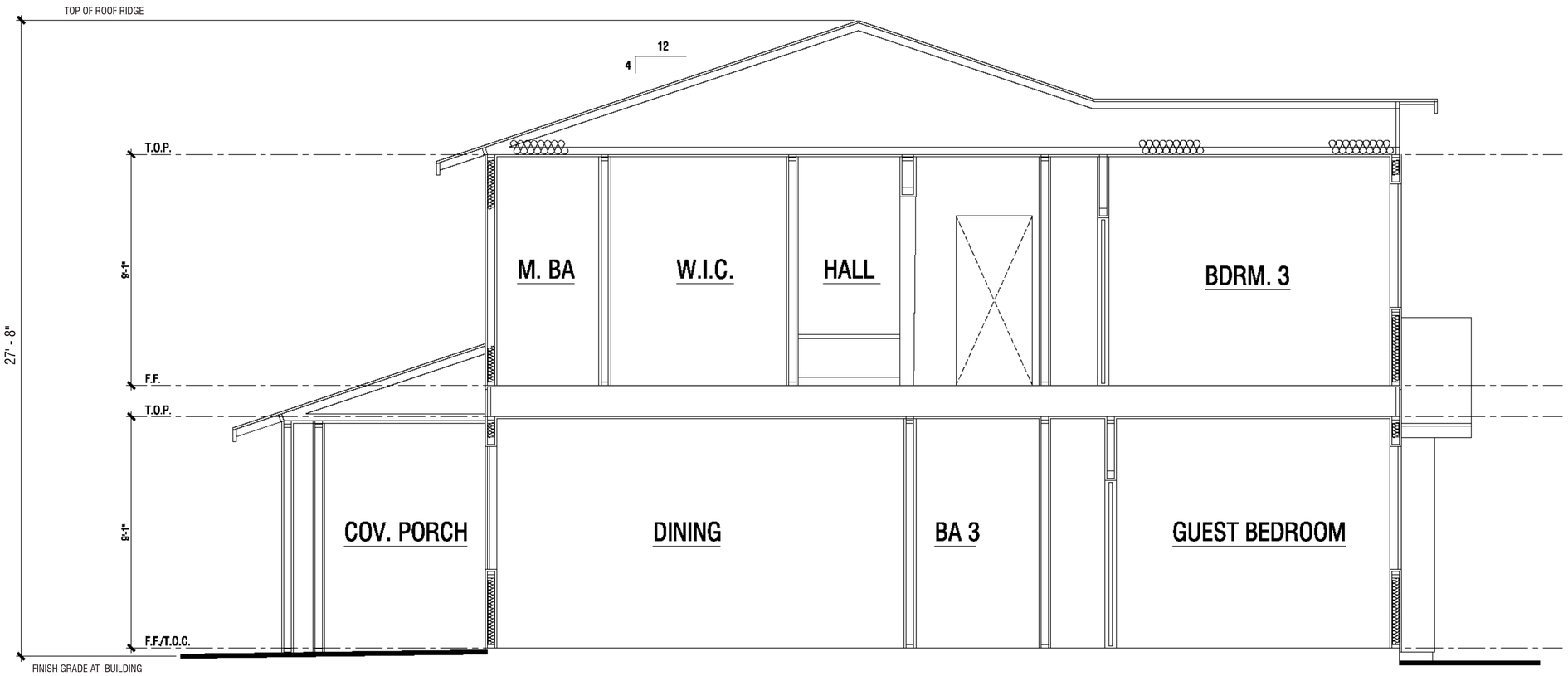

Plan 6

Single Family Detached

Building Section

A1.13

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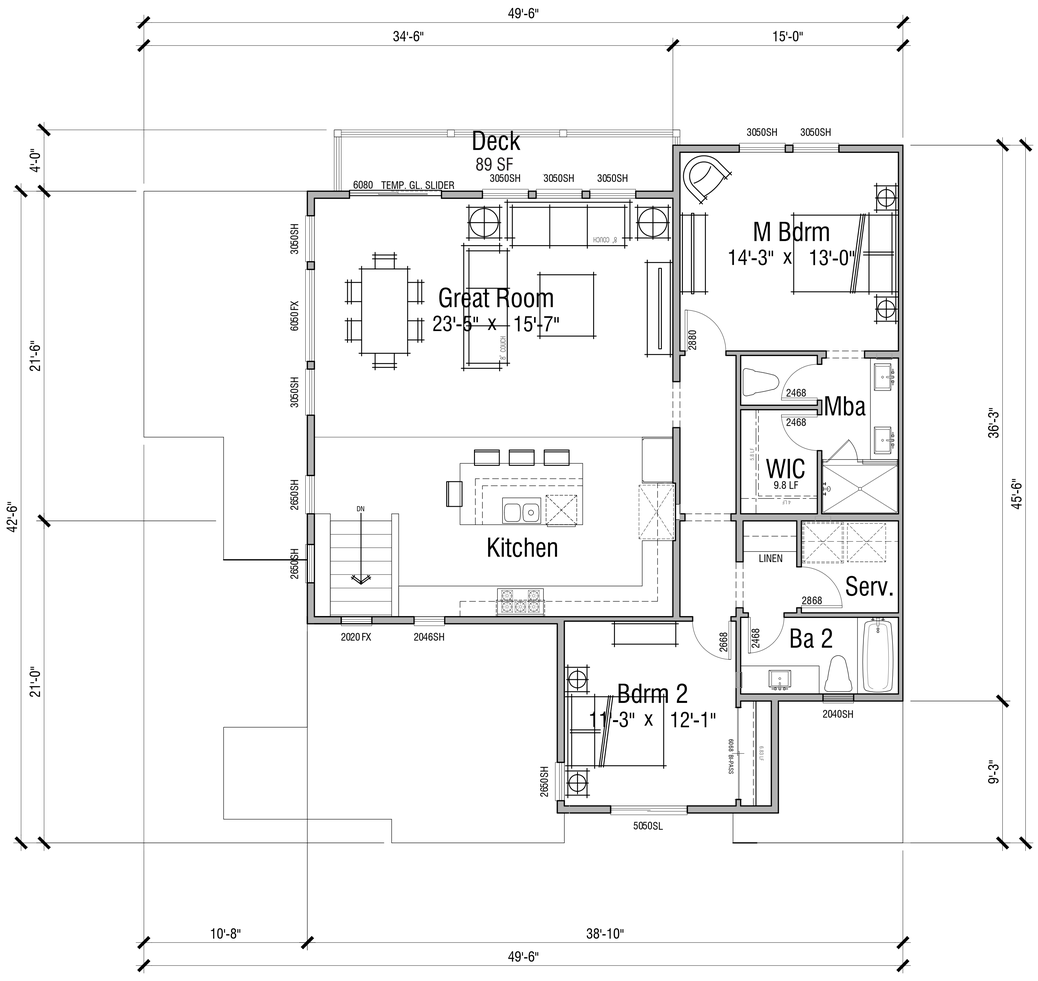

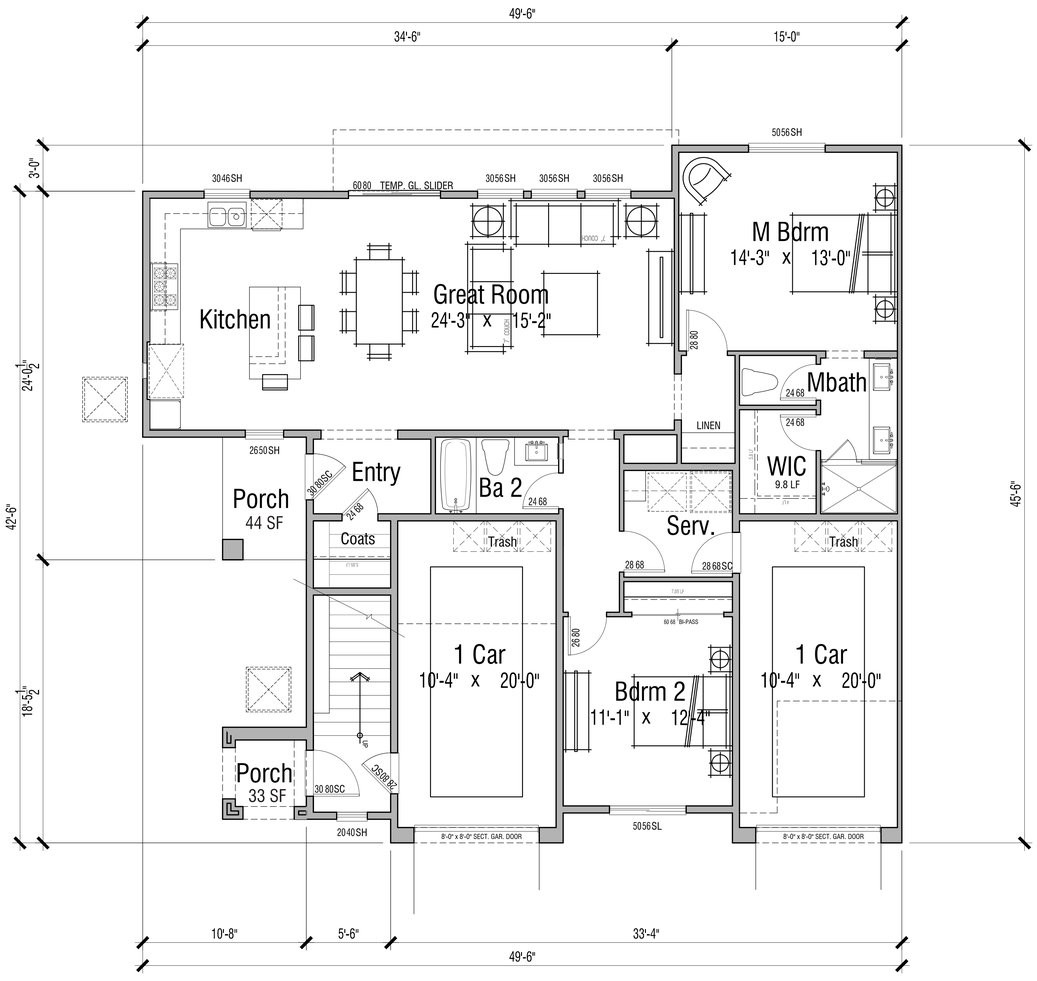

Plan 8X

1,427 SF
2 Bdrm/2 Ba
1 Car Garage
Multi-Family - Upper Level Flat

Plan 8

1,279 SF
2 Bdrm/2 Ba
1 Car Garage
Multi-Family - Lower Level Flat

Unit Floor Plans

A1.14

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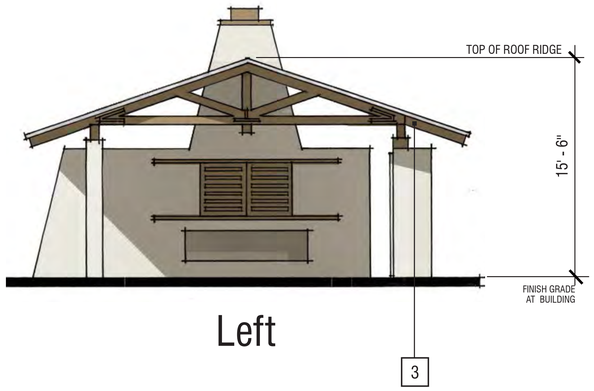

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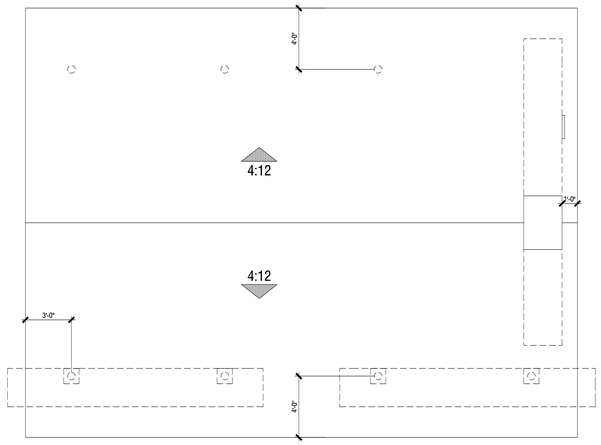
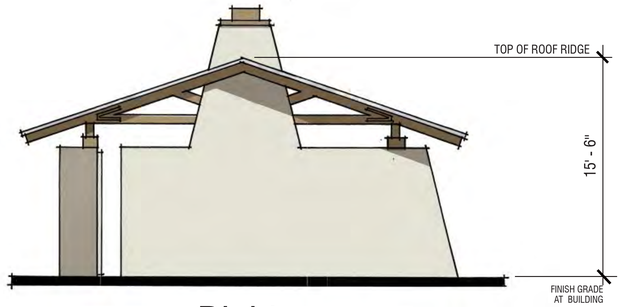


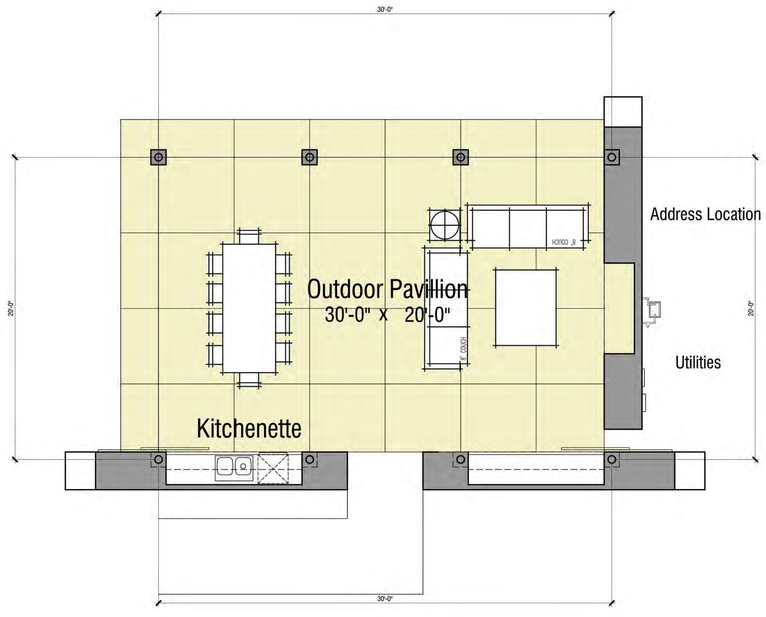
Roof Plan



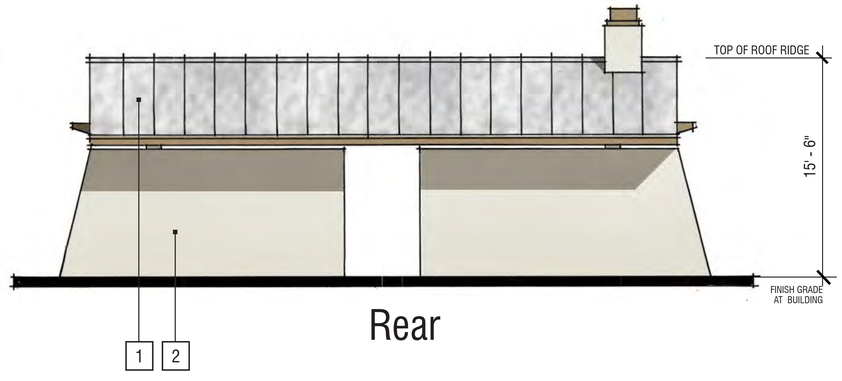
Front



Right



Floor Plan



Rear

Pavilion

Pavilion Structure

EXTERIOR MATERIALS:

1	Roof:	Metal Roof
2	Exterior Stucco:	Sand Finish Exterior Stucco
3	Gable Ends:	Exposed Wood Truss

Note: Building colors shown are Artist's Conception.
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A1.15

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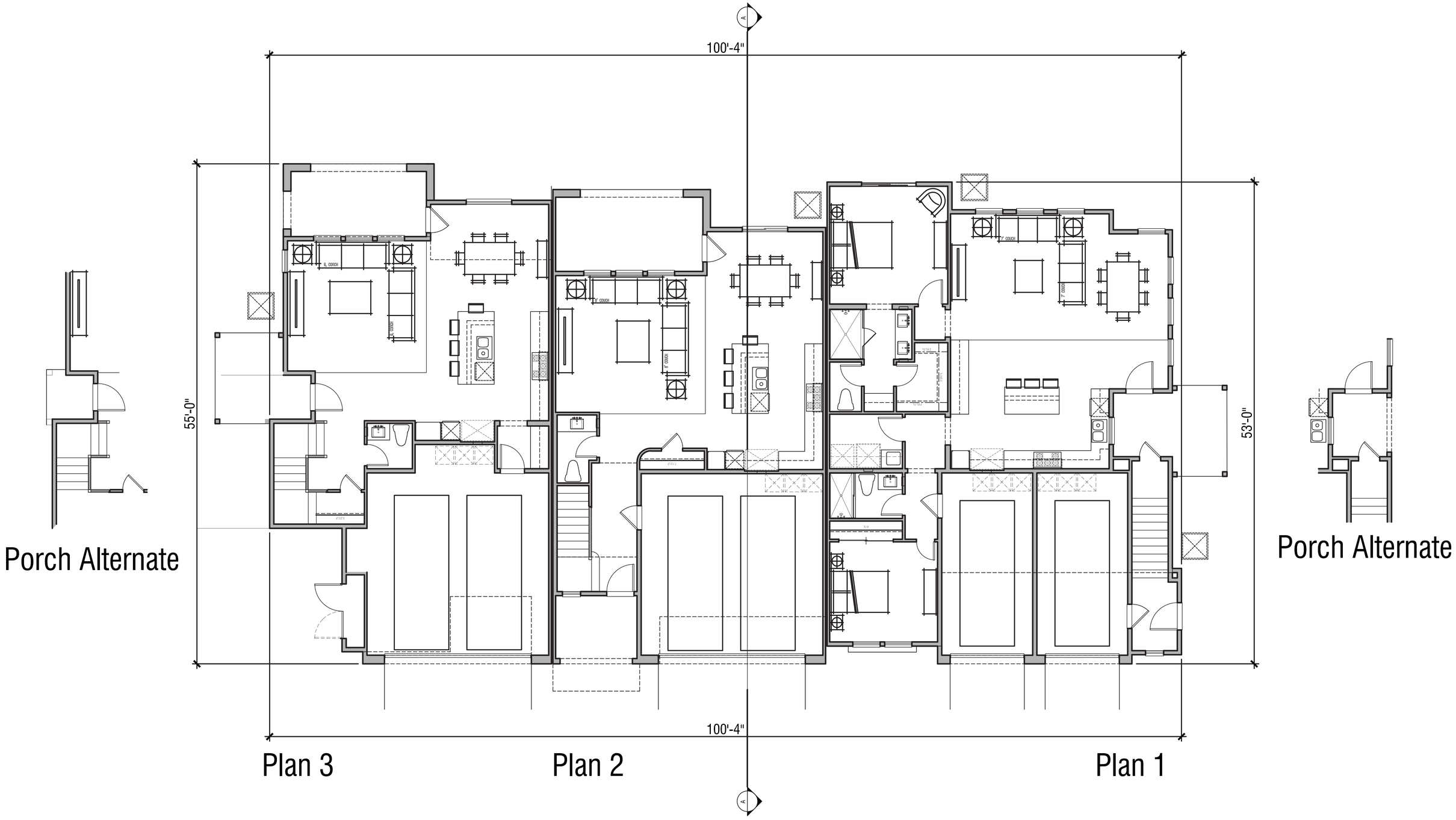

Lower Level

Building 100

Multi-Family

Building Plan

A1.16

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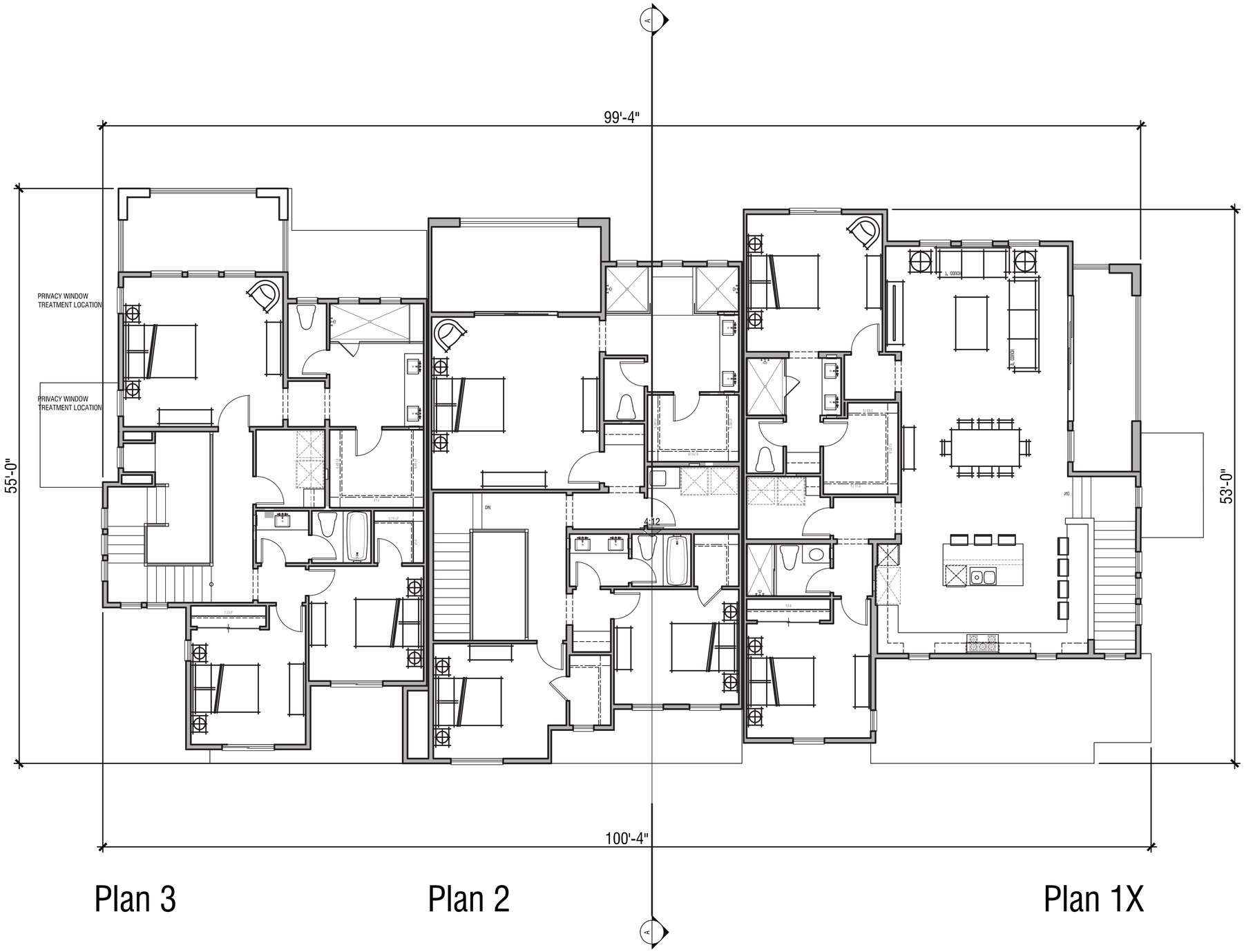

Upper Level

Building 100

Multi-Family

Building Plan

A1.17

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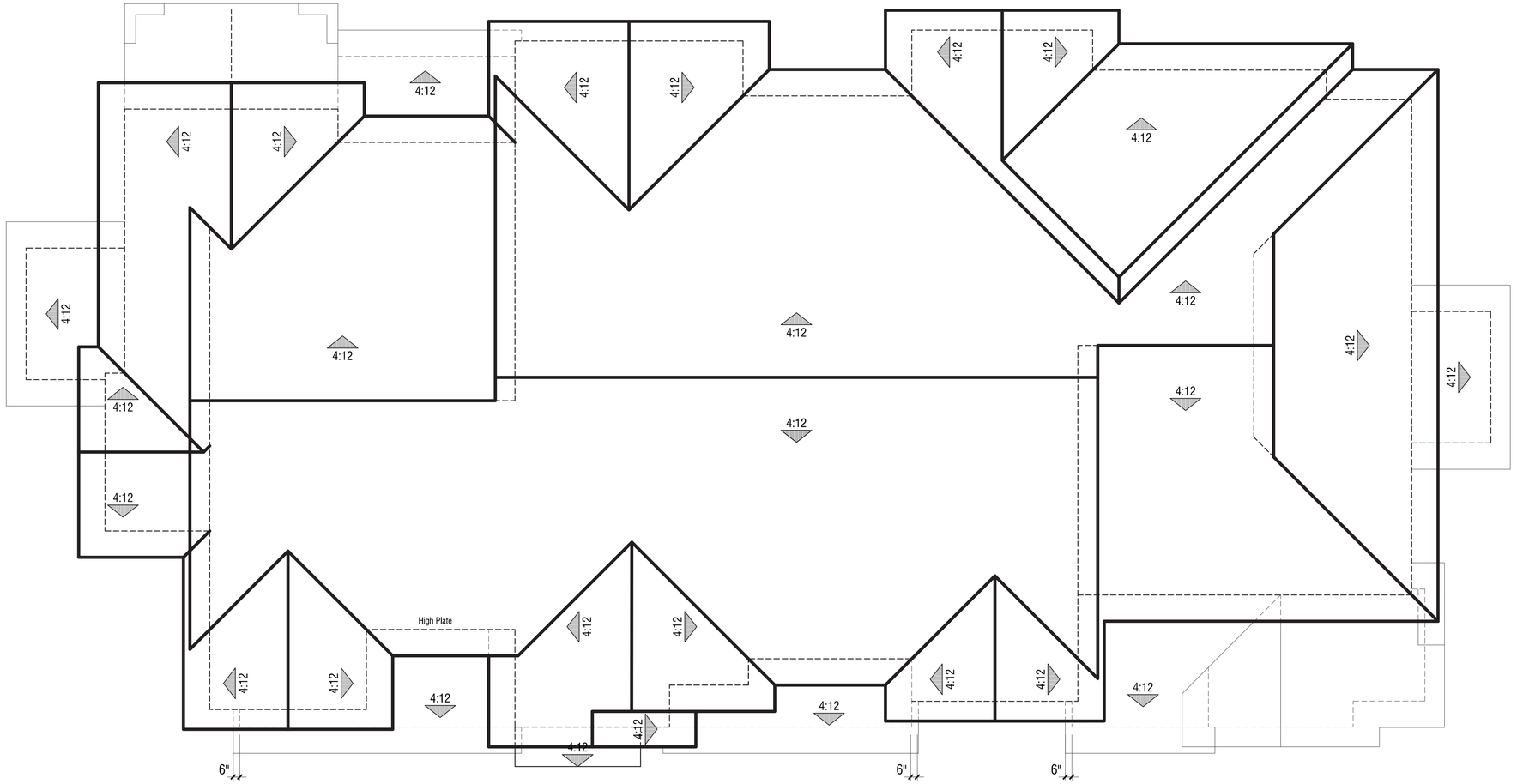

Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Roof Plan

Building 100
Multi-Family

Roof Plan

Eaves - 24": Eave Overhang U.N.O. 2X6 Wood Eaves and 2X4 Facia W/ 1X6 Wood Starter Board

Rakes-18": Rake Overhang U.N.O. W/ 2X 6 Barge Board and 1X4 Shadow Board W/ 1X6 Wood Starter Board

A1.18

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Alternate Entry Condition

Location Varies, See Site Plan For Location



Front



Alternate Entry Condition

Location Varies, See Site Plan For Location



Rear

Alternate Entry Condition

Location Varies, See Site Plan For Location

Building 100

Multi-Family

EXTERIOR MATERIALS:

1	Roof: Composition Roof Tile Metal Roof Entry Accents	7	Window & Door Trim: At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim
2	Exterior Stucco: Sand Finish Exterior Stucco	8	Garage Doors: Pre-Manufactured Roll-Up Garage Doors
3	Exterior Siding #1: Vertical Board And Batt Siding - 1X2 Batts At 18" OC	9	Front Doors: Stain Grade Front Doors With Lites Per Elevation
4	Exterior Siding #2: Horizontal Channel Groove Siding - 8"	10	Windows: Pre-Manufactured Metal Frame Windows
5	Deck Railings: Metal Horizontal Deck Railing		
6	Window & Door Trim: At Siding Locations - 2X2 Trim		

Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

A1.19

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Elevations

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Alternate Entry Condition

Location Varies, See Site Plan For Location

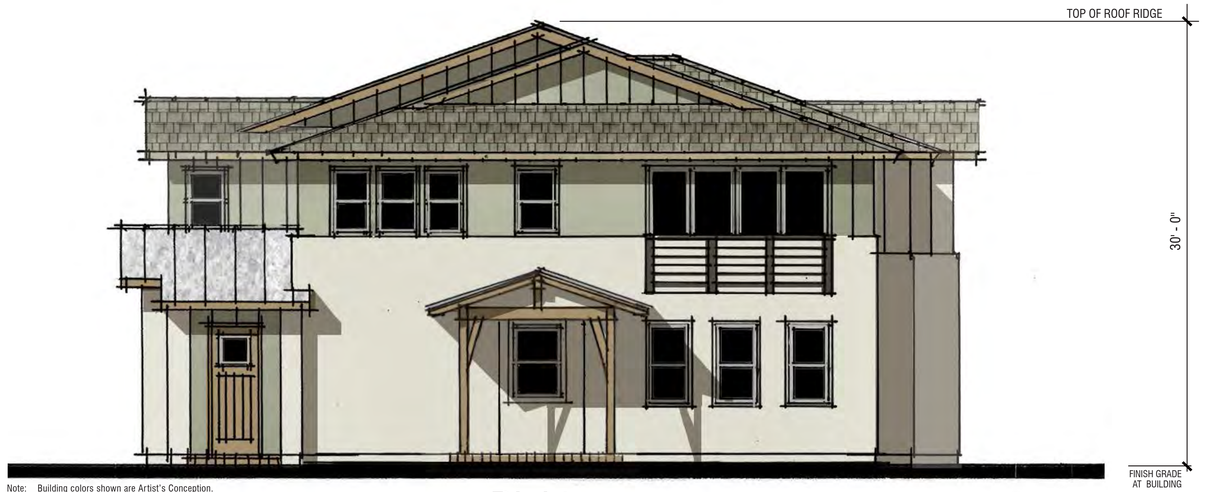


Left



Alternate Entry Condition

Location Varies, See Site Plan For Location



Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

Right

Building 100

Multi-Family

Elevations

A1.20

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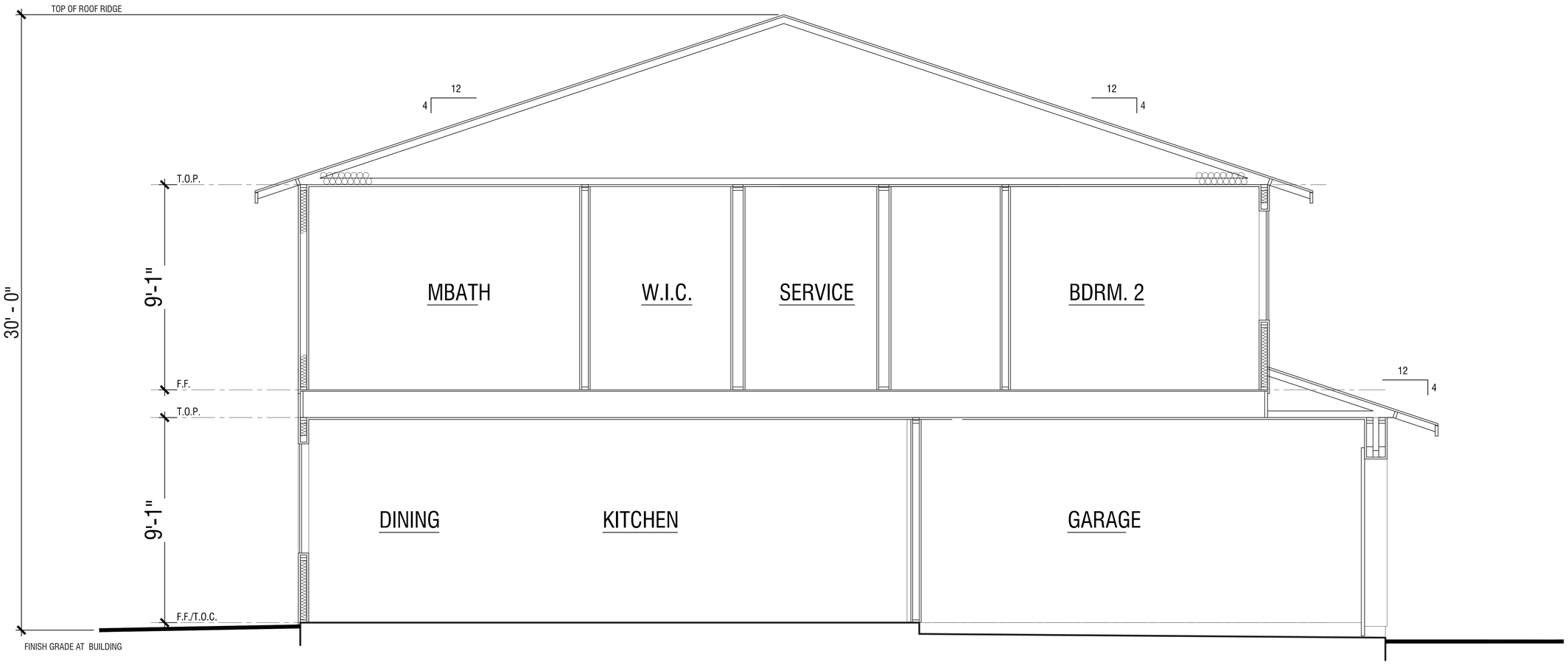

Building 100

Multi-Family

Building Section

A1.21

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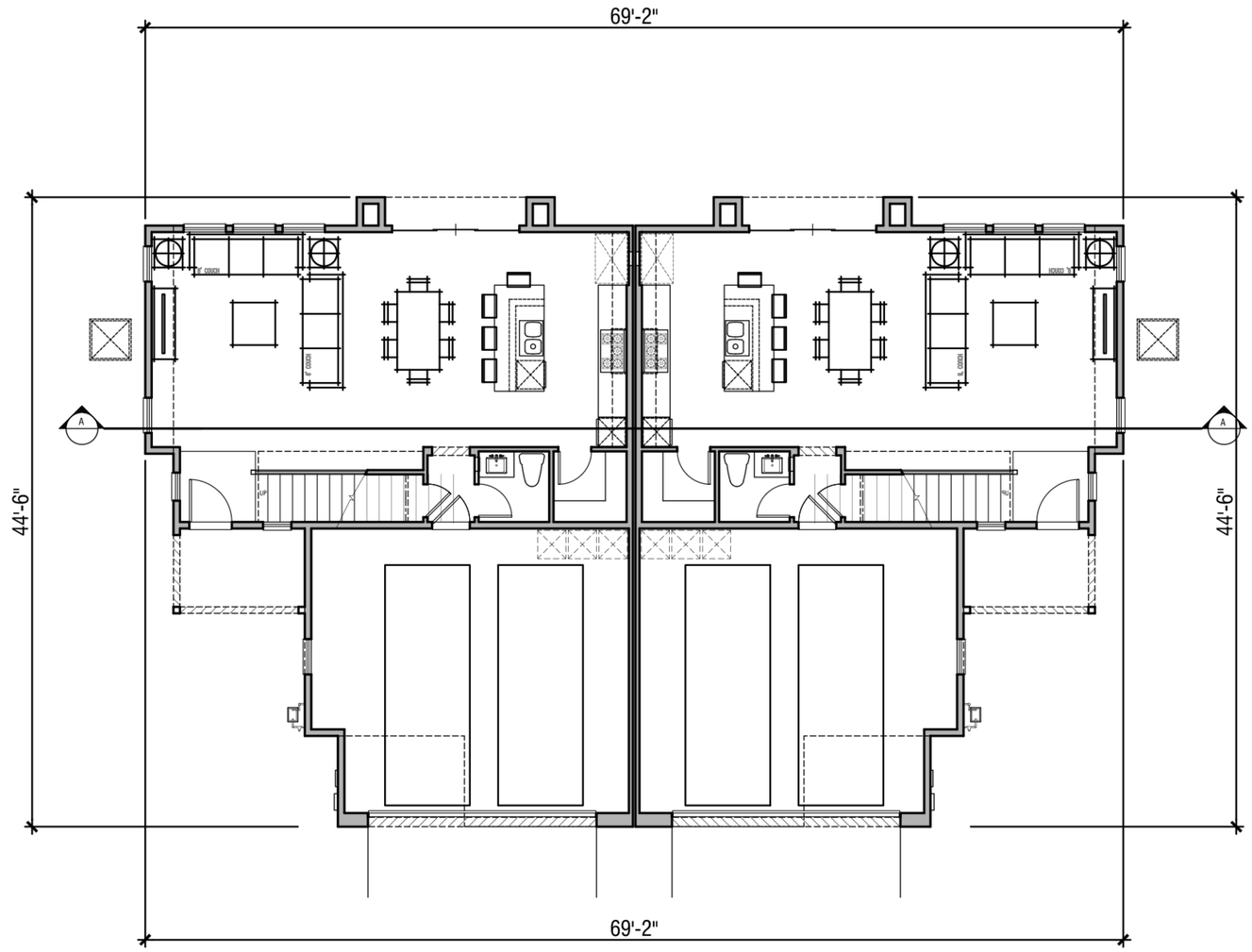

Plan 5 Plan 5R

Lower Level

Building 200
Multi-Family

Building Plan

A1.22

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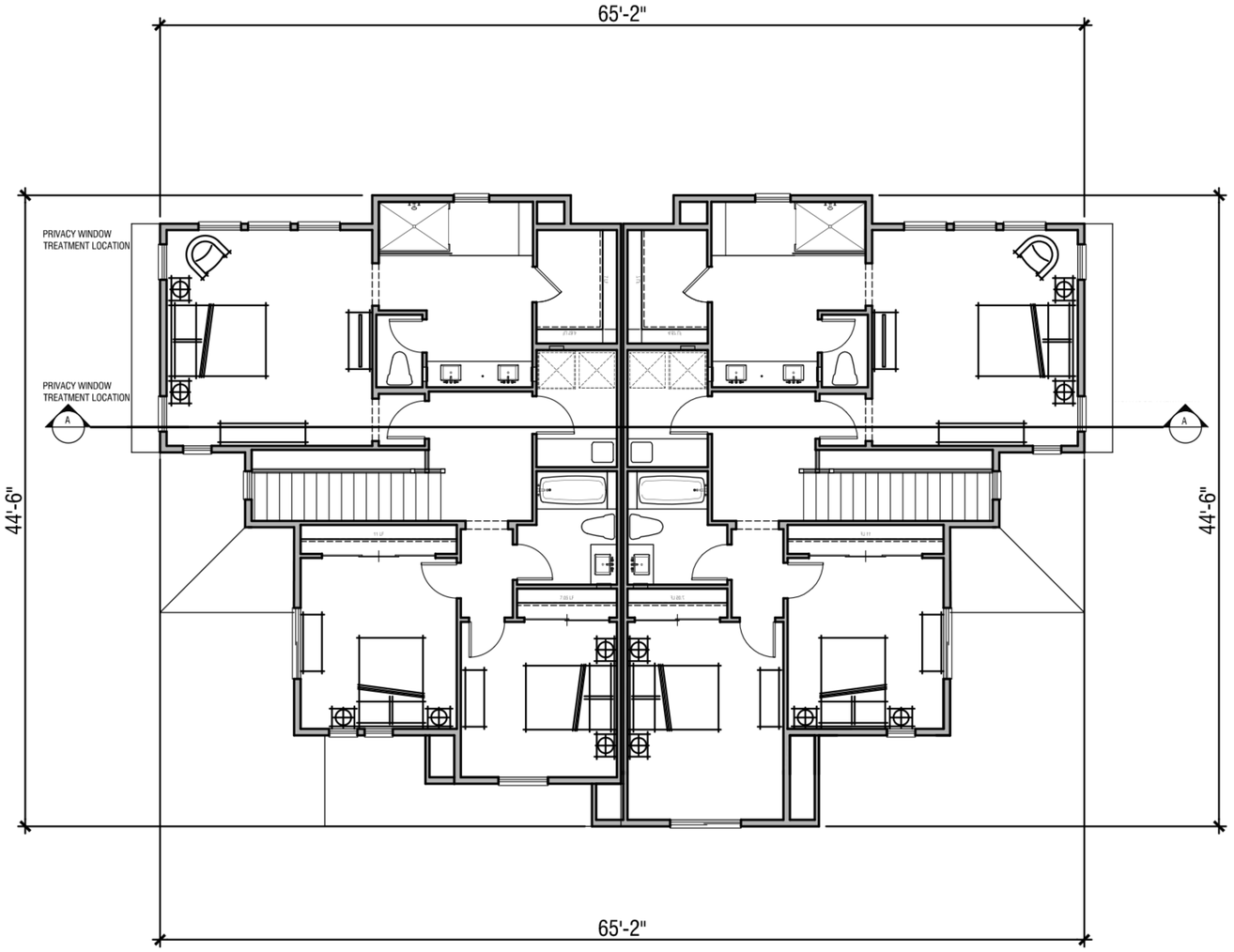

Plan 5 Plan 5R

Upper Level

Building 200
Multi-Family

Building Plan

A1.23

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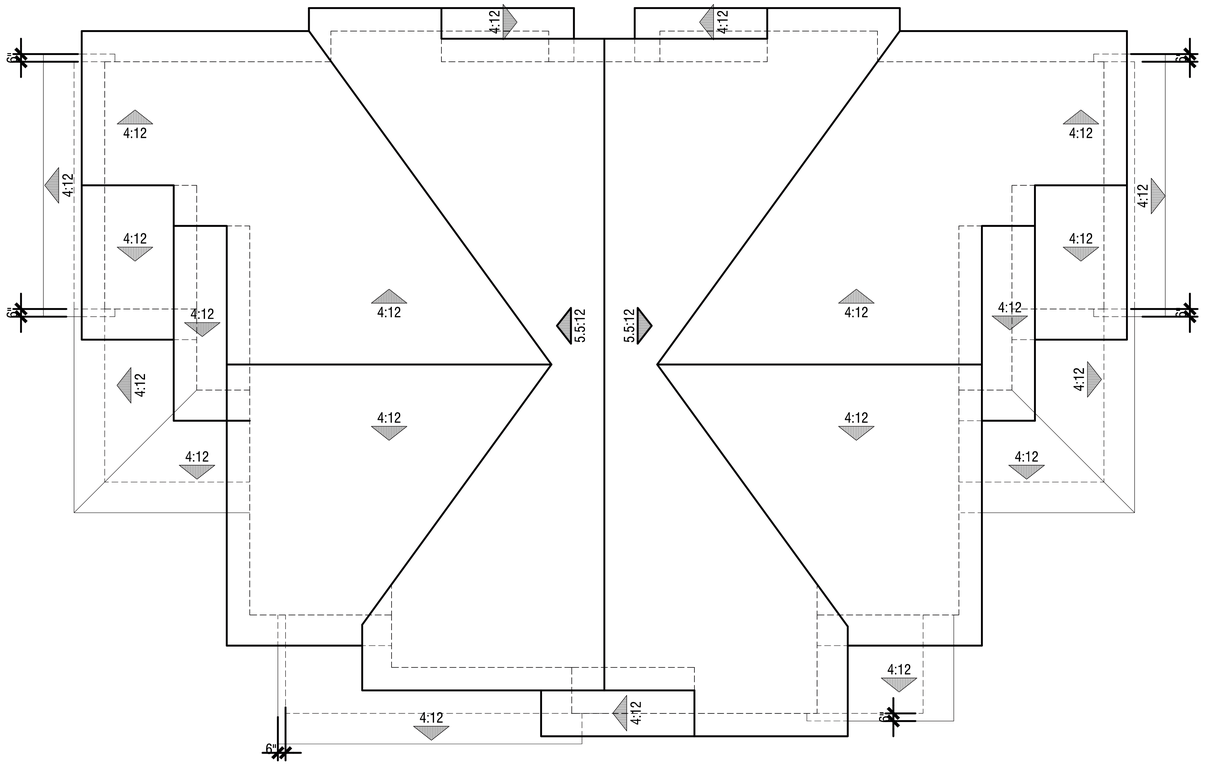

Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Roof Plan

Building 200
Multi-Family

Roof Plan

Eaves - 24": Eave Overhang U.N.O. 2X6 Wood Eaves and 2X4 Facia W/ 1X6 Wood Starter Board

Rakes-18": Rake Overhang U.N.O. W/ 2X 6 Barge Board and 1X4 Shadow Board W/ 1X6 Wood Starter Board

A1.24

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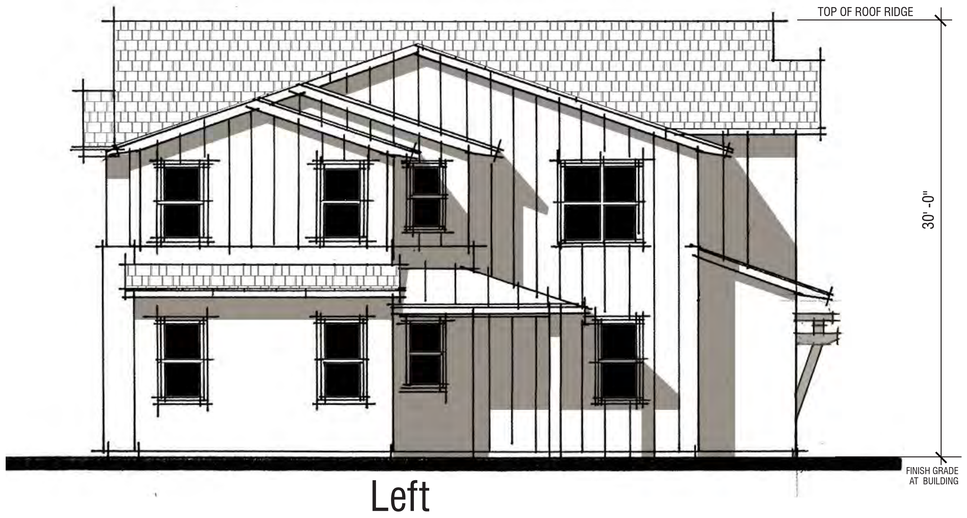

Left



Front

Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.



Right



Rear

Building 200

Multi-Family

Elevations

EXTERIOR MATERIALS:

1	Roof: Composition Roof Tile, Metal Roof Entry Accents	7	Window & Door Trim: At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim
2	Exterior Stucco: Sand Finish Exterior Stucco	8	Garage Doors: Pre-Manufactured Roll-Up Garage Doors
3	Exterior Siding #1: Vertical Board And Batt Siding - 1X2 Batts At 18" OC	9	Front Doors: Stain Grade Front Doors With Lites Per Elevation
4	Exterior Siding #2: Horizontal Channel Groove Siding - 8"	10	Windows: Pre-Manufactured Metal Frame Windows
5	Deck Railings: Metal Horizontal Deck Railing		
6	Window & Door Trim: At Siding Locations - 2X2 Trim		

A1.25

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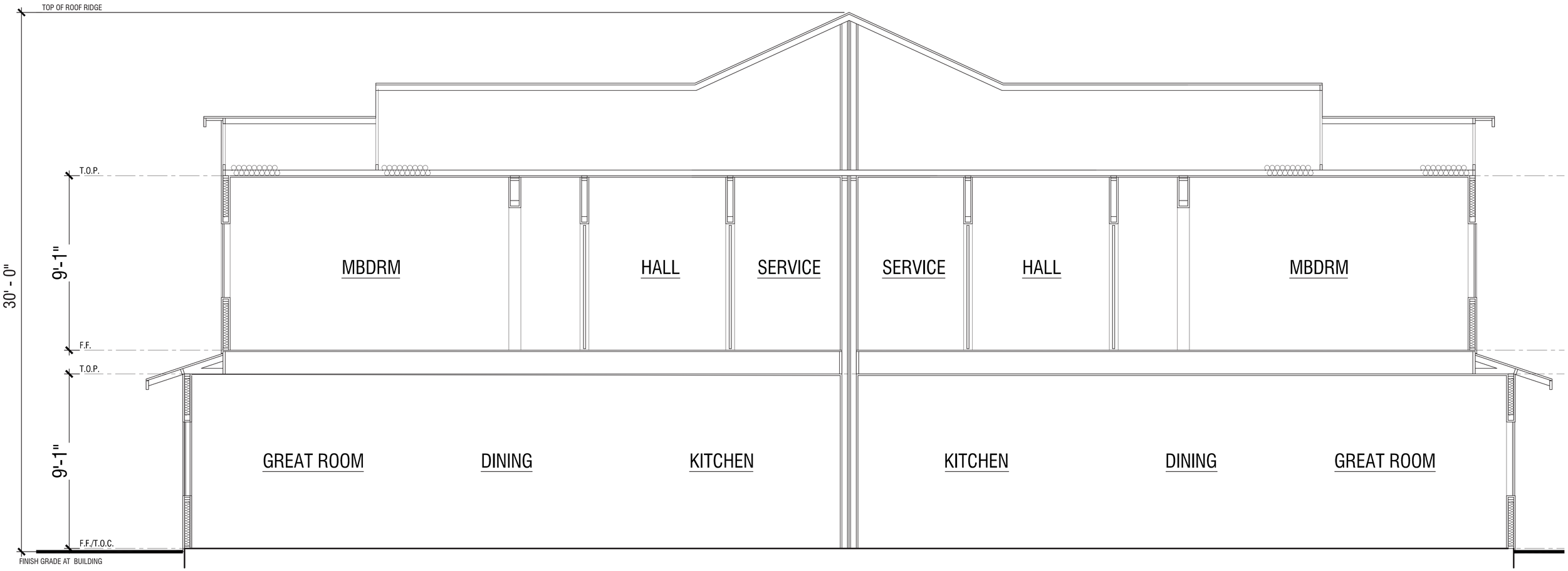

Building 200

Multi-Family

Building Section

A1.26

Green Heron Spring

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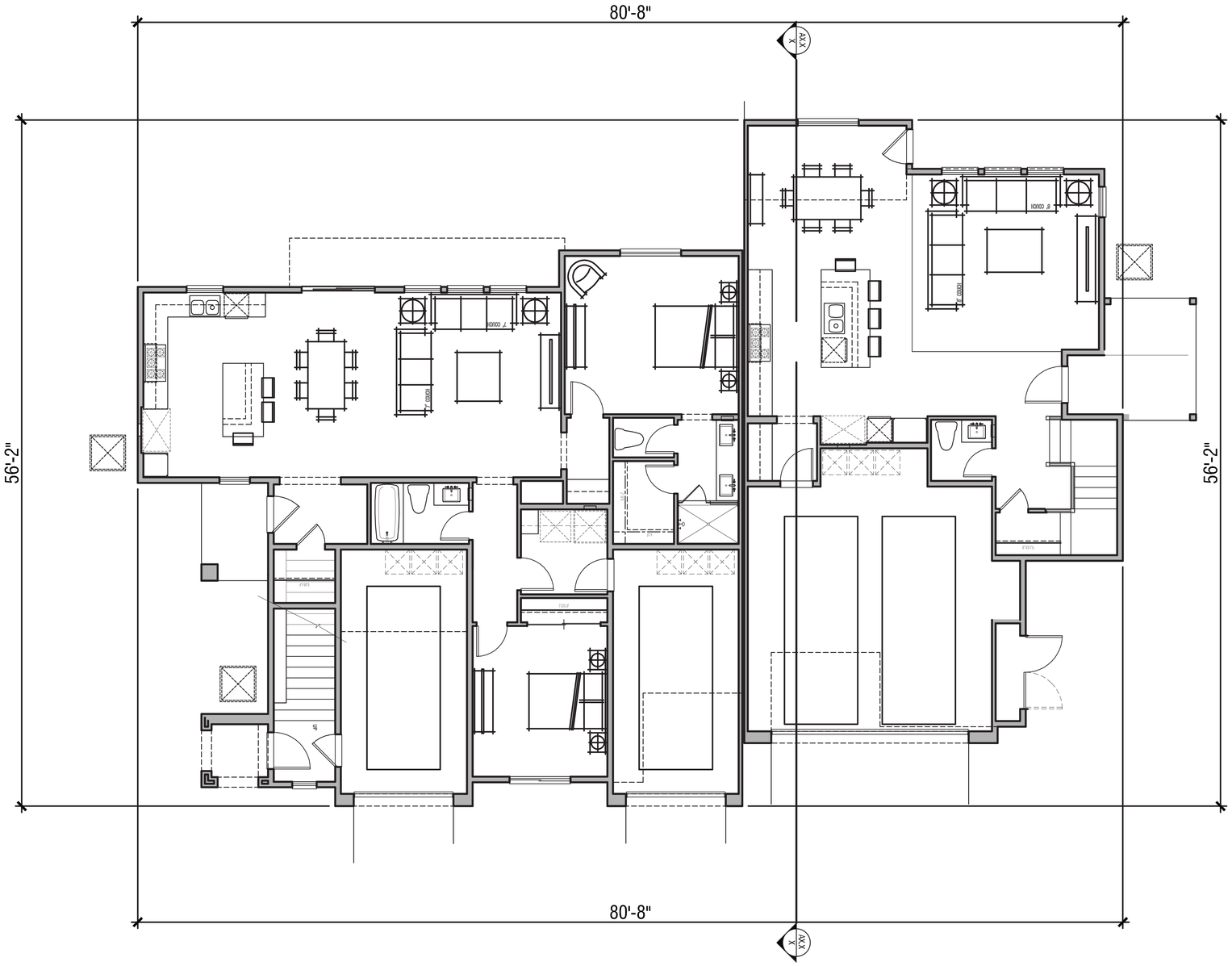

Plan 8 Plan 3

Lower Level

Building 300
Multi-Family

Building Plan

A1.27

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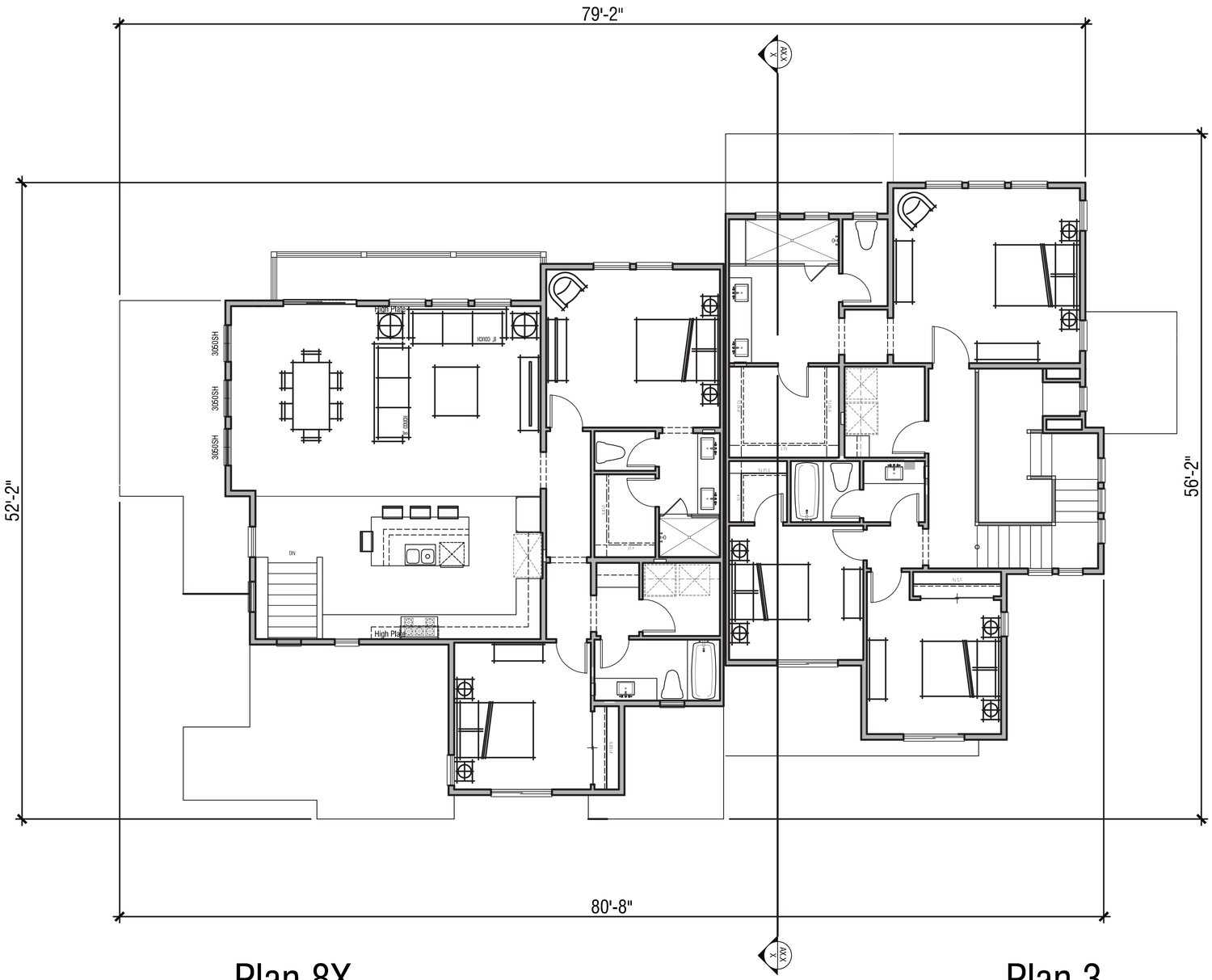

Plan 8X

Plan 3

Upper Level

Building 300

Multi-Family

Building Plan

A1.28

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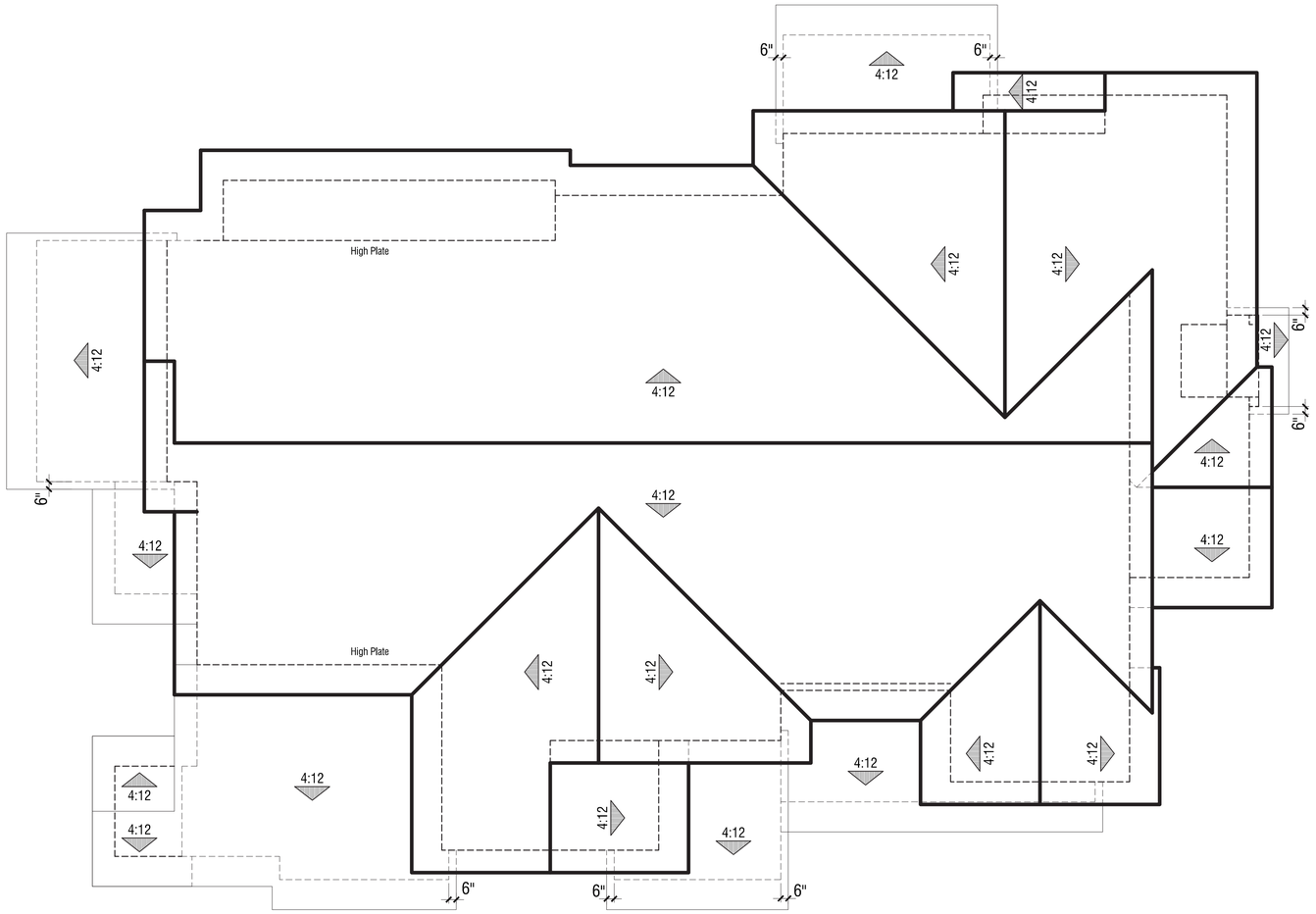

Typ. 24" Eave U.O.N.
Typ. 18" Rake U.O.N.

Roof Plan

Building 300
Multi-Family

Building Plan

Eaves - 24": Eave Overhang U.N.O. 2X6 Wood Eaves and 2X4 Facia W/ 1X6 Wood Starter Board

Rakes-18": Rake Overhang U.N.O. W/ 2X 6 Barge Board and 1X4 Shadow Board W/ 1X6 Wood Starter Board

A1.29

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Alternate Entry Condition

Location Varies, See Site Plan For Location



Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

Front

6 10 1 1 2 3 7 6 8 5 4 5



Alternate Entry Condition

Location Varies, See Site Plan For Location



Rear

EXTERIOR MATERIALS:

1	Roof:	Composition Roof Tile Metal Roof Entry Accents	
2	Exterior Stucco:	Sand Finish Exterior Stucco	
3	Exterior Siding #1:	Vertical Board And Batt Siding - 1X2 Batts At 18" OC	
4	Exterior Siding #2:	Horizontal Channel Groove Siding - 8"	
5	Deck Railings:	Metal Horizontal Deck Railing	
6	Window & Door Trim:	At Siding Locations - 2X2 Trim	
7	Window & Door Trim:	At Stucco Locations - 2" Recessed Windows With Recessed 8" Header Trim	
8	Garage Doors:	Pre-Manufactured Roll-Up Garage Doors	
9	Front Doors:	Stain Grade Front Doors With Lites Per Elevation	
10	Windows:	Pre-Manufactured Metal Frame Windows	
10	Shutters:	Decorative Fiber Cement	

Building 300

Multi-Family

Elevations

A1.30

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Left



Right

Building 300

Multi-Family

Elevations

A1.31

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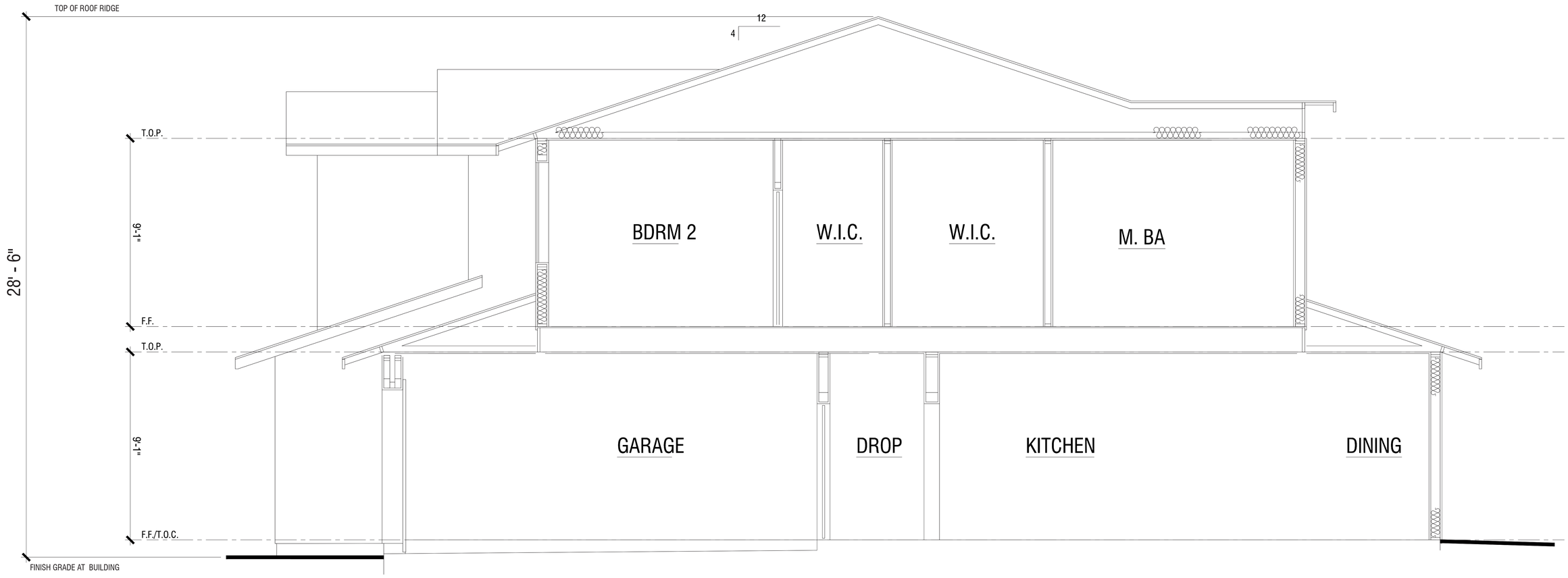

Building 300

Multi-Family

Building Section

A1.32

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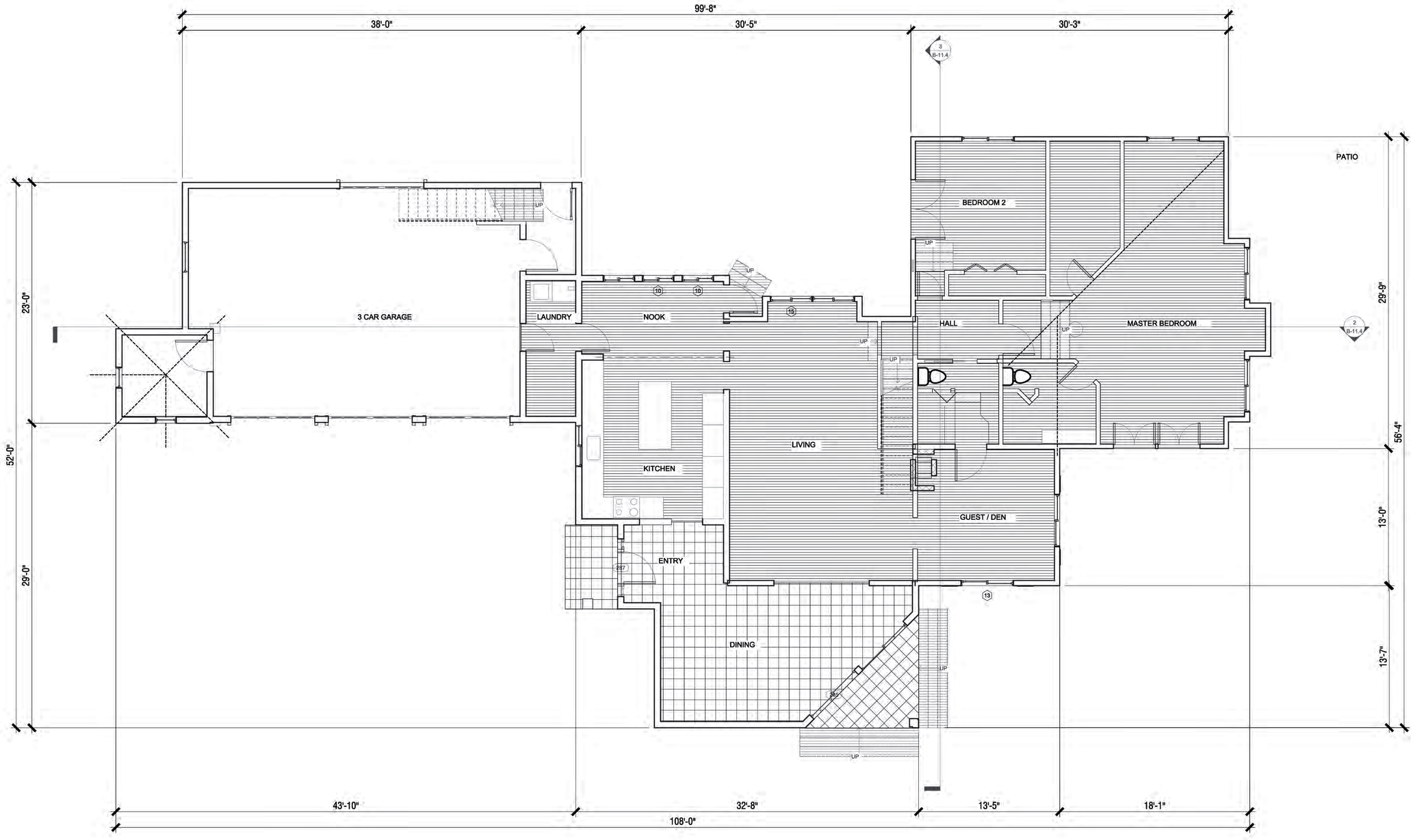

Proposed Remodel of Existing Residence
Lower Level

Floor Plan

A1.33

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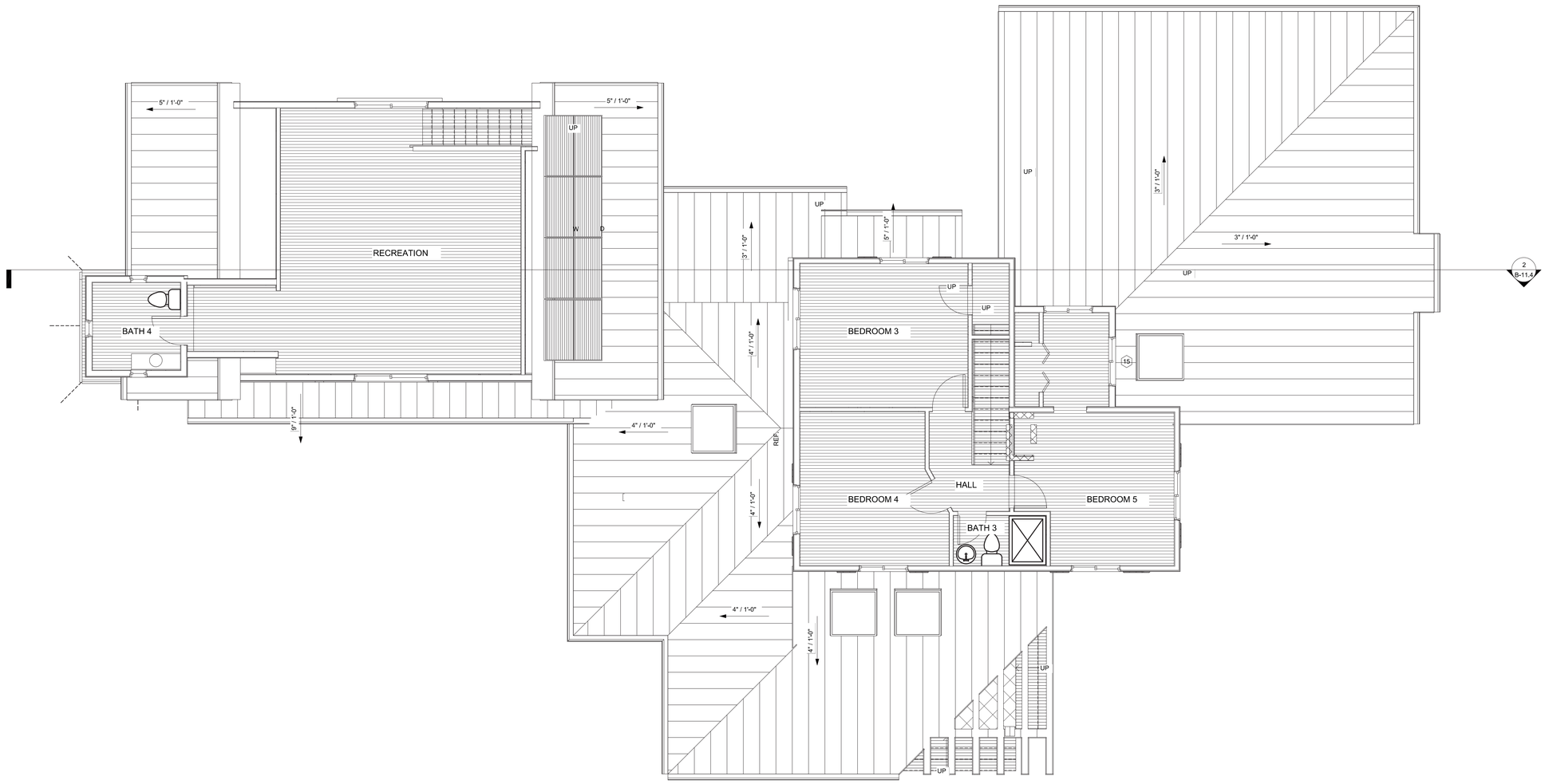

Proposed Remodel of Existing Residence

Upper Level

Floor Plan

A1.34

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Green Heron Spring
Carpinteria, CA
CRAVEN'S LANE, LLC

0 4 8 12

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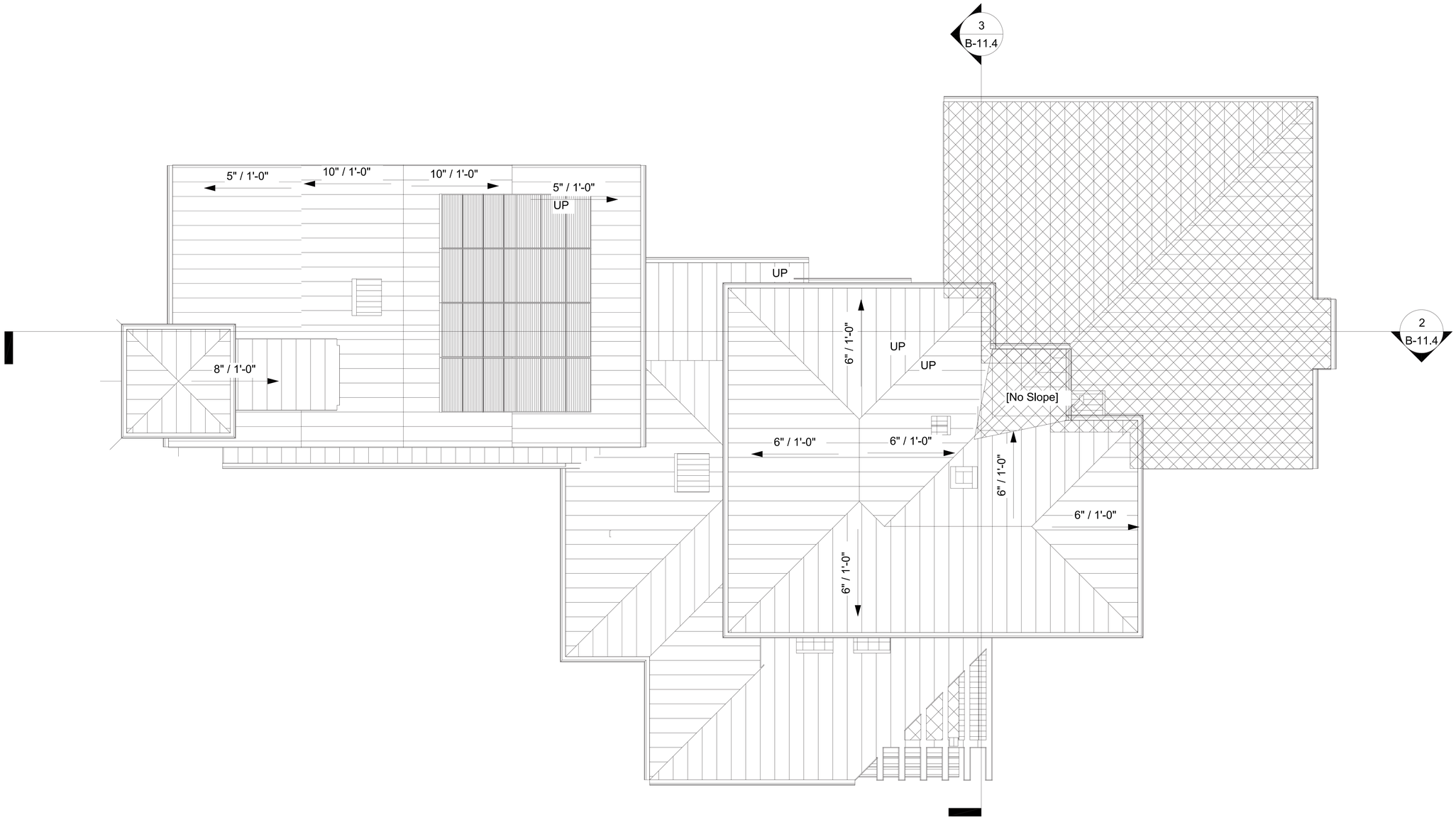

Proposed Remodel of Existing Residence

Roof Plan

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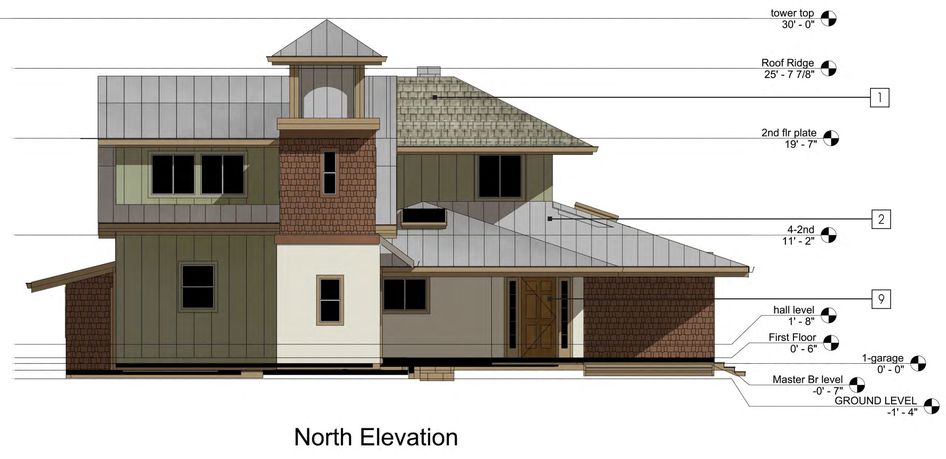
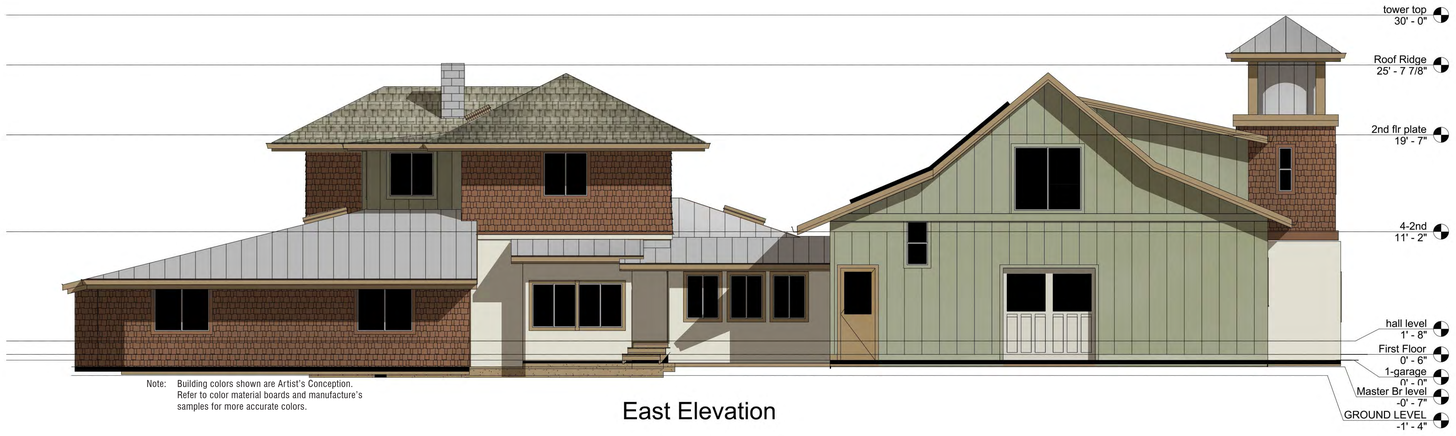
West Elevation



South Elevation



North Elevation



Note: Building colors shown are Artist's Conception. Refer to color material boards and manufacture's samples for more accurate colors.

East Elevation

EXTERIOR MATERIALS:

1	Roof #1:	Composition Roof (Second Floor of Residence Only)
2	Roof #2:	5V Crimp Galvanized Finish Metal Roof (Barn/Garage/Water Tower and First Floor Roof Areas)
3	Stucco:	Stucco
4	Exterior Siding #1:	Vertical Board And Batt Siding - 1X2 Batts At 12" OC
5	Exterior Siding #2:	Sawn Cedar Shingles, 7" exposure
6	Window & Door Trim:	At Cedar Shingles - 1x4 Cedar Trim
7	Window & Door Trim:	At Stucco Locations - 1x4 Cedar Trim
8	Garage Doors:	Pre-Manufactured Roll-Up Garage Doors with Glazing (8' x 8')
9	Front Doors:	Re-Use Existing Redwood Front Door with Side Lites
10	Windows:	Existing Original Redwood Sliding Windows To Be Refurbished As Needed, Any New Kitchen Windows To Be Wood Frame Sliders

Proposed Remodel of Existing Residence

Elevations

A1.36

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Carpinteria, CA

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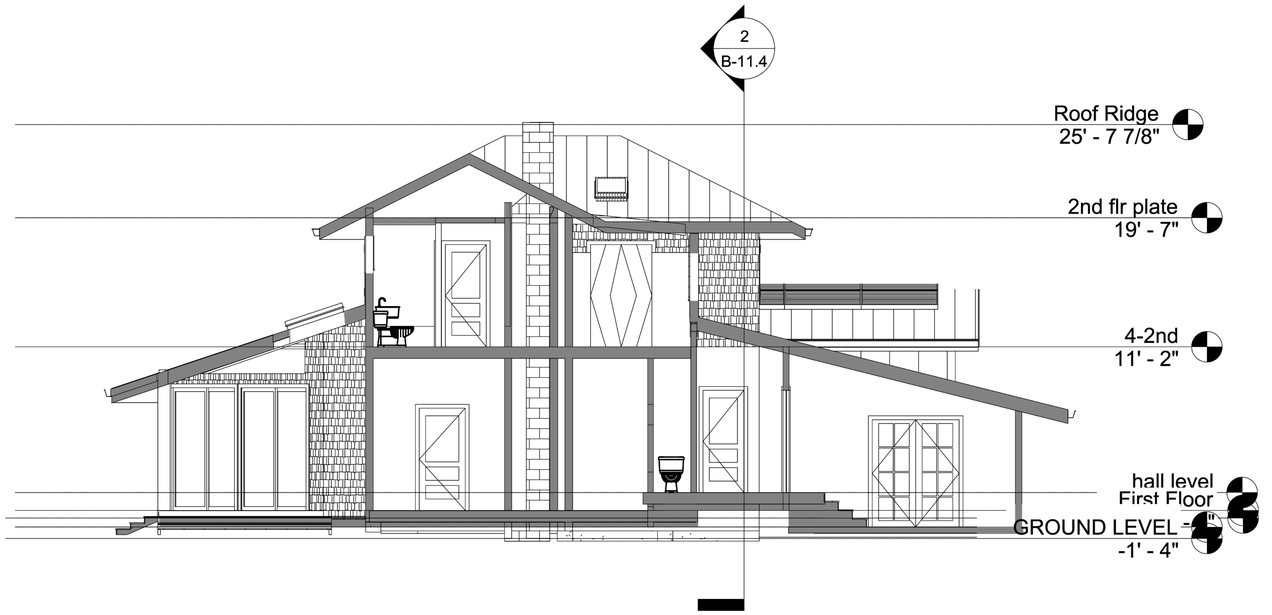



Proposed Remodel of Existing Residence

Building Sections

A1.37

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Project Entry

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Green Heron Spring

Carpinteria, CA

CRAVEN'S LANE, LLC

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Project Entry 2

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Park

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Unit Tabulation

Type	Floor Plan	Bdrms	LL SF	UL SF	Garage	Gross Area	Total Gross Area	Livable Area	Unit Mix	Total Livable Area	Entry Porch Area	Rear Porch Area
LL Flat	Plan 1 2 Bdrm/2 Bath/1 Car Gar	8	1,313	0	215	1,528	6,112 SF	1,313 SF	4	5,252 SF	105	0
UL Flat	Plan 1X 2 Bdrm+Den/2 Bath/1 Car Gar	8	76	1,469	215	1,760	7,040 SF	1,545 SF	4	6,180 SF	0	129
Int TH	Plan 2 3 Bdrm/2.5 Bath/2 Car Gar	12	863	1,150	417	2,430	9,720 SF	2,013 SF	4	8,052 SF	55	152
End TH	Plan 3 3 Bdrm/3.5 Bath/2 Car Gar	15	853	1,011	481	2,345	11,725 SF	1,864 SF	5	9,320 SF	89	129
SFD	Plan 4 3 Bdrm+Den/2.5 Bath/2 Car Gar	18	1,102	1,180	419	2,701	16,206 SF	2,282 SF	6	13,692 SF	73	127
Duplex	Plan 5 3 Bdrm/2.5 Bath/2 Car Gar	12	728	1,000	479	2,207	8,828 SF	1,728 SF	4	6,912 SF	56	107
SFD	Plan 6 4 Bdrm/3 Bath/2 Car Gar	4	1,148	1,153	422	2,723	2,723 SF	2,301 SF	1	2,301 SF	32	0
Pavillion	Plan 7 Open Air Pavillion	0				0	0 SF	0 SF	0	0 SF		781
LL Flat	Plan 8 2 Bdrm/2 Bath/1 Car Gar	2	1,274	0	217	1,491	1,491 SF	1,274 SF	1	1,274 SF	44	0
UL Flat	Plan 8X 2 Bdrm/2 Bath/1 Car Gar	2	107	1,320	212	1,639	1,639 SF	1,427 SF	1	1,427 SF	33	93
	Total Bedrooms	81										
SFD	Existing Residence/Addition N/A		2,285	1,231	929	4,445	4,445 SF	3,516 SF	1	3,516 SF		
Totals							69,929 SF		31	57,926 SF		

Existing Units

Type	Floor Plan	Bdrms	LL SF	UL SF	Garage	Gross Area	Total Gross Area	Livable Area	Unit Mix	Total Livable Area	Entry Porch Area	Rear Porch Area
LL Flat	Plan "D" 1 Bdrm/1 Bath/1 Car Gar	5	777	0	226	1,003	5,015 SF	777 SF	5	3,885 SF	35	0
UL Flat	Plan "E" 2 Bdrm/2 Bath/1 Car Gar	10	75	1,246	232	1,553	7,765 SF	1,321 SF	5	6,605 SF	0	0
End Unit	Plan "B" 3 Bdrm/2.5 Bath/2 Car Gar	39	1,057	1,000	499	2,556	33,228 SF	2,057 SF	13	26,741 SF	55	0
End Unit	Plan "C" 3 Bdrm/2.5 Bath/2 Car Gar	15	850	1,000	497	2,347	11,735 SF	1,850 SF	5	9,250 SF	20	0
Duplex	Plan "A" 3 Bdrm/2.5 Bath/2 Car Gar	6	721	909	494	2,124	4,248 SF	1,630 SF	2	3,260 SF	73	127
	Total Bedrooms	75										
SFD	Existing Residence/Addition N/A		2,285	1,231	929	4,445	4,445	3,516 SF	1	3,516 SF		
Totals							66,436 SF		31	53,257 SF		

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GREEN HERON SPRING
1300 Cravens Lane, Carpenteria, CA

ABBREVIATION

A/C	AIR CONDITIONING
A.C.	ASPHALTIC CONCRETE
ABV.	ABOVE
ADJ.	ADJACENT
ALN.	ALIGN
ALT.	ALTERNATE
A.N.S.I.	AMERICAN INTERNATIONAL STANDARDS INSTITUTE
ARCH.	ARCHITECT/ARCHED
ASEM.	ASSEMBLY
ASPH.	ASPHALT
AUTO.	AUTOMATIC
BC	BACK OF CURB
BD.	BOARD
BLDG.	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
B.M.	BENCH MARK
BM.	BEAM
BOT	BOTTOM
BS	BACK OF SIDEWALK
B.W.	BOTTOM OF WALL
C.B.	CATCH BASIN
C.J.	CONTROL JOINT
CBC.	CALIFORNIA BUILDING CODE
CDR.	CEDAR
CEM.	CEMENT
CER.	CERAMIC
CFC.	CALIFORNIA FIRE CODE
CHG.	CHANGE
CL.	CENTER LINE
CLR.	CLEAR
COL.	COLUMN
COM.	COMMON
COMP.	COMPACTED
CONC.	CONCRETE
CONSTR.	CONSTRUCTION
CONT.	CONTINUOUS
D.F.	DOUGLAS FIR
D.G.	DECOMPOSED GRANITE
DBL.	DOUBLE
DET.	DETAIL
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DN.	DOWN
DR.	DOOR
DS.	DOWNSPOUT
DWG.	DRAWING
E.J.	EXPANSION JOINT
EA.	EACH
ELEC.	ELECTRIC
ELEV.	ELEVATION
ENCL.	ENCLOSURE
ENG.	ENGINEER
EQ.	EQUAL
EQUIP.	EQUIPMENT
ESP.	ESPALIER
E.A.	EACH WAY
EXIST.	EXISTING
EXT.	EXTERIOR
F.F.E.	FINISH FLOOR ELEVATION
F.G.	FINISH GRADE
F.L.	FLOW LINE
F.O.C.	FACE OF CURB
F.O.F.	FACE OF FINISH
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.O.W.	FACE OF WALL
FIN.	FINISH
FIX.	FIXTURE
FLASH.	FLASHING
FLR.	FLOOR
FND.	FOUNDATION
FS.	FINISH SURFACE
FT.	FOOT OR FEET
FTG.	FOOTING
G.C.	GROUND COVER
G.I.	GALVANIZED IRON
G.P.M	GALLONS PER MINUTE
G.V.	GATE VALVE
GA.	GAUGE
GAL.	GALLON
GALV.	GALVANIZED
GAR.	GARAGE
GL.	GLASS
GR.	GRADE
H.A.	HOSE BIBB
H.P.	HIGH POINT
HDR.	HEADER
HGT.	HEIGHT
HI.	HIGH
HORIZ.	HORIZONTAL
HR.	HOUR
HT.	HEIGHT
I.D.	INSIDE DIAMETER
I.C.B.O.	INTERNATION COUNCIL OF BUILDING OFFICIALS (I.C.C.)
IN.	INCH
INFO.	INFORMATION
INT.	INTERIOR
INV.	INVERT
JST.	JOIST
JT.	JOINT
L.A.	LANDSCAPE ARCHITECT
L.F.	LINEAR FEET
M.B.	MACHINE BOLT
MAS.	MASONRY
MAT.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MED.	MEDIA
MEMB.	MEMBRANE
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL.	METAL
MULTI.	MULTI-TRUNK
N.G.	NATURAL GRADE
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
N/A	NOT APPLICABLE
NAT.	NATURAL
NO.	NUMBER
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O/	OVER
OPNG.	OPENING
OPP.	OPPOSITE
OPT.	OPTIONAL
P.A.	PLANTING AREA
P.O.C.	POINT OF CONNECTION
P.S.I.	POUNDS PER SQUARE INCH
P.T.	PRESSURE TREATED
P.V.C.	POLYVINYL CHLORIDE
PERIM.	PERIMETER
PERP.	PERPENDICULAR
PH.	PHONE
PL.	PROPERTY LINE
PLUMB.	PLUMBING
PLYWD.	PLYWOOD
PT.	POST TENSIONED (SLAB)
R.	RADIUS
R.O.	ROUGH OPENING
R.P.	REDUCED PRESSURE
RAD.	RADIUS
RD.	ROUND
REF.	REFERENCE
REINF.	REINFORCEMENT
REQ.	REQUIRED
RM.	ROOM
RWD.	REDWOOD
S.L.	SCORELINE
SECT.	SECTIONAL
SEL.	SELECT
SHT.	SHEET
SIM.	SIMILAR
SLP.	SLOPE
SPEC.	SPECIFICATION
SQ.	SQUARE
S.F.	SQUARE FOOT
STD.	STANDARD
STL.	STEEL
STR.	STRUCTURAL
S4S	SURFACED-FOUR-SIDES
T.	TREAD
T.&G.	TONGUE & GROOVE
T.B.	TOP OF BERM
T.C.	TOP OF CURB
T.D.	TOP OF DRAIN
T.F.	TOP OF FOOTING
T.O.M.	TOP OF MASONRY
T.P.	TOP OF PAVING
T.S.	TOP OF STEPS
T.W.	TOP OF WALL
TEL.	TELEPHONE
TEMP.	TEMPERED
THK.	THICK
TRANS.	TRANSFORMER
TYP.	TYPICAL
U.B.C.	UNIFORM BUILDING CODE
U.L.	UNDERWRITERS LABORATORY
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
VOL.	VOLUME
W.	WEST/WIDE/WIDTH/WASHER
W.I.	WROUGHT IRON
W.R.	WATER RESISTANT
W.W.M.	WELDED WIRE MESH
W/	WITH
W/O	WITHOUT
WD.	WOOD
WP.	WATERPROOF
WT.	WEIGHT

GENERAL NOTES

1) SEE CIVIL ENGINEERS DRAWINGS FOR GRADING AND DRAINAGE INFORMATION NOT SHOWN IN THESE DRAWINGS.
2) PROVIDE FOR POSITIVE DRAINAGE WHETHER INDICATED ON CIVIL'S GRADING PLAN OR NOT. NOTIFY LANDSCAPE ARCHITECT IF SITE CONDITIONS ARE OTHERWISE. MAINTAIN FLOWLINES AND DRAINAGE PATTERNS AS INDICATED ON CIVIL ENGINEER'S GRADING DRAWINGS.
3) UPON EXECUTION OF THE CONTRACT, PROVIDE THE LANDSCAPE ARCHITECT AND OWNER WITH A CRITICAL PATH SCHEDULE TO INCLUDE EACH ITEM, LEAD TIME, ORDER AND INSTALLATION DATES AND PROJECTED DATES FOR SUBSTANTIAL COMPLETION.
4) VERIFY AND STAKE LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND AS REQUIRED BY GOVERNING AGENCIES, CONTRACTORS SHALL BE HELD LIABLE FOR DAMAGES TO EXISTING UTILITIES INCURRED BY INSTALLATION OF THE WORK.
5) REPAIR AND REPLACE ANY EXISTING IMPROVEMENTS THAT ARE DAMAGED DURING CONSTRUCTION.
6) CHECK DIMENSIONS, FRAMING CONDITIONS AND SITE CONDITIONS BEFORE STARTING WORK. ANY DISCREPANCIES OR POSSIBLE DEFICIENCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS WITH FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT AND THE OWNER. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND OWNER IN WRITING.
7) VERIFY PROPERTY LINES PRIOR TO COMMENCING WORK. NO CONSTRUCTION ITEM, INCLUDING FOOTINGS, SHALL EXTEND BEYOND PROPERTY LINE.
8) GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUB-CONTRACTORS AS REQUIRED TO ACCOMPLISH THE WORK. PIPING, CONDUIT AND SLEEVES SHALL BE SET IN PRIOR TO INSTALLATION OF CONSTRUCTION ITEMS.
9) THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISH STRUCTURE, CONSTRUCTION MEANS AND METHODS, SAFETY PROCEDURES, BRACING, TEMPORARY SUPPORTS, AND SHORING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. OBSERVATION VISITS TO THE JOB SITE BY THE LANDSCAPE ARCHITECT DO NOT INCLUDE INSPECTION OF CONSTRUCTION METHODS AND SAFETY CONDITIONS AT THE WORK SITE. THESE VISITS SHALL NOT BE CONSTRUED AS CONTINUOUS AND DETAILED INSPECTIONS.
10) GIVE LANDSCAPE ARCHITECT A MINIMUM 48 HOURS NOTICE PRIOR TO REQUIRED OR REQUESTED JOB SITE VISIT.
11) FORMS AND ALIGNMENT OF PAVING SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO POURING.
12) FOR SUBMITTALS, SAMPLES AND SHOP DRAWINGS REQUESTED, SUBMIT IN TRIPLICATE TO LANDSCAPE ARCHITECT WITH ONE COPY TO THE OWNER UNLESS OTHERWISE SPECIFIED.
13) PROPOSED SURFACES SHALL MEET EXISTING SURFACES WITH SMOOTH AND CONTINUOUS TRANSITION AND FLUSH ALONG ENTIRE EDGE.
14) DIMENSIONS ARE FROM OUTSIDE FACE OF THE BUILDING, PAVING AND WALLS UNLESS OTHERWISE NOTED. ANGLES ARE 90 OR 45 UNLESS OTHERWISE NOTED.
15) COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING AND INTERFACING WORK OF OTHER TRADES.
16) MATERIALS AND WORKMANSHIP: CONFORM TO LATEST UNIFORM BUILDING CODES AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF CONTRACT DOCUMENTS IS INTENDED TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER IMMEDIATELY IN WRITING.
17) THE CONTRACTOR ASSUMES SOLE RESPONSIBILITY FOR THE MEANS, METHODS AND APPROPRIATENESS OF THE INSTALLATION PROCEDURES UNDERTAKEN FOR THIS PROJECT.
18) THERE SHALL BE NO SUBSTITUTION OF EQUIPMENT OR SPECIFIED PRODUCTS BY THE CONTRACTOR OR OWNER WITHOUT THE LANDSCAPE ARCHITECT'S WRITTEN APPROVAL. THE LANDSCAPE ARCHITECT ASSUMES NO RESPONSIBILITY FOR ANY UNAUTHORIZED SUBSTITUTIONS OR SPECIFICATION CHANGES.
19) THE CONTRACTOR ASSUMES SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTIES. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO WORKING HOURS.
20) THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE LANDSCAPE ARCHITECT HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT.
21) THE LANDSCAPE ARCHITECT SHALL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO THESE DRAWINGS AND SPECIFICATIONS. ALL CHANGES TO THE PLANS MUST BE REQUESTED IN WRITING AND MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
22) ALL AGENCY REQUIREMENTS SET FORTH OR ANY PERMIT REQUIRED FOR CONSTRUCTION OF THIS PROJECT, WHETHER REFERENCED HEREIN OR NOT, SHALL BE COMPLIED WITH AS IF THEY WERE A PART OF THESE DRAWINGS AND SPECIFICATIONS. THE LANDSCAPE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S NON-COMPLIANCE.
23) DO NOT SCALE DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN CONTRACT DOCUMENTS AND ACTUAL CONDITIONS, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING IMMEDIATELY.

GRADING NOTES:

1) PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND MARKING LOCATIONS OF ANY UNDERGROUND PIPES, WIRES, CONDUITS, CABLES, GAS LINES, UTILITIES, IRRIGATION OR ANY OTHER ITEMS WHICH MAY EXIST BELOW GROUND. VERIFY EXISTING AND PROPOSED GRADES, EXISTING DRAINAGE STRUCTURES, STREET IMPROVEMENTS, AND FINISH FLOOR ELEVATIONS WITH THE OWNER. NOTIFY THE LANDSCAPE ARCHITECT AND OWNER IMMEDIATELY IN WRITING UPON DISCOVERY OF DISCREPANCIES.
2) SLOPE PLANTING AREAS TOWARDS CATCH BASINS OR DRAIN INLETS OR AS INDICATED ON ENGINEER'S PLANS AT 2% MINIMUM.
3) PROPOSED PAVING SURFACES SHALL MEET EXISTING PAVING SURFACES WITH SMOOTH AND CONTINUOUS TRANSITION AND FLUSH ALONG ENTIRE EDGE.
4) CONCRETE WALKS TO HAVE A MAXIMUM CROSS SLOPE OF 2% AND SHALL MEET ADA AND GOVERNING AGENCY REQUIREMENTS.
5) INSTALL DRAIN LINES IN SMOOTH, CONTINUOUS SLOPE AT 1/2% (3" IN 50') FALL MINIMUM UNLESS NOTED OTHERWISE. INSTALL INLETS IN PAVING POSITIONED IN ALIGNMENT WITH ADJACENT MATERIAL.
6) PROVIDE PVC PIPE AS SHOWN OR IF NOT SHOWN, AS REQUIRED TO CONNECT DRAIN INLETS AND PROVIDE A COMPLETE DRAINAGE SYSTEM.
7) CORE DRILL AND DAYLIGHT DRAINLINE THROUGH FACE OF EXISTING CURB ABOVE FLOW LINE. VERIFY LOCATION AND INVERT IN THE FIELD.
8) ESTABLISH FINISH GRADES IN PLANTING AREAS 2 INCHES BELOW ADJACENT PAVING SURFACE.
9) REFER TO THE CIVIL ENGINEERING DRAWINGS FOR ADDITIONAL DRAINAGE SYSTEMS NOT FULLY SHOWN HERE. COORDINATE INSTALLATION OF ENTIRE DRAINAGE SYSTEM SHOWN ON LANDSCAPE AND CIVIL DRAWINGS
10) COORDINATE ROUTING OF DRAINAGE PIPE AROUND TREE PIT LOCATIONS INDICATED ON PLANTING PLANS.
11) MAINTAIN "AS-BUILT" DRAWINGS OF DRAINAGE PIPE ROUTING, GRATES AND CATCH BASIN LOCATIONS. SUBMIT MYLAR REPRODUCIBLE "AS-BUILT" TO OWNER UPON COMPLETION OF THE WORK.
12) DO NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS, AREA DISCREPANCIES AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND/OR OWNER. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND OWNER IN WRITING. ASSUME FULL RESPONSIBILITY FOR NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

CONSTRUCTION NOTES:

1) CONCRETE: MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I. AT TWENTY-EIGHT (28) DAYS.
2) CEMENT: CONFORM TO A.S.T.M. C150 AND AGGREGATE SHALL CONFORM TO A.S.T.M. C33.
3) CONCRETE SLUMP: MAXIMUM SLUMP 4 INCHES, EXCEPT FOR FOUNDATIONS WHICH MAY HAVE A 5 INCH MAXIMUM SLUMP.
4) CONSTRUCTION TO BE PLUMB AND LEVEL UNLESS OTHERWISE NOTED OR INDICATED.
5) REBAR AND FOOTING SIZES, IF SHOWN, ARE FOR BIDDING PURPOSES ONLY. VERIFY WITH OWNER'S STRUCTURAL OR SOILS ENGINEER THE NEED FOR ALL REINFORCING, BASE MATERIAL, PRESATURATION AND OTHER STRUCTURAL REQUIREMENTS.
6) PAVING AND CONCRETE CONTRACTORS ARE TO COORDINATE AND COOPERATE WITH THE ELECTRICAL, DRAINAGE AND IRRIGATION SYSTEMS INSTALLATION FOR REQUIRED SLEEVES, PIPES AND CONDUITS UNDER PAVING.
7) PRIOR TO LAYOUT OF UNDERGROUND IMPROVEMENTS, REFER TO PLANTING PLANS FOR TREE LOCATIONS. STAKE TREES AND OUTLINE SPECIFIED BOX SIZE. ROUTE UNDERGROUND DRAINAGE, ELECTRICAL, POOL & IRRIGATION PIPING OUTSIDE EXCAVATION REQUIRED FOR TREES.
8) CONTRACTOR SHALL ALLOW ADEQUATE TIME (MINIMUM 6 TO 8 WEEKS) FOR PLACEMENT OF ORDER UNTIL DELIVERY ON ANY MANUFACTURED ITEM UNLESS OTHERWISE NOTED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COST TO PROVIDE SIMILAR, EQUIVALENT SUBSTITUTION FOR ITEMS UNAVAILABLE DUE TO DELIVERY DELAYS CAUSED BY THE CONTRACTOR'S DELAY IN ORDERING THEM.
9) REFER TO FINISH GRADING / DRAINAGE PLANS FOR VERTICAL DIFFERENCES, GRADES AND DRAINAGE SYSTEMS.
10) WRITTEN DIMENSIONS AND DETAILS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
11) VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS AT THE JOB SITE. REPORT DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE OWNER AND THE LANDSCAPE ARCHITECT IN WRITING.
12) CONFORM TO LATEST UNIFORM BULDING CODE AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND OWNER IN WRITING.
13) COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING AND INTERFACING WORK OF OTHER TRADES.

MASONRY WALL NOTES:

1) CONCRETE: MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I. AT TWENTY-EIGHT (28) DAYS.
2) GROUT CELLS WITH REBAR SOLID.
3) GROUT SOLID CELLS IN RETAINING WALLS OR THE RETAINING PORTION OF WALL.
4) CONSTRUCT WALL LEVEL, PLUMB AND TRUE TO LINE AND GRADE UNLESS OTHERWISE NOTED.
5) COORDINATE AND COOPERATE WITHE CONTRACTORS OF ATTACHED, ADJOINING, AND/OR INTERFACING WORK OF OTHER TRADES.
6) MATERIALS AND WORKMANSHIP: CONFORM TO LATEST UNIFORM BUILDING CODE AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODE. IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER.
7) POUR FOOTINGS ON UNDISTRUBED NATURAL SOIL OR FILL COMPACTED TO 90% RELATIVE DENSITY.
8) FOOTINGS TO BE CONTINUOUS POUR TO GREATEST EXTENT PRACTICAL. STEP FOOTINGS IN EVEN BLOCK INCREMENTS. COMPLY WITH CODES.
9) REBAR SPLICES: MINIMUM OF FORTY (40) BAR DIAMETERS WITH A MINIMUM OF FORTY EIGHT (48) BAR DIAMETERS IN RETAINING WALLS, UNLESS OTHERWISE SPECIFIED NOTED IN DETAILS.
10) DOWELS: EQUAL IN SIZE AND SPACING TO VERTICAL BARS.
11) MASONRY UNITS: GRADE "N" CONFORMING TO LATEST A.S.T.M. C90, AND MANUFACTURED IN ACCORDANCE WITH "CONCRETE MASONRY ASSOCIATION" STANDARDS. COMPRESSIVE STRENGTH SHALL BE MINIMUM fm=1350 P.S.I. GROUTED AT REINFORCING ONLY AND MINIMUM fm=1500 P.S.I. SOLID GROUT.
12) GROUT: FRESHLY PREPARED AND UNIFORMLY MIXED BY VOLUME OF ONE (1) PART CEMENT, THREE (3) PART SAND, AND TWO (2) PARTS PEA GRAVEL WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 P.S.I. AT TWENTY EIGHT (28) DAYS. COLOR AND MIX TO BE SELECTED BY LANDSCAPE ARCHITECT.
13) MORTAR: CONFIRM GROUT COLOR PRIOR TO CONSTRUCTION. NATURAL GREY COLOR IF COVERED BY SUBSEQUENT FINISH. COLOR MORTAR TYPICAL TO MATCH ADJACENT MATERIAL UNLESS OTHERWISE NOTED OR AS SPECIFIED BY LANDSCAPE ARCHITECT.
14) PORTLAND CEMENT: TYPE 1 AND CONFORM TO A.S.T.M. 150.
15) REINFORCING STEEL: DEFORMED BARS CONFORMING TO A.S.T.M. A615, GRADE 40 FOR #5 AND SMALLER AND GRADE 60 FOR #6 AND LARGER.
16) WIRE REINFORCING: CONFORM TO A.S.T.M. 182.
17) REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVERS UNLESS OTHERWISE NOTED:
    - CONCRETE AGAINST EARTH NOT FORMED- 3"
    - CONCRETE AGAINST EARTH NOT FORMED OR TROWELED-2"
    - WALLS AND CURBS- 1 1/2"
    - SLAB ON GRADE 1 1/2"
18) STANDARD:
    CONCRETE MASONRY UNITS- ASTM C90 TYPE I
    REINFORCING STEEL- ASTM A615 GRADE 60
    MORTAL AND GROUT- ASTM C150 TYPE III
19) REFER TO SPECIFICATION SECTION 04 22 00 CONCRETE MASONRY UNIT FOR ADDITIONAL REQUIREMENT IF APPLICABLE.

CARPENTRY NOTES:

1) WOOD TO BE SAW SIZED (SSD) UNLESS OTHERWISE NOTED AS ROUGH SAWN (ROS), RESAWN (RSN), AND/OR SURFACE FOUR SIDES (S4S).
2) WOOD TO BE #1 CONSTRUCTION GRADE OR BETTER. ALL WOOD IN CONTACT WITH GROUND OR IMBEDDED IN CONCRETE, TO BE PRESSURE TREATED.
3) NAILS TO BE HOT DIPPED GALVANIZED IRON AND/OR COMPATIBLE WITH CHEMICAL USED IN PRESSURE TREATED LUMBER.
4) NAILING TO BE PER PREVAILING U.B.C NAILING SCHEDULE.
5) POST BASES, CAPS, HANGERS, STRAPS AND ANGLES: GALVANIZED STEEL AND PAINTED WITH TWO (2) COATS OF A RUST INHIBITING ENAMEL. COLOR TO MATCH WOOD FINISH.
6) BOLTS TO BE ZINC PLATED, GALVANIZED OR STAINLESS STEEL.
7) APPLY TWO (2) COATS OF PAINT OR STAIN. CONFIRM COLOR PRIOR TO APPLICATION. APPLY PRIME COAT OR TREAT AS REQUIRED BY WOOD SPECIES SELECTION TO PREVENT BLEED THROUGH STAINING OR FINISH PAINT.
8) CONSTRUCTION TO BE PLUMB, LEVEL AND TRUE TO LINE AND GRADE UNLESS INDICATED OTHERWISE.
9) CROWN LUMBER AND SET CROWN SIDE UP.
10) USE FINISH NAILS ON DECKING, BENCHES AND RAILINGS, OR WHERE POTENTIALLY IN CONTACT WITH PEOPLE.
11) OVERHEADS TO BE A MINIMUM 7'-0" CLEAR FROM FINISHED WALKING SURFACES.
12) SPACE DECKING WITH A 16d NAIL.
13) MITER CUT EXPOSED WOOD AT CORNERS UNLESS OTHERWISE NOTED ON DRAWINGS
14) MEMBER SIZE INDICATED ARE FOR AESTHETICS OF DESIGN ONLY.CONTRACTOR AND OWNER ARE RESPONSIBLE FOR STRUCTURAL ENGINEERING TO INCLUDE FOOTINGS AND CONNECTIONS. SUBMIT SHOP DRAWINGS TO LANDSCAPE ARCHITECT INDICATING DESIGN BASED UPON STRUCTURAL ENGINEERS CALCULATIONS WHICH DIFFER FROM THE DESIGN DRAWINGS.
15) ATTACH LEDGERS WITH 3/8" MIN. DIAMETER BY 5-1/2" MIN. LONG LAG BOLTS AT 16" O.C. INTO HEADERS / STUDS OR AS REQUIRED FOR STRUCTURAL INTEGRITY.
16) COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING, AND/OR INTERFACING WORK OF OTHER TRADES.
17) MATERIALS AND WORKMANSIP: CONFORM TO LATEST UNIFORM BUILDING CODE AND APPLICABLE GOVERNING CODES AND ORDINANCES. NO PART OF THE CONTRCT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODES. IF DICSCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER IN WRITING.
18) BACKPRIME ALL EXPOSED WOOD PRIOR TO INSTALLATION. PRIME ALL CUT ENDS PRIOR TO INSTALLATION.
19) REFER TO SPECIFICATION SECTION:
    06 20 00 FINISH
    09 91 00
    09 93 00 STAINING AND TRANSPARENT FINISHES
    FOR ADDITIONAL REQUIREMENT IF APPLICABLE

METAL NOTES:

1) MEMBER SIZES INDICATED ARE FOR DESIGN INTENT ONLY. CONTRCTOR SHALL ENGINEER FOR STRUCTURAL INTEGRITY.
2) FIELD VERIFY DIMENSIONS OF ADJACENT AND ADJOINING WORK. REPORT ANY DISCREPANCIES TO OWNER AND LANDSCAPE ARCHITECT IN WRITING.
3) SUBMIT SHOP DRAWINGS BASED ON FIELD DIMENSIONS TO OWNER AND LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION.
4) SUBMIT REPRESENTATIVE SIZE SAMPLE MOCK UP OF EACH DESIGN ITEM OR AS INDICATED IN THE DRAWINGS.
5) WELD CONNECTIONS CONTINUOUS AND SOLID. REMOVE SPLATTER AND SLAG AND GRIND WELD SMOOTH.
6) PREPARE SURFACES FOR PAINTING TO CLEAN, SMOOTH AND FREE OF OBJECTIONABLE MATERIAL. WASH, STEAM, CLEAN, SANDBLAST OR WIRE BRUSH TO BASE METAL.
7) ELECTROSTATICLY APPLY TWO (2) COATS OF ZINC OXIDE PRIMER (TO 6 mm THICK) AND TWO (2) COATS OF A RUST INHIBITING ENAMEL (TO 8 mm THICK). COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT. IF FINISH IS DAMAGED DURING HANDLING AND/OR INSTALLATION, CLEAN, ZINC-STRIKE AND PAINT TO MATCH REST OF METAL.
8) BOLTS TO BE CADMIUM PLATED OR STAINLESS STEEL.
9) CAP EXPOSED ENDS OF TUBING.
10) CONSTRUCTION TO BE PLUMB, LEVEL AND TRUE UNLESS OTHERWISE NOTED ON DRAWINGS.
11) COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING, AND/OR INTERFACING WORK OF OTHER TRADES.
12) MATERIALS AND WORKMANSHIP: CONFORM TO LATEST UNIFORM BUILDING CODE AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF THE CONTRACT DOCUMENTS ARE INTENDED TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER IN WRITING.
13) TUBE STEEL (TS) FENCING, RAILING, ETC. TO HAVE WEEPS PER INDUSTRY STANDARDS.
14) CONCRETE POST BASE TO SLOPE AWAY FROM POST MINIMUM 2% OR 1/2" WHICHEVER IS GREATER.
15) TUBULAR STEEL MEMBERS PER ASTM A513
    PICKETS: 16 GA MIN.
RAILS: 16 GA MIN.
POST: 16 GA MIN
16) REFER TO SPECIFICATION SECTIONS:
    09 90 00 FOR METAL FINISHES
    05 70 00 FOR DECORATIVE METAL FENCE AND GATE IF APPLICABLE

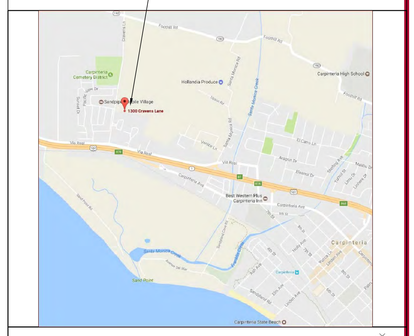
COORDINATION WITH OTHER TRADES:

1) PLUMBING CONTRACTOR SHALL PROVIDE ALL IRRIGATION PIPING WITHIN THE BUILDING (BELOW PODIUM DECK, SLAB PENETRATIONS, ETC.) AS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM. SEE IRRIGATION PLAN FOR MAIN LINE AND LATERAL LINE PIPE SIZES. COPPER PIPE SHALL BE TYPE K OR AS REQUIRED BY BUILDING CODES. COORDINATE with IRRIGATION CONTRACTOR LOCATIONS OF PIPE PENETRATIONS.
2) ELECTRICAL CONTRACTOR SHALL PROVIDE ELECTRICAL POWER POINT-OF-CONNECTION FOR LANDSCAPE ITEMS SUCH AS IRRIGATION CONTROLLERS, WATER FEATURE EQUIPMENT, LOW VOLTAGE LIGHTING TRANSFORMERS AS NOTED ON PLAN. PROVIDE CONDUIT FOR FOR IRRIGATION CONTROL WIRE CIRCUITS WITHIN BUILDING AS REQUIRED BY BUILDING CODES. PROVIDE SLAB PENETRATION AS NECESSARY IN PODIUM SLAB. VERIFY EXACT LOCATION IN FIELD AND COORDINATE with LANDSCAPE CONTRACTOR.
3) COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING, AND/OR INTERFACING WORK OF OTHER TRADES.
4) MATERIALS AND WORKMANSHIP: CONFORM TO LATEST UNIFORM BUILDING CODE AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO CODES, IF DISCREPANCIES EXIST, NOTIFY LANDSCAPE ARCHITECT AND OWNER.

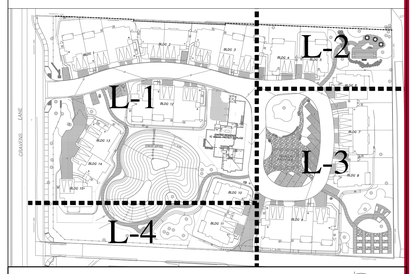
DEFERRED NOTES SUBMITTAL:

1) SWIMMING POOL/ SPA & RELATED MECHANICAL SYSTEM- DESIGN/BUILD UNDER SEPARATE PERMIT APPLICATION.

DESIGN/BUILD CONTRACTORS FOR DEFERRED SUBMITTAL ITEMS SHALL BE RESPONSIBLE FOR EACH RESPECTIVE DEFERRED SUBMITTAL APPROVAL BY THE CITY. SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD, WHO SHALL REVIEW THEM AND RETURN THEM TO THE DESIGN/BUILD CONTRACTOR WITH NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE LANDSCAPE DESIGN INTENT. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING DEPARTMENT FOR CONSTRUCTION.



VICINITY MAP N.T.S.



KEY MAP N.T.S.

LANDSCAPE SHEET INDEX

CS-1	COVER SHEET, NOTES & MAP
CS-2	PLANNING NOTES and CALCULATIONS
TM-1	TREE MITIGATION PLAN
LD-1	CONSTRUCTION DETAILS
LD-2	CONSTRUCTION DETAILS
LI-1 to LI-4	IRRIGATION PLAN
LF-1 to LF-4	FENCING PLAN
LP-1 to LP-4	PLANTING PLAN
L-1	COLORS & MATERIALS

APPROVALS:

DIG ALERT
CALL BEFORE YOU DIG!
1-800-227-2600
UNDERGROUND SERVICE ALERT
Call at least 2 working days prior to excavating.

L.A. GROUP Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 f 818.251-9719
email: DesignWorks@lagroupinc.net

REGISTERED LANDSCAPE ARCHITECT
TYLER SEAN GOLD, C.L.A. No. 5471
Signature
4/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

APN OR Tract No.

Issue	Description	Date
1	SUBMITTAL	04.17.2017
2	SUBMITTAL	05.17.2017
3	PLANNING SUBMITTAL	06.02.2017

1.01 LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE

A. Keep areas free of debris and planted areas seeded and cultivated at intervals of not more than ten (10) days. Watering, mowing, rolling, edging, trimming, fertilization, spraying and pest control, as may be required, shall be included in the maintenance permit. Street gutters shall be included within the debris/silt removal program. Keep area drains and pipe free of silt and debris.

1.02 TREE AND SHRUB CARE

A. Material: Maintain a large enough water basin around plants so that enough water can be applied to establish moisture throughout the major root zone. When hand-watering, use a water wand to break the water force. Maintain mulches to reduce evaporation and frequency of watering.

B. Pruning Trees:
1. Prune trees to develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached; which have vertical spacing of from 18" to 48" and radial orientation so as not to overlay one another; to eliminate diseased or damaged growth; to eliminate narrow V-shaped branch forks that lack strength; to reduce toppling and wind damage by thinning out crowns to maintain growth within space limitations; to maintain a natural appearance; to balance crown with roots.
2. Under no circumstances will stripping of lower branches ("raising-up") of young trees be permitted. Lower branches shall be retained in a "tipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk). Lower branches can be cut flush with the trunk only after the tree is able to stand erect without staking or other support. Remove sucker growth if deemed appropriate by the Owner's authorized representative.
3. Thin out evergreen trees and shape when necessary to prevent wind storm damage. The primary pruning of deciduous trees shall be done during the dormant season. Prune damaged trees or those that constitute health or safety hazards at any time of the year as required to eliminate unsafe conditions.

C. Trimming Shrubs:
1. The objective of shrub pruning are the same as for trees. Do not clip shrubs into balled or boxed forms unless such is required by the design and directed by the Landscape Architect.
2. Make pruning cuts at lateral branches or buds or flush with the trunk. "Stubbing" will not be permitted.

D. Staking and Guying: Remove stakes and guys as soon as they are no longer needed. Periodically inspect stakes and to prevent girdling or rubbing that causes bark wounds. Replace broken stakes and ties with specified materials. Trees damaged by staking and guying shall be replaced with like kind and size.

E. Weed Control: Keep basins and areas between plants free of weeds. Use recommended legally approved herbicides. Avoid frequent soil cultivation that damage shallow roots. Use mulch to help prevent weed seed germination.

F. Insect and Disease Control: Maintain a reasonable control with approved materials.

G. Replacement of Plants: Replace dead, dying all missing plants and plants of a size, condition and varieties acceptable to Owner's authorized representative at Contractor's expense.

1.03 FERTILIZATION

A. Fertilize plantings with the following or as noted in horticultural Soils Report:
1. At the end of the first 30-day and at 30-day intervals apply top dress fertilizer as specified.
2. Should maintenance period be extended, apply specified fertilizer at 30 day intervals.
3. After application, water fertilizer thoroughly into soil.
4. Avoid applying fertilizer to the root ball or base of main stem; rather, spread evenly under plant drip line.

1.04 GROUND COVER CARE

A. Weed Control: Control weeds with chemical systemic spray or by mechanical means to prevent damage to planted materials.

B. Watering: Water enough that moisture penetrates throughout root zone and only as frequently as necessary to maintain healthy growth.

C. Pruning: Prune ground cover in a naturalistic fashion to keep in bounds and trim top growth as necessary to achieve an overall neat appearance.

D. Replacement of Plants: Replace dead, dying all missing plants and plants of a size, condition and varieties acceptable to Owner's authorized representative at Contractor's expense.

1.05 LAWN AND TURF CARE

A. Mowing and Edging:
1. Mowing of turf will commence when the grass has reached a recommended height for the specified species. Mow at least weekly. Turf must be well-established and free of bare spots and weeds to the satisfaction of the Landscape Architect prior to final acceptance.
2. Excess grass clippings as determined by the Landscape Architect shall be picked-up and removed from the site and premises.
3. Edge lawn weekly or as needed for neat appearance. Clippings shall either be vacuumed or swept off walks.

B. Watering: Lawns shall be watered at such frequency as weather conditions require to replenish soil moisture through the root zone and to maintain healthy growth. Comply with any water use restrictions however deep watering is recommended to promote drought tolerance.

C. Fertilizing: 3/4 pound of nitrogen per 1,000 square feet of lawn area in the form of a general all-purpose fertilizer. Refer to Soils Report recommendations.

D. Weed Control: If needed, control broad leaf weeds with selective herbicides.

E. Renovating:

F. If required, remove thatch by vertical cutting of thatch or core aerate, preferably in the Fall but otherwise in the Spring. Remove plugs and top dress with sand, Humic acid, calcite calcium, magnesium, adjust top dressing and fertilizer to correct any soil deficiencies as recommended by current Soils Test. Over-seed if needed. Over-seeding must precede pre-emergent herbicides by at least four to six weeks.

G. Aerify compacted areas to improve water penetration whenever needed.

1.06 IRRIGATION SYSTEM

A. Check system weekly for proper operation and coverage. Lateral lines shall be flushed out after removing the last sprinkler head or two at each end of the lateral. Adjust heads as necessary for unimpeded coverage and no overspray.

B. Set and program automatic controllers for seasonal water requirements. Give Owner's representative a key to controllers and written instructions on how to turn off system in case of emergency.

C. Repair damage to irrigation system at Contractor's expense. Make repairs within one watering period.

D. The irrigation maintenance schedule tasks listed below are intended as minimum standards and more frequent attention may be required depending on the particular site conditions.

Weekly;
1. Sprinklers-visually check for any broken missing or clogged heads. Heads with incorrect arc, inadequate coverage or overspray and low head drainage repair as needed.

Monthly;
1. Irrigation schedule- adjust a schedule for seasonal variations and other conditions which may affect the amount of water needed to maintain plant health adjust as necessary.
2. Filters and strainers visually check for leaks, broken fitting clean and flush screens.

Quarterly;
1. Controller cabinet- open cabinet and clean out debris and replace battery as necessary. Check wiring and repair as needed and check clock and reset, if necessary.
2. Point of connection- visually inspect components for leaks pressure settings, settlement or other damage affecting the operation of a component repair as needed.
3. Remote controller valves, isolation valves and quick coupler valves-visually inspect for leaks, settlement, wire connection and pressure setting. Repair or adjust as needed.
4. Mainline and laterals-visually inspect for leaks or settlement of trench.

1.07 CLEAN DRAINAGE SYSTEM:

A. All drains in landscape area planters, subsurface drainlines and grates shall be kept clear of leaves, litter and debris to ensure unimpeded passage of water.

B. Drainlines shall be periodically flushed with clear water to avoid build-up of silt and debris.

C. Ensure that at the end of Maintenance period, drainage system is clean and free of debris and silt build-up.

1.08 DEBRIS REMOVAL:

Remove trash in landscape areas and debris generated by maintenance operation and legally dispose of offsite.

Maintenance Schedules:

A regular maintenance schedule satisfying the following conditions shall be submitted as part of the landscape documentation package.

Landscape shall be maintained to ensure water efficiency. A regular maintenance schedule shall include, but not be limited to, checking, adjusting, and repairing irrigation equipment, resetting the automatic controller, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning, and weeding in all landscape areas.

Whenever possible repair of irrigation equipment shall be done with the originally specified materials or their equivalents.

Irrigation Audit Schedules:

Landscape Irrigation Audit shall be accordance with the latest governing agency's water management program.

At a minimum, audits shall be in accordance with the latest State of California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, prepared for the California Department of Water Resources, Water Conservation Office, the entire document, which is hereby incorporated by reference.

The schedule shall provide for landscape irrigation audits to be conducted by a qualified individual as determined by the Director at least once every five years in accordance with the requirements.

Soils Report:

Soil report shall be completed per section 492.5 of Model Water Efficient Landscape Ordnance, for the planting areas after completion of grading and prior to start of soil preparation work. Test shall be performed by an approved agronomic soil laboratory, and a written recommendation shall be provided. The soils report results shall be utilized to determine plant compatibility.

LANDSCAPE DOCUMENTATION PACKAGE:

1. *Project legal description of project (street address, PM No., TR No.).*:

   1300 CRAVENS LANDE, CARPENTERIA, CA 93013

2. Project Applicant: CRAVENS LANE, LLC
3. Project Applicant Contact Information:
   1300 CRAVENS LANE, LLC
   23622 Calabasas Road, Suite 220
   Calabasas, CA 91302
4. Entity responsible for Landscape Maintenance:
5. Total Square Footage of Landscape Area: 49,788 Square Feet
6. Water Purveyor: Carpenteria Valley Water District (805) 684-2816
7. Maintenance Landscape and Irrigation: See Specifications
8. Water Efficient Landscape Worksheet: See Chart Below, this Sheet with Hydrozone Information Table and Water Budget Calculation
9. Soils Management Report, per soils laboratory

   ☐Provided-

   ☒Deferred- to be submitted with Certificate of Completion
10. Irrigation Water Schedule: determined by weather sensing feature incorporated within irrigation smart controller
11. Landscape Design Planting Plan: See Planting Sheets
12. Irrigation Design Plan: See Irrigation Sheets
13. Grading Design Plan: Per Civil Engineer

Landscape Documentation Package (Title 23, Chapter 2.7 §492.3)

"I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."

Applicant Signature _____ Date _____

WATER EFFICIENT LANDSCAPE WORKSHEET:

MWELO- Section 492.3. (SEE APPENDIX "B") / WUCOLS REGION 3

Site Information

Site Name →	*Green Heron Spring*
Site Type →	Residential (ETAF= .45 Commercial, .55 Residential)
Annual Eto (inches/yr) →	44.9

Hydrozone or Planting Description	Plant Factor (PF)		Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landscape Areas								
1	0.3	Low	Drip	0.81	0.4	38,714	14,768	411,112
2	0.5	Mod	Drip	0.81	0.6	1,275	787	21,910
3	0.5	Mod	Overhead Spray	0.75	0.7	9,397	6,265	174,396
4	0.5	Mod	Drip	0.81	0.6	402	248	6,908
					SUBTOTAL →	49,788	22,068	614,325
Special Landscape Areas								
9	[redacted]				1	0	0	0
10					1	0	0	0
11					1	0	0	0
12					1	0	0	0
					SUBTOTAL →	0	0	0
					Estimated Total Water Use (ETWU) →			614,325
					Maximum Allowed Water Allowance (MAWA) →			762,299

ETAF Calculations

Regular Landscape Areas		
	Total ETAF x Area	22,068
	Total Area	49,788
	Average ETAF	0.44
All Landscape Areas		
	Total ETAF x Area	22,068
	Total Area	49,788
	Sitewide ETAF	0.44

ETWU meets MAWA requirement.
Average ETAF meets requirement for this site type.

Notes:

Irrigation Efficiency Value	
Drip	0.81
Bubbler	0.81
Overhead Sprg	0.75

WUCOLS Plant Factor

.0 to .1	Very Low
.2 to .3	Low
.4 to .6	Moderate
.7 to 1.0	High

See planting plan schedule for specific plant factor

Estimated Total Water Use
ETWU (Annual Gallons Required) = Eto x 0.62 x ETAF x Area- where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

Maximum Applied Water Allowance
MAWA (Annual Gallons Allowed) = (Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)] where 0.62 is a conversion factor that converts acre- inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is **.55** for residential areas and **0.45** for non-residential / commercial areas.

Residentieal Area- 75% of planting shall be an average of 0.3 Plant Factor.

L.A. GROUP
Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 f 818.251-9719
email: DesignWorks@lagroupinc.net

REGISTERED LANDSCAPE ARCHITECT
TYLER SEAN GOLD Lic. No. 6212
4/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

APN OR Tract No.

Issue	Description	Date
1	SUBMITTAL	04.13.2017
2	PLANNING SUBMITTAL	06.10.2017

Date *

Drawn By .

Sheet Title
PLANNING NOTES & CALCULATIONS

Job No. 4444

Sheet No.
CS-2

. of . Sheet

CRAVENS LANE



MITI□ATION SUMMARY

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MITI□ATION □LANT SCHEDULE

TREES	CODE	BOTANICAL NAME □COMMON NAME	CONT	□TY
	CER OCC	Cer□□□o□□de□t□□□ □We□ter□ Red□□d	□□" □o□	□□
	□LA RAC	□□t□□□□□r□□e□o□□ □C□□for□□□ S□□□□ore	□□" □o□	□□
	□LA MIT	□□t□□□□□r□□e□o□□ □C□□for□□□ S□□□□ore □M□□□t□ □ Tree□	□ □□□	□□
	□UE A□F	□□er□□□ □□rfo□□ □Co□□t L□□e O□□ □M□□□t□ □ Tree□	□ □□□	□□
	□UE E□T	E□□□t□□ □ □□er□□□ □□rfo□□ □E□□□t□□ Co□□t L□□e O□□		
	□UE A□R	□ □er□□□ □□rfo□□ □Co□□t L□□e O□□	□□" □o□	□
	SE□ SEM	Se□□o□□ □e□ □er□□e□□ □C□□for□□□ Red□ood □M□□□t□ □ Tree□	□□" □o□	□

Tree Mitigation Plan

GREEN HERON SPRING

CARPINTERIA

NORTH 0 16 32 48 feet

SCALE: 1/16" = 1'-0"

TM-1

D□te: □□□□□□□□□
□OB □ □□□□□

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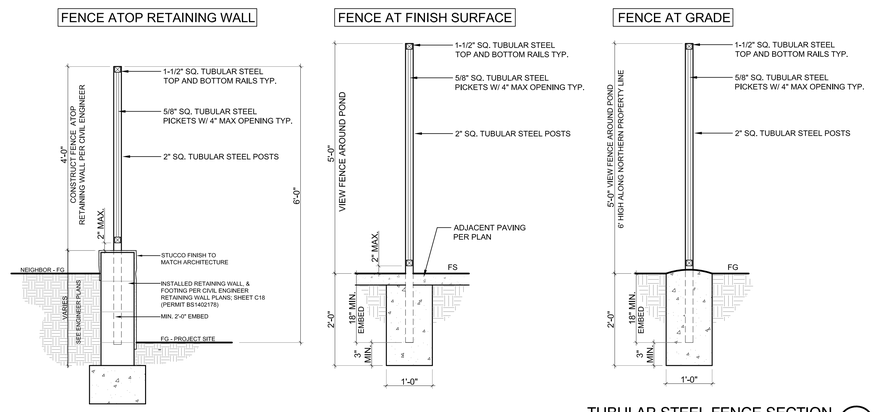
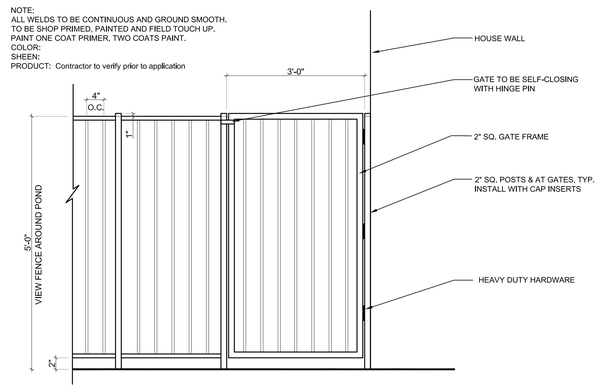


TUBULAR STEEL FENCE SECTION C

P2-6-Ø3 3/4" = 1'-0"

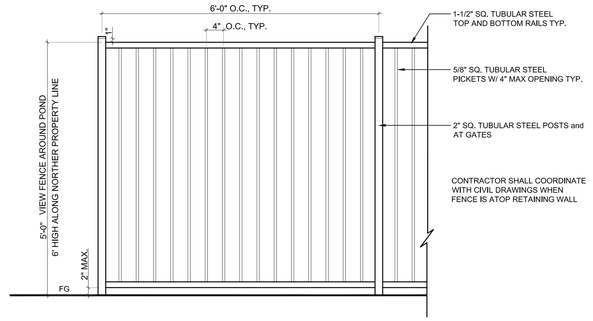
NOTE:
ALL WELDS TO BE CONTINUOUS AND GROUND SMOOTH.
TO BE SHOP PRIMED, PAINTED AND FIELD TOUCH UP.
PAINT ONE COAT PRIMER, TWO COATS PAINT.
COLOR:
SHEEN:
PRODUCT: Contractor to verify prior to application



TUBULAR STEEL GATE B

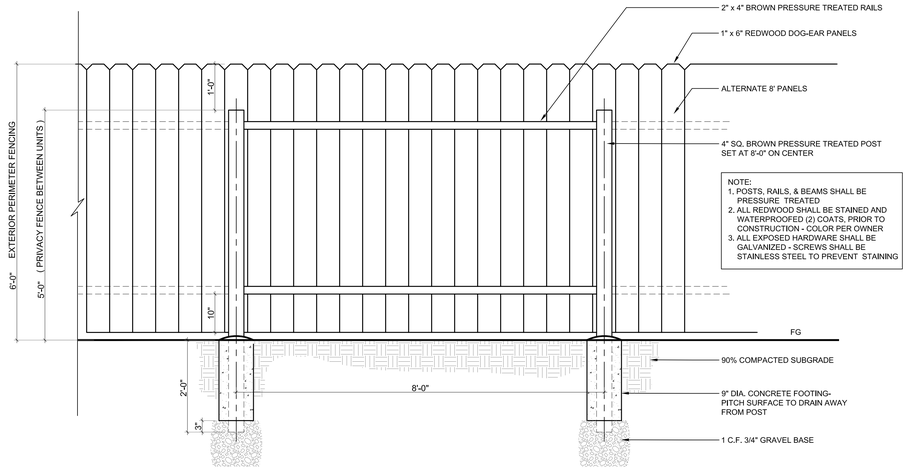
P2-6-Ø2 3/4" = 1'-0"

NOTE:
ALL WELDS TO BE CONTINUOUS AND GROUND SMOOTH.
TO BE SHOP PRIMED, PAINTED AND FIELD TOUCH UP.
PAINT ONE COAT PRIMER, TWO COATS PAINT.
COLOR:
SHEEN:
PRODUCT: Contractor to verify prior to application



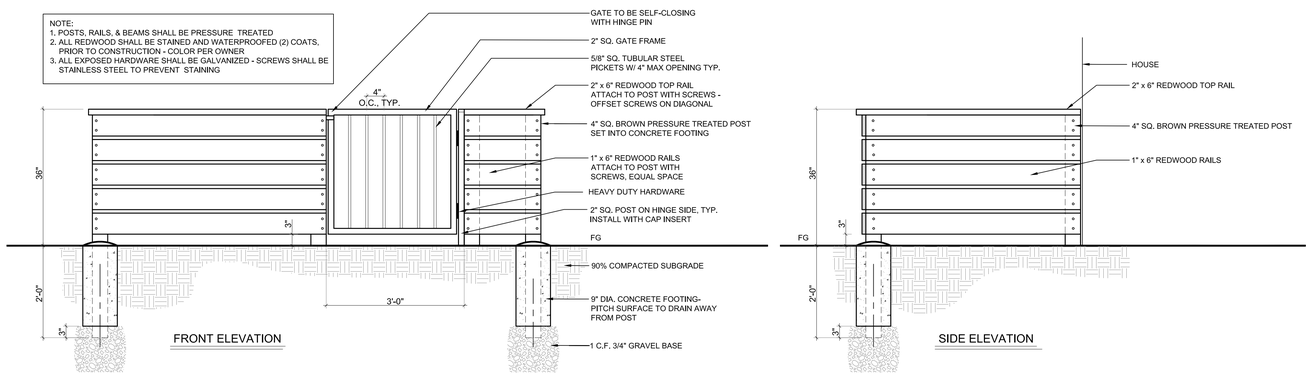
TUBULAR STEEL FENCE A

P2-6-Ø1 3/4" = 1'-0"



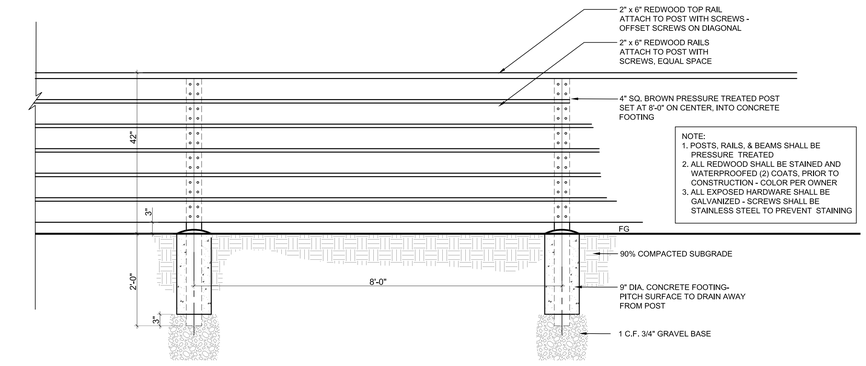
REDWOOD FENCE D

P2-6-Ø4 3/4" = 1'-0"



36" HIGH PRIVATE COURTYARD RAIL FENCE F

P2-6-Ø6 3/4" = 1'-0"



42" HIGH PERIMETER RAIL FENCE E

P2-6-Ø5 3/4" = 1'-0"

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TYLER SEAN GOLD
REGISTERED LANDSCAPE ARCHITECT
No. 6272
Renewal Date 04/30/17
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	CURRENT	06.29.2017
2	PLANNING SUBMITTAL	06.10.2017

Date *

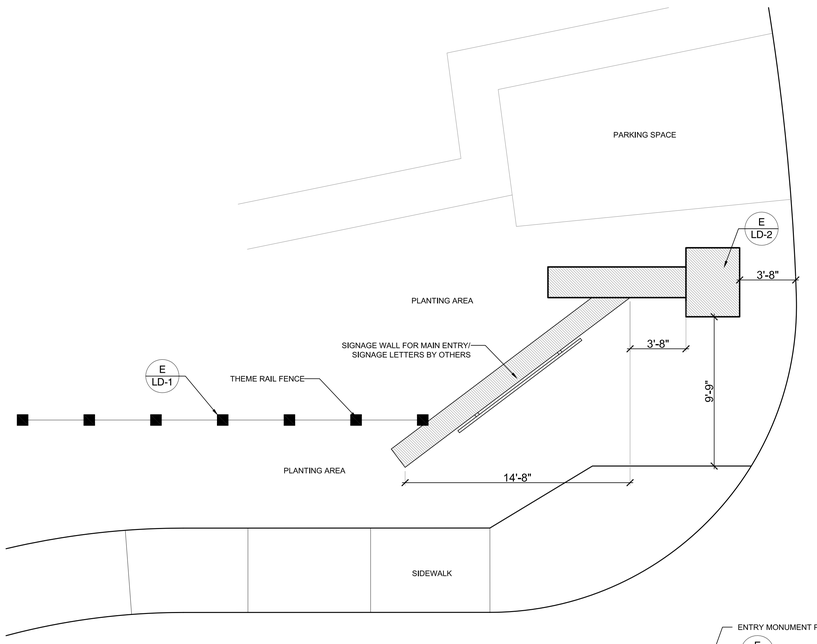
Drawn By .

Sheet Title
CONSTRUCTION DETAILS

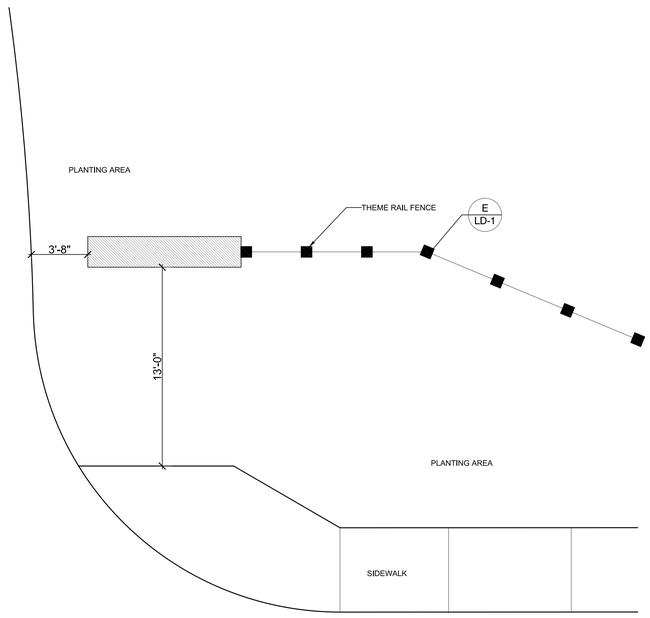
Job No. 4444

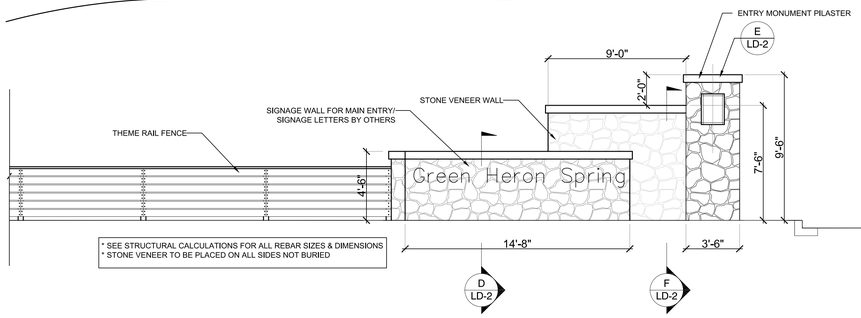
Sheet No.
LD-1

. of . Sheet

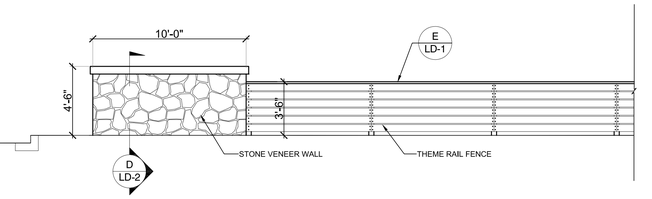


PLAN





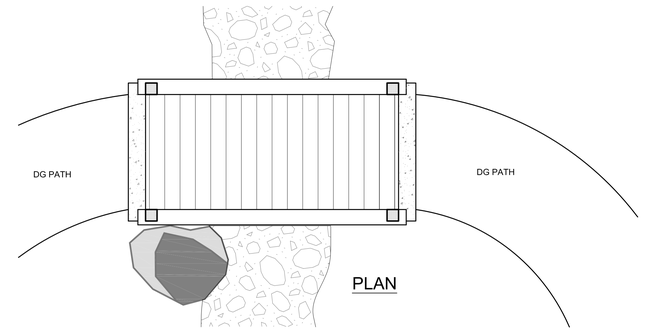
ELEVATION



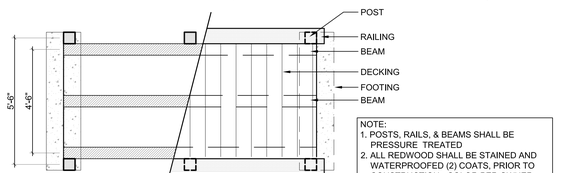
ENTRY MONUMENT A

1/4" = 1'-0"

P2-6-07

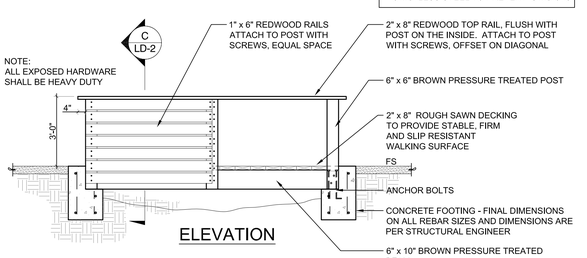


PLAN



PLAN

NOTE:
1. POSTS, RAILS, & BEAMS SHALL BE PRESSURE TREATED
2. ALL REDWOOD SHALL BE STAINED AND WATERPROOFED (2) COATS, PRIOR TO CONSTRUCTION - COLOR PER OWNER
3. ALL EXPOSED HARDWARE SHALL BE GALVANIZED - SCREWS SHALL BE STAINLESS STEEL TO PREVENT STAINING

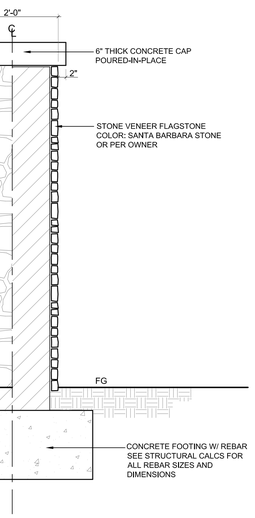


ELEVATION

WOODEN BRIDGE B

3/8" = 1'-0"

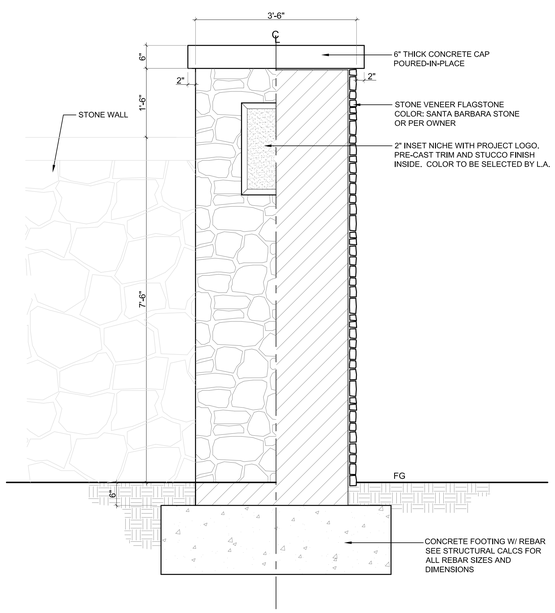
P2-6-08



STONE VENEER WALL F

3/4" = 1'-0"

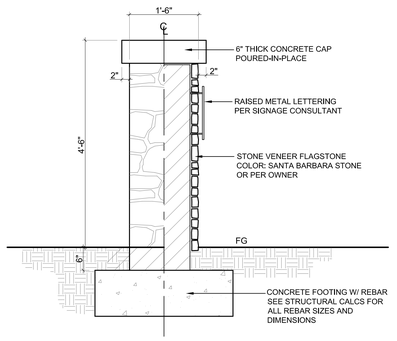
P2-6-11



ENTRY MONUMENT PILASTER E

3/4" = 1'-0"

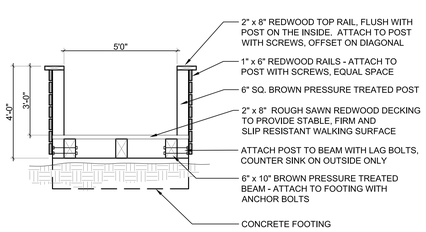
P2-6-10



SIGNAGE WALL @ MAIN ENTRY D

3/4" = 1'-0"

P2-6-12



WOODEN BRIDGE SECTION C

3/8" = 1'-0"

P2-6-09

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REGISTERED LANDSCAPE ARCHITECT
TYLER SEAN GOLD Lic. No. 6372
Expiration
04/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	CURRENT	06.29.2017
2	PLANNING SUBMITTAL	06.10.2017

Date *

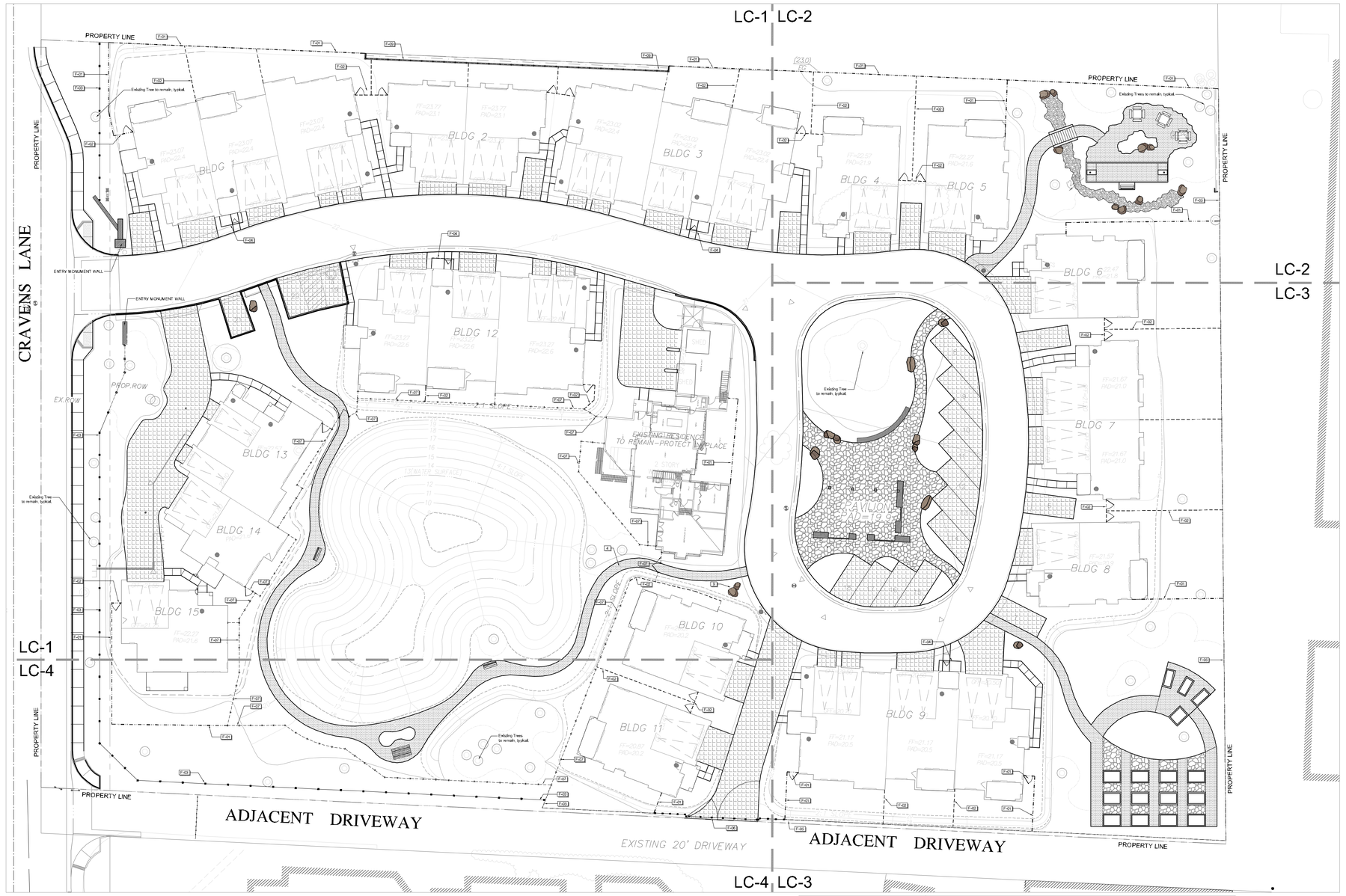
Drawn By .

Sheet Title
CONSTRUCITON DETAILS

Job No. 4444

Sheet No.
LD-2

. of . Sheet



REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	DETAIL
1	SIDEWALK- per Civil plans	
2	A.C. PAVING- per Civil plans	
3	CONCRETE ENTRY WALK- 3-1/2" thick natural color concrete paving with #3 rebar @ 24" o.c. both ways over compacted base per soils report. Finish to be medium sand finish with tooled scorelines as shown on plans.	
4	DG PAVING- 3" layer decomposed granite, color to be tan. Edged with bend-a-board header.	
5	PERMEABLE PAVING- Ackerstone Aqua-Via 1 FM (face mix) permeable paver set on compacted base per manufacturer's specifications. Set edge pavers in concrete over 2" layer class 2 base and compacted subgrader per soils engineer if not restrained by concrete curb. Crushed aggregate swept joints. Pattern to be running bond, color to be Desert Blend.	
6	ACCENT PAVING- Belgard Mega Arbel Patio Slab (60MM) set on compacted base per manufacturer's specifications. Set edge pavers in concrete over 2" layer class 2 base and compacted subgrade per soils engineer. Polymeric sand swept joints. Pattern to be 3-piece pattern, color to be Montecito.	
7	ENTRY MONUMENT- see detail	A/LD-2
8	SEATWALL- see detail	G/LD-2
9	ACCENT BOULDER- 3`-5` Boulder set 1/3 into grade. Color to match Accent Paving (#6 Reference Note).	
10	DG PAVING- 3" layer decompsed granite paving, no edging. Color to be tan.	
11	DG GAME COURT- see detail	H/LD-1
12	CORNHOLE GAME- BYO Bags concrete cornhole game from Doty and Sons Concrete Products, Inc.	
13	BRIDGE CONNECTION- see detail	B/LD-2
14	DRY CREEKBED- 3`-4` Boulders set 1/3 into grade. Color to match Accent Paving (#6 Reference Note). See detail K, sheet LP-5	
15	BENCH- per Developer	
16	TABLE- per Developer	
17	RAISED PLANTER- see detail	G/LD-1

SYMBOL / FENCES SCHEDULE

SYMBOL	DESCRIPTION	QTY	DETAIL
F-01	REDWOOD FENCE: 6` High, Perimeter Fence & Gate		D/LD-1
F-02	REDWOOD FENCE: 5` High, Privacy Fence/Gate		D/LD-1
F-03	REDWOOD FENCE: 42" High, Theme Fence		E/LD-1
F-04	PRIVATE ENTRY: 36" High, Redwood Fence w/Tubular Steel Gate		F/LD-1
F-05	MASONRY WALL: 6` High Proto II Wall - see civil drawings		
F-06	FIRE AUTO ACCESS: 6` High, Tubular Steel Fire Emergency Access Gates		
F-07	TUBULAR STEEL VIEW FENCE: 5` High Permeable, Pond Perimeter Fence & Gate		A/LD-1
F-08	TUBULAR STEEL FENCE: 6` High, Perimeter Fence		A/LD-1
F-09	COMBINATION WALL: 4` High, Redwood Fence over Retaining Wall, per engineer (overall height shall be equal to, and not exceed, adjacent 6` H perimeter redwood fence)		C/LD-1

0 20 40 60 feet
SCALE: 1" = 20'

NORTH

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REGISTERED LANDSCAPE ARCHITECT
TYLER GENT GOLD L 5672
Signature
4/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING

1300 CRAVENS LANE, CARPINTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	SUBMITTAL	05.17.2017
2	PLANNING SUBMITTAL	06.02.2017
3	PLANNING SUBMITTAL	06.10.2017
4	CITY COMMENTS	10.19.2017
5	FENCING REVISION	10.23.2017

Date *

Drawn By .

Sheet Title
OVERALL FENCING PLAN

Job No. 4444

Sheet No.
LF-0.1

. of . Sheet

CRAVENS LANE

□RO□ERTY LINE

□RO□ERTY LINE

E□□t□□ Tree to re□ □□□t□□□□□

ENTRY MONUMENT WALL

ENTRY MONUMENT WALL

E□□t□□ Tree to re□ □□□t□□□□□

BLDG 1

FF=23.07
PAD=22.4

BLDG 2

FF=23.77
PAD=23.1

BLDG 3

FF=23.02
PAD=22.4

BLDG 12

FF=23.27
PAD=22.6

BLDG 13

BLDG 14

PAD=21.6

BLDG 15

FF=22.27
PAD=21.6

BLDG 10

PAD=20.2

EXISTING RESIDENCE
TO REMAIN—PROTECT IN PLACE

2 STORY

SHED

13(WATER SURFACE)

4:1 SLOPE

MATCHLINE □SEE SHEET LC□□

MATCHLINE □SEE SHEET LC□□

SCALE: □"□□□□□"

feet

NORTH

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REGISTERED LANDSCAPE ARCHITECT
TYLER "SEAN" GOLD
Signature
1/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPINTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

□□□e	De□r□□t□□	D□te
□	SUBMITTAL	□□□□□□□□
□	□LANNIN□ SUBMITTAL	□□□□□□□□
□	□LANNIN□ SUBMITTAL	□□□□□□□□
□	CITY COMMENTS	□□□□□□□□
□	FENCIN□ REVISION	□□□□□□□□

D□te □

Dr□□□B□ □

Sheet T□te

FENCE □ WALL
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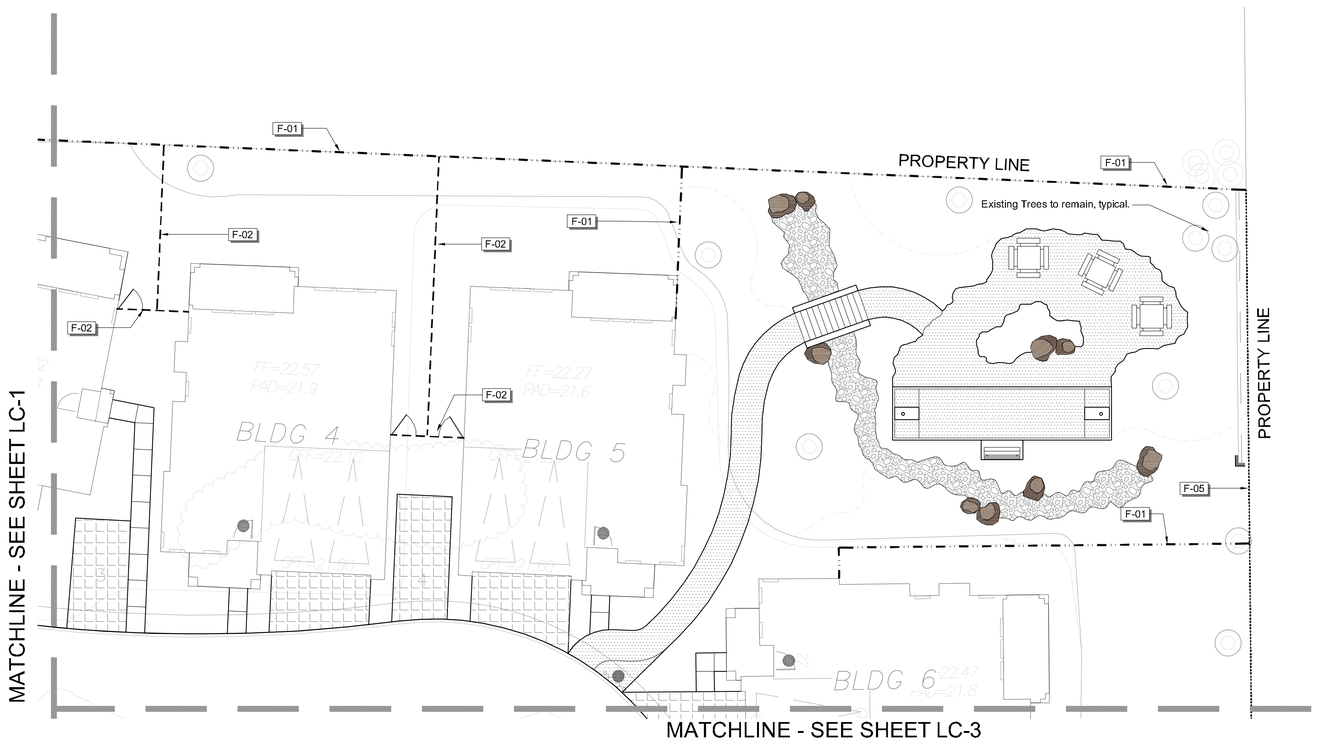
□o□No□ □□□□

Sheet No□

LF□□

□ of □ Sheet



SYMBOL	FENCES SCHEDULE		
	SYMBOL	DESCRIPTION	QTY	DETAIL
	F-01	REDWOOD FENCE: 6' High, Perimeter Fence & Gate		D/LD-1
	F-02	REDWOOD FENCE: 5' High, Privacy Fence/Gate		D/LD-1
	F-03	REDWOOD FENCE: 42" High, Theme Fence		E/LD-1
	F-04	PRIVATE ENTRY: 36" High, Redwood Fence w/Tubular Steel Gate		F/LD-1
	F-05	MASONRY WALL: 6' High Proto II Wall - see civil drawaings		
	F-06	FIRE AUTO ACCESS: 6' High, Tubular Steel Fire Emergency Access Gates		
	F-07	TUBULAR STEEL VIEW FENCE: 5' High Permeable, Pond Perimeter Fence & Gate		A/LD-1
	F-08	TUBULAR STEEL FENCE: 6' High, Perimeter Fence		A/LD-1
	F-09	COMBINATION WALL: 4' High, Redwood Fence over Retaining Wall, per engineer (overall height shall be equal to, and not exceed, adjacent 6' H perimeter redwood fence)		C/LD-1

0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

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REGISTERED LANDSCAPE ARCHITECT
TYLER BENT GOLD LIC. NO. 5172
Signature
4/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPINTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	SUBMITTAL	05.17.2017
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5	FENCING REVISION	10.23.2017

Date *

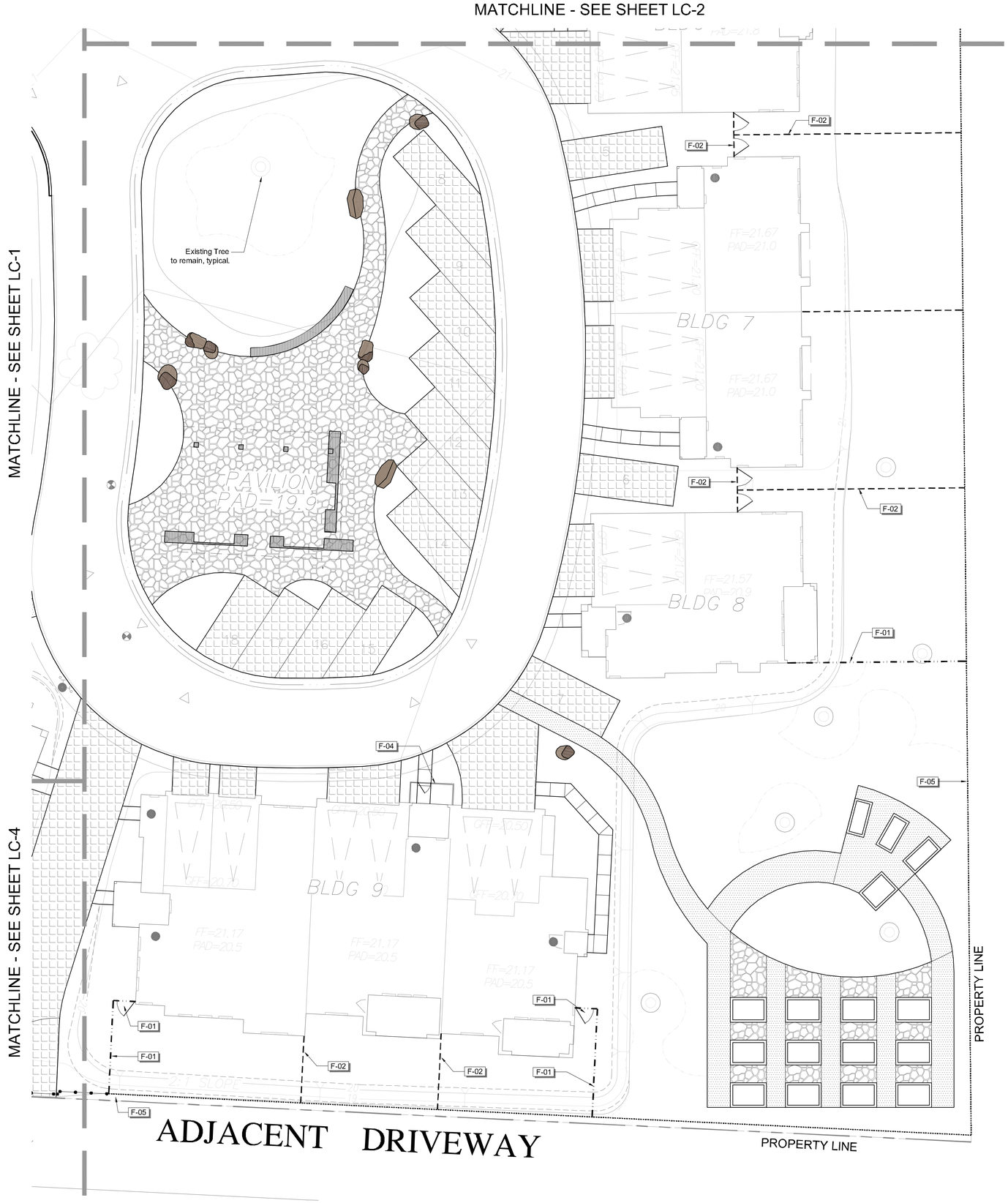
Drawn By .

Sheet Title
FENCE & WALL PLAN

Job No. 4444

Sheet No.
LF-2

. of . Sheet



SYMBOL

FENCES SCHEDULE

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0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

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REGISTERED LANDSCAPE ARCHITECT
TYLER BENT GOLD
No. 6172
Signature
4/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPINTERIA, CA

prepared for:
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23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

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5	FENCING REVISION	10.23.2017

Date *

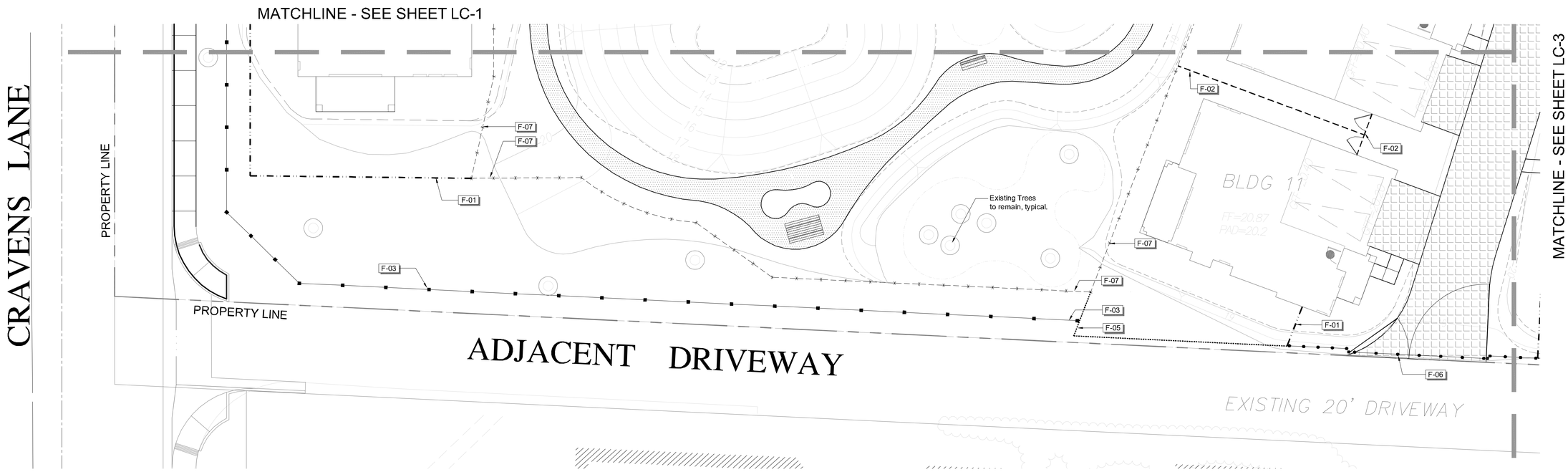
Drawn By .

Sheet Title
FENCE & WALL PLAN

Job No. 4444

Sheet No.
LF-3

. of . Sheet



SYMBOL

FENCES SCHEDULE

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F-02	REDWOOD FENCE: 5' High, Privacy Fence/Gate		D/LD-1
F-03	REDWOOD FENCE: 42" High, Theme Fence		E/LD-1
F-04	PRIVATE ENTRY: 36" High, Redwood Fence w/Tubular Steel Gate		F/LD-1
F-05	MASONRY WALL: 6' High Proto II Wall - see civil drawings		
F-06	FIRE AUTO ACCESS: 6' High, Tubular Steel Fire Emergency Access Gates		
F-07	TUBULAR STEEL VIEW FENCE: 5' High Permeable, Pond Perimeter Fence & Gate		A/LD-1
F-08	TUBULAR STEEL FENCE: 6' High, Perimeter Fence		A/LD-1
F-09	COMBINATION WALL: 4' High, Redwood Fence over Retaining Wall, per engineer (overall height shall be equal to, and not exceed, adjacent 6' H perimeter redwood fence)		C/LD-1

0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

L.A. GROUP
Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 f 818.251-9719
email: DesignWorks@lagroupinc.net

REGISTERED LANDSCAPE ARCHITECT
TYLER BENT GOLD L.A. No. 6172
Signature
4/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPINTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	SUBMITTAL	05.17.2017
2	PLANNING SUBMITTAL	06.02.2017
3	PLANNING SUBMITTAL	08.10.2017
4	CITY COMMENTS	10.19.2017
5	FENCING REVISION	10.23.2017

Date *

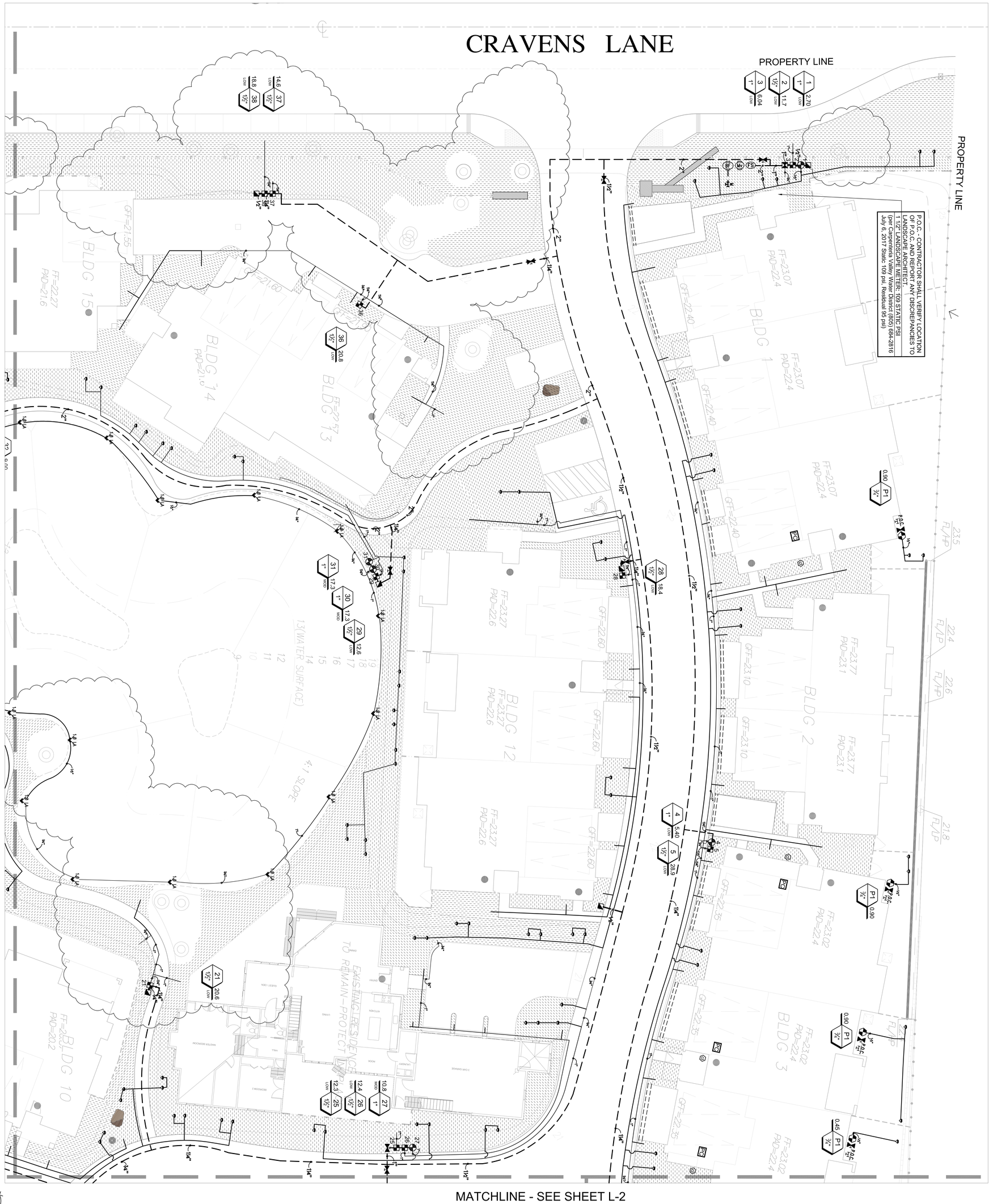
Drawn By .

Sheet Title
FENCE & WALL PLAN

Job No. 4444

Sheet No.
LF-4

. of . Sheet



GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

REGISTERED LANDSCAPE ARCHITECT
TYLER HENRY GOLD
No. 5312
STATE OF CALIFORNIA
Expires 08/31/2019

L.A. GROUP
Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 / f 818.251-9719
email: DesignWorks@lagroupinc.net

Issue	Description	Date
1	PLANNING SUBMITTAL	06.10.2017

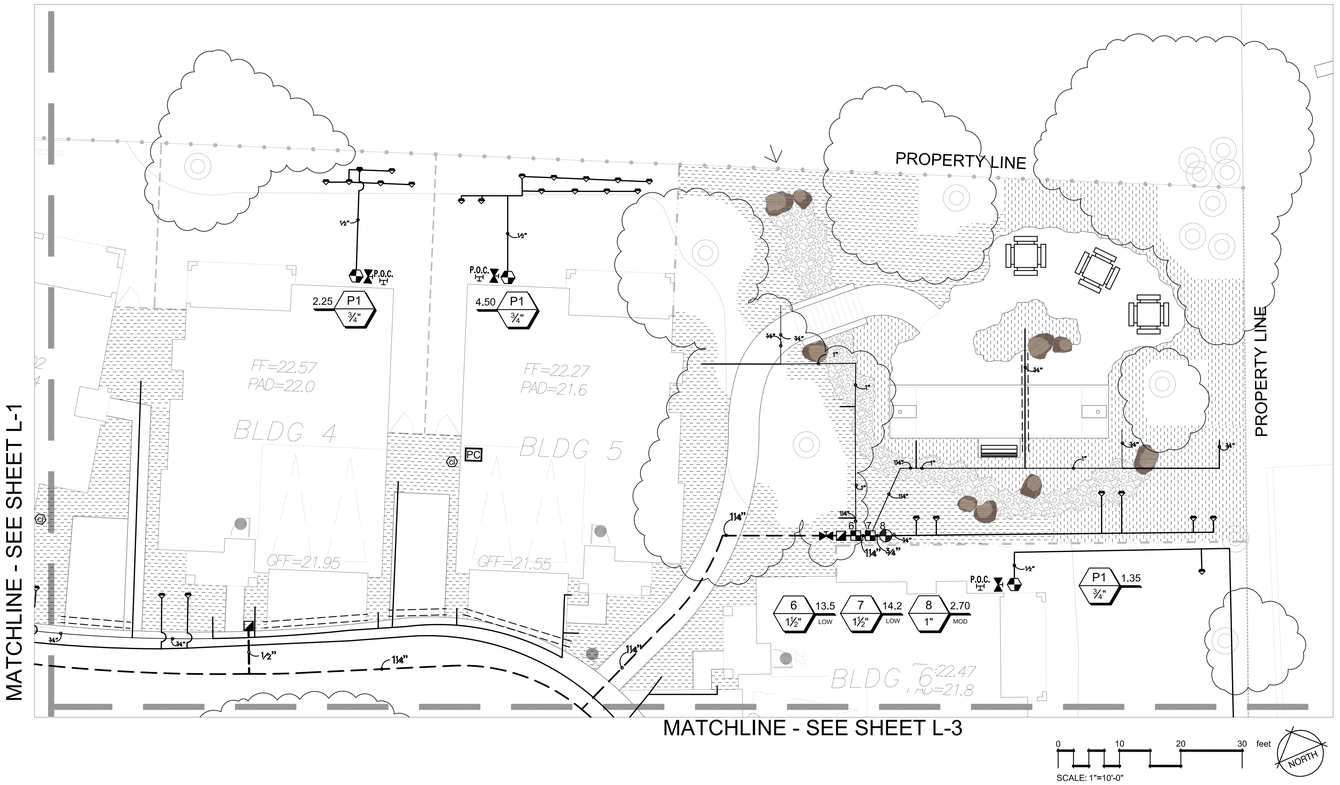
Date .
Drawn By .

Sheet Title
IRRIGATION PLAN

Job No. 4444

Sheet No. LI-1

. of . Sheet



IRRIGATION SCHEDULE

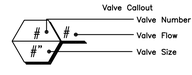
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	ARC	PSI	GPM	RADIUS
	FLOOD BUBBLER Toro 570Z-6-COM-FB-PC Toro 570Z-6-COM-FB-PC Pressure-Compensating Install on 570Z 6" Pop-Up with Check Valve. Fixed flow 0.50 GPM	360	40	0.45	3'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	GPM	RADIUS
1.0 LA	SHRUB ROTOR: Toro T5-HP-CK-LA 12" Pop-Up, Adjustable Arc Patterns 40-360, Low Angle Nozzle Set 25'-50' Radius with Check Valve	45	1.02	28'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	DRIP CONTROL VALVE KIT: Netafim LVCZ-150 Pre-Assembled with 1-1/2" Series 80 Control Valve, 1-1/2" Disc Filter and 1-1/2" High Flow Pressure Regulator. Flow Range: 11 GPM - 35 GPM.
	DRIP CONTROL VALVE KIT: Netafim LVCZS8010075-HF Pre-Assembled with 1" Series 80 Control Valve, 3/4" Disc Filter, and High Flow Pressure Regulator. Flow Range: 4.5 GPM - 17.6 GPM.
	Area to Receive Dripline DRIPLINE: Netafim TLCV-06-12 (12) ON-GRADE Techline Pressure Compensating Landscape Dripline with Check Valve. 0.6GPH emitters at 12.0" O.C. Dripline laterals spaced at 12.0" apart, with emitters offset for triangular pattern. Install each circuit with: Netafim Automatc Flush Valve at low point in circuit Netafim Operation Indicator Mdl 10-F-01

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	REMOTE CONTROL VALVE: Toro TPV-F-100-DC 1" Electric with Flow Control and DC Latching Solenoid. Flow Range: 0.25 GPM - 40 GPM
	ANTI-SIPHON VALVE: Toro EZF-29-03 3/4" Electric Remote Control Valve, Jar-Top with NPT. Install 12" min. above grade and 6" above highest head on circuit.
	QUICK COUPLER: Toro 100-SLVLC One-Piece, 1" Single Lug Quick Coupler Valve with Vinyl Locking Cover.
HB	HOSE BIBB Nibco Bronze - Inverted Nose, Garden Valve. 3/4" x 1/2" Female NPT Hose Bibb with wheel handle.
	GATE VALVE Nibco T-113 Class 125 bronze gate shut off valve with wheel handle, same size as mainline pipe diameter at valve location. In valve box.
MV	MASTER VALVE 1" Toro P220-27-94 Pressure Regulating w/Latching Solenoid
BF	BACKFLOW PREVENTOR 1" Febco 825Y, size 1". Reduced Pressure Backflow Preventer. V.I.T. Strong Box stainless steel low profile smooth touch backflow device enclosure.
C	CONTROLLER Irritrol MC-42E-P-6B-CL-100-Wireless-R-100-KIT 42-Station Controller with Flow Sensing and Wireless Weather Sensing. Outdoor, Pedestal Mount in Stainless Steel Enclosure with CRR Remote feature. Transformer input: 120V. Contractor shall verify location prior to installation.
PC	PRIVATE CONTROLLER Toro TMC-424E-ID-F with (01) TSM-4 (2) (8) - Station Indoor Controller. (1) 4-Base Station Model with (1) 4-station expansion module with High-Surge & Flow-Sensing. Wall-mount inside garage.
	WEATHER SENSING SYSTEM Climate logic, Irritrol CL-100-Wireless Weather Sensing System. 100-Receiver and Transmitter Kit. Sensor & Receiver attach to controller.
FS	FLOW SENSOR Toro TFS Series.
M	Water Meter 1-1/2" Static PSI available per Carpenteria Valley Water District (805) 684-2816 Contractor shall verify on site POC location, size and available PSI
P.O.C. 1"	Point of Connection 3/4" Contractor shall verify on site POC location, size and available PSI
	Irrigation Lateral Line: PVC Schedule 40
	Irrigation Mainline: PVC Schedule 40
	Pipe Sleeve: PVC Schedule 40

Valve Callout



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REGISTERED LANDSCAPE ARCHITECT
TYLER SEAN GOLD
5172
Expiration
04/30/19
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	PLANNING SUBMITTAL	06.10.2017

Date *

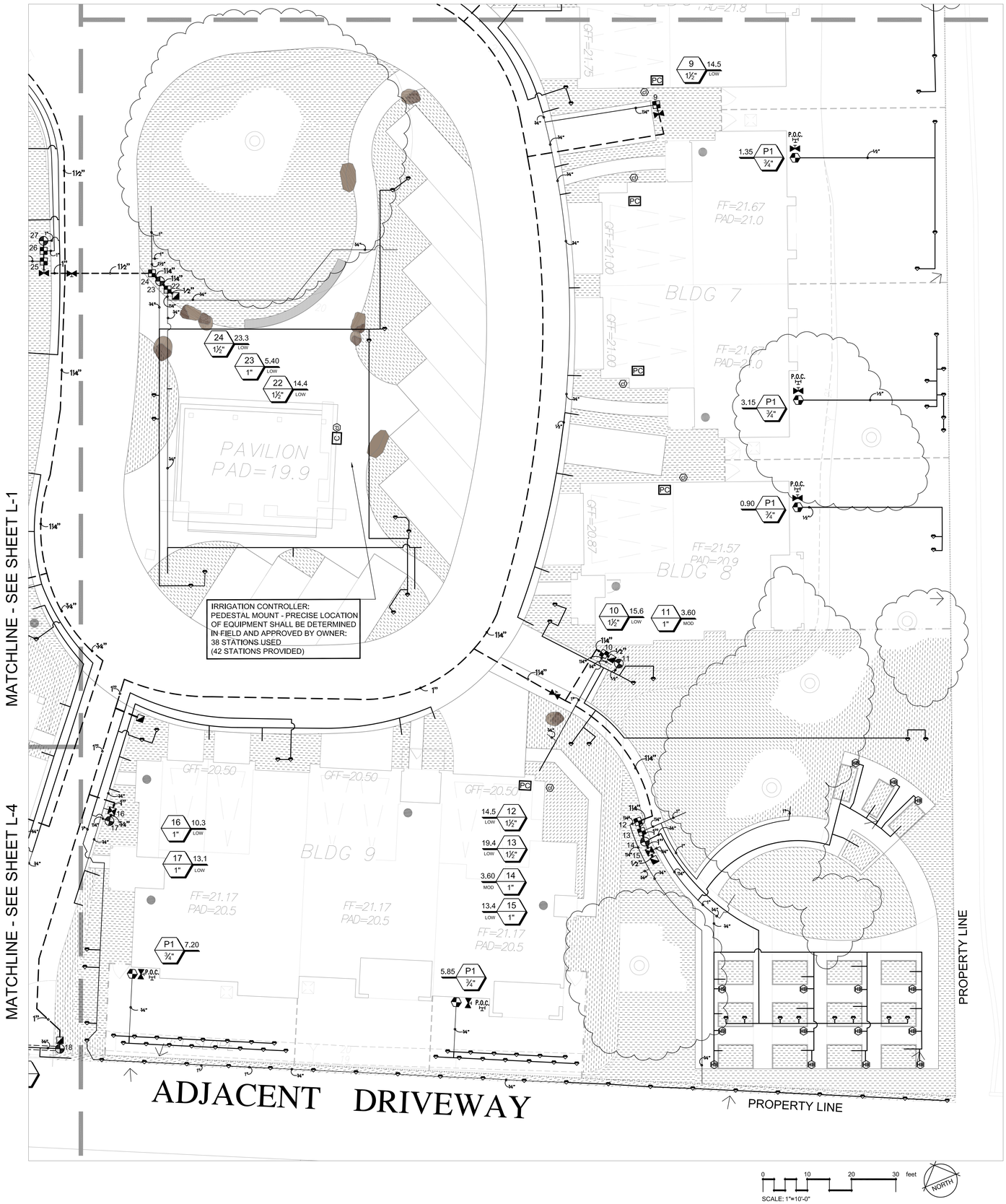
Drawn By .

Sheet Title
IRRIGATION PLAN

Job No. 4444

Sheet No.
LI-2

. of . Sheet



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	ARC	PSI	GPM	RADIUS
	FLOOD BUBBLER Toro 570Z-6-COM-FB-PC Toro 570Z-6-COM-FB-PC Pressure-Compensating Install on 570Z 6" Pop-Up with Check Valve. Fixed flow 0.50 GPM	360	40	0.45	3'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	GPM	RADIUS
1.0 LA	SHRUB ROTOR: Toro T5-HP-CK-LA 12" Pop-Up, Adjustable Arc Patterns 40-360, Low Angle Nozzle Set 25'-50' Radius with Check Valve	45	1.02	28'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	DRIP CONTROL VALVE KIT: Netafim LVCZ-150 Pre-Assembled with 1-1/2" Series 80 Control Valve, 1-1/2" Disc Filter and 1-1/2" High Flow Pressure Regulator. Flow Range: 11 GPM - 35 GPM.
	DRIP CONTROL VALVE KIT: Netafim LVCZS8010075-HF Pre-Assembled with 1" Series 80 Control Valve, 3/4" Disc Filter, and High Flow Pressure Regulator. Flow Range: 4.5 GPM - 17.6 GPM.
	Area to Receive Dripline DRIPLINE: Netafim TLCV-06-12 (12) ON-GRADE Techline Pressure Compensating Landscape Dripline with Check Valve. 0.6GPH emitters at 12.0" O.C. Dripline laterals spaced at 12.0" apart, with emitters offset for triangular pattern. Install each circuit with: Netafim Automatc Flush Valve at low point in circuit Netafim Operation Indicator Mdl 10-F-01

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	REMOTE CONTROL VALVE: Toro TPV-F-100-DC 1" Electric with Flow Control and DC Latching Solenoid. Flow Range: 0.25 GPM - 40 GPM
	ANTI-SIPHON VALVE: Toro EZF-29-03 3/4" Electric Remote Control Valve, Jar-Top with NPT. Install 12" min. above grade and 6" above highest head on circuit.
	QUICK COUPLER: Toro 100-SLVLC One-Piece, 1" Single Lug Quick Coupler Valve with Vinyl Locking Cover.
HB	HOSE BIBB Nibco Bronze - Inverted Nose, Garden Valve. 3/4" x 1/2" Female NPT Hose Bibb with wheel handle.
	GATE VALVE Nibco T-113 Class 125 bronze gate shut off valve with wheel handle, same size as mainline pipe diameter at valve location. In valve box.
MV	MASTER VALVE 1" Toro P220-27-94 Pressure Regulating w/Latching Solenoid
BF	BACKFLOW PREVENTOR 1" Febco 825Y, size 1". Reduced Pressure Backflow Preventer. V.I.T. Strong Box stainless steel low profile smooth touch backflow device enclosure.
C	CONTROLLER Irritrol MC-42E-P-6B-CL-100-Wireless-R-100-KIT 42-Station Controller with Flow Sensing and Wireless Weather Sensing. Outdoor, Pedestal Mount in Stainless Steel Enclosure with CRR Remote feature. Transformer input: 120V. Contractor shall verify location prior to installation.
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WS	WEATHER SENSING SYSTEM Climate logic, Irritrol CL-100-Wireless Weather Sensing System. 100-Receiver and Transmitter Kit. Sensor & Receiver attach to controller.
FS	FLOW SENSOR Toro TFS Series.
M	Water Meter 1-1/2" Static PSI available per Carpenteria Valley Water District (805) 684-2816 Contractor shall verify on site POC location, size and available PSI
P.O.C. 1"	Point of Connection 3/4" Contractor shall verify on site POC location, size and available PSI
	Irrigation Lateral Line: PVC Schedule 40
	Irrigation Mainline: PVC Schedule 40
	Pipe Sleeve: PVC Schedule 40

Valve Callout
Valve Number
Valve Flow
#" Valve Size

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REGISTERED LANDSCAPE ARCHITECT
TYLER SEAN GOLD
Expiration 04/30/17 Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	PLANNING SUBMITTAL	06.10.2017

Date *

Drawn By .

Sheet Title
IRRIGATION PLAN

Job No. 4444

Sheet No.
LI-3
. of . Sheet

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	REMOTE CONTROL VALVE: Toro TPV-F-100-DC 1" Electric with Flow Control and DC Latching Solenoid. Flow Range: 0.25 GPM - 40 GPM
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	Irrigation Lateral Line: PVC Schedule 40
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	Pipe Sleeve: PVC Schedule 40

Valve Callout
Valve Number
Valve Flow
Valve Size

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	ARC	PSI	GPM	RADIUS
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SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	GPM	RADIUS
1.0 LA	SHRUB ROTOR: Toro T5-HP-CK-LA 12" Pop-Up, Adjustable Arc Patterns 40-360, Low Angle Nozzle Set 25˚-50˚ Radius with Check Valve	45	1.02	28'

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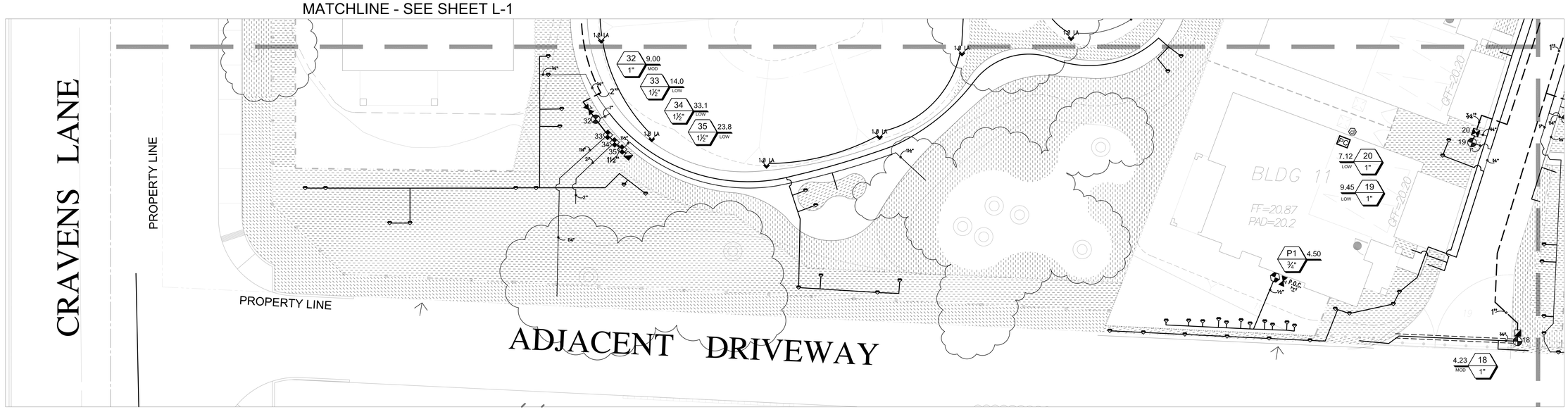
MATCHLINE - SEE SHEET L-1



MATCHLINE - SEE SHEET L-3

0 10 20 30 feet
SCALE: 1"=10'-0"
NORTH

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Expiration
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GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
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Issue	Description	Date
1	PLANNING SUBMITTAL	06.10.2017

Date *

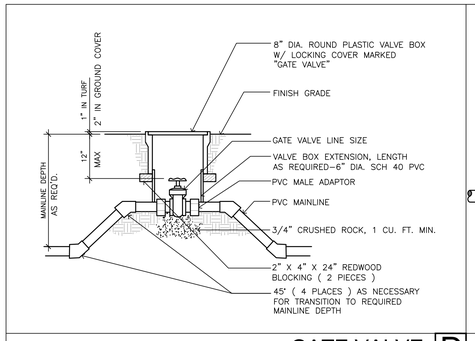
Drawn By .

Sheet Title
IRRIGATION PLAN

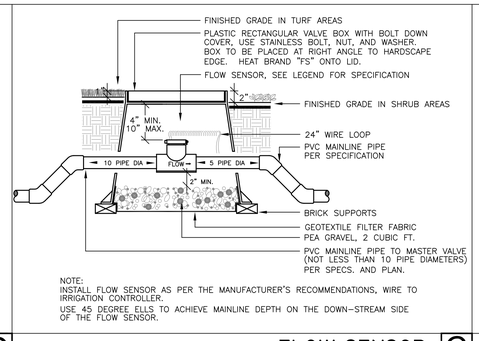
Job No. 4444

Sheet No.
LI-4

. of . Sheet

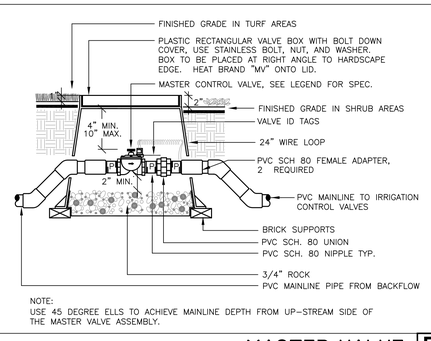


SCALE: NTS **GATE VALVE** D



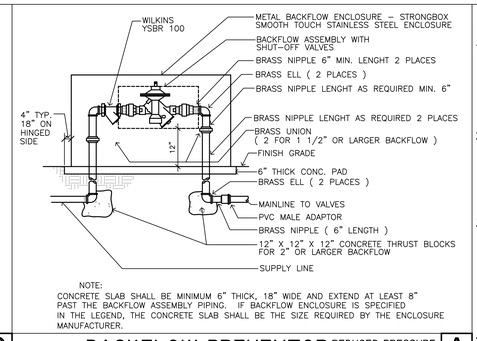
NOTE:
INSTALL FLOW SENSOR AS PER THE MANUFACTURER'S RECOMMENDATIONS, WIRE TO IRRIGATION CONTROLLER.
USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH ON THE DOWN–STREAM SIDE OF THE FLOW SENSOR.

SCALE: NTS **FLOW SENSOR** C



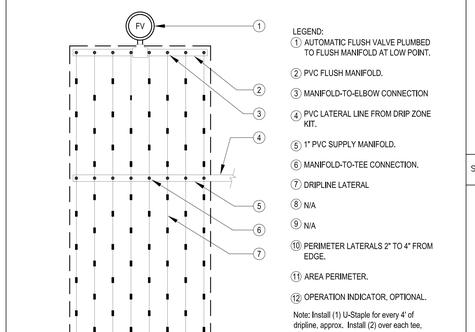
NOTE:
USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH FROM UP–STREAM SIDE OF THE MASTER VALVE ASSEMBLY.

SCALE: NTS **MASTER VALVE** B

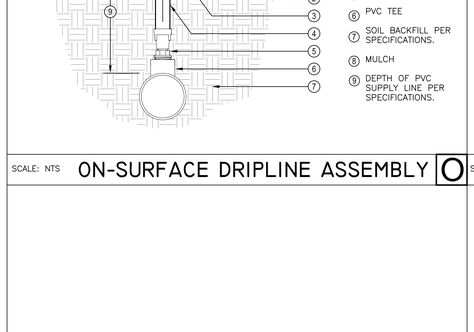


NOTE:
CONCRETE SLAB SHALL BE MINIMUM 6" THICK, 18" WIDE AND EXTEND AT LEAST 8" PAST THE BACKFLOW ASSEMBLY PIPING. IF BACKFLOW ENCLOSURE IS SPECIFIED IN THE LEGEND, THE CONCRETE SLAB SHALL BE THE SIZE REQUIRED BY THE ENCLOSURE MANUFACTURER.

SCALE: NTS **BACKFLOW PREVENTOR** REDUCED PRESSURE BACKFLOW A

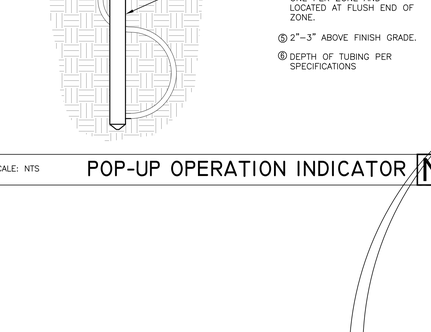


SCALE: NTS **PEDESTAL MOUNT CONTROLLER** H

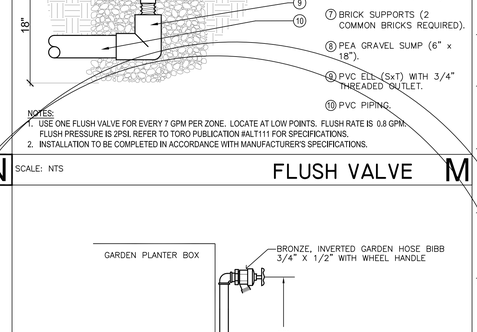


NOTE:
USE TEFLON TAPE ON ALL THREADED FITTINGS TYPICAL.

SCALE: NTS **QUICK COUPLER** G



SCALE: NTS **ANTI–SIPHON VALVE** F



SCALE: NTS **REMOTE CONTROL VALVE** E

NOTE: All electrical work must conform to local codes. Refer to product literature for additional installation requirements.

SCALE: NTS **WEATHER–SENSING SYSTEM** L

NOTE: NO TEFLON TAPE ON THREADED FITTINGS FITTINGS AND NIPPLES TO MATCH SPRINKLER BODY INLET SIZE

SCALE: NTS **GEAR DRIVEN ROTOR HEAD** K

SCALE: NTS **I" ELECTRIC DRIP ZONE KIT** J

SCALE: NTS **I 1/2" ELECTRIC DRIP ZONE KIT** I

LEGEND:
1. AUTOMATIC FLUSH VALVE PLUMBED TO FLUSH MANIFOLD AT LOW POINT.
2. PVC FLUSH MANIFOLD.
3. MANIFOLD–TO–ELBOW CONNECTION
4. PVC LATERAL LINE FROM DRIP ZONE KIT.
5. 1" PVC SUPPLY MANIFOLD.
6. MANIFOLD–TO–TEE CONNECTION.
7. DRIPLINE LATERAL
8. N/A
9. N/A
10. PERIMETER LATERALS 2" TO 4" FROM EDGE.
11. AREA PERIMETER.
12. OPERATION INDICATOR, OPTIONAL.

Note: Install (1) U–Staple for every 4' of dripline, approx. Install (2) over each tee, elbow, or cross.

ON–GRADE DRIPLINE
PLAN
NOT TO SCALE

DRIPLINE

SCALE: NTS S

LEGEND:
1. FINISH GRADE.
2. DRIPLINE LATERAL
3. TEE
4. POLY TUBING
5. ADAPTER
6. PVC TEE
7. SOIL BACKFILL PER SPECIFICATIONS.
8. MULCH
9. DEPTH OF PVC SUPPLY LINE PER SPECIFICATIONS.

SCALE: NTS **ON–SURFACE DRIPLINE ASSEMBLY** O

LEGEND:
1. FINISH GRADE.
2. NATIVE SOIL BACKFILL PER SPECIFICATIONS.
3. DRIPLINE
4. OPERATION INDICATOR USE ONE PER ZONE AND LOCATED AT FLUSH END OF ZONE.
5. 2"–3" ABOVE FINISH GRADE.
6. DEPTH OF TUBING PER SPECIFICATIONS

SCALE: NTS **POP–UP OPERATION INDICATOR** N

NOTES:
1. USE ONE FLUSH VALVE FOR EVERY 7 GPM PER ZONE. LOCATE AT LOW POINTS. FLUSH RATE IS 0.8 GPM. FLUSH PRESSURE IS 2PSI. REFER TO TORO PUBLICATION #ALT111 FOR SPECIFICATIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

SCALE: NTS **FLUSH VALVE** M

SCALE: NTS P

IRRIGATION NOTES:

APRIL 2016

1. DRAWINGS ARE DIAGRAMMATIC. EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS. LOCATE VALVES IN SHRUBS AREAS ONLY. AVOID CONFLICTS WITH PLANTING AND ARCHITECTURAL FEATURES. PRIOR TO INSTALLATION, REVIEW PLANTING PLANS AND COORDINATE IRRIGATION SYSTEM LAYOUT AND PLANT LOCATIONS TO AVOID CONFLICTS.

2. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE HIMSELF WITH SITE CONDITIONS AND UNDERGROUND UTILITIES. REPAIR OR REPLACE EXISTING ITEMS DAMAGE DURING INSTALLATION OF THIS WORK. COORDINATE WORK WITH OTHER CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES AND LATERALS THROUGH WALLS AND UNDER ROADWAYS AND PAVING.

3. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES OR DISCREPANCIES EXIST. SUCH OBSTRUCTION OR DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, IRRIGATION CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

4. INSTALL MATERIALS IN ACCORDANCE WITH APPLICABLE CODES, ORDINANCES. MANUFACTURER'S SPECIFICATIONS AND DETAILED DRAWINGS SHALL BE FOLLOWED WHEN THE MANUFACTURERS OF EQUIPMENT USED IN THIS DOCUMENT PROVIDES INSTALLATION METHODS NOT SHOWN IN THE PLANS AND SPECIFIED HEREIN.

5. VERIFY WATER PRESSURES AND WATER CONNECTION (POC) LOCATION(S) PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE LANDSCAPE ARCHITECT AND OWNER'S AUTHORIZED REPRESENTATIVE.

6. PRIOR TO COMMENCEMENT OF WORK, PROVIDE A SCHEDULE OF THE REQUIRED TESTS AND INSPECTIONS OF THE FOLLOWING:
   A. MAINLINE PRESSURE TEST– TWO HOURS AT 150 PSI.
   B. EQUIPMENT AND VALVES LOCATION APPROVAL.
   C. COVERAGE TEST– PRIOR TO PLANTING.
   D. FINAL FIELD OBSERVATION AND ACCEPTANCE.

7. IRRIGATION CONTRACTOR SHALL PROVIDE THE FOLLOWING:
   A. AN UP–TO–DATE RECORD DRAWING OF IRRIGATION PLANS THAT SHOW CHANGES FROM THE ORIGINAL PLANS.
   B. "AS–BUILT" IRRIGATION PLAN ON REPRODUCIBLE MYLAR. DIMENSION FROM TWO POINTS– P.O.C., MAIN LINES, VALVES, BFP, CONDUITS, QCV, SENSORS AND CONTROLLERS. PROVIDE ONE COPY TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. PROVIDE FINAL COPY TO THE OWNER.
   C. CONTROLLER CHARTS– A REDUCED COPY OF "AS–BUILT" PLAN FOR EACH CONTROLLER WITH DIFFERENT COLORS FOR EACH VALVE'S AREA OF COVERAGE. PRIOR TO FINAL ACCEPTANCE, SUBMIT CHARTS TO LANDSCAPE ARCHIECT FOR REVIEW AND APPROVAL. FINAL CHARTS SHALL BE HERMETICALLY SEALED AND PLACED IN CONTROLLER CABINET.

8. CONTRACTOR SHALL ONLY APPLY SUFFICIENT WATER TO PROMOTE HEALTHY GROWTH OF PLANT MATERIAL AND NOT EXCEED THE MAXIMUM ALLOWED WATER ALLOWANCE (MAWA) NOTED. CONTRACTOR SHALL FOLLOW THE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE REQUIREMENTS NOTED ON PLAN. AT NO TIMES SHALL WATER BE APPLIED AT A RATE OR FREQUENCY WHICH CAUSES RUNOFF.

9. SUBMITTAL REQUIREMENTS:
   A. MATERIAL LIST– COMPLETE LIST OF MATERIALS TO BE FURNISHED.
   B. SCHEDULE OF TESTS AND INSPECTIONS
   C. RECORD DRAWINGS
   D. AS–BUILT PLANS
   E. CONTROLLER CHARTS
   F. OPERATIONS AND MAINTENANCE MANUAL
   G. KEYS (TWO SETS) TO CABINETS/ENCLOSURES
   H. GUARANTEE STATEMENT

10. SUBSTITUTION OF SPECIFIED PRODUCTS, MATERIALS OR EQUIPMENT WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT SHALL NOT BE PERMITTED.

11. MAIN LINE PIPES AND CONTROL WIRES COVERAGE DEPTHS:
    MAIN LINE & CONTROL WIRES: 18" MINIMUM COVER.
    MAIN LINE & CONTROL WIRE SLEEVES UNDER PAVING: 36" MIN. COVER. SLEEVE SIZE SHALL BE A MINIMUM OF TWICE (2X) THE DIAMETER OF THE MAIN LINE PIPE. CONTROL WIRE SLEEVES SHALL BE SUFFICIENT SIZE FOR THE REQUIRED NUMBER OF WIRES. TAPE ENDS OF SLEEVES WITH MAGNETIC TAPE FOR EASE IN LOCATING.

12. LATERAL PIPING COVERAGE DEPTHS:
    LATERAL: 12" MINIMUM COVER
    LATERAL UNDER PAVING: 24" MIN. COVER IN A PVC SCHEDULE 40 PIPE SLEEVE AND SHALL BE INSTALLED PRIOR TO PAVING.

13. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER PIPE SIZES WILL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE ALLOWED. ALL DAMAGE AND REJECTED PIPE SHALL BE REMOVED FROM THE SITE AT THE TIME OF THE REJECTION.

14. BACKFLOW PREVENTER AND CONTROLLER LOCATIONS SHALL BE VERIFIED AND APPROVED BY OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.

15. 120 VAC ELECTRICAL POWER SOURCE TO THE CONTROLLER LOCATION SHALL BE PROVIDED BY THE OWNER. THE IRRIGATION CONTRACTOR SHALL MAKE CONNECTION FROM THE ELECTRICAL SOURCE TO THE CONTROLLER.

16. IRRIGATION HEADS SHALL BE PERPENDICULAR TO FINISH GRADE UNLESS OTHERWISE SPECIFIED. PROVIDE 100% COVERAGE. FLUSH AND ADJUST HEADS AND CONTROL VALVES FOR OPTIMUM COVERAGE WITH MINIMAL OVERSPRAY ONTO WALKS, STREETS, FENCES AND WALLS.

17. INSTALL ANTI–DRAIN/CHECK VALVES (TO PREVENT EXCESS DRAINAGE FOR LOW HEADS) ON ALL HEADS IN SYSTEMS WHERE GRADE DIFFERENCES EXCEEDS 5' AND HIGHER OR WHERE LOW POINT DRAINAGE COULD OCCUR.

18. IRRIGATION LINES CROSSING OVER CONCRETE DRAINAGE SWALES SHALL BE INSTALLED IN GALVANIZED SCHEDULE 40 PIPE SLEEVE. EXTEND PAST EDGE OF SWALE MINIMUM 6" AND SECURE WITH #4 REBAR STAKE AT EACH ENDS.

19. CONTROLLERS SHALL BE INSTALLED WITH AN AUTOMATIC RAIN SHUT–OFF DEVICE – SEE PLAN FOR TYPE. LOCATE EXPOSED TO UNOBSTRUCTED RAINFALL AND CLEAR OF IRRIGATION SPRAY. VERIFY LOCATION WITH OWNER REP. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

20. GUARANTEE: IRRIGATION CONTRACTOR SHALL GUARANTEE THE IRRIGATION SYSTEM TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP AND COMPLETED IN ACCORDANCE WITH DRAWINGS FOR A PERIOD OF ONE YEAR FORM DATE OF FINAL ACCEPTANCE OF WORK. PROVIDE WRITTEN STATEMENT OF GUARANTEE TO OWNER PRIOR TO END OF MAINTENANCE/ESTABLISHMENT PERIOD.

21. SEE IRRIGATION DETAILS FOR ASSEMBLIES AND REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

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Issue	Description	Date

Date *

Drawn By .

Sheet Title
IRRIGATION DETAILS & NOTES

Job No. 4444

Sheet No.
LI-5

. of . Sheet

SECTION 32 84 00

LANDSCAPE IRRIGATION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Labor, materials, tools, equipment, facilities, transportation and services necessary to perform the work as shown on the drawings, in these specifications and as necessary to complete the contract. Contractor shall provide a finished system that is complete in every respect and shall be ready for operation satisfactory to the Owner. Work includes, but is not limited to, the following:

1. Trenching and backfilling.
2. Automatic controller and remote control valve installation.
3. Pipe and sprinkler head installation.
4. Reclaimed irrigation pipe and labels
5. Irrigation pipe in building
6. Drip irrigation for planting areas and pottery
7. Flow sensors, master valves, rain shut-off devices
8. Record drawings and guarantee.

B. Related work in other sections:
1. Section 22- Plumbing
2. Section 26- Electrical
3. Section 32 82 00 Irrigation Booster Pumps

1.02 QUALITY ASSURANCE AND REQUIREMENTS

A. Ordinances and Regulations: All local and state laws, rules and regulations governing or relating to any portion of this work are hereby incorporated into and made PART of these specifications. Nothing contained in these specifications shall be construed to conflict with any of the aforementioned rules, regulations or requirements. However, when these specifications and drawings call for or describe materials, workmanship or construction of a better quality, higher standard or larger size than is required by the above rules and regulations then these specifications shall take precedence.

B. Explanation of Drawings: Due to the scale of the drawings, it is not possible to indicate all offsets, fittings and sleeves that may be required. Carefully investigate the site and finished condition affecting the work and install a complete irrigation system within the intent of the drawings and specifications, furnishing such fittings and miscellaneous materials as may be required. Drawings are diagrammatic and indicative of work and materials required. The work shall be installed in such a manner as to avoid conflicts with the drainage system, planting and architectural structures.

C. Manufacturer's Directions: Manufacturers' specifications and detailed drawings shall be followed where the manufacturers of equipment used in this Contract provide installation methods not shown in the drawings and specified herein.

D. Materials: New stock and of brands and types noted on the drawings and as specified herein. Approval of any items, alternates or substitutions indicates only that the product apparently meets the specifications as indicated on the drawings and herein on the basis of the information or samples submitted.

E. Discrepancies: Do not willfully install the irrigation system as shown on the Drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences shall be brought to the attention of the Landscape Architect. In the event this notification is not performed, assume full responsibility for any revision necessary.

F. Underwriters Laboratories: Electrical wiring, controls, motors, and devices shall be U.L. listed, and so labeled.

G. Existing Condition:
1. Verify drawing dimensions with actual field conditions. Do not disturb existing improvements, Contractor shall repair, at his cost, all damage resulting from his operation or negligence. Report to the Landscape Architect all conditions that prevent proper execution of this work.
2. The Contractor shall verify the location the locations, size and detail of the point-of-connection provided as the source of water, electrical supply and telephone line connection (if required) to the irrigation system.
3. Irrigation design is based on available static water pressure shown on the drawings. Contractor shall verify static water pressure on the project prior to the start of construction. Notify the Landscape Architect if a discrepancy exists.
4. Prior to start of work, Contractor shall locate all cables, conduits, utilities lines and other common underground improvements and take precaution not to damage or disturb them. If conflict exists between such obstacles and the proposed work, the Contractor shall promptly notify the Landscape Architect. Call Dig Alert before digging at least 2 days prior to excavation (800) 227-2600 (811).

1.03 SUBMITTALS & TURNOVER ITEMS

A. Material List:
1. Before any irrigation system materials are delivered to the job site, submit to the Owner a complete list of materials proposed to be furnished and installed under this contract.
2. Manufacturer's specifications, catalog cuts, and other data required demonstrating compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which when approved by the Landscape Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
4. No substitutions will be allowed without prior written approval of the Landscape Architect.
5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

B. Record Drawings
1. The Contractor shall provide and keep up-to-date a complete "As-Built" set of Record Drawings which shall be corrected daily and show every change from the original drawings and indicate the exact installed location of all equipment. Prints for this purpose may be obtained from the Landscape Architect at cost. These drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. Record Drawings shall be kept on the site at all times.
2. Before the final site review, transfer information from the "As-Built" Record Drawings to a Mylar plan procured from the Landscape Architect. All work shall be in waterproof ink. Dimensions shall be made so as to be easily readable even on the final controller chart. The original Mylar "As-Built" Record Drawings shall be submitted to the Landscape Architect for approval prior to the making of controller chart.
3. The Contractor shall dimension from two permanent points of reference, building corners, sidewalk, face of curbs, etc., the location of the following items:
   a. Connection to existing water lines.
   b. Connection to existing electrical power.
   c. Gate valves.
   d. Routing of irrigation main lines (dimension max. 100' along routing.
   e. Remote control valves.
   f. Routing of control wiring.
   g. Quick coupling valves.
   h. Controllers.
   i. Other related equipment as directed by the Landscape Architect.
   j. Sleeve locations.

C. Controller Charts:
1. Record Drawings shall be approved by the Landscape Architect before preparing controller charts. The approved As-Built plans shall be used as the basis of the Controller Chart.
2. Provide ONE set of controller chart for each controller supplied.
3. The chart shall illustrate the area controlled by each controller. Make the chart a reduced drawing "As-Built" system. However, in the event the controller sequence is not legible when the drawing is reduced, enlarge it to a size that will be legible when reduced.
4. The chart shall be a black line print on bond paper. A different color shall indicate the area of coverage for each control valve station.
5. When completed and approved, hermetically seal the chart between two pieces of plastic, each piece being a minimum of 10 mils.
6. These charts shall be completed and approved prior to final inspection of the irrigation system.

D. Operation and Maintenance Manuals:
1. Prepare and deliver to the Landscape Architect or Owner's authorized representative within ten calendar days prior to final acceptance, TWO hard cover, three-ring binders containing the following information:
   a. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representative;
   b. Catalog and Parts sheets on every material and equipment installed under this contract;
   c. Guarantee statement from the Contractor;
   d. Complete manufacturer's operating and maintenance instruction and warranty information on all irrigation components.

E. Equipment to be Furnished: Provide the Owner, the following items-
1. Two (2) sets of special tools required for removing, disassembling and adjusting each type of sprinkler nozzle, body and valve supplied on this project.
2. Two (2) four-foot long valve keys for operation of gate valves.
3. Two (2) keys for each automatic controller cabinet.
4. One (1) quick coupler key with hose bibb attached for every five or fraction thereof each type of quick coupling valve installed.
5. Before the final inspection, submit to the Landscape Architect evidence that the Owner has received material listed above.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Exercise care in handling, loading, unloading and storing of pipes and fittings. Transport pipes in a vehicle that allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping. Permission to store materials on site shall be obtained from the Owner.
B. Contractor shall be responsible for all irrigation material stored on site including lost or stolen items.

1.05 SUBSTITUTIONS

A. Substitution of any product, material, or equipment without prior written approval of the Landscape Architect will not be permitted.

B. The Contractor may be instructed by the Owner to substitute equipment or materials for those listed on the Drawings to reduce cost (value engineering). He may do so by providing the following information to the Owner's Representative and Landscape Architect for approval:

1. Provide a statement indicating the reason for making the substitution.
2. Provide descriptive product literature, performance charts and flow charts for each item to be substituted.
3. Provide the amount of cost savings if the substituted item is approved.
4. Contractor shall be responsible for the total performance of substituted items to equal or surpass the original design intent.
5. If the substitution proves to be unsatisfactory in the opinion of the Landscape Architect, remove such work and install originally specified item.

C. The Owner's representative shall have the sole responsibility in accepting or rejecting any substituted item as an approved equal to those equipment and materials listed on the irrigation drawings and specifications.

1.06 INSPECTIONS

A. Contractor shall permit the Landscape Architect and Owner's authorized representative to visit and inspect any part of the work at all times and shall provide safe access for such visits.

B. Notify the Landscape Architect in advance for the following observation meetings, according to the time indicated:
1. System layout of backflow prevention devices, controllers and main lines;
2. Pressure testing of main line (4 hours at 125 PSI or 120% of static water pressure, whichever is greater);
3. Coverage test of irrigation sprinklers;
4. Final acceptance.

C. Where the Specifications require work to be tested by the Contractor, the work shall not be covered until accepted by the Landscape Architect, Owner's authorized representative or governing agencies. The Contractor shall be solely responsible for notifying the Landscape Architect, Owner's authorized representative or governing agencies a minimum of 48 hours in advance, when the work is ready for testing. If any work is covered without testing or acceptance, it shall be uncovered, if so ordered, at the Contractor's expense.

D. Site observation and testing will not commence without the Record Drawings and up to date at the time of each site visit.

E. Work which fails testing and is not accepted will be retested. Hourly rates and expenses of the Landscape Architect, Owner's authorized representative and/or governing agencies for reinspection or retesting will be paid by the Irrigation Contractor at no additional expense to Owner.

1.07 GUARANTEE

A. The Contractor shall guarantee that the installed irrigation system is free from defects in materials and workmanship, including settling of backfilled areas, and the work has been completed in accordance with the drawings and specifications for a period of ONE (1) year following the date of final acceptance of the work. The Contractor shall agree to repair or replace any defects in materials or workmanship at no additional cost to the Owner. The Contractor shall make repairs or replacements within a reasonable time, as determined by the Owner, after receipt of written notice. In the event the Contractor fails to make repairs or replacements, the Contractors shall authorize the Owner to proceed to have said repairs made at the Contractor's expense and will pay the cost upon demand.

B. A copy of the guarantee shall be in the operations and maintenance manual.

C. The guarantee statement noting the conditions above shall be typed on the Contractor's letterhead.

PART 2 - PRODUCTS

2.01 GENERAL

A. Materials shall conform to the following requirements and shall be free from defects and imperfections, unused and of recent manufacture. Where two or more identical items are required, they shall be of the same manufacture. Where product names, numbers or model, are indicated and the specified product has been discontinued and no longer available, furnish the manufacturer's superseding product.

2.02 PVC PRESSURE PIPE AND FITTINGS

A. Manufacture pipe from NSF approved Type I, Grade I, PVC compound conforming to ASTM D1784, ASTM D1785, F.S. PS-21-7, F.S. PS-22-70.

B. All PVC pipe shall be labeled with the Manufacturer's name, Nominal pipe size, Schedule of class, Pressure rating P.S.I., NSF (National Sanitation Foundation) approval and Date of extrusion.

C. Fittings:
1. Fittings shall bear the manufacturer's name or trademark, material designation, size, applicable, I.P.S. schedule and NSF seal of approval.
2. Fittings (2" through 8") slip type may be used, but must be similar in all respects to those manufactured by Cal Am Manufacturing Company and installed in accordance with their recommendations.

D. Pressure main line piping for sizes 2" and larger; PVC Class 315 or PVC Class 200 rubber gasket as specified on plan.

E. Pressure main line piping for sizes 1-1/2" and smaller: PVC Schedule 40 with solvent welded joints.

F. PVC solvent-weld fitting: Schedule 40, 1-2 II-I NSF approved conforming to ASTM D2466.

G. Solvent cement and primer for PVC solvent-weld pipe and fittings: Of type and installation methods prescribed by the manufacturer and meeting ASTM D2564 for cement and ASTM F656 for primer requirements.

H. Rubber gasket P.V.C. pipe, couplings, and fittings: Conform to ASTM D-1784 Type I, Grade I, 2,000 p.s.i. design stress. Standard dimensional ratio for pipe shall be SDR 21 (class 200). All pipes shall conform to commercial standard CS-256-64 (pressure rated pipe), and National Sanitation Foundation ASTM 1869. Couplings and fittings shall be furnished by the pipe manufacturer.

2.03 PVC NON-PRESSURE LATERAL LINE PIPING

A. Non-pressure buried lateral line piping: PVC Class 200 with solvent-weld joints.

B. Pipe shall be made from NSF approved, Type I, Grade II PVC compound conforming to ASTM resin specification D1784 and meeting requirements set forth in Federal Specification PS-22-7 with an appropriate standard dimension ratio.

C. Except as noted above, requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure main line pipe and fittings.

2.04 ULTRAVIOLET RESISTANT PVC PIPE AND FITTINGS

A. UVR-PVC shall be PVC SCH 40, Type 1, NSF approved.

2.05 BRASS PIPE AND FITTINGS

A. Red brass screwed pipe: conforming to Federal Specification WW-P-351.
ASTM B43 Standard Specifications for Seamless Red Brass Pipe.
ANSI IPS Standard 125 pound, Schedule 40 screwed pipe.

B. Fittings: conforming to Federal Specification WW-P-460.

2.06 GALVANIZED PIPE & FITTINGS

A. Galvanized steel pipe: ASA Schedule 40 mild steel screwed pipe.

B. Fittings: Medium galvanized screwed beaded malleable iron. Galvanized couplings may be merchant coupling.

C. Paint all galvanized pipe and fittings installed below grade with two (2) coats of Koppers #50 bitumastic or wrap with PVC 10 mil. thick pipe wrapping tape, 50% overlap; extend 6" minimum beyond end of pipe above grade.

2.07 COPPER PIPE AND FITTINGS

A. Pipe: Seamless, tempered, ASTM B-88 Type K (Green Stripe).

B. Fittings: Standard wrought copper, soldered joints, 150 psi.

C. Pressure supply line from point-of-connection to backflow unit shall be copper pipe.

2.08 CAST IRON PIPE & FITTINGS

A. Pipe: Flanged or mechanically jointed type, Class 150 minimum.

B. Fitting: Standard flanged or mechanically joint type compatible with pipe and incorporating all required sealing gaskets.

2.09GATE VALVES

A. ASTM B62 brass body, 150 lb. saturated steam rated; with screwed joints; non-rising stem screwed bonnet, solid disc. Provide with handwheel.

B. Gate valves larger than 3" (unless otherwise noted on drawings): ASTM A126 Class B iron body, 150 l b. O.W.G. with flanged joints, non-rising stem, bolted bonnet, and double disc, equipped with operating nut.

2.10 QUICK COUPLING VALVES

A. Quick coupling valves shall have a brass one or two-piece body designed for working pressure of
150 psi operable with quick coupler as specified on plan.

2.11 BACKFLOW PREVENTION ASSEMBLIES

A. Reduced pressure backflow preventer: Size and type indicated on the drawings, equipped with ball valve, shut-offs, and test cocks as approved by the governing Health Department. Backflow assembly shall consist of brass piping, unions and fittings.

B. Wye strainers at backflow prevention units shall be bronze with 40-mesh screen and shall be by same manufacturer as backflow unit OR as noted on Drawings.

C. Pressure type backflow preventer: Size and type indicated on the drawings equipped with ball valve and test cocks as approved by the governing Health Department.

2.12 CHECK VALVES

A. Swing Check Valves 2 1/2" and larger: 200 pound W.O.G. bronze construction with replaceable composition, neoprene or rubber disc meeting or exceeding Federal Specification WW-V-51D, Class A, Type IV.

B. PVC Swing Check Valves 2" and smaller: PVC, type 1 material w/non-metallic swing gate and internal parts meeting or exceeding ASTM and schedule 40 requirements as manufactured by King Bros, Industries.

C. PVC Spring Check Valves: Heavy-duty virgin P.V.C. construction with F.I.P. thread inlet and outlet. Internal parts shall be stainless steel and neoprene. Anti-drain valve shall be field adjustable against drawout from 5 to 40 feet of head. Anti-drain valve shall be as manufactured by King Bros, Industries or Valcon Irrigation Equipment Company.

2.13 ELECTRICAL WIRING

A. High Voltage: 120 volt Electrical service for automatic controllers and booster pumps (if indicated) shall be provided and performed by a qualified Electrical Contractor.

B. Low Voltage Control Wiring:
1. Make connections between controller and remote control valves with direct burial AWG-UF, 600-volt wire, insulation thickness 3/64", utilizing low-density high molecular weight polyethylene insulation.
2. Waterproof splices using Pen-Tite connectors with sealant, Rainbird Snap-Tite wire connectors with sealant, epoxy-sealed packet or approved equal.
3. Wire sizing shall be according to manufacturer's recommendations, in no case less than AWG No. 14.
4. Common wires shall be white with a different color strip for each controller.

2.14 AUTOMATIC CONTROLLERS

A. Capacity and type shown on Drawings.

B. Final location of automatic controllers shall be approved by the Landscape Architect.

2.15 REMOTE CONTROL VALVES

A. Size and type as shown on the drawings.

B. Provide one valve box for each remote control valve.

2.16 VALVE BOXES

A. Use 19" x 14" x 12" rectangular box for automatic control valves with green bolt down cover. Valve box covers shall be "heat branded" with 2" high letters "RCV" with the valve identification number.

B. Use 10" round box for gate valves, ball valves, quick coupler valves with green bolt down cover. Valve box covers shall be "heat branded" with 2" high letters "RCV", "GV", "FV", "BV" or "QCV".

C. Valve box and cover shall be capable of sustaining a load of 1,500 pounds.

2.17 SPRINKLER HEADS

A. Sprinkler heads shall be of the same size, type and deliver the same rate of precipitation with the diameter (or radius) of throw, pressure and discharge as shown on the drawings.

B. Shrub Heads: As shown on drawings. Minimum 6" pop-up.

C. Emitters: As shown on drawings.

2.18 PIPE SUPPORTS

A. Provide Fee and Mason #212 split ring hangers with supporting rods.

2.19 SLEEVES

A. Pipe sleeve shall be Schedule 40 PVC, two times line size. Control wire sleeve shall be schedule 40 size as required.

B. Where pipe passes through concrete slabs or masonry walls, provide "Sperzell" rustproof "crete sleeve" of the size required, per Building Architect's approval.

2.20 EXPOSED PIPE AND SLAB PENETRATIONS FOR ON-SLAB CONSTRUCTION

A. Use copper pipe per applicable Building Codes. See Division 22- Plumbing section.

2.21 SLAB PENETRATION SEALANT

A. See Division 07- Thermal and Moisture Protection section.

2.22 RECLAIMED WATER PIPE

A. Reclaimed Water Pipe for main line shall meet the requirements for PCV Pressure Pipe and Fitting and shall be Purple in color and labeled "CAUTION RECLAIMED WATER".

B. Reclaimed Water Pipe for lateral line shall meet the requirements for PCV Non-Pressure Pipe and Fitting and shall be Purple in color and labeled "CAUTION RECLAIMED WATER".

2.23 RECLAIMED WATER SYSTEM LABELS AND TAGS

A. General area signs, adhesive-backed decals, riser markers, valves and equipment identification tags and valve box nameplates shall be provided for reclaimed irrigation system components. Christy's Enterprises, Inc. products or approved equal.

2.24 DRIP SYSTEM PIPES AND COMPONENTS

A. Products as listed on Drawings. No substitution shall be permitted for Drip System components.

PART 3 - EXECUTION

3.01 Site Conditions and Preparation:

A. The drawings are diagrammatic and illustrate design intent. The size and location of equipment and fixtures are drawn to scale where possible. Provide offsets in piping changes in equipment locations as necessary to conform to structures and to avoid obstruction or conflicts with other work at no additional expense to Owner.

B. Coordinate installation of irrigation materials including pipe to avoid interferences with utilities or other construction or difficulty in planting trees, shrubs, and ground covers. Tree locations take precedence over pipe routing. Have trees staked and route piping outside of required rootball excavation.

C. PHYSICAL LAYOUT
1. Piping or equipment shown diagrammatically on drawings outside of planting areas shall be installed inside planting areas whenever possible.
2. Lay out sprinkler heads and make minor adjustments required due to differences between actual site conditions and the drawings. Make adjustments within the original design intent.
3. Locate valves in ground cover/shrub areas.

D. WATER SUPPLY
1. Connect irrigation system to water supply point of connection as indicated on the drawings.
2. Minor changes in location necessary due to actual site conditions shall be made at no additional expense to Owner.

3.02 TRENCHING:

A. Excavate trenches straight with vertical sides and support pipe continuously on bottom of trench. Lay pipe to an even grade with no exposed rocks or roots. Trenching excavation shall follow layout indicated on drawings, to depths below grade as noted.

B. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:
1. Pressure lines under paving - 36" cover.
2. Pressure line larger than 2 1/2" - 24" cover.
3. Pressure lines 2 1/2" or smaller - 18" cover.
4. Control wires - 18" cover.
5. Non pressure lines and poly pipe - 12" cover.

3.03 BACKFILLING

A. Trenches shall not be backfilled until required tests are performed. Carefully backfill trenches with the excavated material approved for backfilling, free from debris, litter, large clods of earth and rocks over ½-inch in diameter.

B. Backfill shall be tamped in 4-inch layers over pipe and uniformly on both sides for the full width of the trench and full length of the pipe. Backfill material shall be sufficiently damp to permit thorough compaction, free of voids. Backfill shall be compacted to a dry density equal to adjacent undisturbed soil and shall conform to adjacent grades.

C. Flooding of trenches in lieu of tamping shall not be allowed.

D. If settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn or planting, or other construction are necessary, make all required adjustments without expense to the Owner.

3.04 TRENCHING AND BACKFILL UNDER PAVED AREAS

A. Backfill trenches under paved areas with sand (a layer 4" below the pipe) and tamp to compact using manual or mechanical tamping devices. Remaining backfill shall be compacted equal to the compaction of the existing adjacent undisturbed soil and leave in a firm unyielding condition. Leave trenches flush with the adjoining grade. Pressure test all pipes under pavement prior to backfilling and paving work.

B. Pipes installed under existing pavements shall be done by approved jacking, boring or hydraulic driving. Any cutting or breaking of existing pavement necessary for trenching shall be performed by the Irrigation Contractor with paving replaced as PART of the contract work. Permission to cut or break sidewalks and/or concrete shall be obtained from the Owner's authorized representative. No hydraulic driving will be permitted under asphalt paving.

C. Coordinate installation of piping and wires under paved areas with General and/or Paving Contractor.

3.05 SLEEVING

A. Install irrigation main lines and control wiring under paving in separate PVC Schedule 40 sleeves. Install sleeves at depth 6 inches deeper than specified pipe depth.

3.06 PIPE INSTALLATION

A. Solvent Weld Plastic Pipe and Fitting:
1. Install in accordance with manufacturer's specifications. Provide moderate "snaking" from side to side in trench to allow for expansion and contraction.
2. Thoroughly clean PVC pipe and fittings of dirt, dust, and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.

B. Gasket Joint Pipe: Install in accordance with manufacturer's specifications. Pipe should not be deflected (curved) beyond the maximum joint deflection angle specified by the manufacturer.

C. Thrust Block: Provide concrete thrust blocks at each change of direction and at terminal points of rubber gasket pipe and plastic pressure main lines.

D. Threaded Plastic Pipe: Teflon tape threaded connections.

E. UVR-PVC Pipe On-Grade: Anchor with "J" shaped #4 rebar, 18" long or V.I.T. Products pipe stabilizers and sprinkler ties at 5'0" maximum spacing. Pipe crossing over concrete swales or drainage ditches shall be galvanized Sch. 40, one size larger than PVC pipe size indicated on drawings.

F. Galvanized Pipe and Fittings:
1. Galvanized pipe threads shall be cut with clean, sharp dies, conforming to American Standards Association Specifications B-2. Male pipe threads shall be coated with a non-toxic, non-hardening, non-corrosive joint compound.
2. Galvanized pipe installed on-grade shall be anchored with "J" shaped #4 rebar, 18" long at 10'-0" maximum spacing.

G. Copper Pipe and Fitting: Cut pipe square with a wheel type cutter, cleaned, free of burrs or other extraneous materials, and treated with recommended flux before joining. Pipe should be inserted firmly to the fitting stop; fitting should be heated uniformly until solder is drawn completely into joint and forms a uniform bead at the outer edge. Connections to threaded fittings or equipment should be made by using threaded adapters or fittings soldered to the pipe.

H. Brass Pipe and Fittings: Assemble using Teflon tape on male threads.

I. Line Clearance: Lines shall have a minimum clearance of 6" from each other and from lines of other trades. Do not install parallel lines directly over one another.

J. Reclaim Water System Separation:
1. For reclaim water main in public right-of -way, provide minimum ten (10) feet separation for each between water, sewer and reclaim water mains.
2. On-site separation from potable water piping shall be minimum four (4) feet when parallel and one (1) foot lower than potable water piping where they cross.

3.07 QUICK COUPLING VALVES

A. Unless otherwise indicated, locate valves within 12 inches of hardscape; in shrub beds wherever possible.

3.08 BACKFLOW PREVENTION UNIT

A. Verify exact location with the Owner's Representative. Install backflow assembly in shrub areas at minimum height permitted by local code. Provide enclosure as indicated on Drawings.

3.09 FLOW MONITOR SYSTEM

A. Flow Sensor Device: Install fitting on irrigation main line on discharge side of backflow preventer, prior to any remote control valve assemblies. Fitting is to be installed per manufacturer's specifications. Provide access to device with a remote control valve box.

3.10 ASSEMBLY

A. Install assemblies in accordance with respective detail. In absence of detail drawings or specifications, perform such work in accordance with best standard practice with prior approval of Landscape Architect.

3.11 CONTROLLERS AND ELECTRICAL SUPPLY

A. Controller Installation: Install as indicated on Drawings and per manufacturer's instructions. Final location shall be approved by the Landscape Architect before installation. The electrical service shall be coordinated to this location.

B. CONTROLLER POWER SUPPLY
1. Outdoor Installation: The permanent installation of a 120-volt, 60-hertz power supply to an outdoor controller shall be performed under an applicable permit in strict compliance with local electrical codes and by personnel properly trained in such installations. If an underground power supply is required, conduit specifications and depth of cover should comply with local code requirements. The National Electrical Code, PART 300, Section 300-5, requires for circuits of 0-600 volts, nominal, direct burial Type UF cable minimum cover of 24 inches, rigid metal conduit minimum cover of 6 inches, and PVC conduit minimum cover of 18 inches. EXCEPTION NO 4, of PART 300-5: Residential branch circuits rated 300 volts or less and provided with overcurrent protection of not more than 30 amperes shall be permitted with a cover requirement of 12 inches. Direct buried conduit and cable emerging from the ground shall be protected in rigid metal conduit or Schedule 80 rigid non-metallic conduit, extending from the minimum cover distance required to the junction box. All underground installations shall be grounded and bonded in accordance with PART 250 of the National Electric Code. No taps or splices shall be allowed in underground power conductors.
2. Indoor Installation: The permanent installation of a 120-volt, 60-hertz power supply to an indoor controller shall be performed with an applicable permit in strict compliance with local electrical codes and by personnel properly licensed for such installations. Power supply conductors should be in approved conduit. Power must be from a continuous unswitched circuit.

C. Direct Burial Control Wiring
1. Place low voltage wiring in the same trench and along side of main lines unless otherwise approved.
2. When more than one wire is placed in a trench, tape wires together at maximum 10 feet on center.
3. Provide a 24-inch expansion loop at each connection and directional change.
4. Use a continuous wire between controller and remote control valves. Do not splice wire at any point. Enclose approved splices in an acceptable plastic valve box.

3.12 REMOTE CONTROL VALVES

A. Install as indicated on drawings. Install in ground cover/shrub areas whenever possible. Valves in lawn shall not be allowed unless approved by Landscape Architect. When grouped together, allow at least 1'-0" between valves. Install each remote control valve in a separate valve box.

B. Attach identification tags to each remote control valve, indicating number that corresponds with controller sequence. Tags shall be manufactured of polyurethane Behr Desopaid, yellow in color with black letters 2 inches high.

3.13 VALVE BOXES

A. Install underground valves and equipment in a appropriately sized valve box in shrub areas whenever possible.

B. Valve box shall be installed on a foundation of 3/4-inch gravel backfill, 3 cubic feet minimum. Set valve box 1 inch above finish grade in lawn areas and 2 inches above finish grade in ground cover areas.

3.14 SPRINKLER HEADS

A. Install heads as indicated on details. Adjust location of heads to accommodate site conditions and to provide full head-to-head coverage. Do not exceed manufacturer's recommended spacing or spacing indicated on Drawings.

B. Riser nipples shall be the same size as the inlet opening in sprinkler body.

C. Avoid overspray by all available means of adjustment. Pressure compensating screens on disks shall be installed under spray heads that require radius adjustment in excess of 30% of original full flow.

3.15 MISCELLANEOUS EQUIPMENT

A. Install rain sensor as indicated on the drawings. Verify location of rain sensor with Landscape Architect prior to installation.

3.16 Installation for On-Slab System:

A. Copper Pipe for Podium or Rooftop Planters: Coordinate location of sleeves, slab penetrations and pipe runs with Owner's authorized representative for plumbing in structure. Method of installation shall be per applicable building code.

B. Installation of Lines Below Concrete Structural Slab:
1. Support suspended pipes with clevis or trapeze hangers and rods. Spacing shall not exceed 5 feet o.c. or as recommended by hanger manufacturer.
2. Provide sway bracing on hangers longer than 18".
3. Support piping from inserts or anchors in concrete slabs. Coordinate installation so as not to interfere with work of other trades.
4. Secure pipe to walls where appropriate with straps. Spacing shall not exceed 5 feet o.c.

C. Rout irrigation pipe through slab penetration. Ensure that penetrations are properly sealed per Section 07- Thermal and Moisture Protection.

D. Firestop system penetration assembly and sealant shall be coordinated and performed by project's firestop system subcontractor.

3.17 FIELD OBSERVATION SCHEDULE

A. Notify the Landscape Architect in advance for the following observation meetings, according to the time indicated:
1. Pre-Job Conference - 7 days.
2. Pressure supply line installation, testing, valve locations and Control wire installation- 48 hours.
3. Automatic controller and installation - 48 hours.
4. Coverage test - 48 hours.
5. Final observation - 7 days.

B. When observations have been conducted by other than the Landscape Architect, show evidence in writing of when and by whom these observations were made.

C. No site observations will commence without record drawings. In the event the Contractor calls for a site visit without record drawings, without completing previously noted corrections, and/or without preparing the system for said visit, he shall be responsible for reimbursing the Landscape Architect at his current billing rates per hour, portal to portal, (plus transportation costs) for inconvenience. No further site visits will be scheduled until this charge has been paid and received.

3.18 FIELD QUALITY CONTROL

A. Flushing of System:
1. After pipe lines and risers are in place and connected and prior to installation of sprinkler nozzles, open the control valves and use full head of water to flush out the system.
2. Install sprinkler nozzles only after flushing the system to the complete satisfaction of the Landscape Architect.

B. Adjustment of the System:
1. Contractor shall adjust valves, align and adjust sprinkler heads for optimum performance and to prevent overspray onto walks, roadways and buildings as much as possible.
2. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, make such adjustments prior to planting. Adjustments may also include changes in nozzle sizes and degrees of arc as required.
3. Set sprinkler heads perpendicular to finished grades unless otherwise indicated on the drawings.
4. The entire irrigation system shall be under full automatic operation prior to any planting.

C. Pressure Test:
1. Test pressure lines under hydrostatic pressure of 150 psi for a period of two hours and prove watertight. If leaks develop, replace joints and repeat test until entire system is proven watertight.
2. Testing of pressure mainlines shall occur prior to installation of electric control valves.
3. Make hydrostatic tests in the presence of the Landscape Architect or authorized Owner's representative. Do not backfill any joints until it has been inspected, tested and approved in writing.
4. Furnish necessary force pump and other test equipment.

D. Coverage Test:
1. When the irrigation system is completed, perform the coverage test in the presence of the Landscape Architect to determine if the water coverage for planting areas is complete and adequate. Furnish materials and perform work required to correct any inadequacies of coverage. Perform this test before any planting.

3.19 MAINTENANCE

A. During the maintenance period the Contractor shall adjust and maintain the irrigation system in a fully operational condition providing complete irrigation coverage to all planted areas.

B. Strainer: Keep clean. Flush lines as required. Inspect nozzles for proper flow, check moisture level at plant rootball weekly for the first month of operation and monthly thereafter.

C. Clean-up: Clean up as each portion of work progresses. Remove refuse and excess dirt from the site; broom or wash down walks and paving; and repair any damage sustained to the work of others.

3.20 FINAL OBSERVATION PRIOR TO ACCEPTANCE

A. Operate each system in its entirety for the Landscape Architect at time of final observation. Any items deemed not acceptable by the Landscape Architect shall be reworked to the complete satisfaction of the Landscape Architect. Present written documentation of pressure test results if conducted and observed by Owner's authorized representative.

B. Show evidence to the Landscape Architect that the Owner has received required accessories, charts, record drawings, and equipment prior to final inspection.

END OF SECTION

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GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd. Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	xxx	xxxx

Date .

Drawn By .

Sheet Title
IRRIGATION SPECIFICATIONS

Job No. 4444

Sheet No.
LI-6

of . Sheet

PROPERTY LINE

HYDROZONE #1, TYPICAL

BARK MULCH REAR YARDS

EXISTING TREE TO REMAIN

PROJECT ENTRY MONUMENT

PROPERTY LINE

CRAVENS LANE

PERMEABLE ACCENT DRIVEWAYS

EXISTING TREES TO REMAIN, TYP.

EXISTING TREES TO REMAIN, TYP.

POND PERIMETER 5' H FENCING, TYP.

HYDROZONE #3

POND PERIMETER 5' H FENCING, TYP.

EXISTING TREE TO REMAIN, TYP.

POND PERIMETER 5' H FENCING, TYP.

EXISTING TREES TO REMAIN, TYP.

POND PERIMETER 5' H FENCING, TYP.

MATCHLINE - SEE SHEET L-2

MATCHLINE - SEE SHEET L-4

0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

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REGISTERED LANDSCAPE ARCHITECT TYLER NEAL GOLD LATE 4572 STATE OF CALIFORNIA 04/30/17 Renewal Date

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
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Issue	Description	Date
1	CLIENT REVIEW	04.06.2017
2	SUBMITTAL	04.17.2017
3	COORDINATION	04.25.2017
4	SUBMITTAL	05.17.2017
5	PLANNING SUBMITTAL	06.02.2017
6	PLANNING SUBMITTAL	06.10.2017

Date *

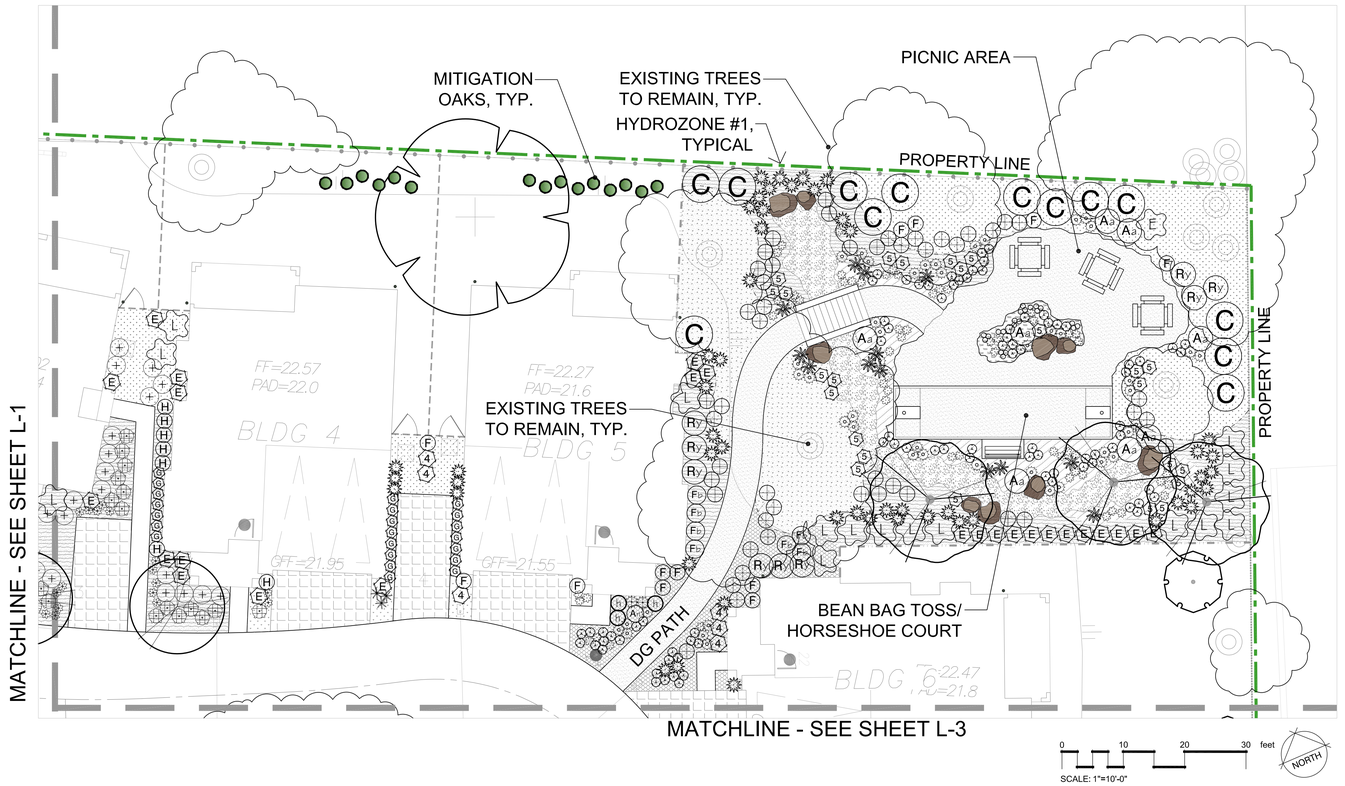
Drawn By .

Sheet Title
PLANTING PLAN

Job No. 4444

Sheet No.
LP-1

. of . Sheet



QUE EXI Existing Quercus agrifolia / Coast Live Oak existing

PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	ARB HYB	Arbutus x `Marina` / Arbutus Standard	24"box	17	LOW
	CER OCC	Cercis occidentalis / Western Redbud	24"box	6	LOW
	OLE SWA	Olea europaea `Swan Hill` TM / Swan Hill Olive	24"box	4	LOW
	PLA MIT	Platanus racemosa / California Sycamore	1 gal	10	MOD
	PLA RA1	Platanus racemosa / California Sycamore	24"box	17	MOD
	QUE AG2	Quercus agrifolia / Coast Live Oak	1 gal	90	LOW
	QUE AGR	Quercus agrifolia / Coast Live Oak	84" box	1	LOW LA to select
	RHU SUM	Rhus lancea / African Sumac	24"box	10	LOW
	ROB PUR	Robinia x ambigua `Purple Robe` / Pink Flowering Locust	24"box	6	MOD
	SEQ SAN	Sequoia sempervirens `Santa Cruz` / Coast Redwood	36"box	3	MOD
FRUIT TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
CIT KUM	CIT KUM	Citrus kumquat / Kumquat	15 gal	1	
CIT TAN	CIT TAN	Citrus reticulata `Satsuma` / Satsuma Tangerine	24"box	1	
CIT LIM	CIT LIM	Citrus x latifolia / Persian lime, Seedless	24"box	1	
CIT LEM	CIT LEM	Citrus x limon `Meyer` / Meyer Lemon	24"box	2	
CIT ORA	CIT ORA	Citrus x sinensis `Valencia` / Sweet Orange	24"box	1	
ERI JAP	ERI JAP	Eriobotrya japonica / Loquat	24"box	2	
MAL APP	MAL APP	Malus x `Beverly Hills` / Beverly Hills Apple	15 gal	1	
PRU APR	PRU APR	Prunus armeniaca / Apricot	24"box	1	
PRU NEC	PRU NEC	Prunus persica nucipersica `Sunlight` / Nectarine	24"box	1	

PLANT SCHEDULE

GROUND COVERS	CODE	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	AGR PRM	Agromin Premium Soil Blend / Vegetable Garden Planter Soil	36" depth		560 sf	
	CAR MIX	Carex pansa (60%) & spissa (40%) / Sanddune Sedge & San Diego Sedge	plug	12" o.c.	9,421	MOD
	COB GRA	Cobblestone Granite River Rock 2 to 5`` dia	One Layer		379 sf	
	CRA CAP	Crassula capitella `Campfire` / Campfire Crassula	4" pot	15" o.c.	255	LOW
	DG PATH	Decomposed Granite / Tan	mulch		5,301 sf	with stabilizer
	ECH SNO	Echeveria elegans / Mexican Snowball	plug	10" o.c.	598	LOW
	GER INC	Geranium incanum / Trailing Geranium	4"pot	18" o.c.	1,916	LOW
	LAV THM	Lavandula angustifolia `Thumbelina Leigh` / Thumbelina Leigh English Lavender	4" pot	10" o.c.	56	LOW
	PEA GRA	Pea gravel / decorative grey tan mix	mulch		2,673 sf	1/4"-3/8" dia.
	SED BRE	Sedum brevifolium / Green Stonecrop	4" pot	10" o.c.	3,884	LOW
	SED RUB	Sedum rubrotinctum / Pork and Beans	4" pot	10" o.c.	1,097	LOW
	SEN SER	Senecio serpens / Blue Chalksticks	4" pot	10" o.c.	11,744	LOW
	MUL SHR	Shredded Bark Mulch / 2" Mulch, ES-2, Agromin	mulch		7,353 sf	Very Low
NATIVE GROUND COVERS	CODE	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	ERI WAY	Erigeron glaucus x `Wayne Roderick` / Wayne Roderick Daisy	flat	12" o.c.	3,376	LOW
	FES IDA	Festuca idahoensis `Muse Meadow` / Muse Meadow Idaho Fescue	4" pot	8" o.c.	17,256	LOW
	HEU PIN	Heuchera `Lillian`s Pink` / Lillian`s Pink Alumroot	1 gal	12" o.c.	4,571	LOW
	LIP NOD	Phyla nodiflora / Capeweed	flat	12" o.c.	1,307	LOW
	SIS YEL	Sisyrinchium californicum / Yellow Eyed Grass	4" pot		311 sf	LOW

PLANT SCHEDULE

SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	AEO MIN	Aeonium x `Mint Saucer` / Mint Saucer Aeonium	5 gal	387	LOW
	AEO SU2	Aeonium x `Sunburst` / Aeonium	5 gal	38	LOW
	AEO ZA	Aeonium x `Zwartkop` / Zwartkop Aeonium	5 gal	25	LOW
Aa	AGA ATT	Agave attenuata / Agave	5 gal	30	LOW
An	AGA NOV	Agave attenuata `Nova` / Blue Clone	5 gal	51	LOW
Av	AGA VAR	Agave attenuata `Variegata` / Variegated Agave	5 gal	20	LOW
	AGA MAT	Agave `Mateo` / Matteo Agave	5 gal	40	LOW
5	ALO STR	Aloe striata / Coral Aloe	5 gal	63	LOW
	ALY ESP	Alyogyne huegelii / Blue Hibiscus	5 gal	14	LOW
F	ANI FLA	Anigozanthos flavidus `Big Red` / Red Kangaroo Paw	5 gal	88	LOW
b	BOU JOL	Bougainvillea x `La Jolla` / Bougainvillea	5 gal	60	LOW
4	CAL LIT	Callistemon citrinus `Little John` / Dwarf Bottle Brush	5 gal	60	LOW
E	CHO TEC	Chondropetalum tectorum / Cape Rush	5 gal	106	LOW
	COR RAY	Correa x `Ray`s Tangerine` / Australian Fuchsia	5 gal	307	LOW
h	CUP IGN	Cuphea ignea / Cigar Plant	5 gal	73	LOW
	DIA LIT	Dianella caerulea `Little Becca` TM / Little Becca Flax Lily	5 gal	102	LOW
	DIA LRV	Dianella revoluta `Little Rev` / Little Rev Flax Lily	5 gal	220	LOW
	ECH ELE	Echeveria pallida / Argentine Echeveria	4" pot	431	LOW
	ECH FIR	Echeveria subrigida `Fire and Ice` / Hen and Chicks	1 gal	170	LOW
A	ECH AFT	Echeveria `Afterglow` / Afterglow Echeveria	1 gal	506	LOW
E	ECH FAS	Echium fastuosum / Pride Of Madeira	5 gal	26	LOW
H	HEL SEM	Helictotrichon sempervirens / Blue Oat Grass	5 gal	43	LOW
	HEM YEL	Hemerocallis x `Yellow` / Daylily	1 gal	179	MOD
	KAL THY	Kalanchoe thyrsiflora / Paddle Plant	5 gal	368	LOW
A	LAV ANG	Lavandula angustifolia / English Lavender	5 gal	4	LOW
	LAV STO	Lavandula stoechas `Lemon Leigh` / Lemon Leigh Spanish Lavender	5 gal	60	LOW
	LIM PER	Limonium perezii / Statice	5 gal	180	LOW
Fb	PHO FIR	Phormium tenax `Firebird` / Fire Bird Flax	5 gal	53	LOW
	POL PET	Polygala fruticosa `Petite Butterfly` / Sweet Pea Shrub	5 gal	97	LOW
	PRU BRI	Prunus caroliniana `Bright `N Tight` TM / Bright `N Tight Carolina Laurel	15 gal	30	MOD
G	SAL GRE	Salvia greggii `Furmans Red` / Furman`s Red Salvia	1 gal	102	LOW
	SOL HET	Sollya heterophylla / Australian Bluebell	5 gal	34	LOW
W	WES WYN	Westringia fruticosa `Wynabbie Gem` / Wynabbie Gem Coast Rosemary	5 gal	13	LOW
NATIVE SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	ARC MIS	Arctostaphylos x `Pacific Mist` / Pacific Mist Manzanita	5 gal	25	LOW
K	CAL KIN	Calamagrotis nutkaensis `The King` / Pacific Reed Grass	5 gal	59	LOW
C	CEA YAN	Ceanothus griseus horizontalis `Yankee Point` / California Lilac	5 gal	35	LOW
C	CEA CON	Ceanothus x `Concha` / California Lilac	5 gal	55	LOW
	ELY CA2	Elymus condensatus `Canyon Prince` / Canyon Prince Wild Rye	5 gal	28	LOW
	EPI CAL	Epilobium canum `Callistoga` / Narrowleaf Calif. Fuchsia `Callistoga`	5 gal	44	LOW
Z	GAL FIR	Galvezia speciosa `Firecracker` / Bush Snapdragon	5 gal	67	LOW
	IRI SNO	Iris PCH `Canyon Snow` / Pacific Coast Highbrid Iris	5 gal	86	LOW
	IRI LAV	Iris PCH `Deep Lavander` / Pacific Coast Highbrid Iris	5 gal	39	LOW
	JUN PAT	Juncus patens `Elk Blue` / Elk Blue California Gray Rush	5 gal	41	LOW
L	LAV ASS	Lavatera assurgentiflora / Mallow	5 gal	62	LOW
Q	MAH AQU	Mahonia aquifolium `Compactum` / Compact Oregon Grape	5 gal	31	LOW
	MIM YEL	Mimulus cardinalis `Yellow` / Yellow Scarlet Monkey Flower	5 gal	106	LOW
	MUH RIG	Muhlenbergia rigens / Deer Grass	1 gal	83	LOW
Ry	RIB VIB	Ribes viburnifolium / Evergreen Currant	5 gal	33	LOW
	ROS ELS	Rosa californica `Elsie` / California Wild Rose	5 gal	37	LOW
VINE/ESPALIER	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	CAL MOR	Calystegia macrostegia / Morning Glory - attach to adjacent fence	15 gal	17	LOW/Native
	FIC PUM	Ficus pumila / Creeping Fig	15 gal	27	MOD
	MAC UNG	Macfadyena unguis-cati / Yellow Trumpet Vine	15 gal	7	LOW

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REGISTERED LANDSCAPE ARCHITECT
TYLER NEAL GOLD
No. 6572
04/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	CLIENT REVIEW	04.06.2017
2	SUBMITTAL	04.17.2017
3	COORDINATION	04.25.2017
4	SUBMITTAL	05.17.2017
5	PLANNING SUBMITTAL	06.02.2017
6	PLANNING SUBMITTAL	06.10.2017

Date *

Drawn By .

Sheet Title
PLANTING PLAN

Job No. 4444

Sheet No.
LP-2

. of . Sheet

MATCHLINE - SEE SHEET L-2

MATCHLINE - SEE SHEET L-1

MATCHLINE - SEE SHEET L-4

EXISTING TREE TO REMAIN

PROTTO II WALL

HYDROZONE #1, TYPICAL

DRAINAGE DITCH

EXISTING TREE TO REMAIN

MAILBOXES

COMMUNITY GREEN with REC PAVILLION, FIREPLACE, & SEATING

HYDROZONE #1, TYPICAL

HYDROZONE #2, TYP.

EXISTING TREES TO REMAIN, TYPICAL

PROPERTY LINE

HYDROZONE #1

BARK MULCH REAR YARDS

MITIGATION OAKS, TYP.

Tubular Steel Fence

ADJACENT DRIVEWAY

HYDROZONE #4

PROTTO II WALL with CREEPING FIG VINES & DAYLILIES, TYP.

COMMUNITY GARDEN

HYDROZONE #4

PROPERTY LINE

HYDROZONE #2 TYPICAL

BLDG 7

BLDG 8

BLDG 9

FF=21.67 PAD=21.0

FF=21.57 PAD=20.9

FF=21.17 PAD=20.5

GFF=20.50

GFF=21.00

GFF=20.87

0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

PLANT SCHEDULE

SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	AEO MIN	Aeonium x `Mint Saucer` / Mint Saucer Aeonium	5 gal	387	LOW
	AEO SU2	Aeonium x `Sunburst` / Aeonium	5 gal	38	LOW
	AEO ZA	Aeonium x `Zwartkop` / Zwartkop Aeonium	5 gal	25	LOW
Aa	AGA ATT	Agave attenuata / Agave	5 gal	30	LOW
An	AGA NOV	Agave attenuata `Nova` / Blue Clone	5 gal	51	LOW
Av	AGA VAR	Agave attenuata `Variegata` / Variegated Agave	5 gal	20	LOW
	AGA MAT	Agave `Mateo` / Matteo Agave	5 gal	40	LOW
	ALO STR	Aloe striata / Coral Aloe	5 gal	63	LOW
5	ALY ESP	Alyogyne huegelii / Blue Hibiscus	5 gal	14	LOW
F	ANI FLA	Anigozanthos flavidus `Big Red` / Red Kangaroo Paw	5 gal	88	LOW
b	BOU JOL	Bougainvillea x `La Jolla` / Bougainvillea	5 gal	60	LOW
4	CAL LIT	Callistemon citrinus `Little John` / Dwarf Bottle Brush	5 gal	60	LOW
E	CHO TEC	Chondropetalum tectorum / Cape Rush	5 gal	106	LOW
	COR RAY	Correa x `Ray`s Tangerine` / Australian Fuchsia	5 gal	307	LOW
h	CUP IGN	Cuphea ignea / Cigar Plant	5 gal	73	LOW
	DIA LIT	Dianella caerulea `Little Becca` TM / Little Becca Flax Lily	5 gal	102	LOW
	DIA LRV	Dianella revoluta `Little Rev` / Little Rev Flax Lily	5 gal	220	LOW
	ECH ELE	Echeveria pallida / Argentine Echeveria	4" pot	431	LOW
	ECH FIR	Echeveria subrigida `Fire and Ice` / Hen and Chicks	1 gal	170	LOW
	ECH AFT	Echeveria `Afterglow` / Afterglow Echeveria	1 gal	506	LOW
	ECH FAS	Echium fastuosum / Pride Of Madeira	5 gal	26	LOW
H	HEL SEM	Helictotrichon sempervirens / Blue Oat Grass	5 gal	43	LOW
	HEM YEL	Hemerocallis x `Yellow` / Daylily	1 gal	179	MOD
	KAL THY	Kalanchoe thyrsiflora / Paddle Plant	5 gal	368	LOW
A	LAV ANG	Lavandula angustifolia / English Lavender	5 gal	4	LOW
	LAV STO	Lavandula stoechas `Lemon Leigh` / Lemon Leigh Spanish Lavender	5 gal	60	LOW
	LIM PER	Limonium perezii / Statice	5 gal	180	LOW
Fb	PHO FIR	Phormium tenax `Firebird` / Fire Bird Flax	5 gal	53	LOW
	POL PET	Polygala fruticosa `Petite Butterfly` / Sweet Pea Shrub	5 gal	97	LOW
	PRU BRI	Prunus carolliniana `Bright `N Tight` TM / Bright `N Tight Carolina Laurel	15 gal	30	MOD
G	SAL GRE	Salvia greggii `Furmans Red` / Furman`s Red Salvia	1 gal	102	LOW
	SOL HET	Soltya heterophylla / Australian Bluebell	5 gal	34	LOW
W	WES WYN	Westringia fruticosa `Wynabble Gem` / Wynabble Gem Coast Rosemary	5 gal	13	LOW
NATIVE SHRUBS	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	ARC MIS	Arctostaphylos x `Pacific Mist` / Pacific Mist Manzanita	5 gal	25	LOW
K	CAL KIN	Calamagrotis nutkaensis `The King` / Pacific Reed Grass	5 gal	59	LOW
C	CEA YAN	Ceanothus griseus horizontalis `Yankee Point` / California Lilac	5 gal	35	LOW
C	CEA CON	Ceanothus x `Concha` / California Lilac	5 gal	55	LOW
	ELY CA2	Elymus condensatus `Canyon Prince` / Canyon Prince Wild Rye	5 gal	28	LOW
	EPI CAL	Epilobium canum `Callistoga` / Narrowleaf Calif. Fuchsia `Callistoga`	5 gal	44	LOW
Z	GAL FIR	Galvezia speciosa `Firecracker` / Bush Snapdragon	5 gal	67	LOW
	IRI SNO	Iris PCH `Canyon Snow` / Pacific Coast Highbrid Iris	5 gal	86	LOW
	IRI LAV	Iris PCH `Deep Lavander` / Pacific Coast Highbrid Iris	5 gal	39	LOW
	JUN PAT	Juncus patens `Elk Blue` / Elk Blue California Gray Rush	5 gal	41	LOW
	LAV ASS	Lavatera assurgentiflora / Mallow	5 gal	62	LOW
Q	MAH AQU	Mahonia aquifolium `Compactum` / Compact Oregon Grape	5 gal	31	LOW
	MIM YEL	Mimulus cardinalis `Yellow` / Yellow Scarlet Monkey Flower	5 gal	106	LOW
	MUH RIG	Muhlenbergia rigens / Deer Grass	1 gal	83	LOW
Ry	RIB VIB	Ribes viburnifolium / Evergreen Currant	5 gal	33	LOW
	ROS ELS	Rosa californica `Elsie` / California Wild Rose	5 gal	37	LOW
VINE/ESPALIER	**CODE**	**BOTANICAL NAME / COMMON NAME**	**CONT**	**QTY**	**REMARKS**
	CAL MOR	Calystegia macrostegia / Morning Glory - attach to adjacent fence	15 gal	17	LOW/Native
	FIC PUM	Ficus pumila / Creeping Fig	15 gal	27	MOD
	MAC UNG	Macfadyena unguis-cati / Yellow Trumpet Vine	15 gal	7	LOW

L.A. GROUP
Design Works
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REGISTERED LANDSCAPE ARCHITECT
TYLER NEW GOLD
4/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	CLIENT REVIEW	04.04.2017
2	SUBMITTAL	04.17.2017
3	COORDINATION	04.25.2017
4	SUBMITTAL	05.17.2017
5	PLANNING SUBMITTAL	06.02.2017
6	PLANNING SUBMITTAL	06.10.2017

Date *

Drawn By .

Sheet Title
PLANTING PLAN

Job No. 4444

Sheet No.
LP-3

. of . Sheet

PLANT SCHEDULE

SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	AEO MIN	Aeonium x `Mint Saucer` / Mint Saucer Aeonium	5 gal	387	LOW
	AEO SU2	Aeonlum x `Sunburst` / Aeonlum	5 gal	38	LOW
	AEO ZA	Aeonium x `Zwartkop` / Zwartkop Aeonium	5 gal	25	LOW
Aa	AGA ATT	Agave attenuata / Agave	5 gal	30	LOW
An	AGA NOV	Agave attenuata `Nova` / Blue Clone	5 gal	51	LOW
Av	AGA VAR	Agave attenuata `Variegata` / Variegated Agave	5 gal	20	LOW
	AGA MAT	Agave `Mateo` / Matteo Agave	5 gal	40	LOW
5	ALO STR	Aloe striata / Coral Aloe	5 gal	63	LOW
	ALY ESP	Alyogyne huegelii / Blue Hibiscus	5 gal	14	LOW
F	ANI FLA	Anigozanthos flavidus `Big Red` / Red Kangaroo Paw	5 gal	88	LOW
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	POL PET	Polygala fruticosa `Petite Butterfly` / Sweet Pea Shrub	5 gal	97	LOW
	PRU BRI	Prunus carolliniana `Bright `N Tight` TM / Bright `N Tight Carolina Laurel	15 gal	30	MOD
G	SAL GRE	Salvia greggii `Furmans Red` / Furman`s Red Salvia	1 gal	102	LOW
	SOL HET	Sollya heterophylla / Australian Bluebell	5 gal	34	LOW

NATIVE SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
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	EPI CAL	Epilobium canum `Callistoga` / Narrowleaf Calif. Fuchsia `Callistoga`	5 gal	44	LOW
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	MAC UNG	Macfadyena unguis-cati / Yellow Trumpet Vine	15 gal	7	LOW

PLANT SCHEDULE

GROUND COVERS	CODE	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	AGR PRM	Agromin Premium Soil Blend / Vegetable Garden Planter Soil	36" depth		560 sf	
	CAR MIX	Carex pansa (60%) & spissa (40%) / Sanddune Sedge & San Diego Sedge	plug	12" o.c.	9,421	MOD
	COB GRA	Cobblestone Granite River Rock 2 to 5`` dia	One Layer		379 sf	
	CRA CAP	Crassula capitella `Campfire` / Campfire Crassula	4" pot	15" o.c.	255	LOW
	DG PATH	Decomposed Granite / Tan	mulch		5,301 sf	with stabilizer
	ECH SNO	Echeveria elegans / Mexican Snowball	plug	10" o.c.	598	LOW
	GER INC	Geranium incanum / Trailing Geranium	4"pot	18" o.c.	1,916	LOW
	LAV THM	Lavandula angustifolia `Thumbellina Leigh` / Thumbellina Leigh English Lavender	4" pot	10" o.c.	56	LOW
	PEA GRA	Pea gravel / decorative grey tan mix	mulch		2,673 sf	1/4"-3/8" dia.
	SED BRE	Sedum brevifolium / Green Stonecrop	4" pot	10" o.c.	3,884	LOW
	SED RUB	Sedum rubrotinctum / Pork and Beans	4" pot	10" o.c.	1,097	LOW
	SEN SER	Senecio serpens / Blue Chalksticks	4" pot	10" o.c.	11,744	LOW
	MUL SHR	Shredded Bark Mulch / 2" Mulch, ES-2, Agromin	mulch		7,353 sf	Very Low

NATIVE GROUND COVERS	CODE	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	ERI WAY	Erigeron glaucus x `Wayne Roderick` / Wayne Roderick Daisy	flat	12" o.c.	3,376	LOW
	FES IDA	Festuca idahoensis `Muse Meadow` / Muse Meadow Idaho Fescue	4" pot	8" o.c.	17,256	LOW
	HEU PIN	Heuchera `Lillian`s Pink` / Lillian`s Pink Alumroot	1 gal	12" o.c.	4,571	LOW
	LIP NOD	Phyla nodiflora / Capeweed	flat	12" o.c.	1,307	LOW
	SIS YEL	Sisyrinchium californicum / Yellow Eyed Grass	4" pot		311 sf	LOW

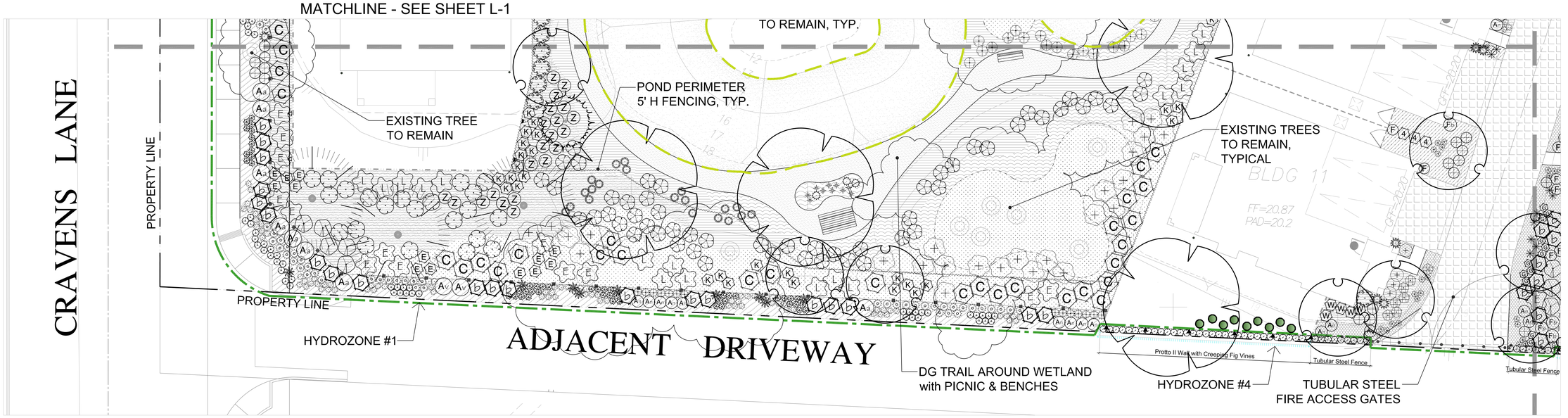
QUE EXI Existing Quercus agrifolia / Coast Live Oak existing

PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	ARB HYB	Arbutus x `Marina` / Arbutus Standard	24"box	17	LOW
	CER OCC	Cercis occidentalis / Western Redbud	24"box	6	LOW
	OLE SWA	Olea europaea `Swan Hill` TM / Swan Hill Olive	24"box	4	LOW
	PLA MIT	Platanus racemosa / California Sycamore	1 gal	10	MOD
	PLA RA1	Platanus racemosa / California Sycamore	24"box	17	MOD
	QUE AG2	Quercus agrifolia / Coast Live Oak	1 gal	90	LOW
	QUE AGR	Quercus agrifolia / Coast Live Oak	84" box	1	LOW LA to select
	RHU SUM	Rhus lancea / African Sumac	24"box	10	LOW
	ROB PUR	Robinia x ambigua `Purple Robe` / Pink Flowering Locust	24"box	6	MOD
	SEQ SAN	Sequoia sempervirens `Santa Cruz` / Coast Redwood	36"box	3	MOD

FRUIT TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
CIT KUM	CIT KUM	Citrus kumquat / Kumquat	15 gal	1	
CIT TAN	CIT TAN	Citrus reticulata `Satsuma` / Satsuma Tangerine	24"box	1	
CIT LIM	CIT LIM	Citrus x latifolia / Persian lime, Seedless	24"box	1	
CIT LEM	CIT LEM	Citrus x limon `Meyer` / Meyer Lemon	24"box	2	
CIT ORA	CIT ORA	Citrus x sinensis `Valencia` / Sweet Orange	24"box	1	
ERI JAP	ERI JAP	Eriobotrya japonica / Loquat	24"box	2	
MAL APP	MAL APP	Malus x `Beverly Hills` / Beverly Hills Apple	15 gal	1	
PRU APR	PRU APR	Prunus armeniaca / Apricot	24"box	1	
PRU NEC	PRU NEC	Prunus persica nucipersica `Sunlight` / Nectarine	24"box	1	

MATCHLINE - SEE SHEET L-1



MATCHLINE - SEE SHEET L-3

0 10 20 30 feet

SCALE: 1"=10'-0"

NORTH

L.A. GROUP
Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 f 818.251-9719
email: DesignWorks@lagroupinc.net

REGISTERED LANDSCAPE ARCHITECT
TYLER JEAN GOLD
No. 5572
Expiration 04/30/17
Renewal Date
STATE OF CALIFORNIA

GREEN HERON SPRING
1300 CRAVENS LANE, CARPENTERIA, CA

prepared for:
CRAVENS LANE, LLC
23622 Calabasas Rd., Suite 220
Calabasas, CA 91302

Issue	Description	Date
1	CLIENT REVIEW	04.06.2017
2	SUBMITTAL	04.17.2017
3	COORDINATION	04.25.2017
4	SUBMITTAL	05.17.2017
5	PLANNING SUBMITTAL	06.02.2017
6	PLANNING SUBMITTAL	06.10.2017

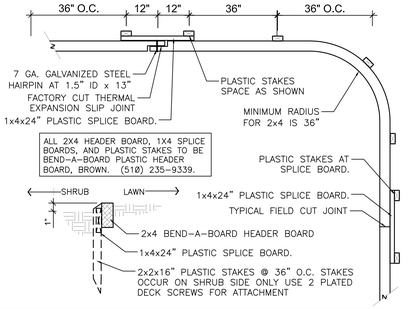
Date *

Drawn By .

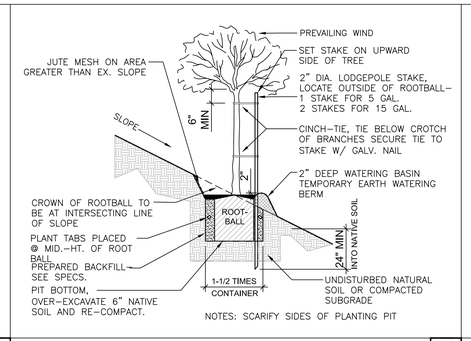
Sheet Title
PLANTING PLAN

Job No. 4444

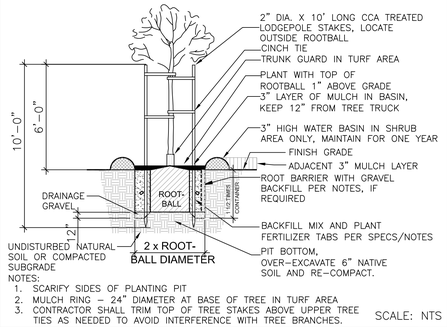
Sheet No.
LP-4
. of . Sheet



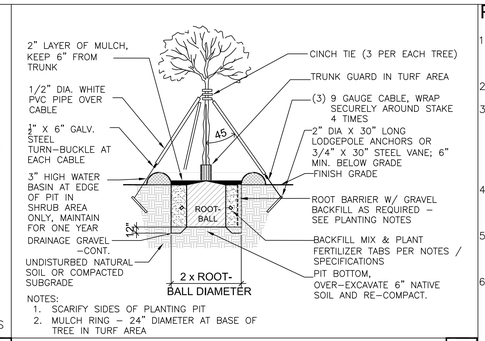
SCALE: NTS BEND-A-BOARD PLASTIC 2X4 EDGING D



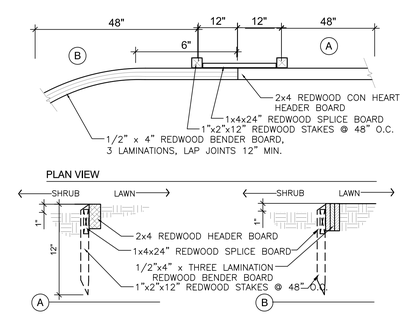
SCALE: NTS TREE PLANTING ON SLOPE C



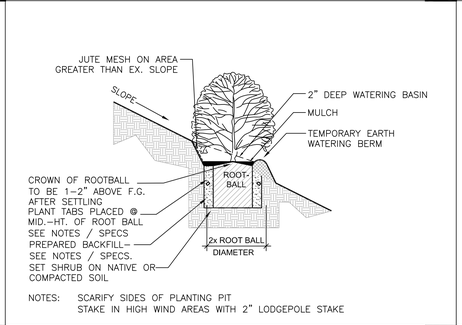
SCALE: NTS 15 GAL. & 24" BOX TREE PLANTING & STAKING B



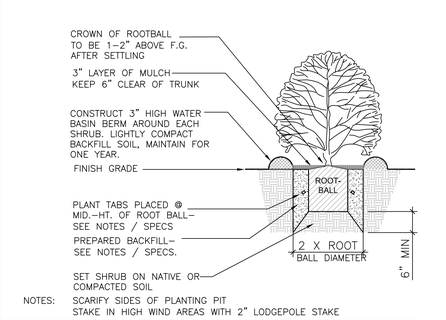
SCALE: NTS 30" BOX & UP TREE GUYING A



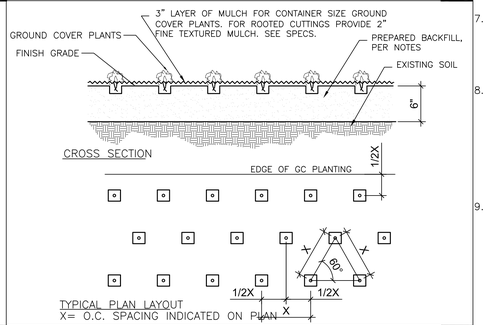
SCALE: NTS 2X4 REDWOOD HEADER BOARD H



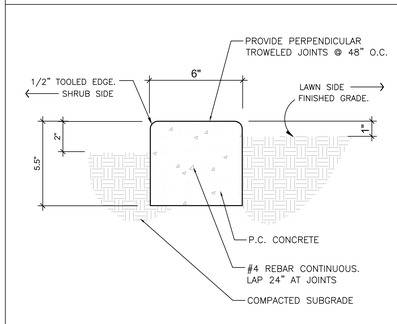
SCALE: NTS SHRUB PLANTING ON SLOPE G



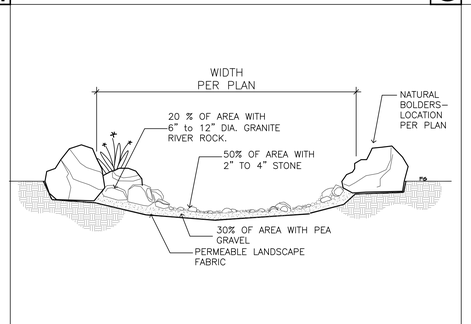
SCALE: NTS SHRUB PLANTING F



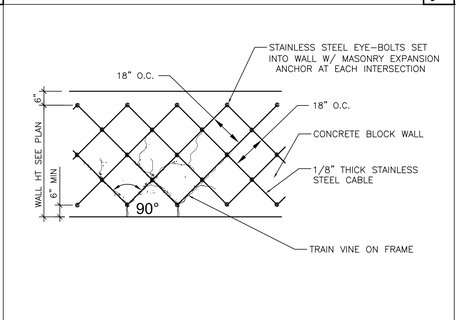
SCALE: NTS GROUNDCOVER LAYOUT E



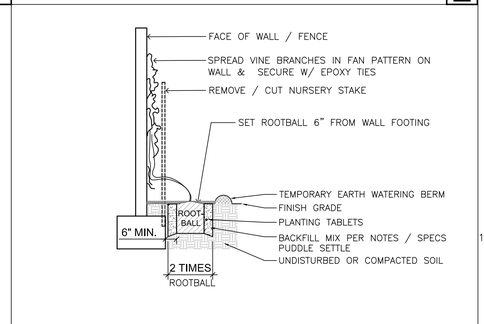
SCALE: NTS 6" CONCRETE MOW STRIP L



SCALE: NTS DRY CREEK BED K



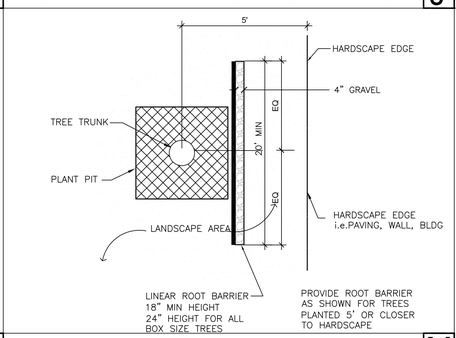
SCALE: NTS WALL VINE ATTACHMENT J



SCALE: NTS VINE PLANTING I

SCALE: NTS R

SCALE: NTS Q



SCALE: NTS LINEAR ROOT BARRIER - PLAN M

California Native Plantings:

FALL AND SPRING ARE THE BEST TIMES TO PLANT NATIVE PLANTS AND HYDROSEED.

1. PRESOAK PLANTING HOLE PRIOR TO PLANTING. SET PLANT PER DETAIL WITH SPECIFIED BACKFILL MIX IN PLANTING HOLE. LIGHTLY COMPACT SOIL. IMMEDIATELY WATER EACH PLANT. SPREAD 1" DEEP LAYER OF CLASS I WEED–FREE STABLE COMPOSTED ORGANIC MULCH ON TOP OF THE PLANTING BASIN BEING CAREFUL NOT TO COVER THE ROOT CROWN. MOVE PLANT TO EDGE OF BASIN ON SLOPES WITH POOR DRAINAGE.

   BACKFILL MIX: AMOUNT PER CUBIC YARD
   4 PARTS SITE SOIL
   1 PART WEED FREE NITROGEN FORTIFIED ORGANIC AMENDMENT (Compost or Redwood or Fir sawdust)
   3 LBS TRI–C HUMATE PLUS
   TRI–C MYCORRHIZAE TABS: PER MANUFACTURER RECOMMENDATION, TABS MUST TOUCH ROOTS.
   1 GALLON CONTAINER = 2
   5 GALLON CONTAINER = 8
   15 GALLON CONTAINER = 15

2. THIRTY (30) DAYS AFTER INSTALLATION, FERTILIZE ONLY IF NECESSARY. REFER TO SOILS REPORT FOR SOILS ANALYSIS. OBJECTIVE IS TO BUILD SOIL QUALITY. IF POOR SOIL, FERTILIZE WITH QUARTER–STRENGTH LOW NITROGEN OR BALANCED FERTILIZER TWO (2) TIMES IN GROWING SEASON FROM OCTOBER TO MAY.
3. ALLOW SOIL TO BECOME ALMOST DRY BETWEEN WATERINGS. WATER DEEPLY BUT INFREQUENTLY. USE CYCLE SETTING ON IRRIGATION CONTROLLER TO ELIMINATE RUNOFF. IN SUMMER, WATER ONLY DURING COOL PERIODS. SOIL DISEASES CAN DEVELOP IF WATER IS APPLIED DURING HOT TEMPERATURES. DEPENDING ON THE CLIMATE AND SOIL TYPE WATER IN THE SUMMER AND FALL ONCE EVERY TWO TO FOUR WEEKS. LESS FREQUENT IN THE SPRING AND RAINFALL SHOULD BE ADEQUATE IN THE WINTER.
4. REMOVE WEEDS PRIOR TO SETTING SEED WITH HAND TOOLS OR SPOT TREAT WITH HERBICIDES. IMMEDIATELY REMOVE WEED DEBRIS FROM PLANTING AREA.

PLANTING NOTES:

July 2016

1. MAINTAIN A QUALIFIED SUPERVISOR, KNOWLEDGEABLE IN STANDARD HORICULTURAL PRACTICES, ON–SITE AT ALL TIMES DURING INSTALLATION OF THIS WORK.
2. COMPLY WITH GOVERNING CODES AND REGULATIONS.
3. VERIFY QUANTITIES PRIOR TO DELIVERY OF PLANT MATERIALS TO SITE. QUANTITIES LISTED ON THE DRAWINGS ARE FOR CONVENIENCE ONLY. ACTUAL NUMBERS OF GRAPHIC SYMBOLS SHALL HAVE PRIORITY OVER QUANTITIES LISTED. ALL PLANTS SHALL BE IDENTIFIED WITH TAGS OR LABELS. PLANTS NOT IDENTIFIED MAY BE REJECTED. PLANTS SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS COMPARABLE TO PROJECT SITE.
4. PLANT GROUND COVER AND SHRUBS WITH TRIANGULAR SPACING UNLESS NOTED OTHERWISE. GROUND COVER PLANTING SHALL BE CONTINUOUS UNDER ALL TREES AND THROUGH SHRUB MASSES.
5. LOCATION OF ALL TREES AND SHRUBS SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANTING. PLACEMENT OF PLANTS NOT APPROVED WILL BE MOVED AS DIRECTED BY LANDSCAPE ARCHITECT AT NO COST.
6. PLANT MATERIAL IS SUBJECT TO INSPECTION AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SUBMIT PHOTOS OF EACH VARIETY OF TREE SPECIFIED FOR LANDSCAPE ARCHITECT'S APPROVAL, INCLUDE NAME OF NURSERY, HEIGHT, SPREAD AND CALIPER SIZE. BOXED TREES MAY BE INSPECTED AND TAGGED AT THE NURSERY AT THE DISCRETION OF THE LANDSCAPE ARCHITECT. PLANT MATERIAL SHALL BE INSPECTED UPON DELIVERY TO SITE AND SUBJECT TO REJECTION IF FOUND TO BE DAMAGED OR NOT MATCHING APPROVED PHOTOS.
7. PRIOR TO PLANTING, PERFORM ONE PERCOLATION TEST PER 6,000 SQUARE FEET OF PLANTING AREA. FILL A 24" BOX SIZE HOLE WITH WATER. NOTIFY LANDSCAPE ARCHITECT IF IT DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS. THE TEST SHALL BE DONE UNDER THE SUPERVISION OF THE OWNER'S REPRESENTATIVE.
8. OBTAIN A SOIL AGRONOMY REPORT FROM AN APPROVED SOIL LABORATORY. CONTRACTOR TO COLLECT SAMPLES IN ACCORDANCE WITH TESTING LABORATORY REQUIREMENTS. SUBMIT A MINIMUM OF TWO SAMPLES PER SITE AND/OR SAMPLES OF EACH SOIL TYPE. SAMPLES ARE NOT NECESSARY FOR IMPORTED SOIL MIXES SUCH AS THAT USED IN RAISED PLANTERS. SUBMIT TO LANDSCAPE ARCHITECT PRIOR TO START OF CONSTRUCTION. SOIL PREPARATION SHALL BE INSTALLED PER THE SOIL AGRONOMY REPORT. SOIL ANALYSIS SHALL INCLUDE: SOIL TEXTURE, INFILTRATION RATE, pH, TOTAL SOLUBLE SALTS, SODIUM, PERCENT ORGANIC MATTER, RECOMMENDATIONS.
9. SOIL AMENDMENTS SPECIFIED BELOW ARE FOR BIDDING PURPOSES ONLY. THE FOLLOWING AMENDMENTS SHALL BE UNIFORMLY BROADCAST AND THOROUGHLY INCORPORATED BY MEANS OF A ROTOTILLER TO A DEPTH OF 6". OMIT AMENDMENT ON SLOPES STEEPER THAN 3:1 AND SCARIFY FERTILIZER INTO TOP 2" OF SOIL.

   SOIL PREP: AMOUNT PER 1,000 PER SQUARE FEET
   4 CU. YDS. WEED–FREE NITROGEN FORTIFIED ORGANIC AMENDMENT (Compost or Redwood or Fir sawdust)
   10 LBS. 6–24–24XB STARTER FERTILIZER WITH IRON AND SULFUR, BEST BY SIMPLOT
   50 LBS. TRI–C HUMATE PLUS
   10 LBS. SOIL SULFUR
   Based on Soils Report, for soils less than 6% organic matter in the top 6 inches of soil, compost at a rate of a minimum of four cubic yards per 1,000 S.F. of permeable area shall be incorporated to a depth of six inches into the soil.

   BACKFILL MIX: AMOUNT PER CUBIC YARD
   2 PARTS SITE SOIL
   1 PART WEED–FREE NITROGEN FORTIFIED ORGANIC AMENDMENT (Compost or Redwood or Fir sawdust)
   14 LB. 5–3–1 GRO–POWER PLUS with 4% SULFUR
   6 LBS TRI–C HUMATE PLUS

   CACTUS BACKFILL MIX: AMOUNT PER CUBIC YARD
   FOR PLANTS REQUIRING QUICK DRAINING SOIL SUCH AS PALMS, CITRUS, SUCCULENTS, ETC.
   2 PARTS SITE SOIL
   2 PART COARSE SAND
   1 PART WEED–FREE NITROGEN FORTIFIED ORGANIC AMENDMENT (Compost or Redwood or Fir sawdust)
   14 LB. 5–3–1 GRO–POWER PLUS with 4% SULFUR
10. PLACE GRO–POWER 12–8–8 FERTILIZER TABLETS (7 GRAMS) AT ONE–THIRD DEPTH OF THE ROOTBALL IN QUANTITIES AS FOLLOWS:
    1 GALLON CONTAINER = 2
    5 GALLON CONTAINER = 5
    15 GALLON CONTAINER = 15
    24" BOX CONTAINER = 20
    LARGER BOX SIZES = 3 TABLETS PER EACH 1/2" CALIPER SIZE
11. FOR PLANTS REQUIRING ACID SOIL SUCH AS FERNS, AZALEAS, CAMELLIAS, GARDENIAS, ETC. DISTRIBUTE EVENLY AND SCRATCH LIGHTLY INTO THE SOIL ONE CUP PER PLANT ON SOIL SURFACE SUPER IRON 9–9–9 WITH 11% IRON AND SULFUR, BEST BY SIMPLOT.
12. POTTERY TO BE BACK FILLED WITH KELLOGG'S GARDEN ORGANICS PALM, CACTUS, AND CITRUS, ALL NATURAL POTTING MIX OR MOISTURE PRO POTTING MIX. POTTING SOIL MIX DETERMINED BY PLANT TYPE.
13. VINES SHALL BE INSTALLED WITH THE NURSERY STAKES REMOVED AND RUNNERS SECURED WITH NURSERY TIES TO ADJACENT STRUCTURE AS NOTED. VINES SHALL NOT BE PLACED DIRECTLY UNDER WINDOWS OR IN LOCATIONS WHICH MAY CONCEAL BUILDING NUMBERS, LIGHTS, SIGNAGE OR OTHER ARCHITECTURAL ELEMENTS.
14. SEE PLANTING DETAILS AND SPECIFICATIONS, FOR STAKING, GUYING AND PLANTING PROCEDURES.
15. ROOT BARRIERS ARE REQUIRED FOR ALL TREES 5' AND CLOSER TO PAVED SURFACES, OR PER LOCAL CODE. INSTALL LINEAR ROOT BARRIERS ADJACENT TO SIDEWALK, WALL FOOTINGS AND BUILDING FOUNDATIONS FOR A DISTANCE OF 10 FT FROM TREE TRUNK IN EACH DIRECTION. 24" TALL SIZE FOR 24" BOX OR SMALLER AND 36" TALL SIZE FOR 36" BOX OR LARGER. INSTALLATION PER MANUFACTURER'S SPECIFICATIONS AND DETAILS.
16. PROVIDE TRUNK PROTECTOR FOR ALL TREES IN TURF AREAS. MANUFACTURED BY NDS, GREY COLOR. INSTALLATION PER MANUFACTURER'S SPECIFICATIONS.
17. TOP DRESS SHRUB AREA WITH 3" THICK LAYER OF 1/4" TO 2" WALK–ON BARK. TOP DRESS ROOTED–CUTTING GROUNDCOVER AREA WITH 2" LAYER OF 1/4" TO 3" SHREDDED BARK MULCH, ES–2 AVAILABLE FROM AGROMIN. SUBMIT SAMPLES FOR APPROVAL.
18. SEPARATIONS BETWEEN TURF AND GROUND COVER AREAS SHALL BE SHOVEL CUT UNLESS NOTED OTHERWISE.
19. FOR SEASONAL/ANNUAL COLOR PLANTING, SUBMIT LIST OF AVAILABLE PLANTS APPROPRIATE TO SEASON OF INSTALLATION TO LANDSCAPE ARCHITECT FOR SELECTION AND APPROVAL.
20. THIRTY (30) DAYS AFTER INSTALLATION, FERTILIZE PLANTING AREAS WITH ALL SEASON TIME RELEASE 19–6–8 BEST BY SIMPLOT, APPLIED AT THE RATE OF FIVE POUNDS (5 LBS.) AND TRI–C HUMATE–PLUS APPLIED AT THE RATE OF TEN POUNDS (10 LBS.) PER 1,000 SQUARE FEET. FERTILIZER APPLICATION SHALL BE CONTINUED THEREAFTER AT EVERY THREE (3) MONTH INTERVALS OR AS SPECIFIED IN SOIL ANALYSIS.
21. INCLUDE IN BID A PRICE FOR COMPLETE MAINTENANCE OF ALL WORK FOR 60 DAYS. THE MAINTENANCE PERIOD SHALL BEGIN UPON THE DATE OF ACCEPTANCE BY OWNER'S REPRESENTATIVE. MAINTENANCE SHALL CONSIST OF BUT NOT LIMITED TO KEEPING AREAS CLEAN, WEED FREE, TRIMMED, WATERED, PEST AND DISEASE FREE AND ALL OTHER WORK NECESSARY FOR HEALTHY, VIGOROUS PLANT GROWTH AND CLEAN APPEARANCE. CONTRACTOR SHALL REPLACE PLANTS WHICH ARE FOUND IN AN UNHEALTHY OR DETERIORATING CONDITION, MISSING OR DEAD. PLANTS SHALL BE REPLACED WITHIN (5) FIVE DAYS OF DISCOVERY. PLANTS THAT ARE REPLACED JUST PRIOR TO END OF MAINTENANCE MAY REQUIRE THE MAINTENANCE PERIOD TO BE EXTENDED AT NO COST TO OWNER.
22. TREES SHALL BE GUARANTEED FOR ONE YEAR AND LAWN, SHRUBS AND CUTTINGS SHALL BE GUARANTEED FOR 90 DAYS AFTER COMPLETION OF MAINTENANCE PERIOD AND FINAL ACCEPTANCE.

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Issue	Description	Date
1	XXX	04.XX.2017

Date *

Drawn By .

Sheet Title
PLANTING DETAILS & NOTES

Job No. 4444

Sheet No.
LP-5
. of . Sheet

SECTION 32 90 00
LANDSCAPE PLANTING

Issue: 7-26-2016

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Labor, materials, tools, equipment, facilities, transportation and services necessary to performing operations of work of this section, complete as shown on the drawings and specified herein. Work includes, but is not limited, to the following:
1. Finish grading of planting areas.
2. Providing and preparing soil and soil mixes including decomposed granite.
3. Planting, including ground cover, trees, shrubs, seeded and sodded lawns.
4. Staking, guying and espalliering.
5. Establishment Period.

B. Related work in other sections:
1. Section 32 80 00 - Landscape Irrigation
2. Section 32 01 90 - Landscape Maintenance

1.02 QUALITY ASSURANCE AND REQUIREMENTS

A. Standards:
1. Provide plants and planting material meeting or exceeding specifications of Federal, State and County and municipal laws requiring inspection for plant disease and insect control.
2. Provide quality and size conforming to current edition of "Horticultural Standards" for nursery stock as adopted by the American Association of Nurserymen.
3. Plant materials shall be tagged or labeled, indicating the variety of plant, including proper botanical name giving genus, species and variety (if applicable). Plants without identification will not be allowed. Tag one of each bundle or lot with the name and size of plants in accordance with standards of practice of the American Association of Nurserymen.
4. In all cases, botanical names shall take precedence over common names.
5. Plant materials shall be:
   a. Healthy, well-formed, well-rooted, disease and insect free,
   b. Not root-bound, free of deformities, abrasions, knots, injuries or disfigurations.No tree topping is allowed.
   c. Grown by a nursery that is inspected by the Sate Department of Agriculture.

B. Workmanship: Perform work in accordance with the best standards of practice for landscape work and under the continual supervision of a competent foreman capable of interpreting the drawings and specifications.

C. Quantities and types: Furnish plants in the quantities and/or spacing as shown or noted for each location, and of the species, kinds and sizes described in the "List of Plant Materials", or as indicated on the drawings.

D. Verification of dimensions and quantities: Scaled dimensions are approximate. Before proceeding with any work, carefully check and verify dimensions and quantities and immediately inform the Landscape Architect of any discrepancy between the drawings and/or specifications and actual conditions. Work shall be done in any area where there is any such discrepancy until approval for same has been given by the Landscape Architect.

E. Submit documentation to Landscape Architect within twenty-five (25) days after award of contract that plant material is available. Any and all substitutions due to unavailability must be requested in writing prior to confirmation of ordering.

F. Plants shall be subject to review and approval of Landscape Architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right of review and rejection during progress of the work. Submit written request for review of plant material at place of growth to Landscape Architect. Written request shall state the place of growth and quantity of plants to be reviewed. Landscape Architect reserves the right to refuse review at this time if, in his judgment, a sufficient quantity of plants in not available for review.

G. The Contractor shall submit specifications of any item being used on site upon the request of the Landscape Architect.

H. Landscape Architect retains the right to inspect and reject unsatisfactory or defective plant material at any time during the progress of the work.

1.03 SUBMITTALS

A. Plant material photo images for all plants 15 gallon size and larger with written description of container size, plant dimensions- height, width, trunk caliper, nursery source and date of photograph. These images will be the basis for acceptance of plant material delivered to job site.

B. Certification of bulk materials- Import soils, amendments, fertilizers, mulch, seed mixes, etc., stating the source, quantity, and type of material, and stating that the material conforms to the project's requirements. Submit copies of certificates to Owner's Representative and Landscape Architect.

C. Soil Test Reports

D. Complete list of materials proposed to be furnished and installed under this section. Provide manufacturer's or supplier's specifications for material not specified by name.

1.04 SOIL FERTILITY AND AGRICULTURAL SUITABILITY ANALYSIS

A. General:
1. After completion of rough grading and prior to soil preparation, the Contractor shall obtain agronomic soils tests for planting areas. Each soil type shall be tested. A minimum of two samples per site, on large projects, sample every 20,000 S.F. of planting area shall be required. Tests shall be performed by an approved agronomic soils testing laboratory and shall include a fertility and suitability analysis with written recommendations for soil amendment, fertilizer, and chemical conditioner, application rates for soil preparation, auger hole requirements, and post-maintenance fertilization program.
2. On -structure planters with imported soil do not need additional soils analysis. Provide a certificate with each delivery of import soil. Submit copies of certificates to Owner's Representative and Landscape Architect.
3. Soils report recommendations shall take precedence over the minimum amendment and fertilizer application rates specified on the plans only when they exceed the specified minimums. Additional amendment materials and fertilizers required by the soils report shall be paid for by the Landscape Architect.
4. Approved consulting soil testing laboratories:
   a. Soil and Plant Laboratory, Inc.
      1594 N. Main St., Orange, CA 92867 (714) 282-8777
   b. Fruit Growers Laboratory, Inc.
      853 Corporation St., Santa Paula, CA 93063 (805) 659-0910
   c. Wallace Laboratories
      365 Coral Circle, El Segundo, CA 90245 (310) 615-0116

B. Certification: Provide a certificate with each delivery of bulk materials- Import soils, amendments, fertilizers, mulch, etc., stating the source, quantity, and type of material, and stating that the material conforms with the project's requirements. Submit copies of certificates to Owner's Representative and Landscape Architect:
1. For bulk delivered organic fertilizer, show on the certificate, the volume, net weight, and percentages of nitrogen, phosphorus and potassium.
2. For other fertilizers and soil conditions in containers, show on the certificate the total quantities by weight and volume for each material. The Landscape Architect reserves the right to take and analyze samples of materials for conformity to specifications. Furnish samples upon request of the Landscape Architect.
3. Samples: In addition to other samples which may be requested by the Landscape Architect, for each of the specified fertilizers, mulch and soil conditioners.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery:
1. Deliver plants with legible identification labels.
2. Deliver fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trademark, and conformance to state law.

B. Storage:
1. Maintain and protect plants in a healthy, vigorous condition.
2. Heel-in bare root and balled plant material with damp soil to protect from sun and wind.

C. Handling:
1. Do not drop plant materials.
2. Do not pick up container plant material by stems or trunks.

1.06 WARRANTY AND REPLACEMENT

A. General:
1. Warrant shrubs and ground covers to grow and be healthy for a period of ninety (90) days after completion of the specified maintenance period.
2. Warrant trees to live and grow in an acceptable upright position for a period of one (1) year following completion of the specified maintenance period.

B. Replacements: Any materials found to be dead, missing, or in poor condition during the maintenance period shall be replaced immediately. The Landscape Architect shall be the sole judge as to the condition of material. Material to be replaced within the guarantee period shall be replaced by the Contractor within 15 days after written notification by the Landscape Architect. The Landscape Architect may at his discretion extend the maintenance period if he determines the above has a detrimental effect on the project.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. Existing soil on the site shall be used for planting purposes insofar as possible, except on-structure planters and storm water filtration planters, and shall be free of debris, oil, weeds or other foreign matter. Contaminated soil shall be removed and replaced with acceptable existing soil or imported soil.

B. Imported topsoil, if indicated on plans, shall be sandy textured. Silt plus clay content of this soil shall not be greater than 15% by weight. The boron content of this soil shall not be greater than 1 part per million as measured on the saturation extract. The sodium absorption ratio (SAR) shall not exceed 3.0 millimeters per centimeter at 25 degrees C. In order to insure conformance, samples of the imported soil shall be submitted to an approved soils testing laboratory listed above for analysis prior to use. Results of testing shall be delivered to the Landscape Architect for approval to proceed.

C. On-Structure and Storm Water Filtration Planter Backfill Soil:
1. "Light Weight Blend-S" from Agromin Horticultural Products, contact Brain Critchley at 800 247-6646
   a. Soil mix shall be a sandy loam having a minimum infiltration rate of 5 inches per hour.
2. "On-Structure Planter Soil Mix from Gail Materials, Corona, CA, 951 667-6106
   a. Soil mix shall be a sandy loam having a minimum infiltration rate of 5 inches per hour.

D. Potting Soil: Potting soil shall be Kellogg's Potting Soil:
1. Palm, Cactus, Citrus Potting Mix for plants that need good drainage.
2. Moisture Pro Potting Mix for plants that need stable soil moisture content.
3. All Natural Potting Mix for plants that need average moisture and drainage.

2.02 FERTILIZERS AND SOIL CONDITIONERS

A. Organic Amendment: Nitrolized-mineralized redwood shaving (.5% actual nitrogen) or nitrolized-mineralized fir shaving, (.8% actual nitrogen) or nitrolize-mineralized fir bark (1% actual nitrogen). It shall be fine textured, having actual minimum 80% passing #8 screen and minimum 95% passing #4 screen, Salinity shall not be higher than 3.5 millimeters per centimeter at 25 degrees C as measured by saturation extract conductivity.

B. Commercial Fertilizer: An approved standard brand conforming with pertinent State fertilizer laws, uniform in composition, dry and free flowing. Provide the percentages by weight.
1. Agricultural gypsum: Containing 98% minimum calcium sulphate, (expressed as elemental).
2. Soil Sulfur: Agricultural grade containing a minimum of 99% sulfur.
3. Iron Sulfate: 20% iron derived from ferric and ferrous sulfate, 10% sulfur, (expressed as elemental).
4. Calcium Carbonate: 95% lime as derived from oyster shells.

C. Planting Tablets: Slow-release, seven gram, 12-8-8 analysis as manufactured by Gro-Power, Inc, applied per manufacturer's instructions.

2.03 PLANT MATERIALS

A. Plants shall be vigorous, of normal growth, free from weeds, disease, insects, insect eggs and larvae. Plants shall equal or exceed the measurements specified in plant list. The landscape architect is the sole judge as to acceptability.

B. No container plants that have cracked or broken root balls when taken from containers will be accepted.

C. Plants shall have been grown under climatic conditions comparable to those of the project site, unless otherwise specifically approved by the Landscape Architect.

D. Nomenclature conforms to customary nursery usage; for clarification, the term "multi-trunk" defines a plant having three or more trunks of nearly equal diameter.

E. Seeds are to be fresh, clean, new crop seed composed of the varieties, mixed in proportions and testing minimum percentage of purity and germination as indicated herein.

F. Substitute plant material will not be permitted unless specifically approved in writing by the Landscape Architect.

2.04 MULCH

A. "Walk-On-Bark", as supplied by Agromin Horticultural Products, American Amendment Products, Artesia Sawdust Products or Sequoia Forest Products.
1. Shall be a shredded wood and bark residual from pine and/or fir.
2. Grading:

Sieve Size	Percent Passing
1"	95%
3/8"	50%
6 mesh	25%

3. Shall be acid in reaction with pH no higher than 5.0.
4. Ash content not exceed 7 percent based on dry weight.
5. Moisture shall vary from 12 percent to 35 percent based on fresh material.
6. Shall be free of soluble salts such that the saturation extract conductivity shall not exceed 1.5.

2.05 GUYING AND STAKING MATERIALS

A. Wood Tree Stakes: Pressure-treated lodge pole pine, 2 1/2" diameter, 10' long.

B. Steel Pipe Tree Stakes: Schedule 40 steel pipe, 1 1/2" diameter x 10' with metal cap, galvanized and pre-drilled with three holes at 6", 7", and 9 - 6" O.C. respectively.

C. Ties: Cinch-Ties, V.I.T. Products; or Arbor Ties, Deep Root Partners; or approved equal.

D. Steel Guy Anchor: Foresight Products; Duckbill Guy Anchor Kit or approved equal.

E. Guying Hardware:
1. Wire: Pliable 9 gauge galvanized.
2. Hose: 1/2" new rubber hose.
3. Wire Guards: 1/2" diameter white polyethylene plastic pipe, full length of wire.
4. Turnbuckles: Galvanized, or dip-painted, size as required.
5. Cable Clamps: Galvanized, size as required.

2.06 HEADER AND EDGING

A. Wood Headers: Shall be installed according to the respective details and in strict adherence to the construction plan. Wood shall be 2" x 4", 1" x 4" or 3 laminated 1/2" x 4" rough, construction heart redwood, free from knots and splits. Wood stakes shall be 2" x 4" x 18" long construction, heart, redwood secured to header with 16 common galvanized nails. Header shall be secured at 5 feet maximum intervals. All stakes shall be placed on groundcover side of header board.

B. Plastic Edging: Recycled polyethylene material as indicated on drawings.
1. Acceptable manufacturers:
   a. Valley View Industries; Poly Board
   b. Epic Plastics; Bend-a-Board

C. Metal Edging: As noted on Drawings.

D. Concrete Edging: As noted on Drawings.

2.06 WATER: Furnished by Owner, transport as required, unless otherwise specified.

2.07 SOD

A. As indicated on drawings. Deviation from type and variety indicated on Drawings shall not be allowed without written approval by Landscape Architect.

B. Submit shipping receipts for verification.

2.08 DRAINAGE MATERIAL (CRUSHED ROCK)

A. 3/8" crushed rock - 95 - 100% passing through a 3/8" screen; 0 - 5% passing through No. 8 mesh; 80 - 100% per cubic yard.

2.09 DECOMPOSED GRANITE:

A. As indicated on Drawings.

B. 3/8" minus aggregate with stabilizer binder additive.

C. Pre-mix Stabilizer: Stabilizer Solutions Inc.

2.10 SAND

A. Washed, clean plaster sand.

2.11 LANDSCAPE FABRIC

A. Minimum 3.0 oz fabric, 100% spunbonded polypropylene with UV inhibitors, Black color. Minimum 10 year guarantee. Galvanized steel pins or Nylon Pegs.
1. Acceptable manufacturers:
   a. Typar Landscape Products, Professional Landscape Fabric Style 3301;
   b. Dewitt Company, Pro-5 Weed Barrier

2.12 ROOT BARRIER

A. Tree Root Barrier Panels: High-strength Polypropylene, minimum .080 inches wall thickness and be made of 50% post-consumer recycled polypropylene. Material shall contain U.V. inhibitors.
1. Acceptable manufacturers:
   a. NDS- "SM" Series sheet material; or
   b. DeepRoot Partners- UB panels; or
   c. Century Products- CR Series Root barrier molded rolls.

B. Biobarrier Root Control System: 100% spunbonded polypropylene geotextile fabric with nodules containing trifluralin, a selective, pre-emergence herbicide to prevent root growth.

2.13 OTHER MATERIALS

A. Materials not specifically described but required for a complete and proper installation shall be selected by the Contractor and product data shall be submitted to Landscape Architect for approval.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS AND PROTECTION OF PROPERTY

A. Prior to excavation for planting or placing of stakes, locate all utility lines, electrical cables, and conduits so that proper precautions may be taken not to damage such improvements. In the event of a conflict between such lines and plant location, promptly notify the Landscape Architect, who shall arrange for relocation of one or other. Failure to follow this procedure places upon the Contractor the responsibility to repair damages at his own expense, which result from such work.

B. Prior to planting, remove weeds, rocks, and debris.

3.02 SOIL PREPARATION

A. Soil Tilling: Cross rip planting areas to a depth of 9 to 12 inches.

B. Uniformly broadcast and thoroughly incorporate the soil preparation mix as indicated on the Drawings to a depth of 6" by mechanical tiller or similar means.

C. Pre-Plant Weed Control:
1. If live perennial weeds exist on site at the beginning of work, spray with a non-selective systemic contact herbicide, as recommended and applied by an approved licensed landscape pest control advisor and applicator. Leave sprayed plants intact for at least fifteen (15) days to allow systemic kill or as directed by advisor. Repeat three times until site is weed free.
2. Maintain site weed free until final acceptance by Owner utilizing mechanical, manual and/or chemical treatment.
3. Dispose weeds off-site.

3.03 Soil Installation for On-Structure Planters

A. Verify that all drains, waterproofing, protection boards, deck penetrations are in place and certified as complete prior to soil installation. Do not disturb planter wall waterproofing during placement of soil mix.

B. Install irrigation system. Contractor may place 6" protective layer of specified planting mix over planter waterproofing and topping slab for protection.

C. Place soil in 8-inch high lifts, moisten and compact to 80 to 90 % relative compaction. Repeat until desired planter grade elevation is achieved. A plate-type vibrating compactor shall be used for compaction operation. Typically, soil shall mound up toward center of planter at 3:1 slope or as indicated on the Drawings.

D. Trees shall be planted during time of planter soil compaction. Landscape Architect shall be called to the job site to review placement of trees prior to soil installation.

E. After soil is compacted and brought to grade and trees have been installed, Landscape Architect shall review and approve soil grades prior to shrub planting.

F. After shrub planting, recompact soil disturbed by plant installation.

G. Over-excavation of plant pit is not required for on-structure planters with prepared soil mix.

H. If settlement occurs anytime up to Final Acceptance, bring soil levels to finish grade as indicated on the Drawings, adjust planting depth of plants if necessary. Mound soil as needed over all tree rootballs as directed by Landscape Architect.

3.04 GRADING

A. Where any portion of the irrigation system is installed after grading and the fertilizing has been performed, refill and refertilize the upper portion of the backfill in accordance with the provisions of this section.

B. Fine grading: Upon completion of rough grading, perform required finish grading of planting areas.
1. Do not work the soil when moisture content is so great that excessive compaction will occur or so dry that clods will not break readily.
2. Apply water, if necessary, to provide ideal content for tilling and for planting.
3. Grade to finish grades:
   a. Remove or redistribute excess soil before the application of fertilizer and mulch.
   b. Where soil is to be replaced by plants and mulch, make allowance to prevent deficiency in the depth of mulch when planting is completed.
   c. Remove all rocks and debris.
4. Dig out and remove weeds and grasses during this work. Dispose of off-site.

C. Grades and elevations: When finish grading is completed (including weeding and fertilizing), and the soil has dried sufficiently to be readily worked, grade the lawn and planting areas to the elevations shown on the Drawings:
1. Where grades are not otherwise indicated, provide uniform levels or slopes between points where elevations are given.
2. Make minor adjustments of grade where so directed by the Landscape Architect.
3. Provide finished grades which are even, uniform and without abrupt change of surface.
4. Slope soil away from structures to allow positive runoff of water. Grade low spots and pockets when soil is at optimum moisture content for working, provide for positive drainage.
5. Provide final finished grades in planting areas 2" below paving and curbs or as shown on the Drawings.
6. Remove soil generated by excavations to an approved off-site location, unless utilized to obtain desired grade.

3.05 PLANT PIT AND BACKFILL SOIL

A. Excavate plant pits for container plants with vertical sides and roughened surfaces, and shall be the size noted on Drawings.

B. Backfill Soil Mix Per Yard of Soil: See Drawings

C. Thoroughly mix materials and place in the pit so that they are evenly distributed and without clods or lumps. Position the plant in the hole and backfill no higher than halfway up the rootball. Place the recommended number of plant tablets evenly around the perimeter and immediately adjacent to the root ball at a depth which is between the middle and the bottom of the rootball. Complete the backfilling, gently tamp and thoroughly water settle.

3.06 PLANTING TREES, SHRUBS AND GROUND COVER

A. General:
1. Prior to planting, perform (1) one percolation test per 6000 sq. ft. of landscape area. Fill a 24" box size hole with water. Immediately notify Landscape architect if it does not completely drain within 24 hours. Are test shall be observed by the site superintendent and certified in writing that the test was performed and the observed results noted.
2. Plant nursery stock immediately upon delivery to the site and approval by the Landscape Architect.
3. Do not plant until irrigation system installation is complete and until final grades are established and approved.
4. Plant locations shown on the drawings are tentative and subject to minor modification in the field as directed by the Landscape Architect. Make such modifications at no additional cost to Owner.
5. Set plants so that when settled they will bear the same relation to the natural grade in the container.
6. See Drawings for Special Cactus, Succulent, Citrus or any other well-drained backfill mix.
7. See Drawings for Special Camellia, Azalea, Gardenias, Fern, or any other acid-loving plant fertilizer.

B. Planting Trees:
1. Dig tree holes with vertical walls and level bottoms, make the hole twice the diameter of the root ball and excavate and re-compact bottom 6" of the planting hole. Roughen sides and bottom of planting hole.
2. Backfill the hole with the specified mix, set fertilizer tabs per plan, firmly tamp soil and immediately water settle.

C. Planting shrubs, vines, and ground cover:
1. Plant shrubs and vines in pits at least twice the diameter of the root ball.
2. Loosen the compacted soil at bottom and sides of pit.
3. Set the plant and backfill to the required grade with the specified mix, thoroughly tamping and watering.
4. Remove vines from stakes, untie and fasten to adjacent surfaces as directed by the Landscape Architect.
5. Prepare depressed water basin as wide as plant rootballs at each plant. Water thoroughly, backfilling voids with the backfill mix.
6. Plant ground cover in prepared planting bed. Moisten area prior to planting, do not plant in dry soil. Set cuttings so crown of plant will be level with finished grade after settling of soil, then backfill and water. Ground cover shall be planted in straight rows and evenly spaced. Plant at intervals noted on drawings. Triangular spacing shall be used unless noted otherwise on drawings.
7. Mulch Cover: All ground cover, perennial and annual beds shall be top dressed with 2" layer of mulch. All shrub areas shall be top dressed with 3" layer of mulch.

D. Watering basin: Construct a mound of soil around each tree and plant to form a watering basin, placed at the edge and following the shape of the root ball:
1. Make watering basin berm for trees, shrubs, and vines from 5 gallon size and larger containers at least 4" high and at edge of plant pit. Unless otherwise directed, make other mounds at least 2" high.
2. On slopes, construct half-mounds on the lower side if full mounds are not practical.
3. Watering basins in shrub areas shall be planted with ground cover in normal pattern.
4. If soil settling occurs, bring plants back up to grade of adjacent planting areas.

3.07 PLANTING LAWNS

A. General:
1. Prepare the areas as previously specified, then rake and roll to a smooth, firm surface with uniform grade.
2. Secure the Landscape Architect's approval of prepared area prior to planting. Plant sod or seed as indicated on drawings.

B. Sod Installation:
1. Carefully smooth surfaces to be sodded, regrade as required.
2. Install sod within 24 hours after its delivery to the job site. Avoid laying sod on dry soil.
3. Set sod tight, without gaps between pieces, stagger joints, and roll with a 200 lb., water-ballast roller immediately after the first watering.
4. Keep sodded areas thoroughly watered and continuously moist as required to maintain healthy condition.
5. Protect sodded areas by erecting temporary fences, barricades, signs, and other protection as needed.
6. After sod is established, decrease frequency and increase amount of water per application as necessary.

3.08 WATERING

A. Immediately after planting, apply water to each tree, vine and shrub by means of a hose in the planting basin until roots are completely saturated and soil settled. Add additional backfill to voids.

B. Provide thorough watering of ground cover by means of the irrigation system within one hour after ground cover planting.

C. Apply water in such quantities, and at such intervals, as required to keep the ground moist at all times well below the root system of grass and other planting.

D. Provide hose watering for plants which cannot be efficiently watered with the irrigation system.

3.09 TREE STAKING AND GUYING

A. Trees smaller than 30" box size:
1. Remove nursery stakes.
2. Guy immediately after planting, using not less than three guys per tree unless otherwise directed.
3. Protect bark of tree by covering wire guys.
4. Use the specified guy anchors, driving to a minimum of 12" into undisturbed soil and tightening guy lines to firm tension.

C. Trees in planters over concrete structural slab shall be guyed and secured to anchors as directed.

A. Tree Pruning: At no time shall trees or plant materials be pruned, trimmed or topped prior to delivery, and any alteration of their shape shall be conducted only with approval and when in the presence of the Landscape Architect.

3.10 VINE ESPALIERING

A. Unless otherwise directed by the Landscape Architect, fasten vines against fences or walls with vine ties and train them in normal fan position.

3.11 DECOMPOSED GRANITE

A. Thoroughly and uniformly blend stabilizer additive to decomposed granite per additive manufacturer's specification.

B. Blend 16 pounds of additive per ton of decomposed granite or per manufacturer.

C. Upon thorough moisture penetration, compact decomposed granite to 95% relative compaction for paving surfaces and firmly compact with hand-held tamper for planting beds.

3.12 CLEANUP

A. After planting operations have been completed, remove trash, excess soil, rocks, empty plant containers and rubbish from the property. Scars, ruts, or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site.

B. Leave the site broom-clean and wash down paved areas within the Contract area, leaving the premises in a clean condition. Walks shall be left in a clean and safe condition.

3.13 OBSERVATION SCHEDULE

A. Notify the Landscape Architect seven (7) days in advance for the following site visits:
1. Pre-job conference
2. Final grade review
3. Plant material review
4. Plant layout review
5. Soil preparation and planting operations. One tree with each type of specified staking shall be approved prior to planting of trees.
6. Pre-maintenance
7. Final walk-through

B. When observations are conducted by someone other than the Landscape Architect, the Contractor shall show evidence in writing of when and by whom these inspections were made.

C. No site visits shall commence without items noted in previous Observation Reports either completed or remedied unless such compliance has been waived by the Owner. Failure to accomplish punch list tasks or prepare adequately for desired inspections shall make the Contractor responsible for reimbursing the Landscape Architect at the current billing rates per hour (plus transportation costs). No further inspections shall be scheduled until this charge has been paid and received.

3.14 MAINTENANCE

A. Maintain planting as specified in Landscape Maintenance section after approval of plant installation by the Landscape Architect.

B. Work Included:
1. Watering, weeding, cultivating, caring for the plants, edging, mowing, spraying, pruning, and other maintenance activities required to keep the plant materials in a healthy growing condition and to keep the planted areas neat and attractive during the maintenance period.
2. Replace any plants that die or are deteriorating within (5) days of discovery. Plants that are replaced just prior to end of maintenance may require the maintenance period to be extended at no cost to Owner.
3. Provide equipment and means for proper application of water to those planted areas not equipped with an irrigation system.
4. Maintain, adjust, repair irrigation system and equipment as necessary.
5. Protect planted areas against damage, including erosion and trespassing, by providing and maintaining proper safeguards.
6. Maintain original positive drainage, slope soil away from structures to allow positive runoff of water.
7. Where lawn areas require re-sodding, maintain such areas for at least 30 calendar days after re-sodding unless otherwise approved by the Landscape Architect.
8. Mow the grass with a reel type mower, equipped with rollers, before the areas exceed 3" in height but not less than 2". Collect the grass clippings during mowing operations and remove from the site.
9. After each cutting, trim the edge of the grass to a neat and uniform line.
10. After the initial mowing, mow grass a minimum of once every seven days, with a final mowing four days prior to the end of the maintenance period. Provide fertilizer application 3 days after the final mowing using material specified on Drawings or per soil analysis.
11. Keep planted areas free of debris and weeds. Weeds shall be controlled and eliminated by either manual or chemical means as required. In no event will the project receive final approval and acceptance until it is free of weeds and/or unspecified plant materials.

C. At the end of the maintenance period, plant material shall be in a healthy growing condition. Plant material shall show signs of establishment with new growth. Project will not be accepted if plants show signs of stress or transplant shock.

D. Repairs:
1. Exterminate gophers and moles and repair damage.
2. Where depressions are caused by vehicles, bicycles, or other traffic, fill with topsoil, repair landscape materials, and add the required mulch.

E. Fertilizing: Apply material specified on Drawings or per soil analysis starting 30 days after installation of area, distributed uniformly. Water thoroughly immediately after application.

F. Extension of maintenance period: Continue the maintenance period at no additional cost to Owner until previously noted deficiencies have been corrected.

3.13 GUARANTEE

A. Guarantees after completion of maintenance period and final acceptance will be contingent on Owner's proper continuation of maintenance program.

B. The Contractor, in protecting his own interests, is obligated to periodically check work areas during his guarantee period to insure proper maintenance procedures are being implemented.

C. In case of negligent or improper maintenance, the Contractor shall state in writing to the Owner his observations and recommendations. Any claims not in writing will not be considered.

D. All cuttings, sod, and container plants up to and including 15 gallon size shall be guaranteed by the Contractor as to growth and health for a period of ninety (90) days after completion of maintenance period and final acceptance.

E. Guarantee boxed and field-grown trees to "live and grow" in an "acceptable, upright position" for a period of one (1) year after completion of the specified maintenance period and/or final acceptance. Definition of "live and grow" and "acceptable, upright position" shall mean that the tree must, during the guarantee period, sustain a healthy, vigorous appearance, It shall not defoliate more than 30% nor shall 30% of the foliage be dried and unhealthy in appearance. If the tree, during the guarantee period does not sustain this specified appearance, it shall be removed and replaced by a tree equal to the original specification. Repair and replace any damage to contiguous planting, structure, lighting or sprinklers during replacement operations without cost to the Owner.

F. Within fifteen (15) days of written notification by Owner, remove and replace guaranteed plant materials which for any reason fail to meet the requirements of the guarantee. Replacement shall be made with plant materials originally specified and shall meet original guarantees.

END OF SECTION

SECTION 32 01 90
LANDSCAPE MAINTENANCE

PART 1 - GENERAL

1.01 SUMMARY

A. Work specified in this section: Furnish labor, material, equipment and services required to maintain the landscape planting and irrigation in an attractive condition as specified herein for a period of **(90) Ninety days.**
1. Trees, Shrubs and Ground Cover Maintenance
2. Lawn Maintenance
3. Fertilization
4. Irrigation and Watering Schedule Adjustments
5. Clean Drains grates, inlets and lines
6. Debris removal from Landscape Areas

B. Related Work Specified in other Sections:
1. Landscape Planting - Section 32 90 00
2. Landscape Irrigation - Section 32 80 00

1.02 QUALITY ASSURANCE

A. Work Force: Contractor's representative shall be experienced in landscape maintenance and shall have received an education in ornamental horticulture.

1.03 MAINTENANCE PERIOD

A. Maintain areas involved in this Contract during the progress of the work and during the maintenance period until final acceptance of the work by the Owner's Authorized Representative.

B. Improper maintenance or possible poor condition of any planting at the termination of the scheduled maintenance period may cause postponement of the final completion date of the Contract. Maintenance shall be continued by the Contractor until all work is acceptable.

C. In order to carry out the plant establishment work, furnish sufficient men and adequate equipment to perform the work during the plant maintenance period.

D. Start of Maintenance Criteria - Maintenance period shall not start until all elements of construction, planting and irrigation for the entire project are complete, Project will not be segmented into maintenance phases, unless specifically authorized in writing by the Owner's authorized representative.

E. Request an inspection to begin the plant maintenance period after planting and related work has been completed in accordance with the Contract Documents, A prime requirement is that all groundcover and lawn areas be planted., If such criteria is met to the satisfaction of the Owner's Authorized Representative, a field notification will be issued to the Contractor to establish the effective beginning date of the period.

F. Any day when the Contractor fails to adequately maintain plantings, replace unsuitable plants or do weed control or other work, as determined necessary by the Landscape Architect or Owner's Authorized Representative, will not be credited as one of the plant maintenance working days.

G. The maintenance period will be extended if the provisions required within the plans and specifications are not fulfilled.

H. Prior to being placed on maintenance, the Contractor shall submit a schedule of activities planned during the maintenance period. This shall be accepted by Architect prior to the start of Maintenance. All schedule changes shall be documented and accepted by the Owner's Authorized Representative.

1.04 GUARANTEE AND REPLACEMENT

A. Guarantee plant material installed under the Contract against poor, inadequate or inferior materials and/or workmanship, Replace material at Contractor's expense that which is missing, dead or in poor condition due to faulty materials or workmanship, as determined by the Landscape Architect or Owner's Authorized Representative.
1. All trees 15-gallon size and larger shall be guaranteed to live, grow and be healthy for a period of one year after completion of the specified landscape maintenance period.
2. All shrubs, turf and ground cover plants shall be guaranteed to live, grow and be healthy for a period of 90 days after completion of the specified landscape maintenance period.

B. Replace material within five (5) days of written notification by the Owner.

C. The commencement of Guarantee period shall be noted in the Certificate of Substantial Completion which shall be signed by Owner, Contractor and Landscape Architect.

1.05 INSPECTIONS

A. Notify Owner's Authorized Representative at least seven (7) days in advance of an anticipated inspection. Inspections are as follows:
1. Commencement of maintenance, (Pre-maintenance)
2. At thirty (30) day intervals through maintenance period.
3. Completion of maintenance period - Final walk-through - ten (10) days prior to end of maintenance period.

B. All conditions noted in Landscape Planting Section shall apply herein.

1.06 FINAL ACCEPTANCE OF THE PROJECT

A. Prior to the date of the Final Walk-through, acquire from the architect approved reproducible prints and final record from the job record set of changes made to plans during construction, label said prints "As-Built", and deliver to the Owner's Authorized Representative and as required to any Local Agency, Deliver to the Owner's Authorized Representative, the "Landscape and Irrigation Guarantee" as required, Guarantee shall be on the Contractors letterhead and dated the final acceptance date.

B. Deliver turn-over items noted in other specification sections prior to a Final Walk-through.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials used shall conform to Landscape Planting specifications in other sections or shall otherwise be acceptable to the Owner, Deliver to Owner monthly record of all herbicides, insecticides and disease control chemicals used.

B. Top dress fertilizer shall consist of the following percentages by weight unless otherwise noted in a project Soils Report and shall be mixed by a commercial fertilizer supplier: 19% nitrogen, 6% phosphoric acid, 8% potash.

PART 3 - EXECUTION

3.01 MAINTENANCE

A. Keep areas free of debris and planted areas seeded and cultivated at intervals of not more than ten (10) days. Watering, mowing, rolling, edging, trimming, fertilization, spraying and pest control, as may be required, shall be included in the maintenance permit, Street gutters shall be included within the debris/silt removal program, Keep area drains and pipe free of silt and debris,

B. Maintain adequate protection of the project. Repair damaged areas at Contractor's expense.

C. Remove trash weekly.

3.02 TREE AND SHRUB CARE

A. Material: Maintain a large enough water basin around plants so that enough water can be applied to establish moisture throughout the major root zone, When hand-watering, use a water wand to break the water force, Maintain mulches to reduce evaporation and frequency of watering.

B. Pruning Trees:
1. Prune trees to develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached; which have vertical spacing of from 1" to 48" and radial orientation so as not to overlay one another; to eliminate diseased or damaged growth; to eliminate narrow V-shaped branch forks that lack strength; to reduce toppling and wind damage by thinning out crowns to maintain growth within space limitations; to maintain a natural appearance to balance crown with roots.
2. Under no circumstances will stripping of lower branches ("raising-up") of young trees be permitted, Lower branches shall be retained in a "lipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk), Lower branches can be cut flush with the trunk only after the tree is able to stand erect without staking or other support, Remove sucker growth if deemed appropriate by the Owner's authorized representative.
3. Thin out treetops and shrubs when necessary to prevent wind storm damage.
   The primary pruning of deciduous trees shall be done during the dormant season, Prune damaged trees or those that constitute health or safety hazards at any time of the year as required to eliminate unsafe conditions.

C. Trimming Shrubs:
1. The objective of shrub pruning are the same as for trees, Do not clip shrubs into balled or boxed forms unless such is required by the design and directed by the Landscape Architect.
2. Make pruning cuts at lateral branches or buds or flush with the trunk, "Stubbing" will not be permitted.

D. Staking and Guying: Remove stakes and guys as soon as they are no longer needed, Periodically inspect stakes and trees to prevent girdling or rubbing that causes bark wounds, Replace broken stakes and ties with specified materials, Trees damaged by staking and guying shall be replaced with like kind and size.

E. Weed Control: Keep basins and areas between plants free of weeds. Use recommended legally approved herbicides, Avoid frequent soil cultivation that damage shallow roots, Use mulch to help prevent weed seed germination,

F. Insect and Disease Control: Maintain a reasonable control with approved materials.

G. Replacement of Plants: Replace dead, dying all missing plants and plants of a size, condition and varieties acceptable to Owner's authorized representative at Contractor's expense.

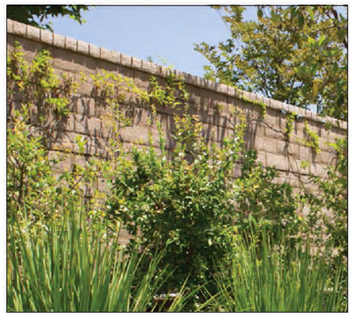
3.03 Fertilization
A. Fertilize plantings with the following or as noted in horticultural Soils Report:
1. At the end of the first 30-day and at 30-day intervals apply top dress fertilizer as specified,
2. Should maintenance period be extended, apply specified fertilizer at 30 day intervals,
3. After application, water fertilizer thoroughly into soil,
4. Avoid applying fertilizer to the root ball or base of main stem; rather, spread evenly under plant drip line,

3.04 GROUND COVER CARE
A. Weed Control: Control weeds with chemical systemic spray or by mechanical means to prevent damage to planted materials,
B. Watering: Water enough that moisture penetrates throughout root zone and only as frequently as necessary to maintain healthy growth,
C. Pruning: Prune ground cover in a naturalistic fashion to keep in bounds and trim top growth as necessary to achieve an overall neat appearance,
D. Replacement of Plants: Replace dead, dying all missing plants and plants of a size, condition and varieties acceptable to Owner's authorized representative at Contractor's expense.

3.04 LAWN AND TURF CARE
A. Mowing and Edging:
1. Mowing of turf will commence when the grass has reached a recommended height for the specified species, Mow at least weekly, Turf must be well-established and free of bare spots and weeds to the satisfaction of the Landscape Architect prior to final acceptance,
2. Excess grass clippings as determined by the Landscape Architect shall be picked-up and removed from the site and premises,
3. Edge lawn weekly or as needed for neat appearance, Clippings shall either be vacuumed or swept off walks,
4. Aerify compacted areas to improve water penetration whenever needed,

B. Watering: Lawns shall be watered at such frequency as weather conditions require to replenish soil moisture through the root zone and to maintain healthy growth, Comply with any water use restrictions however deep watering is recommended to promote drought tolerance,
C. Fertilizing: 3/4 pound of nitrogen per 1,000 square feet of lawn area in the form of a general all-purpose fertilizer, Refer to Soils Report recommendations,
D. Weed Control: If needed, control broad leaf weeds with selective herbicides,

3.05 IRRIGATION SYSTEM
A. Check system weekly for proper operation and coverage, Lateral lines shall be flushed out after removing the last sprinkler head or two at each end of the lateral, Adjust heads as necessary for unimpeded coverage and no overspray,
B. Set and program automatic controllers for seasonal water requirements, Give Owner's representative a key to controllers and written instructions on how to turn off system in case of emergency,
C



PROTO-II™ WALL



MFR. - PROTO-II™ WALL
STYLE - SLUMP STONE with
THREE SCORE CAP
COLOR - **MISSION**

PERIMETER WALLS &
INTERIOR LOTS

MASONRY WALL





REDWOOD FENCING

RAIL FENCE



ACCENT PAVERS



MFR. - BELGARD PAVERS
(15-3/8" x 20-1/16" x 2-3/8")
STYLE - MEGA ARBEL PATIO
COLOR - MONTICETO

ACCENT PAVING



WALK-ON-BARK

MFR. - AGROMIN
STYLE - ES-2 MULCH

MASONRY WALL



CORTEN STEEL PLANTER

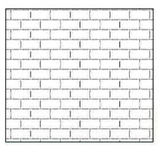


MFR. - PLANTER WORX
CUSTOM SHAPE

GARDEN PLANTERS



AQUA-VIA I PAVER



MFR. - ACKERSTONE
PATTERN -
RUNNING BOND
COLOR: DESERT BLEND

PERMEABLE DRIVEWAYS & PARKING STALLS



MFR. - DAVIS
COLOR - NATURAL CONCRETE
FINISH - SAND

WALKWAY PAVING



DECOMPOSED GRANITE PATH



DECOMPOSED GRANITE PATH

Date: 02.06.2017
JOB # 4444

L.A. GROUP
Design Works
Landscape Architecture
24013 Ventura Blvd. Suite 201
Calabasas, CA 91302
p 818.251-9718 f 818.251-9719
email: DesignWorks@lagroupinc.net

OWNER'S STATEMENT:

WE HEREBY STATE WE ARE THE OWNERS OF OR HAVE AN INTEREST IN THE LAND INCLUDED WITHIN THE SUBDIVISION SHOWN ON THE ANNEXED MAP, AND THAT WE ARE THE ONLY PERSONS WHOSE CONSENT IS NECESSARY TO PASS CLEAR TITLE TO SAID LAND. WE CONSENT TO MAKING THE RECORDATION OF SAID MAP AND SUBDIVISION AS SHOWN WITHIN THE DISTINCTIVE BORDER LINES. WE ALSO HEREBY OFFER TO DEDICATE CRAVEN LANE IN FEE TO THE CITY OF CARPINTERIA FOR ROADWAY PURPOSES. WE ALSO HEREBY DEDICATE THE EASEMENTS SHOWN HEREON FOR THE PURPOSES SET FORTH.

_____
DAVID SCOTT ELLINWOOD, OWNER
TRUSTEE OF THE ELLINWOOD TRUST
DATED 04-25-1990

A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT TO THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA
COUNTY OF SANTA BARBARA

ON THIS _____ DAY OF _____, 2017 BEFORE ME, _____ A NOTARY PUBLIC IN AND FOR THE SAID COUNTY AND STATE PERSONALLY APPEARED DAVID SCOTT ELLINWOOD, WHO PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME IN HIS AUTHORIZED CAPACITY AND THAT BY HIS SIGNATURE ON THE INSTRUMENT THE PERSON, OR THE ENTITY UPON BEHALF OF WHICH THE PERSON ACTED, EXECUTED THE INSTRUMENT. I CERTIFY UNDER PENALTY OR PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL

SIGNATURE: _____ PRINT NAME: _____

COMMISSION NO._____ MY COMMISSION EXPIRES (DATE) _____

PLACE (COUNTY) OF BUSINESS_____

BENEFICIARY:

COMMUNITY WEST BANK, N.A.
BENEFICIARY UNDER TWO DEED OF TRUST RECORDED NOVEMBER 16, 2004 AS INSTRUMENT NO. 2004-0121217 OF OFFICIAL RECORDS AND MARCH 10, 2005 AS INSTRUMENT NO. 2005-0021376 OF OFFICIAL RECORDS.

BY: _____
NAME TITLE SIGNATURE

A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT TO THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA
COUNTY OF _____

ON THIS _____ DAY OF _____, 2017 BEFORE ME, _____ A NOTARY PUBLIC IN AND FOR THE SAID COUNTY AND STATE PERSONALLY APPEARED _____ WHO PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME IN HIS AUTHORIZED CAPACITY AND THAT BY HIS SIGNATURE ON THE INSTRUMENT THE PERSON, OR THE ENTITY UPON BEHALF OF WHICH THE PERSON ACTED, EXECUTED THE INSTRUMENT. I CERTIFY UNDER PENALTY OR PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL

SIGNATURE: _____ PRINT NAME: _____

COMMISSION NO._____ MY COMMISSION EXPIRES (DATE) _____

PLACE (COUNTY) OF BUSINESS_____

PREPARED BY:
DAVID R. GRAY, INC.
621 VIA ALONDRA, SUITE 609
CAMARILLO, CA 93012
805-987-3945 805-987-1655 FAX
JOB NO. 1632 JULY 2017
www.drgsurvey.com

SIGNATURE OMISSIONS:

THE SIGNATURES OF THE FOLLOWING EASEMENT HOLDERS HAVE BEEN OMITTED PURSUANT TO SECTION 66436(a)(3)(A)(i-viii) OF THE GOVERNMENT CODE (STATE SUBDIVISION MAP ACT).

HUGH G. THURMOND AND JULIA FULLER, EASEMENT HOLDER FOR DRAINAGE PIPES AND OTHER PURPOSES, RECORDED DECEMBER 13, 1915 IN BOOK 152, PAGE 64 OF DEEDS, THE EXACT LOCATION OF SAID EASEMENT IS NOT DISCLOSED IN THE PUBLIC RECORDS.

JULIA T. FULLER, ET AL, EASEMENT HOLDER FOR DRAINAGE PIPES AND OTHER PURPOSES, RECORDED DECEMBER 13, 1915 IN BOOK 152, PAGE 64 OF DEEDS, THE EXACT LOCATION OF SAID EASEMENT IS NOT DISCLOSED IN THE PUBLIC RECORDS.

THE UNITED STATS OF AMERICA, EASEMENT HOLDER FOR WATER PIPELINES, CONDUITS, PIPES AND OTHER PURPOSES, RECORDED NOVEMBER 2, 1953, IN BOOK 1190, PAGE 116 OF OFFICIAL RECORDS, THE EXACT LOCATION OF SAID EASEMENT IS NOT DISCLOSED IN THE PUBLIC RECORDS.

CITY CLERK'S STATEMENT:

I HEREBY STATE THAT THE CITY COUNCIL OF CITY OF CARPINTERIA, BY MINUTE ACTION ON THE _____ DAY OF _____, 201_, APPROVED THIS MAP AND ACCEPTED ON BEHALF OF THE PUBLIC, THE EASEMENTS AS SHOWN ON THIS MAP FOR PUBLIC USE IN CONFORMITY WITH THE TERMS OF THE OFFER OF DEDICATION AND ACCEPT THE FEE AS DEDICATED HEREON FOR PUBLIC ROAD.

_____ _____
CITY CLERK – CITY OF CARPINTERIA DATE

_____ _____
CITY CLERK – CITY OF CARPINTERIA DATE

CLERK OF THE BOARD STATEMENT:

I, MONA MIYASATO, CLERK OF THE BOARD OF SUPERVISORS OF SANTA BARBARA COUNTY, DO HEREBY STATE THAT PURSUANT TO THE GOVERNMENT CODE SECTION 66464 (STATE SUBDIVISION MAP ACT), THAT THE CERTIFICATES AND DEPOSITS REQUIRED UNDER GOVERNMENT CODE SECTION 66492 AND SECTION 66493 (STATE SUBDIVISION MAP ACT), ON THE PROPERTY WITHIN THIS SUBDIVISION HAVE BEEN FILED AND MADE.

MONA MIYASATO
CLERK OF THE BOARD OF SUPERVISORS
OF SANTA BARBARA COUNTY

BY: _____
DEPUTY

DATE: _____

SURVEYOR'S STATEMENT:

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF UNITED CIVIL, INC. ON JULY 26, 2017. I HEREBY STATE THAT ALL THE MONUMENTS ARE OF THE CHARACTER AND OCCUPY THE POSITIONS INDICATED OR THAT THEY WILL BE SET IN THOSE POSITIONS WITHIN ONE YEAR OF THE RECORDING OF THIS MAP AND THAT THE MONUMENTS ARE, OR WILL BE, SUFFICIENT TO ENABLE THE SURVEY TO BE RETRACED, AND THAT THIS FINAL MAP SUBSTANTIALLY CONFORMS TO THE CONDITIONALLY APPROVED TENTATIVE MAP.

_____ _____
DAVID R. GRAY DATE
P.L.S. NO. 5239
EXPIRES 06-30-2019

PROFESSIONAL LAND SURVEYOR
DAVID R. GRAY
No. 5239
Exp. 6/30/19
STATE OF CALIFORNIA

CITY SURVEYOR'S STATEMENT:

I HEREBY STATE THAT I HAVE EXAMINED THIS MAP AND THAT ALL PROVISIONS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCES HAVE BEEN COMPILED WITH AND THAT I AM SATISFIED THAT THIS MAP IS TECHNICALLY CORRECT, AND THAT THE TRACT MAP AS SHOWN IS SUBSTANTIALLY THE SAME AS IS APPEARED ON THE TENTATIVE MAP AND ANY APPROVED ALTERATION THEREOF.

_____ _____
MARK E. REINHARDT, P.L.S. NO. 6392 DATE
CITY SURVEYOR
CITY OF CARPINTERIA

RECORDER'S STATEMENT:

FILED THIS _____ DAY OF _____, 201_, AT _____M. IN BOOK____ OF MAPS, RECORDS OF SANTA BARBARA COUNTY, AT PAGES_____ AT REQUEST OF DAVID R. GRAY, INC.

FEE: _____

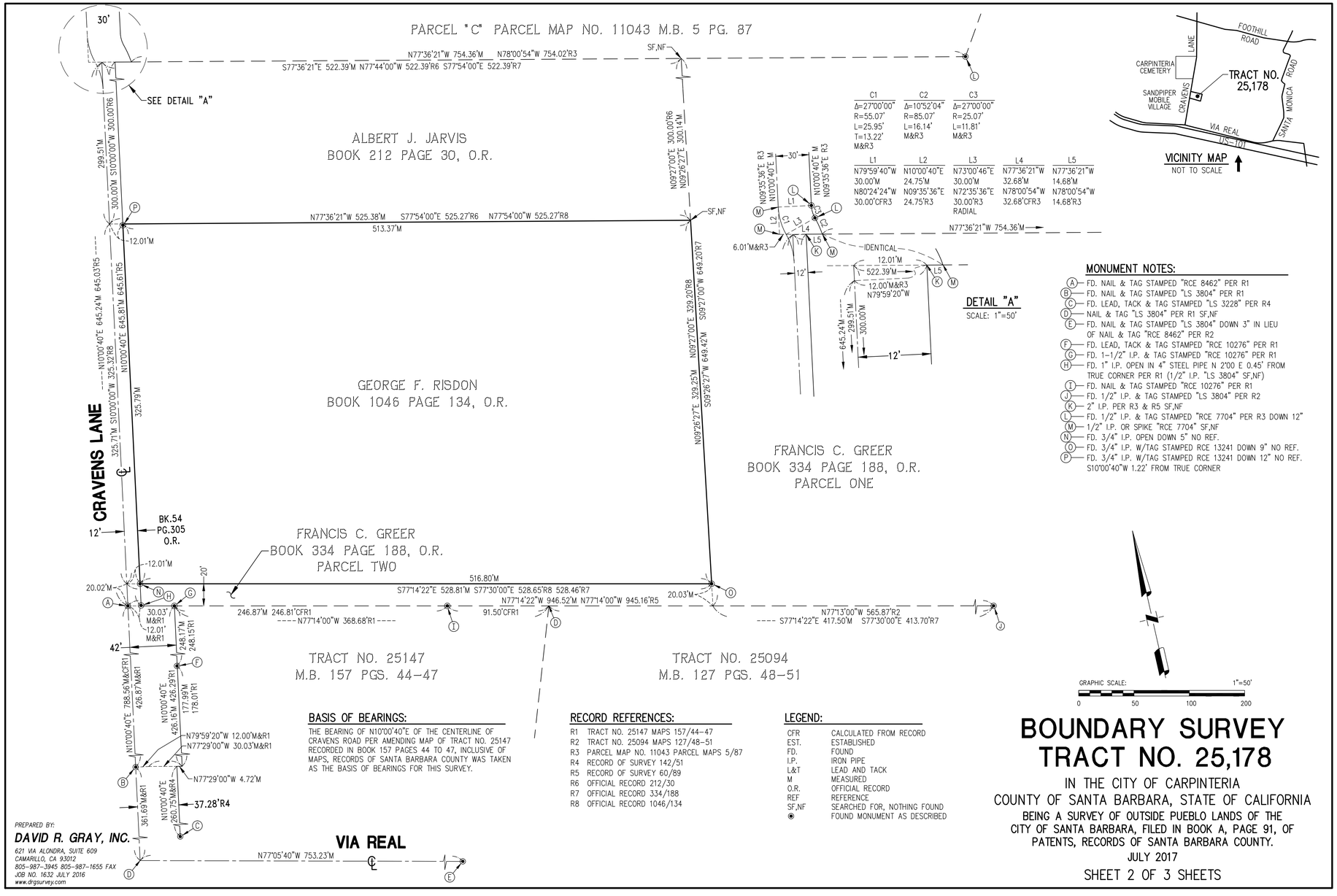
JOSEPH E. HOLLAND
COUNTY CLERK – RECORDER
ASSESSOR

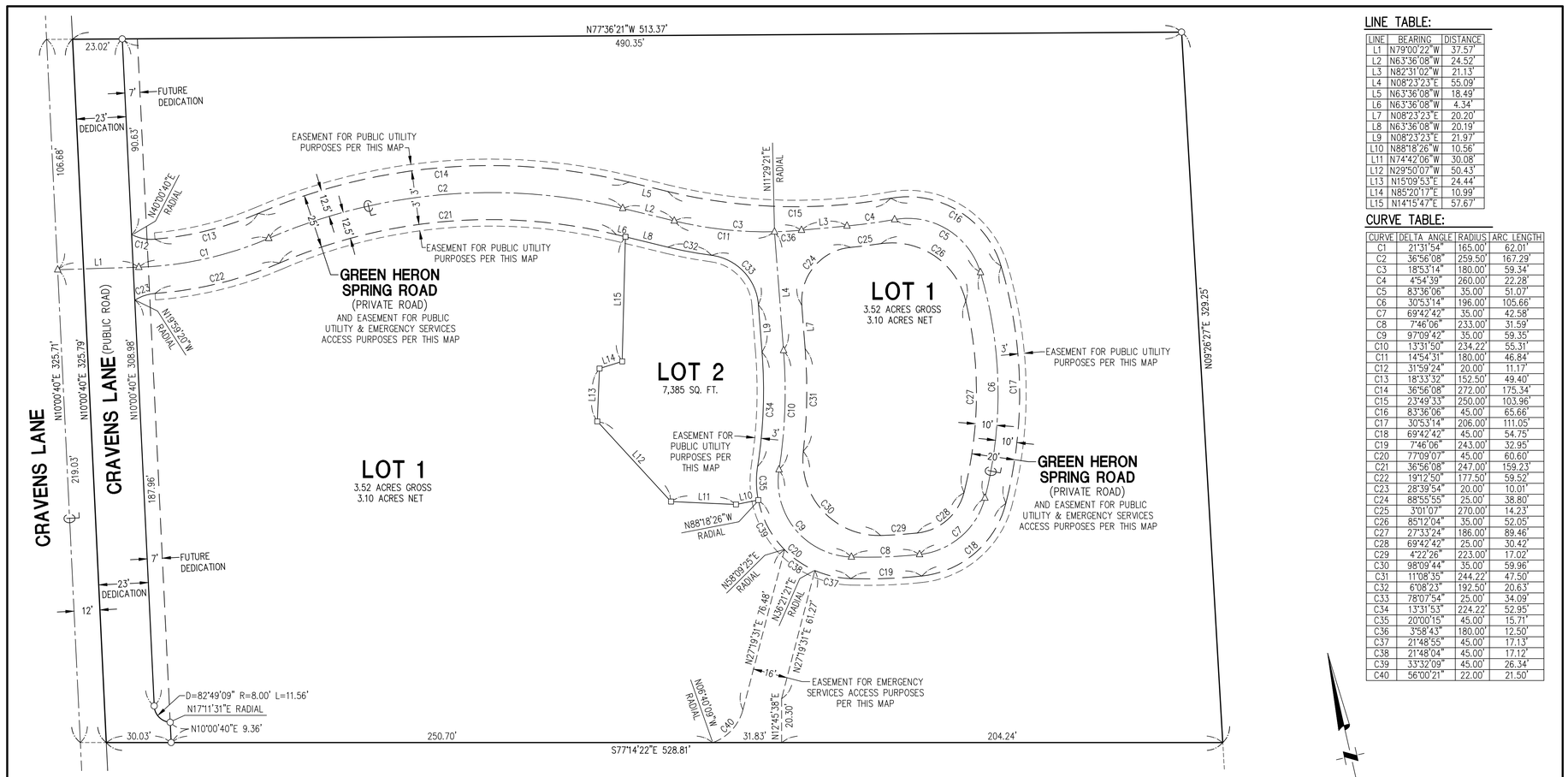
BY: _____
DEPUTY

TRACT NO. 25,178

IN THE CITY OF CARPINTERIA
COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA
BEING A SURVEY OF OUTSIDE PUEBLO LANDS OF THE CITY OF SANTA BARBARA, FILED IN BOOK A, PAGE 91, OF PATENTS, RECORDS OF SANTA BARBARA COUNTY.
JULY 2017

SHEET 1 OF 3 SHEETS


PARCEL "C" PARCEL MAP NO. 11043 M.B. 5 PG. 87
N77°36'21"W 754.36'M N78°00'54"W 754.02'R3
S77°36'21"E 522.39'M N77°44'00"W 522.39'R6 S77°54'00"E 522.39'R7
SF,NF
30'
SEE DETAIL "A"
ALBERT J. JARVIS
BOOK 212 PAGE 30, O.R.
299.51'M
300.00'M S10°00'00"W 300.00'R6
N09°27'00"E 300.00'R6
N09°26'27"E 300.14'M
N77°36'21"W 525.38'M S77°54'00"E 525.27'R6 N77°54'00"W 525.27'R8
513.37'M
12.01'M
N10°00'40"E 645.24'M 645.03'R5
325.71'M S10°00'00"W 325.32'R8
N10°00'40"E 645.81'M 645.61'R5
325.79'M
N09°27'00"E 329.20'R8
N09°26'27"E 329.25'M N09°27'00"E 329.20'R8 S09°27'00"W 649.42'M
N09°26'27"E 329.25'M S09°26'27"W 649.42'M
GEORGE F. RISDON
BOOK 1046 PAGE 134, O.R.
CRAVENS LANE
12'
BK.54
PG.305
O.R.
FRANCIS C. GREER
BOOK 334 PAGE 188, O.R.
PARCEL TWO
516.80'M
S77°14'22"E 528.81'M S77°30'00"E 528.65'R8 528.46'R7
N77°14'22"W 946.52'M N77°14'00"W 945.16'R5
20.02'M
20.03'M
246.87'M 246.81'CFR1
---- N77°14'00"W 368.68'R1 ----
91.50'CFR1
N77°13'00"W 565.87'R2
---- S77°14'22"E 417.50'M S77°30'00"E 413.70'R7
30.03'
M&R1
12.01'
M&R1
42'
248.17'M
248.15'R1
N10°00'40"E 788.56'M&CFR1
426.87'M&R1
N10°00'40"E
426.16'M 426.29'R1
177.99'M
178.01'R1
N79°59'20"W 12.00'M&R1
N77°29'00"W 30.03'M&R1
N77°29'00"W 4.72'M
N10°00'40"E
361.69'M&R1
260.75'M&R4
37.28'R4
TRACT NO. 25147
M.B. 157 PGS. 44-47
TRACT NO. 25094
M.B. 127 PGS. 48-51
VIA REAL
N77°05'40"W 753.23'M
FRANCIS C. GREER
BOOK 334 PAGE 188, O.R.
PARCEL ONE
C1
Δ=27°00'00"
R=55.07'
L=25.95'
T=13.22'
M&R3
C2
Δ=10°52'04"
R=85.07'
L=16.14'
M&R3
C3
Δ=27°00'00"
R=25.07'
L=11.81'
M&R3
L1
N79°59'40"W
30.00'M
N80°24'24"W
30.00'CFR3
L2
N10°00'40"E
24.75'M
N09°35'36"E
24.75'R3
L3
N73°00'46"E
30.00'M
N72°35'36"E
30.00'R3
RADIAL
L4
N77°36'21"W
32.68'M
N78°00'54"W
32.68'CFR3
L5
N77°36'21"W
14.68'M
N78°00'54"W
14.68'R3
N09°35'36"E R3
N10°00'40"E M
N10°00'40"E R3
N09°35'36"E M
30'
6.01'M&R3
12'
IDENTICAL
12.01'M
522.39'M
12.00'M&R3
N79°59'20"W
645.24'M
299.51'M
300.00'M
12'
DETAIL "A"
SCALE: 1"=50'
FOOTHILL ROAD
LANE
CARPINTERIA CEMETERY
CRAVENS
SANDPIPER MOBILE VILLAGE
TRACT NO. 25,178
SANTA MONICA ROAD
VIA REAL
U.S. 101
VICINITY MAP
NOT TO SCALE
MONUMENT NOTES:
(A) FD. NAIL & TAG STAMPED "RCE 8462" PER R1
(B) FD. NAIL & TAG STAMPED "LS 3804" PER R1
(C) FD. LEAD, TACK & TAG STAMPED "LS 3228" PER R4
(D) NAIL & TAG "LS 3804" PER R1 SF,NF
(E) FD. NAIL & TAG STAMPED "LS 3804" DOWN 3" IN LIEU OF NAIL & TAG "RCE 8462" PER R2
(F) FD. LEAD, TACK & TAG STAMPED "RCE 10276" PER R1
(G) FD. 1-1/2" I.P. & TAG STAMPED "RCE 10276" PER R1
(H) FD. 1" I.P. OPEN IN 4" STEEL PIPE N 2'00 E 0.45' FROM TRUE CORNER PER R1 (1/2" I.P. "LS 3804" SF,NF)
(I) FD. NAIL & TAG STAMPED "RCE 10276" PER R1
(J) FD. 1/2" I.P. & TAG STAMPED "LS 3804" PER R2
(K) 2" I.P. PER R3 & R5 SF,NF
(L) FD. 1/2" I.P. & TAG STAMPED "RCE 7704" PER R3 DOWN 12"
(M) 1/2" I.P. OR SPIKE "RCE 7704" SF,NF
(N) FD. 3/4" I.P. OPEN DOWN 5" NO REF.
(O) FD. 3/4" I.P. W/TAG STAMPED RCE 13241 DOWN 9" NO REF.
(P) FD. 3/4" I.P. W/TAG STAMPED RCE 13241 DOWN 12" NO REF. S10°00'40"W 1.22' FROM TRUE CORNER
GRAPHIC SCALE: 1"=50'
0 50 100 200
BASIS OF BEARINGS:
THE BEARING OF N10°00'40"E OF THE CENTERLINE OF CRAVENS ROAD PER AMENDING MAP OF TRACT NO. 25147 RECORDED IN BOOK 157 PAGES 44 TO 47, INCLUSIVE OF MAPS, RECORDS OF SANTA BARBARA COUNTY WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.
RECORD REFERENCES:
R1 TRACT NO. 25147 MAPS 157/44-47
R2 TRACT NO. 25094 MAPS 127/48-51
R3 PARCEL MAP NO. 11043 PARCEL MAPS 5/87
R4 RECORD OF SURVEY 142/51
R5 RECORD OF SURVEY 60/89
R6 OFFICIAL RECORD 212/30
R7 OFFICIAL RECORD 334/188
R8 OFFICIAL RECORD 1046/134
LEGEND:
CFR CALCULATED FROM RECORD
EST. ESTABLISHED
FD. FOUND
I.P. IRON PIPE
L&T LEAD AND TACK
M MEASURED
O.R. OFFICIAL RECORD
REF REFERENCE
SF,NF SEARCHED FOR, NOTHING FOUND
◉ FOUND MONUMENT AS DESCRIBED
PREPARED BY:
DAVID R. GRAY, INC.
621 VIA ALONDRA, SUITE 609
CAMARILLO, CA 93012
805-987-3945 805-987-1655 FAX
JOB NO. 1632 JULY 2016
www.drgsurvey.com
BOUNDARY SURVEY
TRACT NO. 25,178
IN THE CITY OF CARPINTERIA
COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA
BEING A SURVEY OF OUTSIDE PUEBLO LANDS OF THE CITY OF SANTA BARBARA, FILED IN BOOK A, PAGE 91, OF PATENTS, RECORDS OF SANTA BARBARA COUNTY.
JULY 2017
SHEET 2 OF 3 SHEETS



LINE TABLE:

LINE	BEARING	DISTANCE
L1	N79°00'22"W	37.57'
L2	N63°36'08"W	24.52'
L3	N82°31'02"W	21.13'
L4	N08°23'23"E	55.09'
L5	N63°36'08"W	18.49'
L6	N63°36'08"W	4.34'
L7	N08°23'23"E	20.20'
L8	N63°36'08"W	20.19'
L9	N08°23'23"E	21.97'
L10	N88°18'26"W	10.56'
L11	N74°42'06"W	30.08'
L12	N29°50'07"W	50.43'
L13	N15°09'53"E	24.44'
L14	N85°20'17"E	10.99'
L15	N14°15'47"E	57.67'

CURVE TABLE:

CURVE	DELTA ANGLE	RADIUS	ARC LENGTH
C1	21°31'54"	165.00'	62.01'
C2	36°56'08"	259.50'	167.29'
C3	18°53'14"	180.00'	59.34'
C4	4°54'39"	260.00'	22.28'
C5	83°36'06"	35.00'	51.07'
C6	30°53'14"	196.00'	105.66'
C7	69°42'42"	35.00'	42.58'
C8	7°46'06"	233.00'	31.59'
C9	97°09'42"	35.00'	59.35'
C10	13°31'50"	234.22'	55.31'
C11	14°54'31"	180.00'	46.84'
C12	31°59'24"	20.00'	11.17'
C13	18°33'32"	152.50'	49.40'
C14	36°56'08"	272.00'	175.34'
C15	2°49'33"	250.00'	103.96'
C16	83°36'06"	45.00'	65.66'
C17	30°53'14"	206.00'	111.05'
C18	69°42'42"	45.00'	54.75'
C19	7°46'06"	243.00'	32.95'
C20	77°09'07"	45.00'	60.60'
C21	36°56'08"	247.00'	159.23'
C22	19°12'50"	177.50'	59.52'
C23	28°39'54"	20.00'	10.01'
C24	88°55'55"	25.00'	38.80'
C25	3°01'07"	270.00'	14.23'
C26	85°12'04"	35.00'	52.05'
C27	27°33'24"	186.00'	89.46'
C28	69°42'42"	25.00'	30.42'
C29	4°22'26"	223.00'	17.02'
C30	98°09'44"	35.00'	59.96'
C31	11°08'35"	244.22'	47.50'
C32	6°08'23"	192.50'	20.63'
C33	78°07'54"	25.00'	34.09'
C34	13°31'53"	224.22'	52.95'
C35	20°00'15"	45.00'	15.71'
C36	3°58'43"	180.00'	12.50'
C37	21°48'55"	45.00'	17.13'
C38	21°48'04"	45.00'	17.12'
C39	33°32'09"	45.00'	26.34'
C40	56°00'21"	22.00'	21.50'

MONUMENT LEGEND:

△ SET SPIKE & WASHER TAGGED LS 5239
□ SET 1" I.P. TAGGED LS 5239
○ SET 2" I.P. TAGGED LS 5239

GRAPHIC SCALE: 1"=30'
0 30 60 90

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JULY 2017

SHEET 3 OF 3 SHEETS

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www.drgsurvey.com

PRECISE GRADING PLAN FOR TRACT TM 25178 1300-1326 CRAVENS LANE APN 004-013-026 CARPINTERIA, SANTA □AR□ARA, CA

GENERAL NOTES

1. A COPY OF THE GRADING PERMIT AND APPROVED GRADING PLANS MUST BE IN THE POSSESSION OF A RESPONSIBLE PERSON AND AVAILABLE AT THE SITE AT ALL TIMES.
2. ANY MODIFICATIONS OF OR CHANGES TO APPROVED GRADING PLANS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
3. ALL GRADED SITES MUST HAVE DRAINAGE SWALES, BERMS, AND OTHER DRAINAGE DEVICES APPROVED AT THE ROUGH GRADING STAGE.
4. THE FIELD ENGINEER MUST SET DRAINAGE STAKES FOR ALL DRAINAGE DEVICES.
5. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE FIELD ENGINEER. WEEKLY STATUS REPORTS SHALL BE SUBMITTED BY THE FIELD ENGINEER TO THE ENGINEERING SERVICES DIVISION.
6. FINAL GRADING MUST BE APPROVED BEFORE OCCUPANCY OF BUILDINGS WILL BE ALLOWED.
7. CONSTRUCTION OF THE RETAINING WALL(S) SHOWN ON THESE PLANS REQUIRES A PERMIT FROM THE BUILDING AND SAFETY DIVISION.
8. SEPARATE PLANS FOR TEMPORARY DRAINAGE AND EROSION CONTROL MEASURES TO BE USED DURING THE RAINY SEASON MUST BE SUBMITTED PRIOR TO OCTOBER 1. THE EROSION CONTROL DEVICES SHOWN ON SAID PLANS MUST BE INSTALLED BY NO LATER THAN NOVEMBER 1 AND MAINTAINED IN OPERABLE CONDITION UNTIL APRIL 15 OF THE FOLLOWING YEAR. (17.25.030 U.D.C.)
9. ALL SUBDRAIN OUTLETS TO BE SURVEYED FOR LINE AND ELEVATION. THIS MUST BE SHOWN ON THE AS-BUILT GRADING PLAN INCLUDED IN THE FINAL GEOTECHNICAL AND GEOLOGY REPORT.
10. THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION. THIS CONTROL MUST CONSIST OF JUTE NETTING AND EFFECTIVE PLANTING, OR OTHER DEVICES SATISFACTORY TO THE CITY ENGINEER. (17.28.020(A) U.D.C.)
11. A PREVENTIVE PROGRAM TO PROTECT THE SLOPES FROM POTENTIAL DAMAGE FROM BURROWING RODENTS IS REQUIRED. OWNER TO INSPECT SLOPES PERIODICALLY FOR EVIDENCE OF BURROWING RODENTS AND AT FIRST EVIDENCE OF THEIR EXISTENCE SHALL EMPLOY AN EXTERMINATOR FOR THEIR REMOVAL. (17.28.020(E) U.D.C.)
12. WHERE NECESSARY, CHECK DAMS, CRIBBING, RIPRAP, OR OTHER DEVICES OR METHODS SHALL BE EMPLOYED FOR EROSION CONTROL. ALSO, JUTE NETTING SHALL BE IMMEDIATELY INSTALLED ON ANY SLOPES HAVING A VERTICAL HEIGHT OF SEVEN FEET OR MORE AND STEEPER THAN 3:1 (H:V) TO MINIMIZE OR CONTROL EROSION PROBLEMS.
13. ROOF DRAINAGE MUST BE DIVERTED FROM GRADED SLOPES.
14. ALL CONSTRUCTION AND GRADING WITHIN STORM DRAIN EASEMENT TO BE DONE PER STORM DRAIN PLAN.

FILL NOTES

15. ALL FILL SHALL BE COMPACTED TO THE FOLLOWING MINIMUM RELATIVE COMPACTION CRITERIA:

    A. 90 PERCENT OF MAXIMUM DRY DENSITY WITHIN 40 FEET BELOW FINISH GRADE

    B. 93 PERCENT OF MAXIMUM DRY DENSITY DEEPER THAN 40 FEET BELOW FINISH GRADE, UNLESS A LOWER RELATIVE COMPACTION (NOT LESS THAN 90 PERCENT OF MAXIMUM DRY DENSITY) IS JUSTIFIED BY THE GEOTECHNICAL ENGINEER.

    THE RELATIVE COMPACTION SHALL BE DETERMINED BY ASTM SOIL COMPACTION TEST D1557-91, WHERE APPLICABLE; WHERE NOT APPLICABLE A TEST ACCEPTABLE TO THE CITY ENGINEER SHALL BE USED. (17.27.020(A) U.D.C.)

16. FIELD DENSITY SHALL BE DETERMINED BY A METHOD ACCEPTABLE TO THE CITY ENGINEER, HOWEVER, A MINIMUM OF 10 PERCENT OF THE REQUIRED DENSITY TESTS SHALL BE OBTAINED BY THE SAND CONE METHOD (ASTM D1556). THE REQUIRED 10 PERCENT BY SAND CONE METHOD SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE DEPTHS AND LIMITS OF THE FILL.
17. SUFFICIENT TESTS OF THE FILL SOILS SHALL BE MADE TO DETERMINE THE RELATIVE COMPACTION OF THE FILL IN ACCORDANCE WITH THE FOLLOWING MINIMUM GUIDELINES:
    (a) ONE TEST FOR EACH TWO FOOT VERTICAL LIFT.
    (b) ONE TEST FOR EACH 1000 CUBIC YARDS OF MATERIAL PLACED.
    (c) ONE TEST AT THE LOCATION OF THE FINAL FILL SLOPE FOR EACH BUILDING SITE (LOT) IN EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.
    (d) ONE TEST IN THE VICINITY OF EACH BUILDING PAD FOR EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.

    SUFFICIENT TESTS OF FILL SOILS SHALL BE MADE TO VERIFY COMPLIANCE OF THE SOIL PROPERTIES WITH THE DESIGN REQUIREMENTS INCLUDING SOIL TYPES AND SHEAR STRENGTHS.
    THE RESULTS OF SUCH TESTING SHALL BE INCLUDED IN THE REPORTS REQUIRED BY SECTION (17.29.020(C) U.D.C.)
18. NO FILL SHALL BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS, AND INSTALLATION OF SUBDRAINS (IF ANY) HAVE BEEN INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER. (17.27.020(B) U.D.C.)
19. NO ROCK OR SIMILAR MATERIAL GREATER THAN 12 INCHES IN DIAMETER WILL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BE SUBMITTED BY THE GEOTECHNICAL ENGINEER AND APPROVED IN ADVANCE BY THE CITY ENGINEER. (17.27.020(D) U.D.C.)
20. CONTINUOUS INSPECTION BY THE GEOTECHNICAL ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL FILL PLACEMENT AND COMPACTION OPERATIONS WHERE FILLS HAVE A VERTICAL HEIGHT OR DEPTH GREATER THAN 30 FEET OR SLOPE SURFACE STEEPER THAN 2:1. (17.27.020(G) U.D.C.)
21. CONTINUOUS INSPECTION BY THE GEOTECHNICAL ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS. (17.27.020(B) U.D.C.)
22. FILL SLOPES IN EXCESS OF 2:1 STEEPNESS RATIO ARE TO BE CONSTRUCTED BY THE PLACEMENT OF SOIL AT SUFFICIENT DISTANCE BEYOND THE PROPOSED FINISH SLOPE TO ALLOW COMPACTION EQUIPMENT TO BE OPERATED AT THE OUTER LIMITS OF THE FINAL SLOPE SURFACE. THE EXCESS FILL IS TO BE REMOVED PRIOR TO COMPLETION OF ROUGH GRADING. (OTHER CONSTRUCTION PROCEDURES MAY BE USED WHEN IT IS DEMONSTRATED TO THE SATISFACTION OF THE CITY ENGINEER THAT THE ANGLE OF SLOPE, CONSTRUCTION METHOD AND OTHER FACTORS WILL HAVE AN EQUIVALENT EFFECT).
23. THE GEOTECHNICAL ENGINEER SHALL PROVIDE SUFFICIENT INSPECTIONS DURING THE PREPARATION OF THE NATURAL GROUND AND THE PLACEMENT AND COMPACTION OF THE FILL TO BE SATISFIED THAT THE WORK IS BEING PERFORMED IN ACCORDANCE WITH THE PLAN AND APPLICABLE CODE REQUIREMENTS. (17.29.010(D) U.D.C.)
24. THE GRADING CONTRACTOR SHALL SUBMIT THE STATEMENT REQUIRED BY SECTION 17.29.020 U.D.C. AT THE COMPLETION OF ROUGH GRADING.

INSPECTION NOTES - REGULAR GRADING REQUIREMENTS

25. THE PERMITEE OR HIS AGENT SHALL NOTIFY THE DEVELOPMENT SERVICES DIVISION AT LEAST ONE WORKING DAY IN ADVANCE OF REQUIRED INSPECTIONS AT FOLLOWING STAGES OF THE WORK:

    A. INITIAL. WHEN THE SITE HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL AND IT HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED FOR FILL. NO FILL SHALL HAVE BEEN PLACED PRIOR TO THIS INSPECTION.

    B. ROUGH. WHEN APPROXIMATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED; DRAINAGE TERRACES, SWALES AND BERMS INSTALLED AT THE TOP OF THE SLOPES; AND THE STATEMENTS REQUIRED IN THIS SECTION 17.29.020 U.D.C. HAVE BEEN RECEIVED.

    C. FINAL. WHEN GRADING HAS BEEN COMPLETED; ALL DRAINAGE DEVICES INSTALLED; SLOPE PLANTING ESTABLISHED, IRRIGATION SYSTEMS INSTALLED AND THE AS-BUILT PLANS, REQUIRED STATEMENTS, AND REPORTS HAVE BEEN SUBMITTED. (17.29.010(C) U.D.C.)

ENGINEERED GRADING REQUIREMENTS:

26. IN ADDITION TO THE INSPECTION REQUIRED OF THE DEVELOPMENT SERVICES DIVISION FOR REGULAR GRADING, REPORTS AND STATEMENTS SHALL BE SUBMITTED TO THE CITY ENGINEER IN ACCORDANCE WITH SECTION - 17.29.020 U.D.C.

DIGALERT DIAL TOLL FREE 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

AGENCY NOTES:

27. SECURE PERMISSION FROM THE DEVELOPMENT SERVICES DIVISION FOR CONSTRUCTION OR GRADING WITHIN STREET RIGHT-OF-WAY.
28. GRADING IN FUTURE STREET RIGHT-OF-WAY MUST BE INSPECTED BY THE CITY.
29. ALL WORK WITHIN THE STREAMBED AND AREAS OUTLINED ON THE GRADING PLANS SHALL CONFORM TO:
    - ARMY CROP 404 PERMIT NUMBER: N/A
    - CALIFORNIA FISH & GAME PERMIT NUMBER: N/A
30. A STORMWATER POLLUTION PREVENTION PLAN MUST BE PREPARED AND A COPY AVAILABLE FOR REVIEW AT THE PROJECT SITE AT ALL TIMES. ALL MEASURES OUTLINED IN THE PROJECT STORMWATER POLLUTION PREVENTION PLAN MUST BE IMPLEMENTED THROUGHOUT THE DURATION OF THE CONSTRUCTION PHASE OF THE PROJECT.

GEOLOGY AND SOIL NOTES:

31. ALL RECOMMENDATIONS INCLUDED IN THE CONSULTANT'S SOIL AND GEOLOGY REPORTS MUST BE COMPLIED WITH AND ARE A PART OF THE GRADING SPECIFICATIONS. (17.23.010(B) U.D.C.)
32. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC GEOLOGIC INSPECTION WITH MONTHLY INSPECTION REPORTS TO BE SUBMITTED TO THE DEVELOPMENT SERVICES DIVISION.
33. THE CONSULTING GEOLOGIST MUST APPROVE ROUGH GRADING BY FINAL REPORT PRIOR TO THE APPROVAL BY THE CITY ENGINEER. THE FINAL REPORT MUST INCLUDE AN AS-BUILT GEOLOGIC MAP.

PLANTING AND IRRIGATION NOTES:

34. ALL CUT SLOPES OVER FIVE FEET AND FILL SLOPES OVER THREE FEET SHALL BE PLANTED WITH AN APPROVED GROUND COVER AND PROVIDED WITH AN IRRIGATION SYSTEM AS SOON AS PRACTICAL AFTER ROUGH GRADING. (17.28.020(B) U.D.C.)

STORMWATER POLLUTION PLAN NOTES

1. EVERY EFFORT SHOULD BE MADE TO ELIMINATE THE DISCHARGE OF NON-STORMWATER FROM THE PROJECT SITE AT ALL TIMES.
2. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON-SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
3. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
4. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
5. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC RIGHT-OF-WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
6. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
7. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC RIGHT-OF-WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
8. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
9. THE FOLLOWING BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, THE "BEST MANAGEMENT PRACTICE HANDBOOK, CALIFORNIA STORMWATER QUALITY TASK FORCE, SACRAMENTO, CALIFORNIA 2010", OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT. (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY INSPECTORS):

EROSION CONTROL
EC1 - SCHEDULING
EC2 - PRESERVATION OF EXISTING VEGETATION
EC3 - HYDRAULIC MULCH
EC4 - HYDROSEEDING
EC5 - SOIL BINDERS
EC6 - STRAW MULCH
EC7 - GEOTEXTILES & MATS
EC8 - WOOD MULCHING
EC9 - EARTH DIKES AND DRAINAGE SWALES
EC10 - VELOCITY DISSIPATION DEVICES
EC11 - SLOPE DRAINS
EC12 - STREAMBANK STABILIZATION
EC13 - RESERVED
EC14 - COMPOST BLANKETS
EC15 - SOIL PREPARATION/ ROUGHENING
EC16 - NON-VEGETATED STABILIZATION

TEMPORARY SEDIMENT CONTROL
SE1 - SILT FENCE
SE2 - SEDIMENT BASIN
SE3 - SEDIMENT TRAP
SE4 - CHECK DAM
SE5 - FIBER ROLLS
SE6 - GRAVEL BAG BERM
SE7 - STREET SWEEPING AND VACUUMING
SE8 - SANDBAG BARRIER
SE9 - STRAW BALE BARRIER
SE10 - STORM DRAIN INLET PROTECTION
SE11 - ACTIVE TREATMENT SYSTEMS
SE12 - TEMPORARY SILT DIKE
SE13 - COMPOST SOCKS & BERMS
SE14 - BIOFILTER BAGS

WIND EROSION CONTROL
WE1 -WIND EROSION CONTROL

EQUIPMENT TRACKING CONTROL
TC1 -STABILIZED CONSTRUCTION ENTRANCE EXIT
TC2 -STABILIZED CONSTRUCTION ROADWAY
TC3 -ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT
NS1 -WATER CONSERVATION PRACTICES
NS2 -DEWATERING OPERATIONS
NS3 -PAVING AND GRINDING OPERATIONS
NS4 -TEMPORARY STREAM CROSSING
NS5 -CLEAR WATER DIVERSION
NS6 -ILLICIT CONNECTION/DISCHARGE
NS7 -POTABLE WATER/IRRIGATION
NS8 -VEHICLE AND EQUIPMENT CLEANING
NS9 -VEHICLE AND EQUIPMENT FUELING
NS10 -VEHICLE AND EQUIPMENT MAINTENANCE
NS11 -PILE DRIVING OPERATIONS
NS12 -CONCRETE CURING
NS13 -CONCRETE FINISHING
NS14 -MATERIAL AND EQUIPMENT USE
NS15 -DEMOLITION ADJACENT TO WATER
NS16 -TEMPORARY BATCH PLANTS

WASTE MANAGEMENT & MATERIAL POLLUTION CONTROL
WM1 -MATERIAL DELIVERY AND STORAGE
WM2 -MATERIAL USE
WM3 -STOCKPILE MANAGEMENT
WM4 -SPILL PREVENTION AND CONTROL
WM5 -SOLID WASTE MANAGEMENT
WM6 -HAZARDOUS WASTE MANAGEMENT
WM7 -CONTAMINATION SOIL MANAGEMENT
WM8 -CONCRETE WASTE MANAGEMENT
WM9 -SANITARY/SEPTIC WASTE MANAGEMENT
WM10 -LIQUID WASTE MANAGEMENT

SOILS ENGINEER STATEMENT

THE OFFICE OF EARTH SYSTEM SOUTHERN CALIFORNIA, 1731-A WALTER STREET, VENTURA, CA. 93003, PH (805)642-8727, FAX(805)642-1325 HAS REVIEWED THE GRADING PLAN PREPARED BY UNITED CIVIL , INC.

WE FIND THE PROPOSED CONSTRUCTION TO BE FEASIBLE FROM A GEOTECHNICAL ENGINEERING AND GEOLOGIC VIEWPOINT.

THE SOILS INFORMATION PROVIDED TO UNITED CIVIL, INC. BY EARTH SYSTEM SOUTHERN CALIFORNIA IS DEPICTED CORRECTLY ON THIS GRADING PLAN.

REMOVAL DEPTHS AS SHOWN ON THIS PLAN WERE PROVIDED BY EARTH SYSTEM SOUTHERN CALIFORNIA AND ARE SHOWN CORRECTLY.

SOIL REPORT: VT-23345-01

1. GEOTECHNICAL ROUGH GRADING PLAN REVIEW, GREEN HERON SPRING PROJECT TRACT (AREA), SANTA BARBARA, CALIFORNIA DATE:

BY: DATE BY: DATE

BENCH MARK

NGS BM NO. V 1441 (1989) PID EW9491
ELEV. = 13.45 NAVD 1988
DESCRIPTION - STEEL ROD IN NGS WELL
LOCATION - IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF THE WITNESS POST.

NOTES TO CONTRACTORS

1. ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED.
2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS" CONSTRUCTION SAFETY ORDERS.
3. THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTORS AND SUBCONTRACTORS COMPLIANCE WITH ANY OF THE GOVERNMENT, STATE OR CITY RULES AND REGULATIONS. CONTRACTOR FURTHER AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS: THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPT FOR THE LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 1-800-227-2600.

UNDERGROUND UTILITY NOTES:

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS IS OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS AND TO THE BEST OF MY KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 1-800-227-2600 AT LEAST 48 HOURS PRIOR TO ANY ON-SITE WORK.

CONTRACTOR'S RESPONSIBILITY

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL AND OWNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL OR OWNER.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

PRIVATE ENGINEER'S NOTES

THE UNDERSIGNED CIVIL ENGINEER CERTIFIES THAT THE GRADING WORK WILL BE SUPERVISED IN ACCORDANCE WITH SECTION 7020 OF THE CITY BUILDING CODE.

UTILITY LINES SHOWN ON THESE PLANS ARE OBTAINED FROM A SEARCH OF AVAILABLE RECORDS AND CROSS-REFERENCES WITH OTHER UTILITY PLANS IN THIS AREA. THE EXACT LOCATION OF THE LINES SHOWN CAN ONLY BE OBTAINED BY POTHOLING AND SURVEY IN DIRECT COORDINATION WITH THE UTILITY OWNER.

SIEW HUAT NG R.C.E. NO. 46026 DATE

GRADING PERMIT APPLICATION NO. _____

TOTAL DISTURBED AREA: _____

PRE-DEVELOPMENT IMPERVIOUS AREA: _____(ACRES)

POST-DEVELOPMENT IMPERVIOUS AREA: _____(ACRES)

W.D.I.D. NO. 419C369362

JOB ADDRESS 1300-1326 CRAVENS LANE, CARPINTERIA, CA 93013

TRACT/ PARCEL MAP NO. TM 25178

PROPERTY OWNER: CRAVENS LANE, LLC, 23622 CALABASAS ROAD SUITE 220, CALABASAS, CA 91032
PH:
FAX:

ASSESSORS ID NUMBER APN 004-013-026

PROPERTY ZONING PLANNED UNIT DEVELOPMENT

INTENDED LAND USE MULTI FAMILY AND SINGLE FAMILY

CERTIFICATE OF COMPLIANCE: CC NO: _____

EARTHWORK QUANTITIES

QUANTITIES ARE FOR PLAN CHECK PURPOSES AND ARE NOT TO BE USED FOR BID PURPOSES

CUT: 1348 CY

FILL: 2916 CY

OVEREXCAVATION: 9363 CY

BULK FACTOR: 5.0%

CUT VOLUME INCLUDED STREET UNDER CUT

APPROXIMATE STARTING DATE: _____

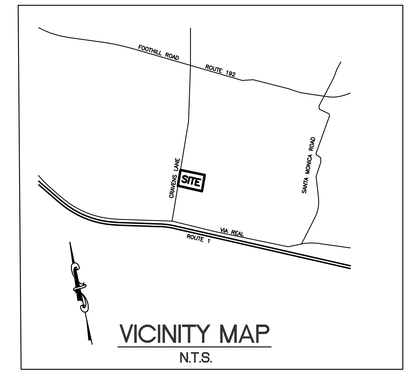
APPROXIMATE COMPLETION DATE: _____

LEGAL DESCRIPTIONS:

1300 - 1326 Cravens Lane, Carpinteria, CA 93013
APN 004-013-026

THAT CERTAIN PARCEL OF LAND IN THE CARPINTERIA DISTRICT, SO-CALLED, IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE CENTER LINE OF CRAVENS LANE, AS SAID CENTER LINE IS DESCRIBED IN THE DEED TO THE COUNTY OF SANTA BARBARA, RECORDED IN BOOK 54, PAGE 305 OF OFFICIAL RECORDS, AT THE POINT OF INTERSECTION OF SAID CENTER LINE WITH THE SOUTHERLY LINE OF THE TRACT OF LAND DESCRIBED IN THE DEED TO ALBERT J. JARVIS, AND WIFE, RECORDED IN BOOK 212, PAGE 30, OF OFFICIAL RECORDS;
THENCE SOUTH 10 WEST ALONG SAID CENTER LINE, 325.32 FEET TO THE NORTHWEST CORNER OF THE SECOND PARCEL OF LAND DESCRIBED IN THE DEED TO FRANCIS C. GREER, RECORDED IN BOOK 334, PAGE 188 OF OFFICIAL RECORDS; THENCE LEAVING SAID ENTER LINE SOUTH 77d 30' EAST ALONG NORTH LINE OF SAID LAND, 528.65 FEET TO THE WEST LINE OF THE FIRST PARCEL OF THE LAND DESCRIBED IN SAID DEED TO FRANCIS C. GREER;
THENCE NORTH 9d 27' EAST ALONG THE WESTERLY LINE OF THE LAND SO DESCRIBED IN THE DEED TO ALBERT J. JARVIS, HEREIN ABOVE MENTIONED; THENCE NORTH 77d 54' WEST ALONG THE SOUTHERLY LINE OF THE LAND SO
DESCRIBED IN THE SAID DEED, 525.27 FEET TO THE POINT OF BEGINNING.



VICINITY MAP
N.T.S.

	EARTHWORK QUANTITY (CY)
CUT	1,348
FILL	2,916
NET	1,568 FILL

NOTE: THE SITE WILL BE BALANCED ON SITE BY USING SPOILS FROM THE DRIVEWAY SUBGRADE, THE UTILITY TRENCHES, AND THE HOUSE SLABS.

LEGEND:
PRIVATE ON SITE STORM DRAIN
TRACT BOUNDARY
EXISTING GRADE CONTOUR (1100)
PROPOSED GRADE CONTOUR 1100
PROPOSED SLOPE
DAYLIGHT LINE
EXISTING SPOT ELEVATION (1100.0)
PROPOSED SPOT ELEVATION 1100.0
SLOPE PERCENTAGE
CONSTRUCTION ITEM (A)
FIRE HYDRANT
REMOVAL DEPTH OF UNSUITABLE SOIL/FILL
PROPOSED PROTO-II COMBO WALL

ABBREVIATIONS

A.C.	ASPHALT CONCRETE
B.C.	BEGIN CURVE
C.B.	CATCH BASIN
C.F.	CURB FACE
C.L.	CENTERLINE
E.C.	END CURVE
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
F.L.	FLOWLINE
F.S.	FINISHED SURFACE
G.B.	GRADE BREAK
H.P	HIGH POINT
INV.	INVERT ELEVATION
LT.	LEFT
M.H.	MANHOLE
N.T.S.	NOT TO SCALE
P.I.	POINT OF INTERSECTION
P.R.V.C.	POINT OF REVERSE VERTICAL CURVE
P.V.C.	POLYVINYL CHLORIDE
R.C.P.	REINFORCED CONCRETE PIPE
RT.	RIGHT
T.W.	TOP OF WALL
T.R.W.	TOP OF RETAINING WALL

INDEX TO PROJECT DRAWINGS

SHT NO.	DESCRIPTION
1	TITLE SHEET
2	ROUGH GRADING PLAN
3	CROSS-SECTIONS & DETAILS
4	UTILITY COMPOSITE PLAN
5	PRIVATE STORM DRAIN PLAN
6	CONDITIONS
7	CONDITIONS
8	CONDITIONS

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO. 46026 EXP. 12-31-18 CIVIL STATE OF CALIFORNIA

□RE□ARED FOR:
CRAVENS LANE, LLC
23622 CALA□ASAS ROAD, SUITE 220
CALA□ASAS, CA 91302
TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

BENCH MARK, VICINITY MAP, STANDARD NOTES

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-31-17

SCALE

PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 1 of 8 Sheet□

CONSTRUCTION NOTES:

1. STORM DRAIN LINE AND INLET PER SEPARATE OFF-SITE STORM DARIN PLANS
2. EMERGENCY ACCESS GATE PER LANDSCAPE PLANS
3. N/A
4. LIMITS OF REMOVAL AND RECOMPACTION PER GEOTECHNICAL ENGINEERING REPORT
5. 2' BLOCK WALL WITH TUBE STEEL PER LANDSCAPE PLAN
6. CONSTRUCT BACK OF WALL DRAIN PER DETAIL D/3
7. CONSTRUCT V-DITCH PER DETAIL E/3
8. PATH PER LANDSCAPE PLAN
9. PROTO II BLOCK WALL PER LANDSCAPE PLAN
10. MONUMENT WALL PER SEPARATE LANDSCAPE PLAN
11. DECORATIVE ROCKS PER LANDSCAPE PLAN
12. CONSTRUCT 6" CURB PER DETAIL F/3
13. CONSTRUCT 4" ROLLED CURB AND GUTTER PER DETAIL G/3
14. CONSTRUCT TRANSITION BETWEEN 4" ROLLED CURB AND 6" CURB PER DETAIL H/3
15. CONSTRUCT RIBBON GUTTER PER DETAIL I/3
16. CONSTRUCT 25' PRIVATE DRIVE AND FIRELANE PER DETAIL J/3
17. CONSTRUCT PRIVATE DRIVE WAY PER DETAIL K/3
18. CONSTRUCT 20' PRIVATE DRIVE AND FIRELANE PER DETAIL L/3
19. CONSTRUCT SD PER SEPARATE SD PLAN, SEE SHEET 5



LEGEND:

- PROPOSED STORM DRAIN LINE
- LIMITS OF OVER EXCAVATION
- PROPOSED SLOPE
- DAYLIGHT LINE
- REMOVEL DEPTH OF UNSUITABLE SOIL/FILL (3')
- OAK TREE TO REMAIN
- OAK TREE TO BE RELOCATED
- OAK TREE TO BE REMOVED

NOTE:

CROSS SECTIONS SHOWN ON SHEET 3.
ALL PROPOSED FENCING PER LANDSCAPE PLANS.

0 10 20 40 80
GRAPHICAL SCALE: 1"=20'

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
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CALA□ASAS, CA 91302
TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

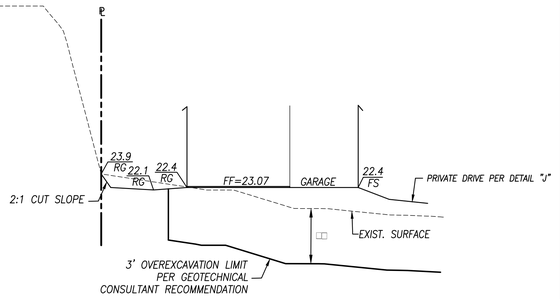
PRECISE GRADING PLAN

DESIGNED BY: JEFF VAN FLEET	DATE
DRAWN BY: JEFF VAN FLEET	DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026	DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026	DATE 7-31-17

SCALE 1"=20'
PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 2 of 8 Sheet□



SECTION A–A
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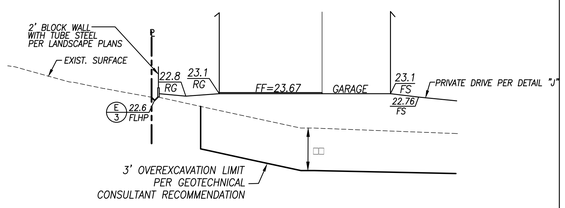

SECTION B–B
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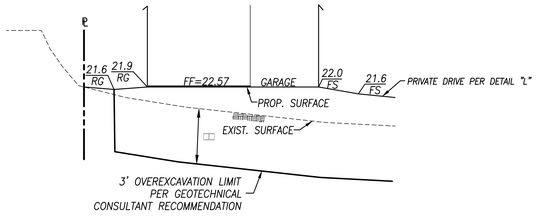

SECTION C–C
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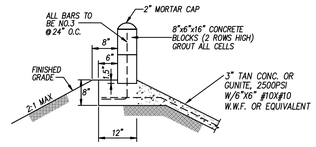
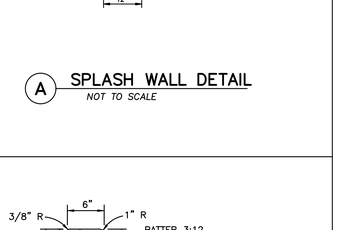
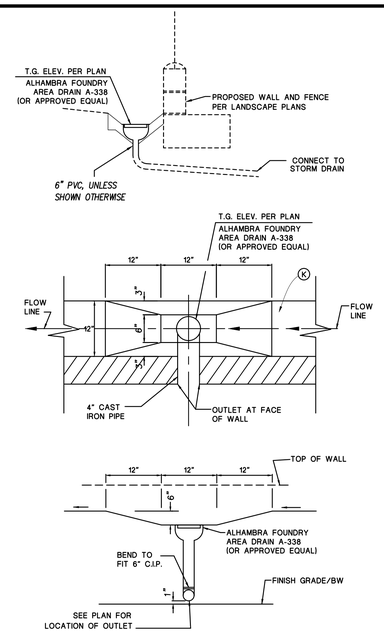


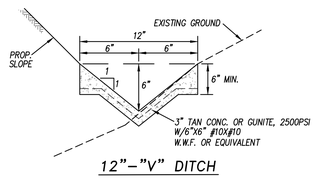
A SPLASH WALL DETAIL
NOT TO SCALE



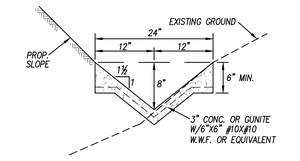
F 6"CURB DETAIL
NOT TO SCALE



D BACK OF WALL DRAIN DETAIL
NOT TO SCALE

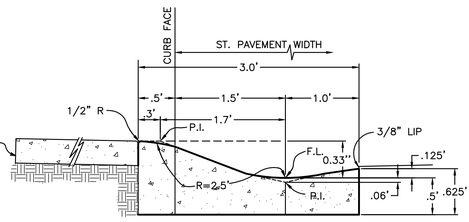


12"–"V" DITCH

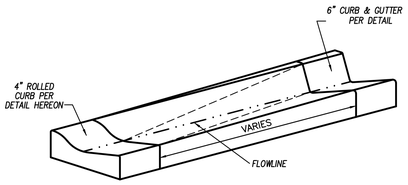


24"–"V" DITCH

E "V" DITCH
NOT TO SCALE



G 4" ROLLED CURB
NOT TO SCALE



H CURB TRANSITION DETAIL
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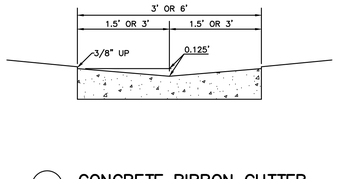
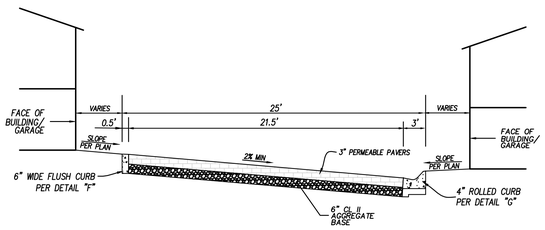
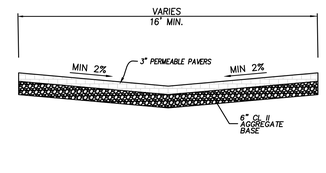


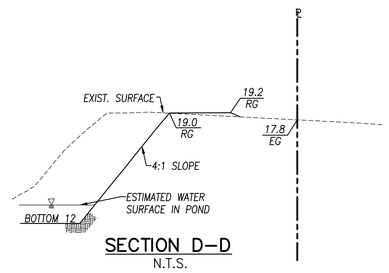
I CONCRETE RIBBON GUTTER
NOT TO SCALE



J TYPICAL PRIVATE 25' DRIVEWAY/FIRELANE SECTION
BETWEEN BUILDINGS
NTS



K TYPICAL PRIVATE 16' MIN. DRIVEWAY SECTION
NTS



SECTION D–D
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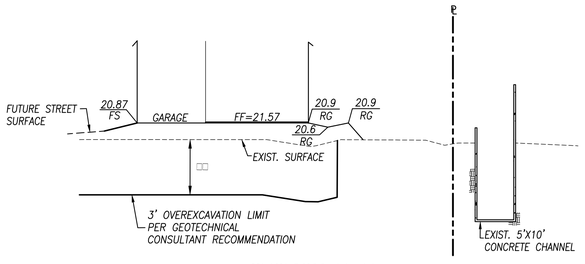
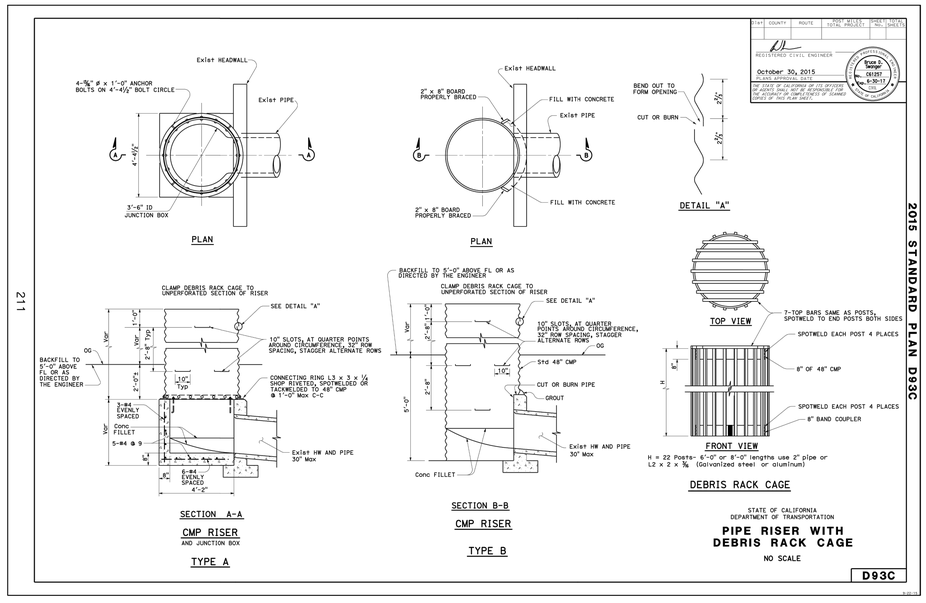
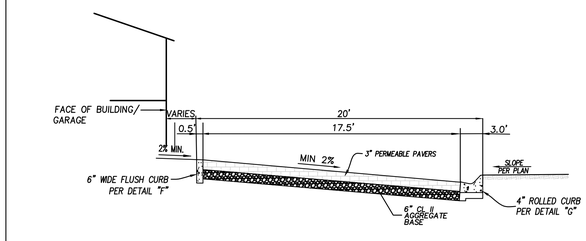


SECTION E–E
N.T.S.



R PIPE RISER
NOT TO SCALE



L TYPICAL PRIVATE 20' DRIVEWAY/FIRELANE SECTION
NTS

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-9648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALA[illegible]ASAS ROAD, SUITE 220
CALA[illegible]ASAS, CA 91302
TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

CROSS-SECTION & DETAILS

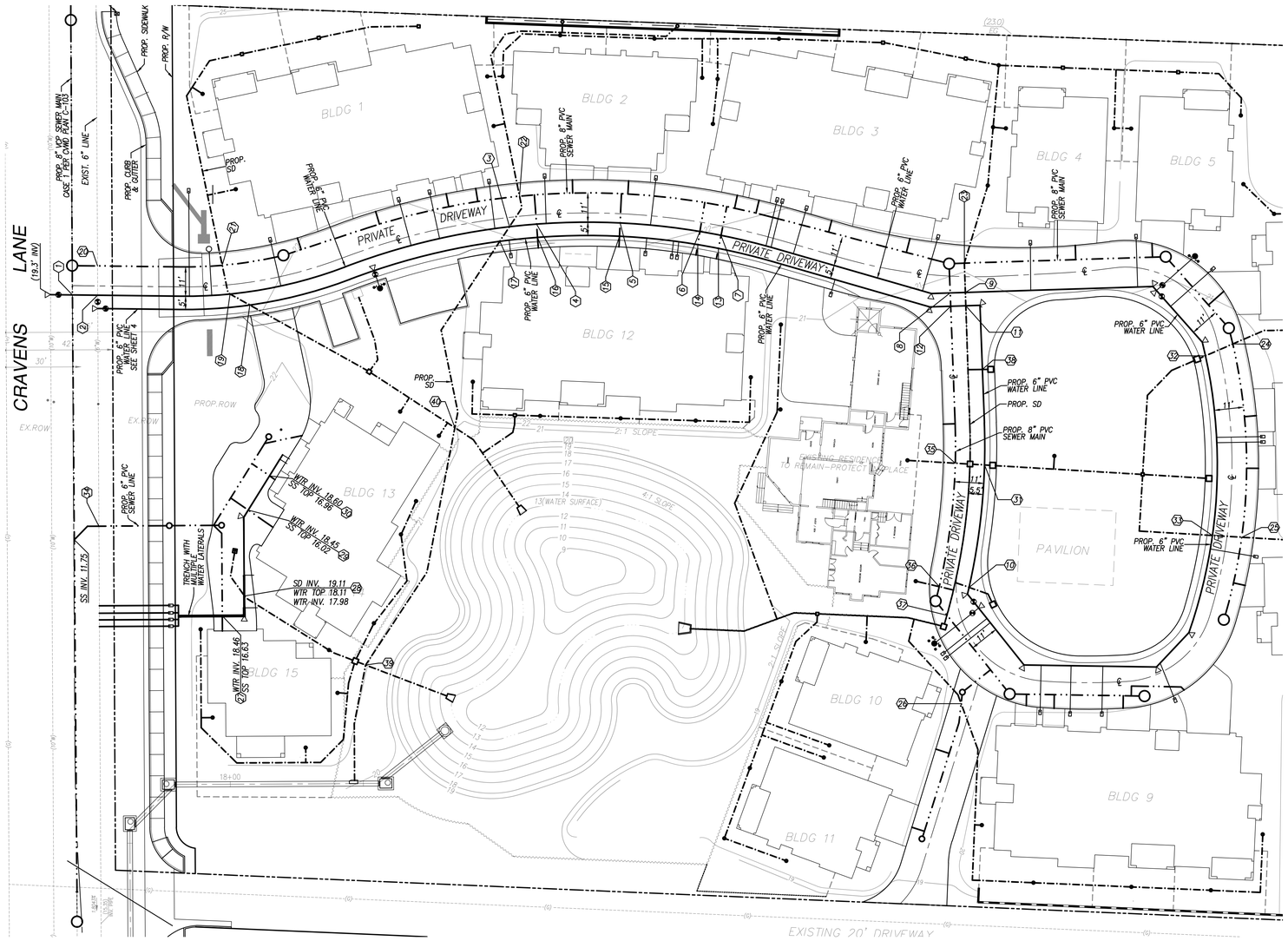
REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-31-17

SCALE
PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 3 of 8 Sheet



UTILITY CROSSING TABLE

POINT NO.	FINISHED GROUND ELEVATION	SEWER	WATER	STORM DRAIN	CLEARANCE DISTANCE
①	22.67	12.44 TOP	18.41 INV	–	5.97
②	22.30	–	19.61 INV 18.61 TOP	–	1.00
③	21.85	–	17.66 INV	15.93 TOP – 8"	1.73
④	22.18	14.68 TOP – 4"	17.62 INV	–	2.94
⑤	22.35	14.81 TOP – 4"	17.47 INV	–	2.66
⑥	22.02	14.79 TOP – 4"	17.34 INV	–	2.55
⑦	21.92	14.78 TOP – 4"	17.30 INV	–	2.52
⑧	20.99	14.23 TOP	16.90 INV	–	2.67
⑨	20.88	–	17.37 TOP	18.44 INV	1.07
⑩	19.25	–	16.08 TOP	17.36 INV.	1.28
⑪	20.81	–	16.82 TOP	18.39 INV.	1.57
⑫	20.92	14.24 TOP	16.36 INV	–	2.12
⑬	21.82	15.31 TOP – 4"	16.95 INV	–	1.64
⑭	21.92	15.31 TOP – 4"	17.01 INV	–	1.70
⑮	22.25	15.40 TOP – 4"	17.20 INV	–	1.80
⑯	22.08	15.28 TOP – 4"	17.41 INV	–	2.13
⑰	21.71	–	17.50 INV	15.88 TOP – 8"	1.62
⑱	22.01	–	18.62 TOP	19.64 INV	1.02
⑲	22.28	–	18.61 TOP	19.72 INV	1.11
⑳	21.55	12.52 TOP	19.81 INV	–	7.29
㉑	22.54	12.77 TOP	–	19.84 INV	7.07
㉒	22.35	13.32 TOP	–	15.41 INV	2.09
㉓	21.06	14.11 TOP	–	18.55 INV	4.44
㉔	20.79	14.75 TOP	–	18.77 INV	4.02
㉕	20.53	15.04 TOP	–	18.62 INV	3.58
㉖	19.65	15.34 TOP – 6"	–	16.35 INV	1.01
㉗	21.48	16.63 TOP	18.46 INV	–	1.83
㉘	21.41	–	18.11 TOP	19.11 INV	1.00
㉙	21.58	16.02 TOP	18.45 INV	–	2.43
㉚	21.73	16.96 TOP	18.60 INV	–	1.64
㉛	19.86	–	16.39 TOP	17.44 INV	1.05
㉜	20.55	–	16.91 TOP	18.66 INV	1.75
㉝	20.35	–	16.60 TOP	18.51 INV	1.91
㉞	20.82	12.44 TOP	18.04 INV	–	5.60
㉟	20.12	13.82 TOP	–	17.71 INV	3.89
㊱	19.50	14.01 TOP	–	17.00 INV	2.99
㊲	19.28	14.81 TOP	–	15.92 INV	1.11
㊳	20.36	–	16.62 TOP	18.20 INV	1.58
㊴	21.01	–	–	17.85 INV 14.14 TOP	3.71
㊵	21.01	–	–	17.40 INV 15.11 TOP	2.29

LEGEND

- PROPOSED WATER PIPE
- PROPOSED SD PIPE
- PROPOSED SEWER PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

0 20 40 60

GRAPHICAL SCALE: 1"=20'

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
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CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

UTILITY CROSSING PLAN

DESIGNED BY: JEFF VAN FLEET DATE
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SCALE

PROJECT NUMBER 1323

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CHARLES W. EBELING, P.E.,
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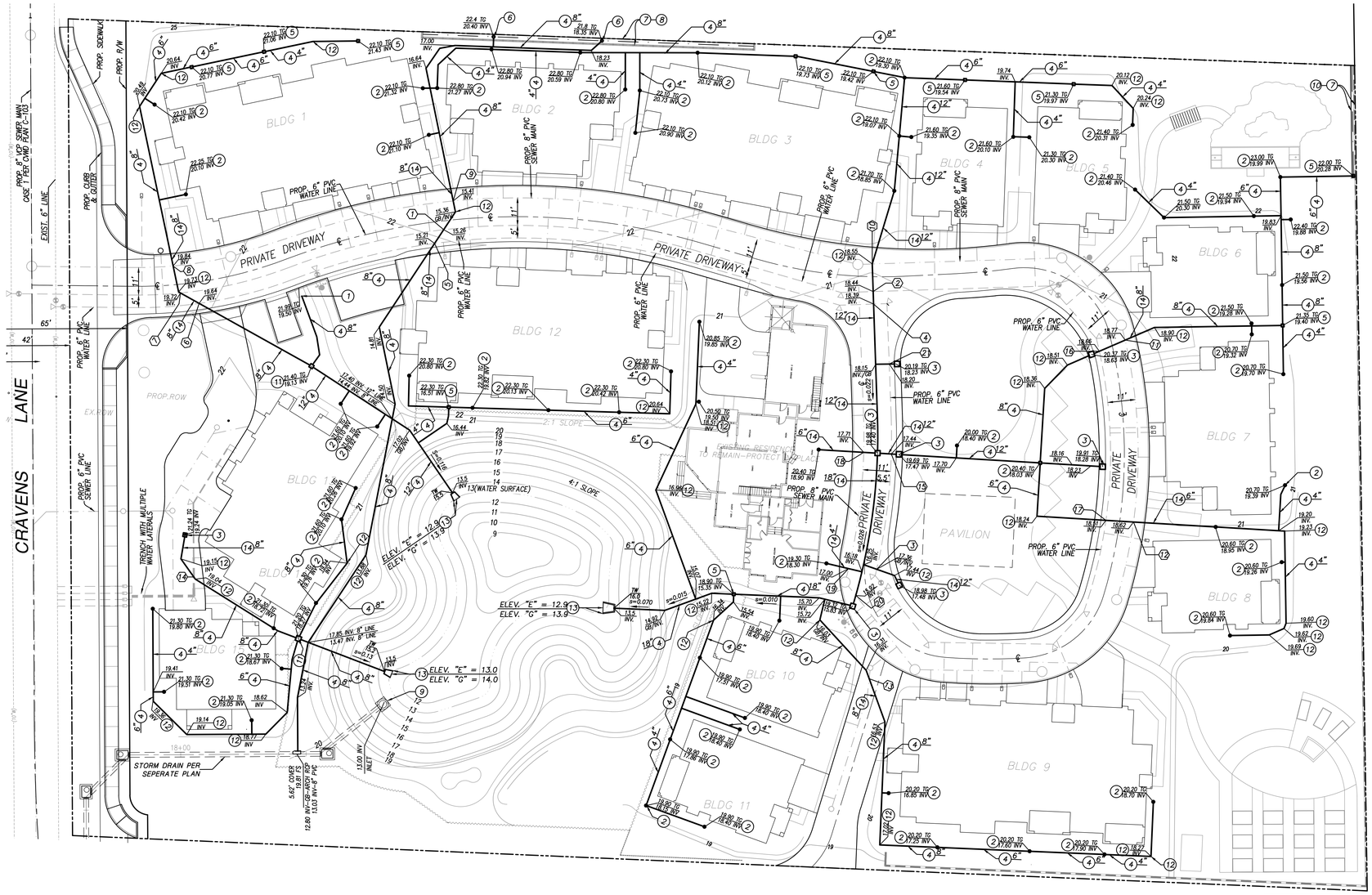
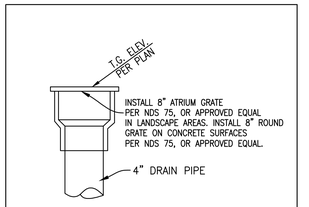
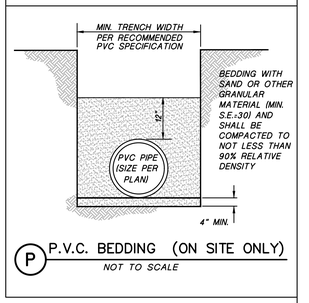
RCE NO. 64371

Sheet 4 of 8 Sheet





M AREA DRAIN
NOT TO SCALE

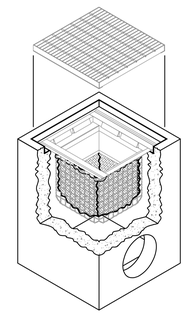


P P.V.C. BEDDING (ON SITE ONLY)
NOT TO SCALE

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL 3.5' CURB OPENING CATCH BASIN PER APWA 300-3.
2. INSTALL NDS 8" ROUND AREA DRAIN PER DETAIL "M" HEREON. OR APPROVED EQUAL.
3. INSTALL 24" X 24" DURA DRAIN CATCH BASIN WITH TRAFFIC STEEL GRATES PER DETAIL "N" HEREON AND FLOR-GARD+PLUS FILTER MODEL NO. FGP-24F PER DETAIL "O" HEREON. OR APPROVED EQUAL.
4. INSTALL PVC (SDR 35) STORM DRAIN PIPE WITH PIPE BEDDING PER DETAIL "P" HEREON (SIZE PER PLAN.)
5. INSTALL 12"x12" NDS SQUARE GRATE WITH NDS SQUARE CATCH BASIN PER DETAIL "Q" HEREON. OR APPROVED EQUAL.
6. CONSTRUCT BACK OF WALL DRAIN PER DETAIL (D/3)
7. CONSTRUCT V-DITCH. SEE SHEET 2.
8. 2' BLOCK WALL WITH TUBE STEEL PER LANDSCAPE PLAN
9. INSTALL PIPE RISER PER DETAIL (R/3)
10. PROTO II BLOCK WALL PER LANDSCAPE PLAN
11. INSTALL 18"x18" NDS SQUARE GRATE WITH NDS SQUARE CATCH BASIN PER DETAIL "S" HEREON.
12. INSTALL PVC ELBOW.
13. INSTALL OUTLET STRUCTURE PER DETAIL "S" HEREON.
14. INSTALL SCH40 PVC STORM DRAIN PIPE.

FGP-0001



DETAIL A
EXPLODED VIEW

NOTES:

1. FloGard®+Plus (frame mount) high capacity catch basin inserts are available in most sizes and styles (see specifier chart, sheet 2 of 2). Refer to the FloGard®+Plus (wall mount) insert for devices to fit non-standard, or combination style catch basins.
2. Filter insert shall have both an "initial" filtering bypass and "ultimate" high flow bypass feature.
3. Filter support frame shall be constructed from stainless steel Type 304.
4. Allow a minimum of 2.0 feet, of clearance between the bottom of the grate and top of outlet pipe(s), or refer to the FloGard® insert for "shallow" installations.
5. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.
6. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
7. Filtered flow rate includes a safety factor of two.

FLOGARD+PLUS® FILTER
-INSTALLED INTO CATCH BASIN-

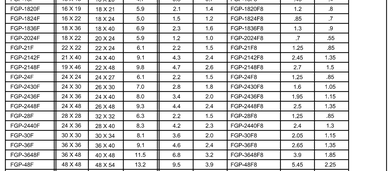
U.S. PATENT # 6,00,023 & 6,877,029

TITLE: FloGard®+PLUS
CATCH BASIN FILTER INSERT
(Flat Grated Inlet Style)

KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO. FGP-0001 | E | 0098.JPR 12/1/11 | JPR 11/3/06 | SHEET 1 OF 2

FGP-0001



DETAIL B
SECTION VIEW
FLO-GARD® +FILTER
-INSTALLED-

DETAIL C
"ULTIMATE"
BYPASS FEATURES

U.S. PATENT # 6,00,023 & 6,877,029

* MANY OTHER STANDARD & CUSTOM SIZES & DEPTHS AVAILABLE UPON REQUEST.

SPECIFIER CHART

MODEL NO. STANDARD DEPTH	STANDARD & SHALLOW DEPTH (Units in these columns & this same for both STANDARD & SHALLOW versions)			STANDARD DEPTH ~22 Inches~		MODEL NO. SHALLOW DEPTH	SHALLOW DEPTH ~12 Inches~	
	INLET ID Clear Opening (Inch x Inch)	GRATE OD Outside Dimension (Inch x Inch)	TOTAL BYPASS CAPACITY (cu. ft. / sec.)	SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)		SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)
FGP-12F	12 X 12	12 X 14	2.8	0.3	0.4	FGP-12F8	.15	.25
FGP-1530F	15 X 30	15 X 35	6.9	2.3	1.6	FGP-1530F8	1.3	.9
FGP-16F	16 X 16	16 X 19	4.7	0.8	0.7	FGP-16F8	.45	.4
FGP-1624F	16 X 24	16 X 26	5.0	1.5	1.2	FGP-1624F8	.85	.7
FGP-18F	18 X 18	18 X 20	4.7	0.8	0.7	FGP-18F8	.45	.4
FGP-1820F	18 X 19	18 X 21	5.9	2.1	1.4	FGP-1820F8	1.2	.8
FGP-1824F	18 X 22	18 X 24	5.0	1.5	1.2	FGP-1824F8	.85	.7
FGP-1836F	18 X 36	18 X 40	6.9	2.3	1.6	FGP-1836F8	1.3	.9
FGP-2024F	19 X 22	20 X 24	5.9	1.2	1.0	FGP-2024F8	.7	.55
FGP-21F	22 X 22	22 X 24	6.1	2.2	1.5	FGP-21F8	1.25	.85
FGP-2142F	21 X 40	24 X 40	9.1	4.3	2.4	FGP-2142F8	2.45	1.35
FGP-2148F	19 X 46	22 X 48	9.8	4.7	2.6	FGP-2148F8	2.7	1.5
FGP-24F	24 X 24	24 X 27	6.1	2.2	1.5	FGP-24F8	1.25	.85
FGP-2430F	24 X 30	26 X 30	7.0	2.8	1.8	FGP-2430F8	1.6	1.05
FGP-2436F	24 X 36	24 X 40	8.0	3.4	2.0	FGP-2436F8	1.95	1.15
FGP-2448F	24 X 48	26 X 48	9.3	4.4	2.4	FGP-2448F8	2.5	1.35
FGP-28F	28 X 28	32 X 32	6.3	2.2	1.5	FGP-28F8	1.25	.85
FGP-2440F	24 X 36	28 X 40	8.3	4.2	2.3	FGP-2440F8	2.4	1.3
FGP-30F	30 X 30	30 X 34	8.1	3.6	2.0	FGP-30F8	2.05	1.15
FGP-36F	36 X 36	36 X 40	9.1	4.6	2.4	FGP-36F8	2.65	1.35
FGP-3648F	36 X 48	40 X 48	11.5	6.8	3.2	FGP-3648F8	3.9	1.85
FGP-48F	48 X 48	48 X 54	13.2	9.5	3.9	FGP-48F8	5.45	2.25
FGP-SD24F	24 X 24	28 X 28	6.1	2.2	1.5	FGP-SD24F8	1.25	.85

TITLE: FloGard®+PLUS
CATCH BASIN FILTER INSERT
(Flat Grated Inlet Style)

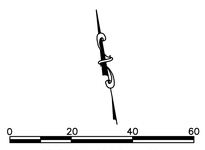
KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO. FGP-0001 | E | 0098.JPR 12/1/11 | JPR 11/3/06 | SHEET 2 OF 2

O AREA DRAIN FILTER
NOT TO SCALE

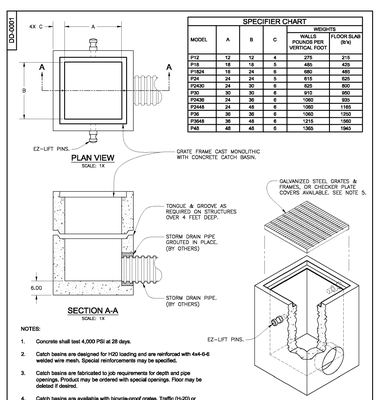
UTILITY CROSSING TABLE

POINT	FINISHED GROUND ELEVATION	SEWER	WATER	STORM DRAIN	CLEARANCE DISTANCE
1	21.85	–	17.66 INV	15.93 TOP – 8"	1.73
2	20.88	–	17.37 TOP	18.44 INV	1.07
3	19.25	–	16.08 TOP	17.36 INV.	1.28
4	20.81	–	16.82 TOP	18.39 INV.	1.57
5	21.71	–	17.50 INV	15.88 TOP – 8"	1.62
6	22.01	–	18.62 TOP	19.64 INV.	1.02
7	22.28	–	18.61 TOP	19.72 INV.	1.11
8	22.54	12.77 TOP	–	19.84 INV	7.07
9	22.35	13.32 TOP	–	15.41 INV	2.09
10	21.06	14.11 TOP	–	18.55 INV	4.44
11	20.79	14.75 TOP	–	18.77 INV	4.02
12	20.53	15.04 TOP	–	18.62 INV	3.58
13	19.65	15.34 TOP – 6"	–	16.35 INV	1.01
14	21.41	–	18.11 TOP	19.11 INV	1.00
15	19.86	–	16.39 TOP	17.44 INV	1.05
16	20.55	–	16.91 TOP	18.66 INV	1.75
17	20.35	–	16.60 TOP	18.51 INV	1.91
18	20.12	–	13.82 TOP	17.71 INV	3.89
19	19.50	14.01 TOP	–	17.00 INV	2.99
20	19.28	14.81 TOP	–	15.92 INV	1.11
21	20.36	–	16.62 TOP	18.20 INV	1.58



GRAPHICAL SCALE: 1"=20'

DD-0001



SPECIFIER CHART

MODEL	A	B	C	WEIGHTS: FRAME & GRATE POUNDS PER VERTICAL FOOT	WEIGHTS: FLOOR SLAB (EA)
P12	12	12	4	275	215
P18	18	18	5	485	405
P18DR	18	24	8	660	485
P24	24	24	5	815	625
P24DR	24	30	8	825	800
P30	30	30	8	970	950
P24DR	24	36	8	1060	935
P24HS	24	48	8	1060	1165
P36	36	36	8	1060	1250
P36	36	48	8	1215	1560
P48	48	48	8	1365	1940

NOTES:

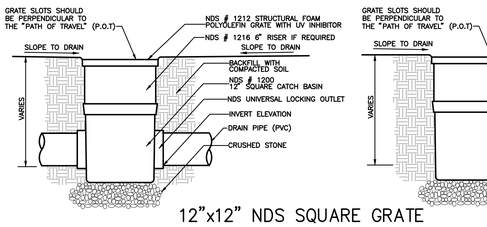
1. Concrete shall test 4,000 PSI at 28 days.
2. Catch basins are designed for H20 loading and are reinforced with 4x4-6-6 welded wire mesh. Special reinforcements may be specified.
3. Catch basins are fabricated to job requirements for depth and pipe openings. Product may be ordered with special openings. Floor may be deleted if desired.
4. Catch basins are available with bicycle-proof grates, Traffic (1+2G) or Non-Traffic design. Catch basins may also be specified with Traffic & Non Traffic solid checker plate or redwood cover.
5. Grates or checker plate covers may be secured with optional locking bolts.
6. All exposed metal parts shall be galvanized in accordance with ASTM A-123.

TITLE: DURA-DRAIN® CUSTOM CONCRETE
CONCRETE CATCH BASIN

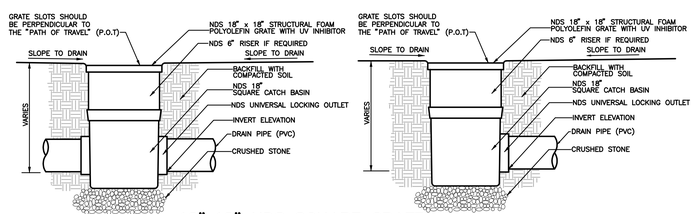
KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO. DD-0001 | E | 0097.JPR 11/2/11 | JPR 4/5/07 | SHEET 1 OF 1

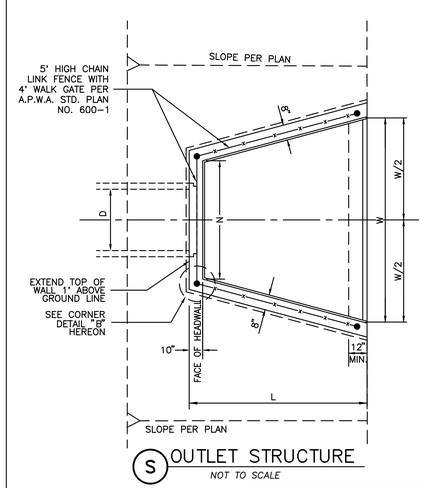
N CONCRETE CATCH BASIN
NOT TO SCALE



Q 12"x12" NDS SQUARE GRATE WITH NDS SQUARE CATCH BASIN
NOT TO SCALE (LANDSCAPE APPLICATION)



S 18"x18" NDS SQUARE GRATE WITH NDS SQUARE CATCH BASIN
NOT TO SCALE (LANDSCAPE APPLICATION)



S OUTLET STRUCTURE
NOT TO SCALE

OUTLET STRUCTURE TABLE

LINE	ELEV "E" SEE PLAN	ELEV "F" SEE PLAN	ELEV "G" SEE PLAN	ELEV "K" SEE PLAN	D	W	L	N
8"	12.9	13.5	14.0	15.2	8"	1.33'	1.91'	0.89'
12"	12.9	13.5	13.9	15.5	12"	2.00'	2.87'	1.33'
18"	12.9	13.5	13.9	16.0	18"	3.00'	4.31'	2.00'

LEGEND

- PROPOSED WATER PIPE
- PROPOSED SEWER PIPE
- PROPOSED SD PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

PREPARED FOR:
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23622 CALA□ASAS ROAD, SUITE 220
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TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

STORM DRAIN PLAN

NO.	REVISION	BY	CHKD.	DATE

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AGOURA HILLS, CA 91301
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SCALE

PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 5 of 8 Sheet□

RESOLUTION NO. 5359

A RESOLUTION OF THE CITY OF CARPINTERIA CITY COUNCIL APPROVING A THREE-YEAR TIME EXTENSION FOR THE GREEN HERON SPRING PROJECT, CASE NO. 05-1239-TEX, TO CONSTRUCT A 31-UNIT CONDOMINIUM PROJECT LOCATED AT 1300 AND 1326 CRAVENS LANE (APN 004-013-026)

WHEREAS, the City Council originally approved the Development Plan, Vesting Tentative Tract Map, and Coastal Development Permit for the 31-unit Green Heron Spring project in November 2007. A Local Coastal Program Amendment for the project was also approved by the City and forwarded to the Coastal Commission for certification; and

WHEREAS, the Coastal Commission proposed modifications to the LCP Amendment were accepted by the City Council in May 2009, requiring changes to the project; and

WHEREAS, on March 9, 2010, the Community Development Director approved these changes, thereby updating the project's Findings, Conditions of Approval and Site Plan to reflect the Coastal Commission's actions. Pursuant to Condition DP-1, without an approved time extension, the project approval would expire in two years (March 9, 2012), unless prior to the expiration date a Building Permit has been issued or the permittee has diligently worked toward Building Permit issuance; and

WHEREAS, within the prescribed time frame, the applicant filed a three-year time extension request on January 25, 2012; and

WHEREAS, the City Council has conducted a hearing and received evidence regarding of the application for the three-year time extension request for the previously approved Green Heron Spring project; and

WHEREAS, the City Council finds good cause for the time extension request in that the additional time is needed to allow the applicant to secure the necessary funding to complete the construction documents and construction financing.

NOW THEREFORE, THE CITY COUNCIL HEREBY RESOLVES AS FOLLOWS:

The three-year time extension request is approved, making the finding of good cause above and subject to the conditions set forth in Attachment A and the project plans presented in Attachment B.

PASSED, APPROVED AND ADOPTED this 27th day of February 2012, by the following vote:

AYES: **COUNCILMEMBER(S):**

NOES: **COUNCILMEMBER(S):**

ABSENT: **COUNCILMEMBER(S):**

_____
Mayor, City of Carpinteria

ATTEST:

_____
City Clerk, City of Carpinteria

I hereby certify that the foregoing Resolution was duly and regularly introduced and adopted at a regular meeting of the City Council of the City of Carpinteria held the 27th day of February 2012.

_____
City Clerk, City of Carpinteria

APPROVED AS TO FORM:

_____
City Attorney

ATTACHMENT A

CONDITIONS OF APPROVAL

February 27, 2012

PROJECT NO. 05-1239-TEX
GREEN HERON SPRING TIME EXTENSION
1300 and 1326 Cravens Lane (APN 004-013-026)

The Conditions set forth in this permit affect the title and possession of the real property that is the subject of this permit and shall run with the real property or any portion thereof. All the terms, covenants, conditions, and restrictions herein imposed shall be binding upon and inure to the benefit of the owner (applicant, developer), his or her heirs, administrators, executors, successors and assigns. Upon any sale, division or lease of real property, all the conditions of this permit shall apply separately to each portion of the real property and the owner (applicant, developer) and/or possessor of any such portion shall succeed to and be bound by the obligations imposed on the owner (applicant, developer) by this permit.

PROJECT DESCRIPTION

Desc-1. This Development Plan, Vesting Tentative Tract Map, General Plan/Coastal Plan Text Amendment, Rezone and Coastal Development Permit approval is restricted to APN 004-013-026, located at 1300 and 1326 Cravens Lane. The 31-unit Green Heron Spring condominium project proposes to dismantle an existing residence, barn and storage shed (the materials would be salvaged), remodel one residence and construct 30 new residential units. Twenty of the new residences are proposed to be three-bedroom townhomes; two of these would be affordable under the City's Inclusionary Housing Requirement. Ten of the new residences are proposed to be one-bedroom flats, with two of these affordable. In all, 11 structures totaling 61,990 sq. ft. of floor area is proposed.

Building heights are proposed to range from 24'-5" to 29'-6". Parking includes 53 spaces within garages and 115 uncovered guest spaces. No fences, walls or gates are proposed at the project's entrance Lane. A five-foot high wrought iron fence is proposed to enclose the project's common open space and private yard areas. The wrought iron fence increases to six feet at the project's southwest property boundary. An eight-foot high solid concrete fence is proposed along the project's southeast, east and northeast property boundary. This solid concrete fence drops down to a height of six feet along the north and northwest property boundary. Grading is estimated at 1,270 cubic yards of cut and 3,200 cubic yards of fill.

Proposed common open space would include a community orchard, garden, village green and children's play area. An existing agricultural pond would be enhanced and incorporated into the project as part of the open space. The area adjacent to the pond would be revegetated with native plantings replacing the existing non-native species. The plantings have been selected for their appropriateness to the upland wetland setting and to attract and support wildlife.

The Green Heron Spring project is envisioned to represent a model for creating environmentally responsible multiple-family residential developments. The single overarching theme of this proposal is to create a showcase of 'environmentally responsible design'.

This would be accomplished with the following interconnected features:

- The site design preserves 30 mature native oaks, sycamores and redwoods, planting more than 80 new native trees;
- An existing residence, barn and storage shed would be dismantled, with the materials salvaged and used on site where possible;
- A large community organic garden and orchard would provide food to residents with surplus to the farmers market;
- Fruit and vegetable scrap composting containers would be provided within all units for use in the organic garden and orchard;
- An innovative water harvesting/ bio-filtration/storage/reuse system that also provides storm water retention and uses a solar powered pump to send water to a restored water tower for landscape irrigation;
- The site design includes the use of permeable paving blocks for all drives and walks;
- Buildings have been designed and would be constructed with sustainable materials selected for durability and non-toxic maintenance, i. e: Fly-ash concrete, FSC certified lumber, fiber-cement siding, recycled steel roofing, formaldehyde-free insulation, sheathing and cabinets;
- Building insulation beyond UBC requirements, including 2x6 exterior walls with R-24, perimeter foundation slab insulation and R-30 roof insulation;
- Passive solar heating with thermal storage, natural lighting and natural ventilation, designed to minimize fossil energy use would be incorporated within all residential structures;
- Building integrated solar electric photo-voltaic systems for all units;
- Energy Star appliances, heating system, water heaters, vent fans and light fixtures;
- Extra water-conserving toilets with dual flush along with low flow fixtures and instant flow water heaters would be installed in all units; and
- Units and Buildings would qualify as 'Energy Star Homes' under the DOE criteria.

The cumulative effect of all these features would be independently analyzed by an evaluation system being developed by the U. S. Green Building Council with its new LEED for Homes Pilot Program. LEED stands for Leadership in Energy and Environmental Design. The project has been accepted as a part of the LEED for HOMES' Pilot Project and will be seeking the highest 'Platinum Rating' from the U. S. Green Building Council.

The project will also demonstrate the practicality of meeting the '2030 Challenge' of the U. S. Conference of Mayors and the American Institute of Architects as a response to reducing impacts on global warming.

Additional Project Components:

The 3.87-acre site is proposed to be annexed to the City of Carpinteria. The City's General Plan/Coastal Plan (April 2003) included the parcel within its Sphere of Influence and gave it a Land Use Designation of Medium Density Residential (MDR). The project also includes an annexation to the Carpinteria Sanitary District.

The application package to construct the 31-unit residential condominium project includes a General Plan/Coastal Plan Text Amendment, Rezone to Planned Unit Development (PUD), Development Plan, Vesting Tentative Tract Map, and Coastal Development Permit.

Any minor changes may be approved by the City Manager and/or Community Development Director. Any major changes will require the filing of a revised project application.

MITIGATION MEASURES FROM THE PROJECT MND

Aest-1 The design, scale and character of the project architecture shall be compatible and blend harmoniously with vicinity development. In addition, the project shall maintain as much of the beneficial screening as possible, with structures located to take advantage of the natural landforms and screening. **Plan Requirement and Timing:** The applicant shall submit architectural, landscape and grading plans of the project for final review by the Architectural Review Board prior to approval of any Building Permit for physical development. **Monitoring:** CDD shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect prior to, and during the construction phase.

Aest-2 Natural building materials and colors compatible with surrounding terrain (earthtones and non-reflective paints) shall be used on exterior surfaces of all structures. **Plan Requirement:** Materials shall be denoted on building plans. **Timing:** Structures shall be painted prior to occupancy clearance. **Monitoring:** CDD shall inspect prior to occupancy clearance.

Aest-3 The developer shall clear the project site of all excess construction debris. **Plan Requirement:** This requirement shall be noted on final building plans. **Timing:** Debris clearance shall occur prior to occupancy clearance. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Aest-4 Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spill-over onto adjacent parcels. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. **Plan Requirements:** The locations of all exterior lighting fixtures and an arrow showing the direction of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector shall inspect structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.

Aest-5 No signs of any type are approved with this action unless otherwise specified. All signs require a separate Sign Permit and review by the Architectural Review Board and shall comply with the City Code Chapter 14 (Sign Regulations).

Ag-1 In order to protect the existing agricultural operations from encroaching development, site perimeter walls shall be installed along property lines as shown on the proposed site plan and maintained to protect agricultural land from residential intrusion for the life of the project. **Plan Requirement and Timing:** Plans shall be submitted prior to issuance of a Grading or Building Permit; the walls shall be installed prior to Occupancy of the first unit.

Ag-2 The following buyer notification shall be recorded on a separate information sheet with the final map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Report, provided to County Planning and Development to be noted on the Assessor's Parcel pages and included in the project CC&Rs:

IMPORTANT: BUYER NOTIFICATION
This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural growing, packing and shipping operations are located east and north of the property. Delivery trucks use the adjacent 20-foot driveway located south of the property to service the packing shed just east of the project site. Approximately 2.5 acres of the adjacent parcel to the north is occupied by a County of Santa Barbara Flood Control District siltation basin operating under a long term easement agreement. While the project design includes site walls and landscape buffers to reduce possible noise, light, odors and dust from impacting residents of the Green Heron project, future buyers are to be notified that these are existing conditions and will not be considered by the City of Carpinteria to be nuisance requiring extraordinary actions by the adjacent agricultural operators, County of Santa Barbara Flood Control District or landowners. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.

AQ-1 If the construction site is graded and left undeveloped for over three weeks, the applicant shall employ the following methods immediately to inhibit dust generation:

a. seeding and watering to revegetate graded areas; and/or

b. spreading of soil binders; and/or

c. any other methods deemed appropriate by Community Development.

Plan Requirements: These requirements shall be noted on all plans. **Timing:** Plans are required prior to issuance of a Grading or Building Permit. **Monitoring:** Grading Inspector shall perform periodic site inspections.

AQ-2 Dust generated by the development activities shall be kept to a minimum with a goal of retaining dust on the site by following the dust control measures listed below. During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.

b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.

Plan Requirements: All requirements shall be shown on grading and building plans. **Timing:** Condition shall be adhered to throughout all grading and construction activities. **Monitoring:** CDD shall ensure measures are on plans. CDD Grading and Building Inspectors shall spot check; Grading and Building Inspectors shall ensure compliance on-site. APCD inspectors shall respond to nuisance complaints.

AQ-3 The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off site. Their duties shall include holiday and weekend periods when work may not be in progress. **Plan Requirements:** The name and telephone number of such persons shall be provided to the APCD and the Community Development Department. **Timing:** The plan shall be designated prior to issuance of a Grading or Building Permit. **Monitoring:** CDD shall contact the designated monitor as necessary to ensure compliance with dust control measures.

Bio-1 In order to protect existing pond and improve the habitat functions and values, the applicant shall implement the Wetlands Mitigation Program contained within the *Conceptual Wetlands Mitigation Habitat Enhancement and Monitoring Plan*, December 2005, prepared by Katherine Rindlaub, Botanist. The Wetlands Mitigation Program includes the recontouring of the pond and reducing the slope from a 1:2 to approximately 1:4, dredging the accumulated silt and debris in order to restore the pond to its original depth, replanting wetland vegetation and compatible native species in order to increase the habitat complexity and species diversity, improving the functional value of the habitat for native birds and wildlife. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Wetlands Mitigation Program to CDD for review and approval. All aspects of the Program shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee successful re-establishment of the wetland and upland habitat. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD shall conduct site inspections throughout all phases of development to ensure compliance with the Program. Release of performance security requires CDD staff signature.

Bio-2 In order to protect existing native trees and minimize adverse effects of grading and construction onsite, the applicant shall implement the 14 recommendations contained within the *Tree Assessment and Protection Plan for Green Heron Spring LLC*, November 8, 2005, prepared by Bill Spiewak, Consulting Arborist, as modified herein. No ground disturbance, including grading, shall occur within the critical root zone of any native tree unless specifically authorized by the Tree Assessment and Protection Plan. The Tree Assessment and Protection Plan shall include a large number and/or larger size of the replacement oaks (along with understory species) to be planted in groves in the vicinity of the existing pond. In order to implement the Tree Assessment and Protection Plan, the applicant shall have prepared and submit a graphic Tree Protection and Replacement Plan including the following:

a. An exhibit showing the location, diameter and critical root zone of all native trees located onsite.

b. Fencing of all trees to be protected at or outside of the critical root zone. Fencing shall be at least three feet in height of chain link or other material acceptable to CDD and shall be staked every six feet. The applicant shall place signs stating "tree protection area" at 15-foot intervals on the fence. Said fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to commencement of grading and/or construction and shall remain in place throughout all grading and construction activities.

c. The tree protection plan shall clearly identify any areas where landscaping, grading, trenching or construction activities would encroach within the critical root zone of any native or specimen tree. All encroachment is subject to review and approval by CDD.

d. Construction equipment staging and storage areas shall be located outside of the protected area and shall be depicted on project plans submitted for issuance of a Grading or Building Permit. No construction equipment shall be parked, stored or operated within the protected area. No fill soil, rocks or construction materials shall be stored or placed within the protected area.

e. All proposed utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are minimized.

f. Any proposed tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the critical root zone of all protected trees unless specifically authorized.

g. Any encroachment within the critical root zone of native trees shall adhere to the following standards:

i. Any paving shall be of pervious material (gravel, brick without mortar or turf block).

ii. Any trenching required within the critical root zone of a protected tree shall be done by hand.

iii. Any roots one inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.

h. All trees located within 25 feet of buildings shall be protected from stucco and/or paint during construction.

i. No permanent irrigation shall occur within the critical root zone of any native tree. Drainage plans shall be designed so that tree trunk areas are properly drained.

j. Only trees designated for removal on the approved tree protection plan shall be removed.

k. Any protected trees which are removed, relocated and/or damaged (more than 20% encroachment into the critical root zone) shall be replaced on a 10:1 basis with one gallon size saplings grown from seed obtained from the same watershed as the project site. A limited number of replacement trees may be permitted on a 3:1 ratio with 24-inch boxed trees. Where necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. Any pruning shall be done in accordance with the standard. Trees shall be planted prior to issuance of occupancy clearance and irrigated and maintained until established (three years). The undergrounding shall extend along the project street frontage to the nearest utility pole(s) outside of the project limits. Feed points shall be as approved by the City Engineer. All costs of undergrounding existing utility lines and service laterals shall be borne by the applicant.

Eng-9 Existing and proposed easements for all utilities shall be located and described on the engineering plans or the architectural drawings prior to issuance of building permits.

Eng-10 Separate electric meters shall be installed for each unit unless a 'gang' meter is approved by SCE. Electric meters shall be shown on plans submitted for building permit to be checked by the City building permit plan checker.

Plan Requirements: Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Tree Protection and Replacement Plan to CDD for review and approval. All aspects of the plan shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee tree replacement. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD, or a qualified monitor acceptable to the CDD, shall conduct site inspections throughout all phases of development to ensure compliance with all tree protection and replacement measures. Release of performance security requires CDD staff signature.

Bio-3 During construction, washing of concrete trucks, paint, equipment or similar activities shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Wash water shall not be discharged to the storm drains, street, drainage ditches, creeks or wetlands. Areas designated for washing functions shall be at least 100 feet from any storm drain, waterbody or sensitive biological resources. The location of the washout area shall be clearly noted at the construction site with signs. **Plan Requirements:** The applicant shall designate a washout area, acceptable to CDD, and this area shall be shown on the construction and/or grading and building plans. **Timing:** The wash off area shall be designated on all plans prior to issuance of a Grading or Building Permit. The washout area shall be in place and maintained throughout construction. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and staff shall site inspect throughout the construction period to ensure proper use and maintenance of the washout area.

Bio-4 To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be modified to be wildlife permeable (i.e., with a wooden (not wire) rail at the top and with a space greater than 14 inches between the ground and the bottom rail). **Plan Requirements and Timing:** The applicant shall provide a detail of the wildlife permeable fence sections and the location of where the fence would be installed on the construction and/or grading and building plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and staff shall site inspect throughout the construction period to ensure proper installation.

Bio-5 Proposed construction activities involving tree removal and other disturbances to vegetation shall take place outside of the breeding bird season (February 1 – August 15) to avoid all migratory nongame native bird species take (including disturbances which would cause abandonment of active nests containing eggs and or young). If these project activities cannot avoid the breeding bird season, pre-project nest surveys shall be conducted and active nests shall be avoided and provided with a minimum buffer as determined by the City Biologist. **Timing and Monitoring:** CDD shall require the pre-project nest survey to be conducted if these proposed construction activities cannot avoid the breeding bird season. In the event active nests are found in the vicinity, the City Biologist shall provide a recommendation on the minimum buffer or alternate action to be taken.

CulRes-1 In the event archaeological remains are encountered during grading, work shall be stopped immediately or redirected until a CDD-qualified archaeologist and Native American representative are retained by the applicant to evaluate the significance of the find pursuant to Phase 2 investigations of the City Archaeological Guidelines. If remains are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

CulRes-2: A Phase 1.5 archaeological investigation pursuant to City Archaeological Guidelines shall be funded by the applicant and performed prior to recordation of the tract map and issuance of a grading permit. The scope of work for the study shall be prepared by a qualified archaeologist, shall include one to five shovel test pits, and shall be reviewed and approved by CDD. The findings of the investigation shall be submitted to CDD; CDD shall apply State law and CulRes-1 requirements if archeological resources are found on the site. A copy of the survey shall be filed with the UCSB Central Coast Information Center and provided to the Santa Ynez Band of Mission Indians.

Geo-1 Structures shall be designed to earthquake standards of the Uniform Building Code Seismic Zone 4. **Plan Requirements and Timing:** Prior to plan check, the applicant shall submit building plans indicating standards to the satisfaction of the Building and Safety Division. **Monitoring:** Building Inspector shall site inspect prior to occupancy clearance.

Geo-2 Grading and erosion and sediment control plans shall be designed to minimize erosion and shall include the following:

a. Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins and spot grading shall be used to reduce erosion and siltation during grading and construction activities.

b. All entrances/exits to the construction site shall be stabilized (e.g., using rumble plates, gravel beds or other best available technology) to reduce transport of sediment off site. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods.

c. Storm drain inlets shall be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters and excavated inlet sediment traps.

d. Graded areas shall be revegetated within three weeks of grading activities with deep rooted, native, drought-tolerant species to minimize slope failure and erosion potential. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

Plan Requirements: The grading and erosion and sediment control plan shall be submitted for review and approved by CDD prior to issuance of a Grading Permit. The plan shall be designed to address erosion and sediment control during all phases of development of the site. The applicant shall notify CDD prior to commencement of grading. **Timing:** Components of the grading plan shall be implemented prior to occupancy clearance. Erosion and sediment control measures shall be in place throughout grading and development of the site until all disturbed areas are permanently stabilized. **Monitoring:** CDD shall inspect revegetation and ensure compliance with plan. Grading inspector shall monitor installation and maintenance of erosion control measures throughout all grading and construction activities.

Geo-3 The applicant shall limit excavation and grading to the dry season of the year (April 15 to November 1) unless an approved erosion and sediment control plan is in place and all measures therein are in effect. All exposed graded surfaces shall be reseeded with ground cover vegetation to minimize erosion. **Plan Requirements:** This requirement shall be noted on all grading and building plans. **Timing:** Graded surfaces shall be reseeded within three weeks of grading completion, with the exception of surfaces graded for the placement of structures. These surfaces shall be reseeded if construction of structures does not commence within three weeks of grading completion. **Monitoring:** CDD shall site inspect during grading and three weeks after grading to verify reseeding and to verify the construction has commenced in areas graded for placement of structures.

Geo-4 Drainage shall be consistent with approved drainage plans. **Plan Requirements:** Prior to issuance of a Grading Permit, a drainage plan shall be submitted to CDD and Public Works for review and approval. The plan shall include the location(s) of all proposed pipelines, the entire length of all proposed pipelines, trees located within fifteen feet of the pipeline, pipe diameters, and amount of water that would flow from each pipeline. **Timing:** The components of the drainage plan shall be implemented prior to commencement of construction of structures. **Monitoring:** CDD shall site inspect during grading.

Geo-5 Project construction and grading shall comply with all recommendations outlined in the Geotechnical Engineering Report dated March 17, 2005, prepared by Earth Systems Southern California to the satisfaction of the City Engineer. **Plan Requirements:** Grading and building plans shall include all required measures as determined by the City Engineer. **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.

HazMat-1 Soil in the vicinity of the barn is shown to be contaminated with lead, petroleum hydrocarbons, and dieldrin at concentrations exceeding Santa Barbara County Fire Department Investigation Levels and residential cleanup goals. Based on the contamination discovered thus far, the Fire Department is likely to require remediation by removal and legal offsite disposal of the contaminated soil. **Plan Requirements/Timing:** Grading or building permits shall not be approved until remediation of the site has been completed and the Fire Department has issued a closure letter for the contamination site. **Monitoring:** CDD shall check and verify that the closure letter has been issued by the Hazardous Materials Division of the Fire Department before approving grading or building permits for residential development.

HazMat-2 In the event any contaminated, odorous or discolored soil or groundwater/surface water is encountered during grading, work shall be stopped immediately and the Hazardous Materials Division of the County Fire Department shall be called at (805) 686-8170. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

Noise-1 Construction activity for site preparation and for future development shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions. **Plan Requirements:** Two signs stating these restrictions shall be provided by the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** Building Inspector shall spot check and respond to complaints.

Noise-2 Stationary construction equipment that generates noise which exceeds 65 dBA at the project boundaries shall be shielded to CDD's satisfaction and shall be located a minimum of 60 feet from occupied residences. **Plan Requirements:** The equipment area with appropriate acoustic shielding shall be designated on building and grading plans. **Timing:** Equipment and shielding shall remain in the designated location throughout construction activities. **Monitoring:** CDD shall perform site inspections to ensure compliance.

Wat-1 The project had been designed to provide for on-site retention of storm water runoff, infiltration, and recharge utilizing an environmentally enhanced onsite pond. The pond shall be maintained for the life of the project by the Homeowners' Association. Recharge systems shall be developed in conjunction with Public Works and CDD. **Plan Requirements:** A Final Drainage Plan showing the location and design of the pond/retention basin and site infrastructure shall be submitted to CDD and Public Works

for review and approval. Installation and maintenance for five years shall be ensured through a performance security provided by the applicant. Long term maintenance requirements shall be specified in the Homeowners' Association's CC&Rs. **Timing:** The retention system shall be installed and operational subject to CDD and Public Works approval) prior to occupancy clearance. **Monitoring:** CDD shall site inspect for installation and maintenance of landscaping. Public Works approval is required on final grading/drainage plans, and CDD approval is required for release of the performance security.

Wat-2 The applicant shall submit proof of exemption or a copy of the Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System issued by the California Regional Water Quality Control Board. **Plan Requirements and Timing:** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP.

Wat-3 To prevent illegal discharges to storm drains, all on-site storm drain inlets, whether new or existing, shall be labeled to advise the public that the storm drain discharges to the ocean and that dumping waste is prohibited (e.g., "Don't Dump – Drains to Ocean"). The information shall be provided in English and Spanish. **Plan Requirements and Timing:** Location of storm drain inlets shall be shown on the site, building and grading plans prior to approval of grading permits. Labels shall be installed prior to occupancy clearance. Standard labels are available from Public Works or other label designs shall be shown on the plans and submitted to CDD prior to approval of grading permits. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Wat-4 The project has been designed to provide for on-site permanent biofilter/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professional to ensure that the retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by CDD to be infeasible. Invasive plants shall not be used in the biofilter. Biofilters shall not replace existing riparian vegetation or native vegetation unless otherwise approved by CDD. **Plan Requirements and Timing**: The applicant shall include the biofilter design, including the plant palette and the source of plant material, on the grading and drainage and landscape plans, and depict it graphically. The applicant shall submit a maintenance plan for the biofilter to CDD for review and approval. A performance security shall be required to ensure installation and five-year maintenance. Long-term maintenance shall be the responsibility of the Homeowners' Association. Maintenance requirements shall be specified in the CC&Rs. The plans and a copy of the long-term maintenance program shall be submitted to CDD and Public Works for review prior to approval of a Building Permit. **Monitoring:** CDD shall site inspect for installation and periodically inspect for maintenance throughout the five-year performance period. Performance security release requires CDD approval.

Wat-5 To reduce runoff from impervious areas and allow for infiltration, the applicant shall incorporate pervious materials or surfaces (e.g., porous pavement or unit pavers on sand) into the project design. **Plan Requirements and Timing**: Pervious surfaces shall be described and depicted graphically on the site, building, grading and landscape plans. The plans shall be submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect for installation.

Wat-6 A Homeowners' Association shall be responsible for the long-term maintenance of the water quality conditions of approval. **Plan Requirements and Timing**: The proposed maintenance responsibilities and schedule shall be included in the CC&Rs. The CC&Rs shall be submitted for review by CDD and Public Works prior to recordation of the Final Map. Annual records of the maintenance activities shall be maintained by the HOA and submitted to CDD upon request. **Monitoring:** CDD shall review the maintenance records or site inspect, as needed. Costs shall be borne by the Homeowners Association.

Wat-7 Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities.

ENGINEERING CONDITIONS

GENERAL ENGINEERING CONDITIONS

Eng-1 The applicant shall submit grading, drainage and street improvement plans prepared by a California Registered Civil Engineer in conformance with City Standards. Said plans shall include but not be limited to street, utility, and storm drain improvements and shall be submitted to the Community Development Department for review and approval prior to recordation of the Tract or Parcel Map, and prior to issuance of a building permit.

Eng-2 Prior to issuance of Engineering Permits, an Engineering Cost Estimate shall be submitted with the Grading and Improvement Plans. Each page of the Cost Estimate shall be signed and stamped by the applicant's engineer.

Eng-3 Prior to or issuance of building permits, faithful performance and labor and material bonds (each to be 100% of the City Engineer's estimate) shall be filed with the City to cover all public improvements and any on-site grading and retaining walls. A cash deposit in the amount of 10% of the bond amount shall be submitted with each bond.

Eng-4 Prior to issuance of a Building Permit, the applicant shall submit plans and calculations, as required, to apply for all necessary Engineering permits. Said permits include, but are not limited to, Street Construction, Excavation in the public right-of-way, Grading and/or Encroachment.

Eng-5 Development shall be undertaken in accordance with conditions and requirements of the State of California Regional Water Quality Control Board. Project Grading and Storm Drain Improvement Plans shall identify and incorporate Best Management Practices (BMP's) appropriate for the area conducted on-site and during construction to effectively mitigate storm water pollution.

Eng-6 At the time of acceptance of public improvements, the applicant shall submit a set of "Record Drawings" showing any and all changes made to the design plans during the construction period. The "Record Drawings" shall be the original construction tracings or permanent mylar copies of a quality acceptable to the City Engineer.

UTILITIES

Eng-7 Prior to occupancy of the project, all new and existing utility services shall be placed underground and completed prior to any paving required for the project. No new utility poles shall be installed.

Eng-8 Existing overhead transmission and distribution lines located along the edges of the property shall be placed underground. The undergrounding shall extend along the project street frontage to the nearest utility pole(s) outside of the project limits. Feed points shall be as approved by the City Engineer. All costs of undergrounding existing utility lines and service laterals shall be borne by the applicant.

Eng-14 A Street Construction and/or Excavation Permit shall be obtained from the City Engineer prior to any construction within the street right-of-way.

Eng-15 All improvements in the public right of way shall be completed to the satisfaction of the City Engineer prior to the issuance of a Certificate of Occupancy by the Community Development Department.

Eng-16 Prior to the release of any securities, a Notice of Completion for all public improvements shall be presented to and accepted by the City Council.

GRADING

Eng-17 A Soils Report (2 copies) shall be submitted with Improvement Plans and Grading/Drainage Plans for review and approval by the City Engineer. The Soils Report shall be prepared by a California Registered Geologist or Soils Engineer and submitted to the Community Development Department. The Report shall address soils engineering and compaction requirements, R-values, and other soils and geology related issues (including liquefaction) and shall contain recommendations as to foundation design, retaining wall design, and paving sections, where applicable for the project.

Eng-18 At the time that Improvement and/or Grading and Drainage Plans are submitted for review and approval by the City Engineer, hydrology/hydraulic calculations shall be submitted by the applicant's engineer determining the adequacy of the proposed drainage system and the adequacy of the existing downstream system. A rain fall frequency of twenty-five (25) years shall be used for sizing piping and inlet structures. If no overland escape is available, 100 year flows shall be used as the basis of design. Santa Barbara County Engineering Design Standards shall be used. Storm drainage run-off shall be conducted to the public street in a safe and adequate manner per Santa Barbara County Standards. Easements required for drainage shall be described and shown on the Improvement Plans.

Eng-19 Prior to performing any grading, the developer shall obtain a Grading Permit from the City Engineer, in accordance with Chapter 8.36 of the Carpinteria Municipal Code, and pay the required grading permit deposits/fees. For all projects over 1 acre in size, a separate grading permit is required to be obtained from the State Water Resources Control Board.

Eng-20 An Erosion and Sediment Control Plan must be prepared and submitted to obtain the necessary Grading Permit from the City Engineer prior to any grading activity.

SUBDIVISION / MAP

E

any parcels created by the project, each set of plans accompanying a Building Permit application shall contain these conditions.

Map-2 Prior to recordation of the map, applicant shall pay applicable Quimby fees.

Map-3 Title to the common open space shall be held by a non-profit association of homeowners or by any other non-profit group on such reasonable terms and conditions as the City may prescribe. If the common open space is conveyed to a group other than the homeowners association, the rights to develop such property with anything except open space or noncommercial recreation shall be conveyed to the City of Carpinteria.

Map-4 The Tentative Tract Map shall be subject to the Subdivision Ordinance of the City of Carpinteria and the Subdivision Map Act.

Map-5 The applicant shall pay all engineering fees, CDD permit processing fees and all other applicable fees and deposits prior to City Council approval of the Final Map.

Hous-1 Prior to final map clearance the applicant shall enter into and record an *Agreement to Provide Affordable Housing*, which shall include a model *Restrictive Covenant and Preemptive Right*. The *Covenant* shall be executed and recorded by each purchaser of an affordable unit. The *Agreement* and *Covenant* shall be based on the City's model documents, as they may be amended from time to time, and subject to the review and approval of CDD and the City Attorney. These shall specify affordability terms described in condition # Des-1. In addition, the *Agreement* and *Covenant* shall include provisions describing marketing and lottery requirements for the initial sale of units; requiring income eligibility of prospective buyers to be determined by the City or its designee; requiring prospective buyers of the affordable units to sign an *Intent to Reside* statement; requiring a *Notice of Default* and *Notice of Sale*, as well as the Covenant, be recorded with the original and all subsequent deeds, and stating that the maximum sales rate for the affordable units shall not exceed the maximum levels established by the City Council, consistent with the provisions of the Housing Element and state law.

Hous-2 Affordable units shall be constructed concurrent with the construction of the market rate units in each phase of development. Occupancy clearance for no more than 50% of the market rate units in a given phase shall be allowed prior to occupancy clearance for all the affordable units for that same phase of development. **Plan Requirements & Timing:** Prior to final map clearance, this requirement shall be included in the *Agreement to Provide Affordable Housing* and shall be printed on all grading and building plans. **Monitoring:** CDD shall ensure compliance during construction.

OTHER DEPARTMENT/AGENCY CONDITIONS

Dept-1 Compliance with Departmental letters required as follows:
a. Carpinteria Sanitary District letters dated August 29, 2005 and March 26, 2007
b. Carpinteria – Summerland Fire Protection District letter dated April 9, 2007
c. Carpinteria Valley Water District letters dated Oct. 19, 2005 and April 17, 2007
d. SB County Air Pollution Control District letter dated August 18, 2005.

Sch-1 The applicant shall pay the statutory school fees in effect at the time of issuance of building permits to the Carpinteria Unified School District. **Plan Requirements and Timing:** The applicant shall submit final square footage calculations and a copy of the fee payment to the school district prior to issuance of building permits. **Monitoring:** CDD shall ensure payment is made prior to issuance of a Building Permit.

CITY RULES AND REGULATIONS

Rules-1 Approval of this project is expressly contingent on the California Coastal Commission's ("Commission") final certification of the LCP Amendment to Rezone the parcel to Planned Unit Development (PUD) and the General Plan/Local Coastal Plan Program Amendment to modify the language of to Implementation Policy 12 of the Wetlands discussion within the Open Space, Recreation & Conservation Element of the City's General Plan/Coastal Plan and Policy 9-4 of the City's Coastal Plan (January 1980) and to create a new site specific Overlay [Ellinwood Parcel (APN 004-013-026) Overlay District] is inserted in the City's Municipal Code, Title 14, Zoning. Approval of the project is also contingent upon the Annexation of the parcel to the City of Carpinteria and the Carpinteria Sanitary District.

Rules-2 Before using any land or structure, or commencing any work pertaining to the erection, moving, alteration, enlarging, or rebuilding of any building, structure, or improvement, the applicant shall obtain a Building Permit. These Permits are required by ordinance and are necessary to ensure implementation of the conditions required by the Planning Commission. Before any Permit will be issued by Community Development, the applicant must obtain written clearance from all departments having conditions; such clearance shall indicate that the applicant has satisfied all pre-construction conditions. A form for such clearance is available from Community Development.

Rules-3 Prior to the issuance of any Building Permits, the applicant shall post a landscape security bond of $2,500.00 and;
a. The landscaping shall be maintained in good condition for three years, at which time the security will be released;
b. Landscaping shall be drought resistant, low water-use species;
c. Where feasible, locally adapted native plants shall be required;
d. Prior to occupancy all landscaping and planting shall be installed; and
e. Specimen trees shall be appropriate to the site and shall be maintained in good condition so as to attain a full and healthy mature appearance.

Rules-4 Landscaping shall be maintained for the life of the project.

Rules-5 All applicable final conditions of approval shall be printed in their entirety on applicable pages of grading/construction or building plans submitted to CDD. These shall be graphically illustrated where feasible.

Rules-6 Applicant/Owner/Developer/Permittee hereby agrees to defend, indemnify, and hold harmless the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any claim, action or proceeding (collectively "Claims") against the City and the City's Agents to attack, review, set aside, void or annul, in whole or in part, the City's approval of the Time Extension for the Green Heron Spring project

(05-1239-DP/TM/CDP/LCPA), or any condition attached thereto, or any proceedings, acts, or determinations taken, done, or made prior to the approval that were part of the approval process. Applicant/Owner/Developer/Permittee further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorneys' fees or court costs made in connection with any Claim. Applicant/Owner/Developer/Permittee further agrees to pay any and all City costs, permits, attorneys' fees, engineering fees, license fees and taxes arising out of or concerning the Project, whether incurred prior to or subsequent to the date of approval and that the City's costs shall be reimbursed prior to this approval becoming valid.

Applicant/Owner/Developer/Permittee shall execute a written agreement, in a form approved by the City Attorney, evidencing the foregoing commitments of defense and indemnification within thirty (30) days of being notified of a lawsuit regarding the Project. These commitments of defense and indemnification are material conditions of the approval of the Project. If Applicant/Owner/Developer/Permittee fails to execute the required defense and indemnification agreement within the time allotted, the Project approval shall become null and void absent subsequent acceptance of the agreement by the City, which acceptance shall be within the City's sole and absolute discretion. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and the City's Agents shall bear their own attorneys' fees, expenses, and costs of that independent defense.

Rules-7 In the event that any Condition of Approval imposing a fee, exaction, dedication or other mitigation measure is challenged by Applicant/Owner/Developer/Permittee in an action filed in a court of law or threatened to be filed therein which action is brought within the time period provided by law, this approval shall be suspended pending dismissal of such action, the expiration of the limitation period applicable to such action, or final resolution of such action. If any Condition of Approval is invalidated by a court of law, the entire project shall be reviewed by the City and substitute Conditions of Approval may be imposed.

End of Conditions

Carpinteria Sanitary District
5300 Sixth Street, Carpinteria, CA 93013
(805) 684-7214 • Admin Fax (805) 684-7213 • Plant Fax (805) 566-6599

RECEIVED
AUG 3 1 2005
COMMUNITY DEVELOPMENT DEPT.

August 29, 2005

Steve Goggia
Senior Planner
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: 1300 & 1326 CRAVENS LANE
APN: 004-013-026

Dear Mr. Goggia:

The general conditions of the Carpinteria Sanitary District (District) to provide sewer service for the proposed project are as follows:

1. The Developer shall file an application for annexation to the District. The application will be presented to the District Board of Directors for approval and then forwarded to Santa Barbara LAFCO for consideration.
2. The Developer shall contact the District to initiate planning and compliance on these issues:
   1. The Construction Process.
   2. Construction Standards and Agreement.
   3. Performance and Maintenance Bond Requirements.
   4. Sewer Easement Dedication.
   5. Sewer Facility Dedication.
   6. As-built Requirements.
3. The Developer shall pay all required fees, including; Development Impact Fee, plan check fee, inspection fee and pro-rated Sewer Service Charge.
4. A sewer main extension will be required to serve this project. All costs and expenses associated with the installation of the sewer facilities are the sole responsibility of the developer. As listed in Item No. 2, the developer shall enter into an agreement with the District that guarantees the construction of the sewer main extension. The mainline extension in Cravens Lane shall extend to the northern property boundary.

Steve Goggia
August 29, 2005
Page two

5. Sewer facilities to be dedicated to the District shall be designed and constructed in accordance with District's Design Standards and Specifications.

We formally request that these conditions be made as part of the general conditions imposed by the City of Carpinteria and that neither a final tract map be recorded nor a building permit issued until these conditions are satisfied.

If you have any questions, please call me at (805) 684-7214 extension 13.

Sincerely,

Katherine Huelskamp
Katherine Huelskamp
Program Coordinator/Inspector

kh-c:/wpwin/corr/conditions/1300cravenslane

Carpinteria Sanitary District
5300 Sixth Street, Carpinteria, CA 93013
(805) 684-7214 • Admin Fax (805) 684-7213 • Plant Fax (805) 566-6599

March 26, 2007

RECEIVED
MAR 2 8 2007
COMMUNITY DEVELOPMENT DEPARTMENT

Steve Goggia
Senior Planner
Community Development Department
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: Project No. 05-1239-DP/TM/GP/LCPA/RZ/CDP
1300 & 1326 Cravens Lane (APN: 004-013-026)
Applicant: David Scott Ellinwood
Agent: Scott Ellinwood & Associates, Inc.

Dear Mr. Goggia:

Thank you for the opportunity to provide comments on the subject project. The Carpinteria Sanitary District (District) has reviewed the Draft Mitigated Negative Declaration received on January 15, 2007 and offers the following comments to provide the applicant with direction and information related to the provision of sanitary sewer service for the proposed development:

1. An Annexation and Sphere of Influence application packet has been submitted to LAFCO by the District to fulfill the annexation and boundary change requirements so that sanitary sewer services can be provided for the proposed project. Annexation is also required by the City of Carpinteria (City) and we understand that the District's application is being coordinated with annexation to the City.
2. A public sewer main extension will be required to serve the proposed project. All costs and expenses associated with the installation and dedication of required sewer facilities will be the sole responsibility of the developer. The developer will be required to enter into an agreement with the District that guarantees the construction of the necessary sewer infrastructure. The mainline extension shall extend to the northern property boundary in Cravens Lane.
3. A Development Impact Fee (DIF) shall be paid to the District at the time of permitting for each newly constructed "equivalent dwelling unit" (EDU). Currently, the impact fee is $2,400 per EDU, but impact fees will be based on the Board approved fees at the time a permit is issued.
4. A sewer construction permit will be required before construction commences. Permit fees, pursuant to District Ordinance No. 9, shall be paid in full prior to permit issuance.

City of Carpinteria
Prj. No. 05-1239-DP/TM/GP/LCPA/RZ/CDP
March 26, 2007
Page 2

5. In addition to the DIF and permit fees, a Performance Bond in the amount of 100% of the cost of the public improvements will be required before a sewer construction permit is issued. The bond shall guarantee faithful performance of the required sewer improvements per District standards and specifications and per approved construction plans.
6. All sanitary sewer facilities shall be designed and constructed in accordance with the District's Design Standards and Specifications.

If you have any questions or comments regarding any of the above project conditions requried by the District, please contact Vickie Margadonna at (805) 684-7214, ext. 13.

Sincerely,

Craig M. Murray, P.E.
General Manager

cc: Scott Ellinwood & Associates, 1300 Cravens Lane, Ste. 100, Carpinteria, CA 93013

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CARPINTERIA – SUMMERLAND
FIRE PROTECTION DISTRICT

April 9, 2007

RECEIVED
APR 1 2 2007
COMMUNITY DEVELOPMENT DEPARTMENT

Steve Goggia
Senior Planner
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: Green Heron Springs Condominium
Project No. 05-1239-DP/TM/GP/LCPA/CDP
APN 004-013-026

Dear Steve Goggia:

The following items are necessary for fire protection:

1. Visible street address must be posted at the driveway and on the buildings. Numbers shall be a minimum 4 inches high on a contrasting background.
2. Roof access must meet the requirements stated in the Carpinteria Municipal Code.
3. Access to all structures shall conform to the requirements for private roads and driveways set forth in the Santa Barbara County Private Roads & Driveway Standards, Section 8. Minimum paved roadway width of twenty-five feet shall be provided for two way traffic and 20 feet of paved roadway surface shall be provided for the one way loop section.
4. A secondary means of access shall be provided. Such access roadway shall conform to the requirements for private roads and driveways set forth in the Santa Barbara County Private Road & Driveway Standards, Section8.
5. Approved signs and markings shall be provided for fire apparatus access roads. Roadway clearance shall be maintained in accordance with the provisions of Vehicle Code 22500.

911 Walnut Avenue, Carpinteria, California 93013
(805) 684-4591 Fax (805) 684-8242

6. When access ways are gated, a Fire District approved key box shall be installed in an accessible location. Prior to installation, the Fire District shall approve the location and type.
7. Public fire hydrants supplying the required fire flow within the required driving distance from the structures shall be provided. Both the Fire District and the applicable Water District shall approve the type of hydrant and the exact location. The new fire hydrant(s) shall be installed and in-service prior to any construction.
8. All new buildings structures shall be protected by an approved automatic fire sprinkler system. Prior to installation, plans for the proposed fire sprinkler system shall be designed by a qualified person and submitted to the prevention bureau for approval.
9. Any future changes, including further division, intensification of use, or increase in hazard classification, may require additional conditions in order to comply with applicable fire district development standards.
10. Per Carpinteria-Summerland Fire District Ordinance No. 2003-01 pertaining to fees and service charges, a permit application fee is assessed on all plans reviews.
11. Pursuant to C.S.F.P.D. Ordinance No. 92-02 and Carpinteria City Ordinance No. 599, prior to issuance of a "Certificate of Occupancy", the Carpinteria-Summerland Fire Protection District mitigation fee must be paid.

If you need additional information on Fire District conditions, please contact me at 566-2451.

Sincerely,

Ed Foster
Ed Foster
Fire Prevention Officer
Fire Prevention Bureau

Carpinteria Valley Water District
1301 Santa Ynez Avenue • P.O. Box 578 • Carpinteria, CA 93014
Phone (805) 684-2816 • Fax (805) 684-3170

BOARD OF DIRECTORS
Frederick Lemere President
June Van Wingerden Vice President
Robert R. Lieberknecht
Matthew T. Roberts
James W. Drain

GENERAL MANAGER
Charles B. Hamilton

October 19, 2005

Mr. Scott Ellinwood
1300 Cravens Lane
Carpinteria, CA. 93013

SUBJECT: 1300 - 1326 CRAVENS LANE; APN 004-013-026

Dear Mr. Ellinwood,

Upon review of the preliminary plans for the mixed use development consisting of 34 new condominium units and one existing residential unit, the following are the conditions of approval from the Carpinteria Valley Water District:

1. The Developer shall agree to the conditions of a "Construction of Water Facilities Agreement" prior to approval of a building permit.
2. Separate meters will be required for each unit. The District will determine the size of the meters.
3. If a fire sprinkler system will be required, a set of calculations shall be submitted to the District, by a licensed engineer, providing maximum demand and pressure required for the sprinkler system.
4. All fire lines shall be equipped with a District approved backflow device.
5. All irrigation meters shall be equipped with a District approved backflow device.
6. Submittal of proposed irrigation demand will be required.
7. Submittal of plumbing fixture count will be required.
8. All meters shall be installed within public right-of-way, clear of driveways, within parkways or behind sidewalks.
9. The owner shall pay a Capital Cost Recovery Fee for each water meter and fire line required.
10. The owner shall also deposit a fee at the District to cover the cost in connection with the construction. These costs will include plan checking, engineering, inspections, tie-in, as-built plans, overhead and miscellaneous items as determined by the District. If the amount deposited exceeds actual costs, the District shall refund the unused portion. If the amount deposited does not cover actual cost, the District shall bill the owner for the remaining balance due.
11. All fees required shall be received by the District prior to any signing of route sheets or the issuing of work orders.
12. Fixtures shall be water conserving per plumbing code.

If you should have any questions concerning this matter, please do not hesitate to call me at this office.

Very truly yours,
CARPINTERIA VALLEY WATER DISTRICT

Robert T Mc Donald, PE
District Engineer

RTM/rg

C: File Copy

C:\My Documents\Condition letters\1300-1326 Cravens Ln..doc

Carpinteria Valley Water District
1301 Santa Ynez Avenue • P.O. Box 578 • Carpinteria, CA 93014
Phone (805) 684-2816 • Fax (805) 684-3170

BOARD OF DIRECTORS
Frederick Lemere President
June Van Wingerden Vice President
Robert R. Lieberknecht
Matthew T. Roberts
James W. Drain

GENERAL MANAGER
Charles B. Hamilton

April 17, 2007

Steve Goggia, Senior Planner
Community Development Department
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

Re: Project No. 05-1239-DP/TM/GP/LCPA/RZ/CDP; 1300 and 1326 Cravens Lane

Dear Mr. Goggia,

A letter outlining the District's conditions for this project was sent to Mr. Scott Ellinwood, October 19, 2005. I have enclosed a copy of that letter for your convenience.

In addition, the District has comments concerning the following:

1) There are two water mains in Cravens Lane, a 10" (shown on the preliminary utility plan) and a 6" main, not shown on the plans.
2) The minimum separation between the sewer and water mains is 10 feet horizontal. The preliminary plans indicate that the minimum separation between sewer and water mains in Cravens Lane will not be met.
3) The proposed water main needs to make a loop through the property.

If you should have any questions concerning this matter, please do not hesitate to call me at this office.

Very truly yours,
CARPINTERIA VALLEY WATER DISTRICT

Robert T Mc Donald, PE
District Engineer

RTM/rg

C: File Copy

Our Vision Clean Air
Santa Barbara County
Air Pollution Control District

RECEIVED
AUG 2 3 2005
COMMUNITY DEVELOPMENT DEPT.

TO: City of Carpinteria, Community Development Depar
ATTN: Steve Goggia
FROM: Vijaya Jammalamadaka
DATE: August 18, 2005
CASE #: Carp 05-1239-DP/CDP/GP 1300 & 1326 Cravens Lane
(APN 004-013-026)

The Air Pollution Control District has reviewed the referenced case and offers the following:

___ The APCD has no comment on this project at this time.
___ Applicant must be issued an APCD permit prior to construction or operation of this project.
___ Applicant must apply for an APCD permit exemption prior to land use clearance.
_X_ The applicant should determine whether the structure(s) proposed for demolition contains asbestos that is friable or has the potential to become friable during demolition or disposal. If the structure does contain friable asbestos, the asbestos should be removed by a contractor that is state certified for asbestos removal.
___ Applicant is required to complete the attached "Asbestos Demolition/Renovation Notification" form. The completed form should be mailed to the Santa Barbara APCD and EPA Region IX no later than the date specified in number 2 of the instructions.
_X_ Standard dust mitigation measures (dated September 1996) are recommended for all construction and/or grading activities. The name and telephone number of an on site contact person must be provided to the APCD prior to issuance of land use clearance.

cc:
David Ellinwood, Agent
Project File
TEA Chron File

Terence E. Dressler Air Pollution Control Officer
0 North San Antonio Road, Suite A · Santa Barbara, CA 93110 • www.sbcapcd.org · 805.961.8800 · 805.961.8801 (fax)

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT
STANDARD DUST CONTROL REQUIREMENTS

1. Dust generated by the development activities shall be retained onsite and kept to a minimum by following the dust control measures listed below. Reclaimed water shall be used whenever possible.
   a. During clearing, grading, earth moving or excavation, water trucks or sprinkler systems are to be used in sufficient quantities, after each day's activities cease, to prevent dust from leaving the site and to create a crust.
   b. After clearing, grading, earth moving or excavation is completed the disturbed area must be treated by watering or revegetating; or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
   c. During construction, water trucks or sprinkler systems are to be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum this will include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.
2. Importation, Exportation and Stockpiling of Fill Material:

   Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

   Trucks transporting fill material to and from the site shall be tarped from the point of origin.

   If the construction site is greater than five acres, gravel pads must be installed at all access points to minimize tracking of mud on to public roads.
3. Activation of Increased Dust Control Measures:

   The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.
4. Recordation of Mitigation Measures:

   Prior to land use clearance the applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans.

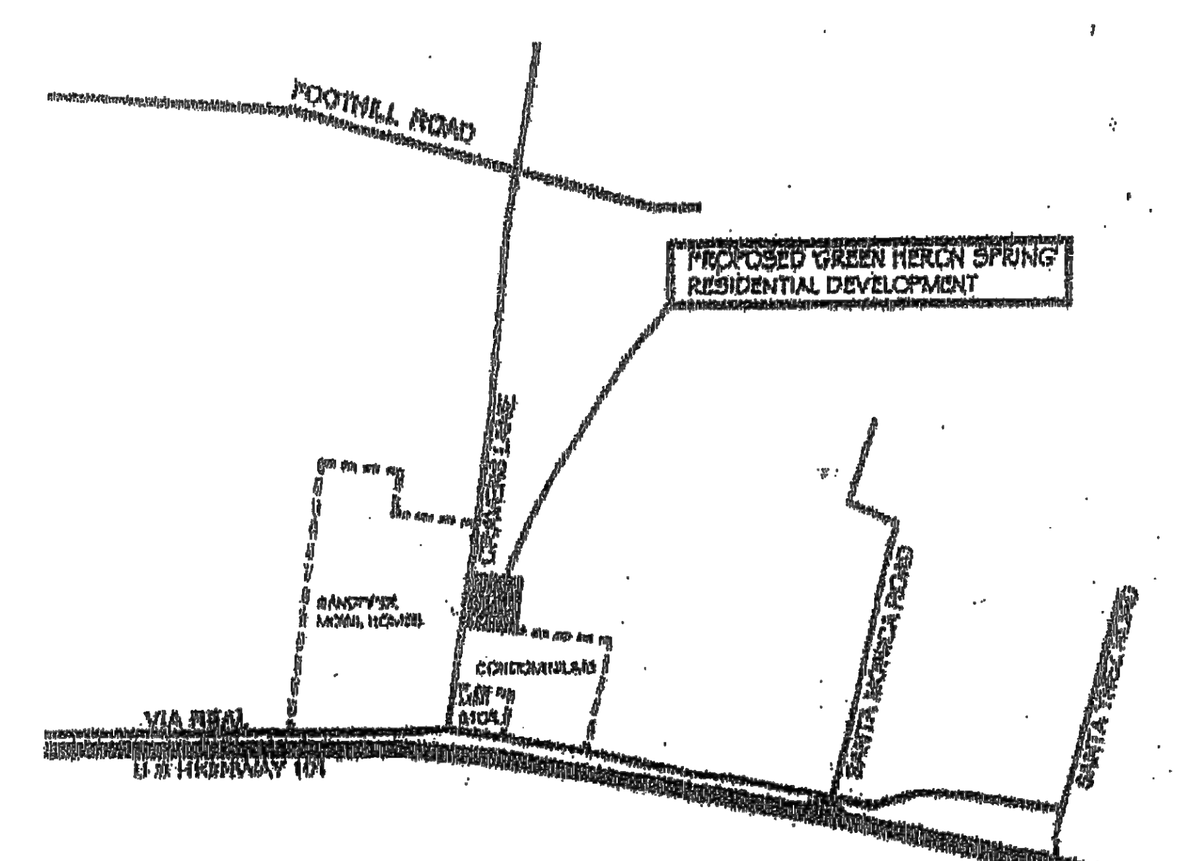
ATTACHMENT B

Reduced copy of Vicinity Map and Project Plans

February 27, 2012

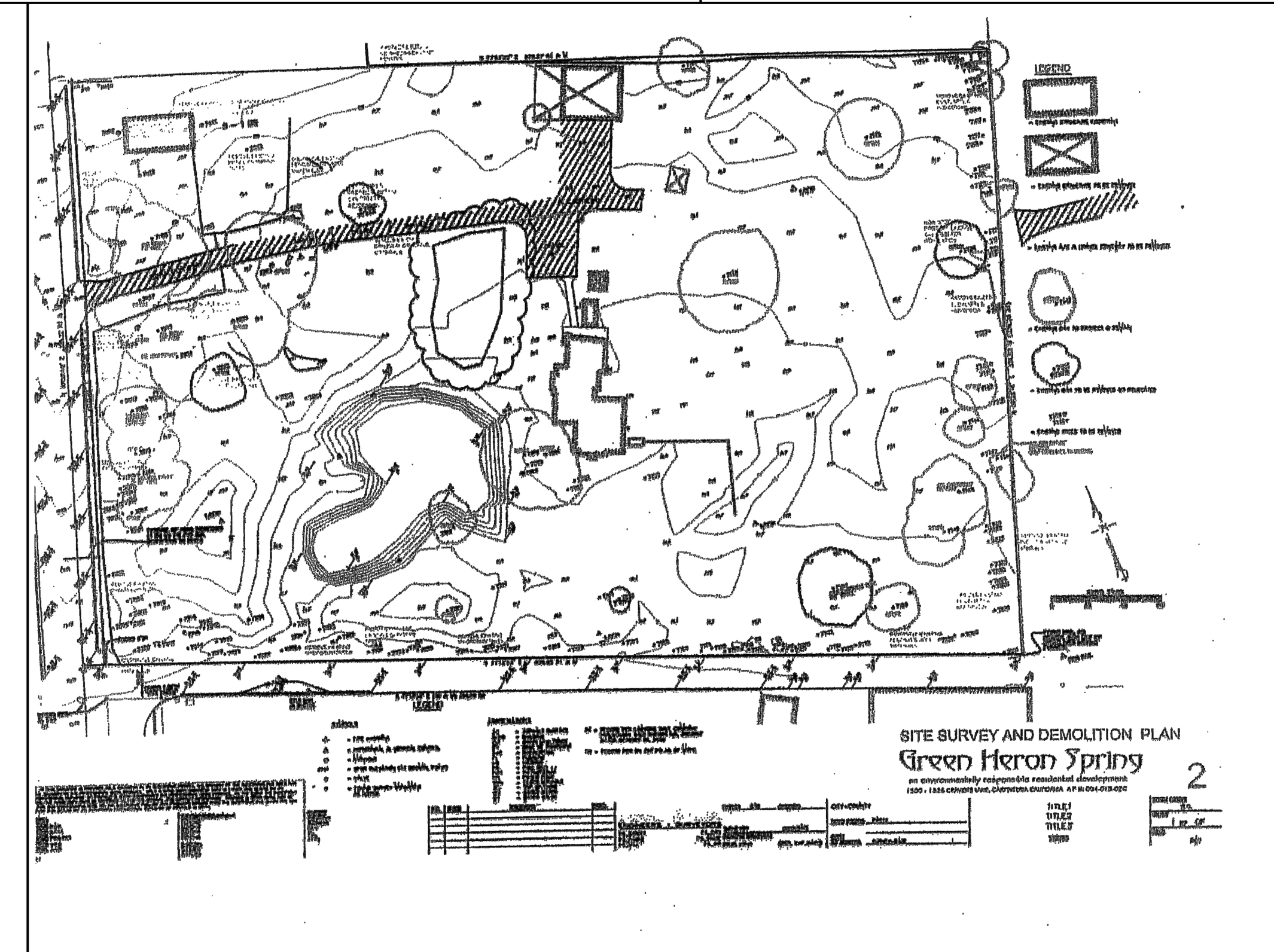
PROJECT NO. 05-1239-TEX
GREEN HERON SPRING TIME EXTENSION
1300 and 1326 Cravens Lane (APN 004-013-026)

Green Heron Spring
an environmentally responsible residential development
1300 - 1326 CRAVENS LANE, CARPINTERIA CALIFORNIA A P N: 004-013-026



VICINITY MAP

Green Heron Spring
SCOTT ELLINWOOD & ASSOCIATES
1



SITE SURVEY AND DEMOLITION PLAN
Green Heron Spring
2

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CA 91302
TEL: (818) 222-2530

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

CONDITIONS

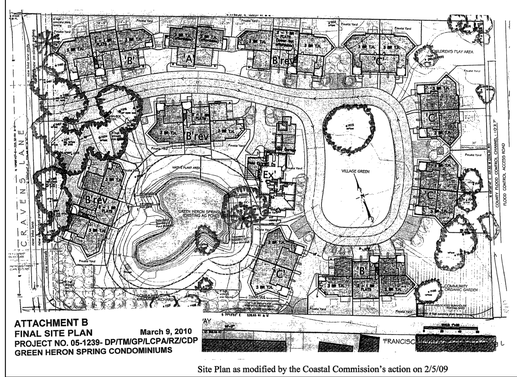
SCALE

PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

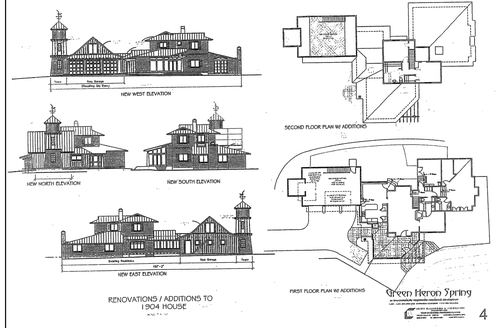
DATE 7-31-17

Sheet 7 of 8 Sheets



ATTACHMENT B
FINAL SITE PLAN March 9, 2010
PROJECT NO. 05-1239- DP/TM/GP/LCPAR/ZC/CDP
GREEN HERON SPRING CONDOMINIUMS

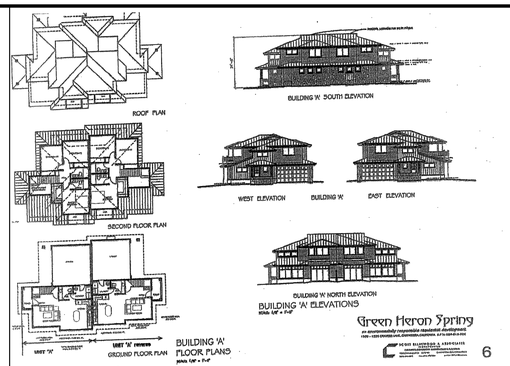
Site Plan as modified by the Coastal Commission's action on 2/5/09



RENOVATIONS / ADDITIONS TO 1904 HOUSE

Green Heron Spring

4

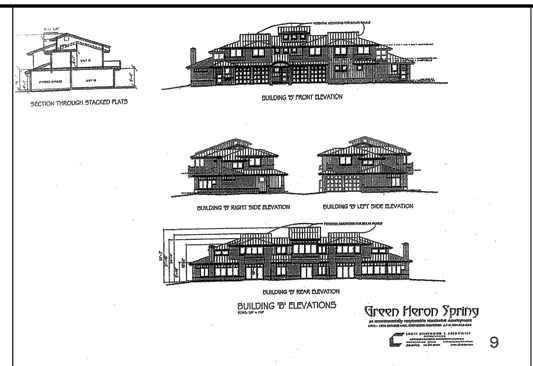


BUILDING 'A' FLOOR PLANS

BUILDING 'A' ELEVATIONS

Green Heron Spring

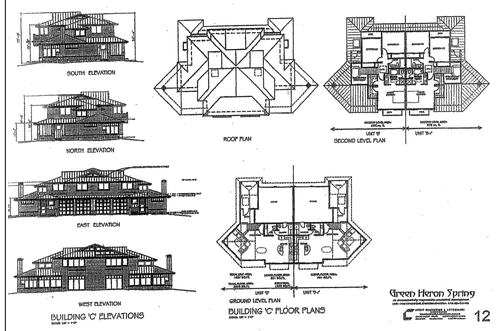
6



BUILDING 'B' ELEVATIONS

Green Heron Spring

9

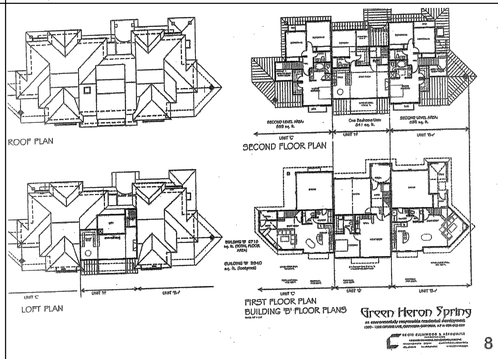


BUILDING 'C' ELEVATIONS

BUILDING 'C' FLOOR PLANS

Green Heron Spring

12



BUILDING 'B' FLOOR PLANS

Green Heron Spring

8

Exhibit 2

Time Extension Request Letter from Applicant

Green Heron Spring Time Extension City Council Staff Report
February 27, 2012

Green Heron Spring, LLC

RECEIVED
JAN 25 2012
COMMUNITY DEVELOPMENT DEPARTMENT

January 24, 2012

City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

Attention: Steve Goggia
Principal Planner

Dear Steve,
This letter is in support of our application for a three year time extension of the development plan approvals for *Green Heron Spring* – case number 05-1239.

Due to housing and banking market conditions, financing has not been available to complete the Construction Documents and secure Construction Financing for this project to date. Market conditions are improving, as evidenced by the initiation of construction for the residential portion of *Laguna*s.

We anticipate securing funding in the near future and are excited that *Southern California Edison* has selected *Green Heron Spring* as a showcase project for their *Sustainable Communities* program. They are currently working with us to help make *Green Heron Spring* a near *Zero Net Energy* development. They have also committed to helping with marketing promotion.

The time extension will allow *Green Heron Spring* to move forward as resources are secured. We are committed to make *Green Heron Spring* a showcase of environmentally responsible development and a delightful place to live.

Thanks for your assistance in processing this request.

Scott Ellinwood, FAIA, LEED AP
Green Heron Spring, LLC

1300 Cravens Lane Carpinteria California 93013 805-684-0593 Fax: 684-0834

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

RECEIVED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.30-9-18 CIVIL STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALA□ASAS ROAD, SUITE 220
CALA□ASAS, CA 91302
TEL: (818) 222-2530

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-31-17

SCALE

PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

CONDITIONS

Sheet 8 of 8 Sheet□

GENERAL NOTES – STREET

1. ALL CONSTRUCTION SHALL CONFORM TO THE 2007 CBC (CALIFORNIA BUILDING CODE) AND THE LATEST EDITION OF STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON THE PLANS AND AT THE CONSTRUCTION SITE PRIOR TO COMMENCING WORK AND SHALL REPORT ANY DISCREPANCY TO OWNER BEFORE PROCEEDING.
3. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE ANY EXISTING MATERIALS, STRUCTURES OR IMPROVEMENTS THAT ARE TO REMAIN AFTER THE CONSTRUCTION. CONTRACTOR SHALL REPAIR ANY DAMAGES TO THE SAME THAT ARE THE RESULT OF HIS OPERATIONS TO A CONDITION EQUAL TO OR BETTER THAN WAS EXISTING AT HIS OWN EXPENSE.
4. PROVISIONS SHALL BE MADE FOR PROTECTING EXCAVATIONS AND DITCHES DURING THE PROGRESS OF THE WORK. SHORING AND BRACING SHALL BE INSTALLED IN ACCORDANCE WITH CAL. OSHA REQUIREMENTS.
5. PROVISIONS SHALL BE MADE FOR GUARDING WORK IN PROGRESS. PUMPING EQUIPMENT, SUMPS AND NECESSARY GRADING SHALL BE PROVIDED BY THE CONTRACTOR TO KEEP EXCAVATIONS FREE OF WATER AT ALL TIMES.
6. FILL AND BACKFILL SHALL BE PLACED AROUND FOUNDATIONS AS SOON AS THE PROGRESS OF THE WORK PERMITS, BUT NOT LATER THAN 7 DAYS. FILL & BACKFILL SHALL BE DEPOSITED IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS, BROUGHT TO NEAR-OPTIMAL MOISTURE CONTENT IN-PLACE AND COMPACTED TO AT LEAST 90 PERCENT OF THE MAXIMUM DRY DENSITY PER ASTM D-1557. BACKFILL SHALL BE BROUGHT TO THE GRADE LINE AS INDICATED ON THE DRAWINGS AND GRADED TO DRAIN AWAY FROM THE STRUCTURES. NO BACKFILLING SHALL BE PERFORMED UNTIL THE WORK HAS BEEN INSPECTED AND APPROVED.
7. CONCRETE CONSTRUCTION AND DETAILS SHALL CONFORM TO THE LATEST EDITION ACI 318.
8. CONCRETE MUST DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MINIMUM SLUMP OF 3 INCHES AND A MAXIMUM SLUMP OF 5 INCHES.
9. CEMENT SHALL BE PORTLAND CEMENT CONFORMING TO ASTM C-150 TYPE II, UNLESS OTHERWISE NOTED.
10. AGGREGATE SHALL CONFORM TO ASTM C33 AND SHALL HAVE A MAXIMUM SIZE OF 1 INCH.
11. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
12. BAR LAP SPLICE LENGTH SHALL BE 28" FOR TOP BARS AND 22" FOR ALL OTHER BARS. ALL BARS SHALL BE CLEAR OF DUST, GREASE OR OTHER MATERIALS THAT MIGHT AFFECT THEIR BOND TO CONCRETE. ALL BAR BENDS SHALL BE MADE COLD.
13. CURING AND PROTECTION: CURING AND PROTECTION SHALL BE IN ACCORDANCE WITH ACI 301, CHAPTER 12. CONCRETE SHALL BE PROTECTED ADEQUATELY FROM DAMAGE BY SUN, RAIN, FLOWING WATER, OR MECHANICAL IMPACT; AND SHALL NOT BE ALLOWED TO DRY OUT FROM THE TIME IT IS PLACED UNTIL THE COMPLETION OF THE CURING PERIOD. CURING SHALL BE ACCOMPLISHED BY MOIST CURING OR BY APPLICATION OF LIQUID MEMBRANE-FORMING COMPOUND. CURING SHALL BE INITIATED IMMEDIATELY FOLLOWING THE REMOVAL OF FORMS.

GENERAL NOTES – STRIPPING

1. ALL SIGNING AND STRIPING SHALL BE ACCORDING TO THE _____ EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD PLANS AND THE 20___ CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD). ALL SIGNING AND STRIPING SHALL BE NEW INSTALLATIONS EXCEPT AS OTHERWISE NOTED.
2. ALL CONFLICTING SIGNING OR STRIPING SHALL BE REMOVED. LINES AND PAVEMENT MARKINGS SHALL BE REMOVED BY SANDBLASTING OR GRINDING. PAVEMENT DAMAGED DUE TO REMOVING RAISED PAVEMENT MARKERS SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER.
3. ALL LANE LINES AT INTERSECTION APPROACHES SHALL BEGIN AND END WITH 50' OF SOLID WHITE.
4. ALL ARROWS SHALL BE THERMOPLASTIC TYPE IV (L OR R), UNLESS OTHERWISE INDICATED.
5. LANE WIDTHS SHALL BE MEASURED BETWEEN THE CENTER LINES OF EACH ADJACENT SINGLE OR DOUBLE STRIPE OR FACE OF CURB AS APPROPRIATE.
6. STRIPING SHALL BE MARKED-OUT AND APPROVED BY THE CITY ENGINEER PRIOR TO FINAL INSTALLATION. CONTRACTOR SHALL WAIT ONE WEEK PRIOR TO FINAL INSTALLATION.
7. PROPOSED LANE LINES SHALL MATCH EXISTING LANE LINES UNLESS OTHERWISE INDICATED.
8. SIGN POSTS SHALL BE "UNISTRUT" 2" SQUARE GALVANIZED STEEL POSTS WITH BREAKAWAY ANCHOR SLEEVE, OR APPROVED EQUAL
9. THIS PLAN I ACCURATE FOR SIGNING AND STRIPING WORK ONLY.
10. ALL STRIPING SHALL BE THERMOPLASTIC PER STATE STANDARD SPECIFICATIONS, SECTION 84-2.

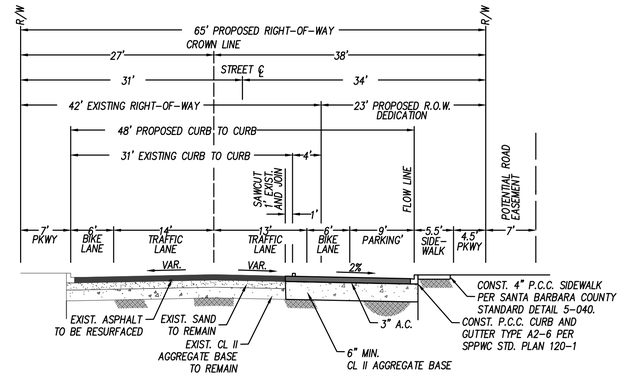
SIGNING AND STRIPING NOTES

(1) SANDBLAST OR GRIND CONFLICTING EXISTING STRIPING, LEGEND, OR ARROW, EXCEPT AS NOTED TO REMAIN. REMOVED RAISED PAVEMENT MARKERS AS NECESSARY.

(2) INSTALL THERMO ARROWS OR LEGEND PER CALTRANS STANDARD PLANS A24A THROUGH A24E, TYPE PER PLAN.

(3) RELOCATE EXISTING SIGN AND POST.

(4) REMOVE AND SALVAGE EXISTING SIGN AND POST.



CRAVENS LANE ROAD SECTION (TYP.)

NOT TO SCALE



VICINITY MAP

N.T.S.

GENERAL STREET SPECIFICATIONS

1. STANDARD SPECIFICATIONS AND STANDARD PLANS OF THE DEPARTMENT OF TRANSPORTATION, STATE OF CALIFORNIA, OF CURRENT DATE, NOT IN CONFLICT WITH DEPARTMENT OF PUBLIC WORKS PLANS AND SPECIFICATIONS, ARE INCLUDED AS DEPARTMENT OF PUBLIC WORKS STANDARD PLANS AND SPECIFICATIONS. IF THERE IS A CONFLICT BETWEEN STATE STANDARD PLANS AND SPECIFICATIONS, AND COUNTY STANDARD DETAILS, THE COUNTY STANDARD DETAILS SHALL GOVERN ON CITY ROADS AND THE STATE STANDARDS ON STATE HIGHWAYS.

2. CONSTRUCTION PLANS SHALL BE PREPARED IN ACCORDANCE WITH DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN AND CONSTRUCTION STANDARDS THE COUNTY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS, CALTRANS STANDARDS AND CAMUTCD.

3. COMMENCEMENT OF CONSTRUCTION SHALL NOT BE AUTHORIZED UNTIL SUCH TIME THAT THE CONSTRUCTION PLANS HAVE BEEN APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR HIS AUTHORIZED AGENT AND ENGINEERING PERMIT HAS BEEN ISSUED BY THE CITY OF CARPINTERIA.

4. THE DIRECTOR OF PUBLIC WORKS SHALL BE INTERPRETED TO MEAN THE DIRECTOR OR HIS DELEGATED REPRESENTATIVES.

5. UNLESS PRIOR AUTHORIZATION HAS BEEN GRANTED BY THE DEPARTMENT OF PUBLIC WORKS, ALL ELEVATIONS AND GRADES SHALL BE BASED ON "U.S. COAST AND GEODETIC SURVEYS-SEA LEVEL DATUM ADJUSTMENT OF 1929".

6. THE ENGINEER FOR THE OWNER, DEVELOPER OR SUBDIVIDER SHALL BE HELD RESPONSIBLE FOR THE GRADE STAKES BEING PLACED AT THEIR CORRECT LOCATIONS AND ELEVATIONS, PROPERLY MARKED, FOR USE IN THE DETERMINATION OF THE PROPER LOCATION AND GRADE OF CONSTRUCTION.

7. INSPECTION AND APPROVAL BY THE DIRECTOR OF PUBLIC WORKS SHALL BE REQUESTED BY THE CONTRACTOR IMMEDIATELY PRIOR TO COMMENCING AND IMMEDIATELY AFTER COMPLETING EACH PHASE OF CONSTRUCTION.

8. UTILITIES CONSTRUCTED UNDERGROUND SHALL BE STUBBED OUT TO THE PROPERTY LINES AT EACH LOT, AND TO EACH TRACT LINE AT END OR STUB STREETS BEING CONSTRUCTED, OR THROUGH STREETS BEING CONSTRUCTED AND TRENCH BACKFILL TESTED FOR COMPACTION AND APPROVED BEFORE BASE, PAVING AND OTHER PERMANENT SURFACE CONSTRUCTION MAY COMMENCE.

9. STORM DRAIN PIPE SHALL CONFORM TO THE REQUIREMENTS OF THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS, OF CURRENT DATE AND SHALL BE OF THE CLASS INDICATED ON THE PLANS. THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR OF PUBLIC WORKS CERTIFIED COPIES OF STRENGTH TESTS FOR CULVERT PIPE, PRIOR TO THEIR INSTALLATION.

10. TRENCH BACK FILL FOR ALL STORM DRAIN OR CULVERT TRENCHING SHALL COMPLY WITH STANDARD DETAIL 1-040. UTILITY TRENCH BACKFIELD REQUIREMENTS SHALL COMPLY WITH STANDARD DETAIL 1-030. BACK FILL IN PUBLIC R-O-W SHALL BE 1-SACK SLURRY CEMENT. TRENCH BACKFILL FOR SANITARY SEWERS SHALL COMPLY WITH CSD STANDARD PIPE BEDDING DETAILS, PLATE 104.

11. GRADING SHALL BE COMPLETED TO WITHIN 0.05 FEET OF FINISH SUBGRADE, TESTED FOR COMPACTION AND APPROVED BEFORE BASE, PAVING, OR ANY OTHER PERMANENT SURFACE CONSTRUCTION MAY COMMENCE. THE PAVING SUBGRADE SHALL BE FIRM, HARD AND UNYIELDING IMMEDIATELY PRIOR TO PLACEMENT OF PERMANENT SURFACING. THE STANDARD TEST FOR MAXIMUM DENSITY AND OPTIMUM MOISTURE CONTENT SHALL BE ASTM D 1557-78 METHOD "A", "B", "C", OR "D". FIELD TEST FOR IN-PLACE DENSITY AND MOISTURE CONTENT SHALL BE ASTM D 2922-81 AND D 3017-78.

12. AGGREGATE SUB-BASE SHALL CONFORM TO THE PROVISIONS OF THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS, AND SHALL BE PLACED IN ACCORDANCE WITH THE APPROVED STRUCTURAL SECTIONS. CLASS 1, 2, AND 3 AGGREGATE SUB-BASE SHALL CONFORM WITH CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS OF CURRENT DATE.

13. AGGREGATE BASE SHALL CONFORM TO THE PROVISIONS OF THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS, AND SHALL HAVE A MINIMUM THICKNESS OF 0.50' ON ALL ROADS AND BE COMPACTED TO 95% MAXIMUM DENSITY.

14. THE STRUCTURAL SECTION FOR PUBLIC ROADS SHALL BE AS FOLLOWS: WHEN THE TRAFFIC INDEX IS LESS THAN 5.5, THE MINIMUM THICKNESS OF A.C. SHALL BE 0.30'. WHEN THE TRAFFIC INDEX IS 5.5 OR GREATER, THE MINIMUM THICKNESS OF A.C. SHALL BE 0.60'. THE ACTUAL THICKNESS OF THE STRUCTURAL SECTIONS SHALL BE DETERMINED FROM "R" VALUES BY TEST METHOD 301 CALIFORNIA DEPARTMENT OF TRANSPORTATION RESEARCH DEPARTMENT. FOR ALL PUBLIC ROADS, 0.75' OF NATIVE SOIL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY.

15. CURBS, GUTTERS, DRIVEWAYS, SIDEWALKS, ROADWAYS, ETC., SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS OF CURRENT DATE.

16. CURBS, GUTTERS, SIDEWALKS, STREETS AND OTHER CONCRETE CONSTRUCTION AREAS SHALL BE CLEARED OF ALL FORMS AND DELETERIOUS SUBSTANCES AND BACKFILLED PRIOR TO FINAL INSPECTION.

17. CLASS A AND CLASS B PORTLAND CEMENT CONCRETE SHALL CONFORM WITH THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS OF CURRENT DATE. CLASS A AND CLASS B PORTLAND CEMENT CONCRETE SHALL BE NOTED AS CLASS A AND B CONCRETE IN THESE DETAILS. MAXIMUM PENETRATION SHALL BE 2" FOR UNREINFORCED CONCRETE, AND 3" FOR REINFORCED CONCRETE PER THE SANTA BARBARA COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN STANDARDS

18. WHEN THE TOTAL COMPACTED THICKNESS OF ASPHALT CONCRETE IS SHOWN ON THE PLANS TO BE LESS THAN 0.25 FOOT, ASPHALT CONCRETE SHALL BE SPREAD AND COMPACTED IN ONE LAYER. ALL OTHER ASPHALT CONCRETE SHALL BE SPREAD AND COMPACTED IN LAYERS. THE TOP LAYER OF ASPHALT CONCRETE SHALL BE NOT MORE THAN 0.20 FOOT NOR LESS THAN 0.15 FOOT IN COMPACTED THICKNESS. THE NEXT LOWER LAYER SHALL BE NOT MORE THAN 0.25 FOOT NOR LESS THAN 0.15 FOOT IN COMPACTED THICKNESS UNLESS THE TOTAL THICKNESS IS SHOWN ON THE PLANS TO BE LESS THAN 0.30 FOOT, AND ANY LOWER LAYERS SHALL BE NOT LESS THAN 0.15 FOOT NO MORE THAN 0.40 FOOT IN COMPACTED THICKNESS. ASPHALT CONCRETE BASE SHALL BE SPREAD AND COMPACTED IN ONE OR MORE LAYERS. EACH LAYER SHALL NOT EXCEED 0.40 FOOT IN COMPACTED THICKNESS. THE MINIMUM THICKNESS WHEN USING PAVEMENT REINFORCING FABRIC SHALL BE 0.15 FOOT. ASPHALT CONCRETE FOR OVERLAY SECTIONS SHALL BE CONSTRUCTED WITH 1/2 INCH MAXIMUM AGGREGATE WITH MEDIUM GRADING. PAINT BINDER (ASPHALT EMULSION) SHALL BE REQUIRED BETWEEN EACH COURSE OF ASPHALT CONCRETE EXCEPT AS MAY BE PERMITTED BY THE DEPARTMENT OF PUBLIC WORKS IN CONTINUOUS PAVING OPERATIONS.

19. ALL ASPHALT PAVING SHALL BE FOG SEALED IN CONFORMANCE WITH THE STATE STANDARD SPECIFICATIONS OF CURRENT DATE, MODIFIED TO CONFORM TO CITY SPECIFICATIONS USED FOR ITS FOG SEAL PROGRAM OF CURRENT DATE. SAID FOG SEALING SHALL EITHER BE:

A) BONDED FOR AND CONSTRUCTED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM DATE OF ACCEPTANCE, OR

B) A PAYMENT SHALL BE MADE TO THE CITY BASED ON THE CITY'S COST TO CONSTRUCT THE FOG SEAL. PAYMENT TO BE MADE PRIOR TO ENGINEERING PERMIT ISSUANCE.

20. ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL SECTIONS SHOWN ON SANTA BARBARA COUNTY STANDARD DETAILS OF CURRENT DATE, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

21. STREET NAME SIGNS, BARRICADES, TRAFFIC CONTROL AND TRAFFIC WARNING SIGNS SHALL BE PLACED IN ACCORDANCE WITH MOST CURRENT VERSION OF MUTCD (CA.)

22. ROUGH GRADE STAKES SHALL BE SET AS REQUIRED FOR ADEQUATE CONTROL OF PRIMARY ROADWAY GRADING OPERATIONS. FINAL GRADE STAKES SHALL BE SET AT NOT GREATER THAN 50' INTERVALS AND AT BC'S, EC'S, PI'S, CHANGES IN GRADE OR ALIGNMENT, AND AT OTHER POINTS OF CONTROL.

23. WATER FOR COMPACTION AND DUST CONTROL SHALL BE MADE AVAILABLE WITHIN THE BOUNDARIES OF THE TRACT PRIOR TO STARTING ANY EARTH MOVING OPERATIONS, OTHER THAN THAT NECESSARY FOR THE INSTALLATION OF SUBJECT WATER SOURCE.

24. PUBLIC IMPROVEMENTS OR CONSTRUCTION SHALL NOT COMMENCE UNTIL AN ENGINEERING PERMIT HAS BEEN ISSUED BY THE DIRECTOR OF PUBLIC WORKS.

25. WITH APPROVAL OF THE PUBLIC WORKS DIRECTOR, TEST METHOD ASTM D 1557-78 MAY BE MODIFIED TO ALLOW THE USE OF CALIFORNIA TEST METHOD 370, METHOD OF DETERMINING MOISTURE CONTENT OF ASPHALT MIXTURES OR MINERAL AGGREGATE USING MICROWAVE OVENS. WHEN DETERMINING MOISTURE CONTENT OF GRANULAR SOILS IN LIEU OF OVEN DRYING PER ASTM D 2216-80.

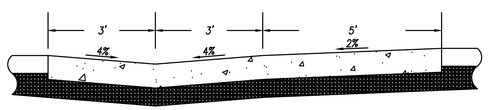
26. ALL REINFORCING STEEL SHALL BE ASTM A 615, GRADE 60 UNLESS OTHERWISE NOTED.

27. ALL STRUCTURE STEEL SHALL BE ASTM A 36 UNLESS OTHERWISE NOTED.

28. EXPANSIVE SOILS ARE DEFINED AS THOSE SOILS HAVING AN "R" VALUE OF LESS THAN 10. THEY ARE COMPOSED OF HIGH CLAY CONTENT AND EXPAND WITH MOISTURE.

QUANTITIES

(1)	CONSTRUCT STREET IMPROVEMENTS PER TYPICAL SECTION HEREON.		
	CONSTRUCT 6" P.C.C. CURB AND GUTTER	294	LF
	CONSTRUCT A.C. PAVEMENT	8,034	SF
	CL II AGGREGATE BASE	8,034	SF
	CONSTRUCT 4" PCC SIDEWALK	1,513	SF
(2)	CONSTRUCT SPANDREL AND CROSS GUTTER PER SANTA BARBARA COUNTY STANDARD DETAIL No. 4-020.	2	EA
(3)	CONSTRUCT SPPWC STANDARD PLAN 111-5, CASE D, TYPE 2. Y=7.9', X=5.0'	2	LF
(4)	CONSTRUCT MODIFIED CURB RAMP PER SANTA BARBARA COUNTY STANDARD DETAIL No. 5-030.	2	EA
(5)	RELOCATED EXISTING WATER METER PER SEPARATE PLANS.	1	EA
(6)	REMOVE EXISTING POWER POLE.	2	EA
(7)	EXISTING UTILITY BOX TO PROTECT IN PLACE.	4	EA
(8)	CONSTRUCT SHEDDING GUTTER TRANSITION TO STANDARD GUTTER.	2	EA
(9)	REMOVE EXISTING A.C. PAVEMENT.	3,109	SF
(10)	REMOVE EXISTING CURB.	300	LF
(11)	REMOVE EXISTING CURB AND GUTTER.	79	LF
(12)	PRE-LEVEL AND OVERLAY WITH A MINIMUM OF 0.14' OF HOT MIX ASPHALT DEPENDING ON THE THICKNESS OF PAVEMENT LIFT.	12,458	SF
(13)	RELOCATE EXISTING MAILBOXES.	3	EA
(14)	EXISTING FENCE TO BE REMOVED.	182	LF
(15)	SAW CUT	460	LF



SPANDREL AND CROSS GUTTER SECTION (TYP.)

NOT TO SCALE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OF THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONAL CODE. I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SANTA BARBARA IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN."

FIRM: UNITED CIVIL INC.
ADDRESS: 30141 AGOURA ROAD, #215
AGOURA HILLS, CA 91301
TELEPHONE: 818 707-8648

_____
SIGNATURE OF ENGINEER

_____
PRINT NAME OF ENGINEER
RCE NO. 46026 EXPIRES: 12-31-18

DISCIPLINE: CIVIL ENGINEER

BENCH MARK

NUMBER: NGS BM NO. V 1441 (1989) PID EW9491

DESCRIPTION: STEEL ROD IN NGS WELL

LOCATION: IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF A WITNESS POST.

ELEV. 13.45 FEET NAVD 1988 **ADJUSTMENT** XXXX

DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12/31/18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: TCC DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE
PROJECT ENGINEER: DATE 7-31-17

SCALE 1"=20'
PROJECT NUMBER 1323

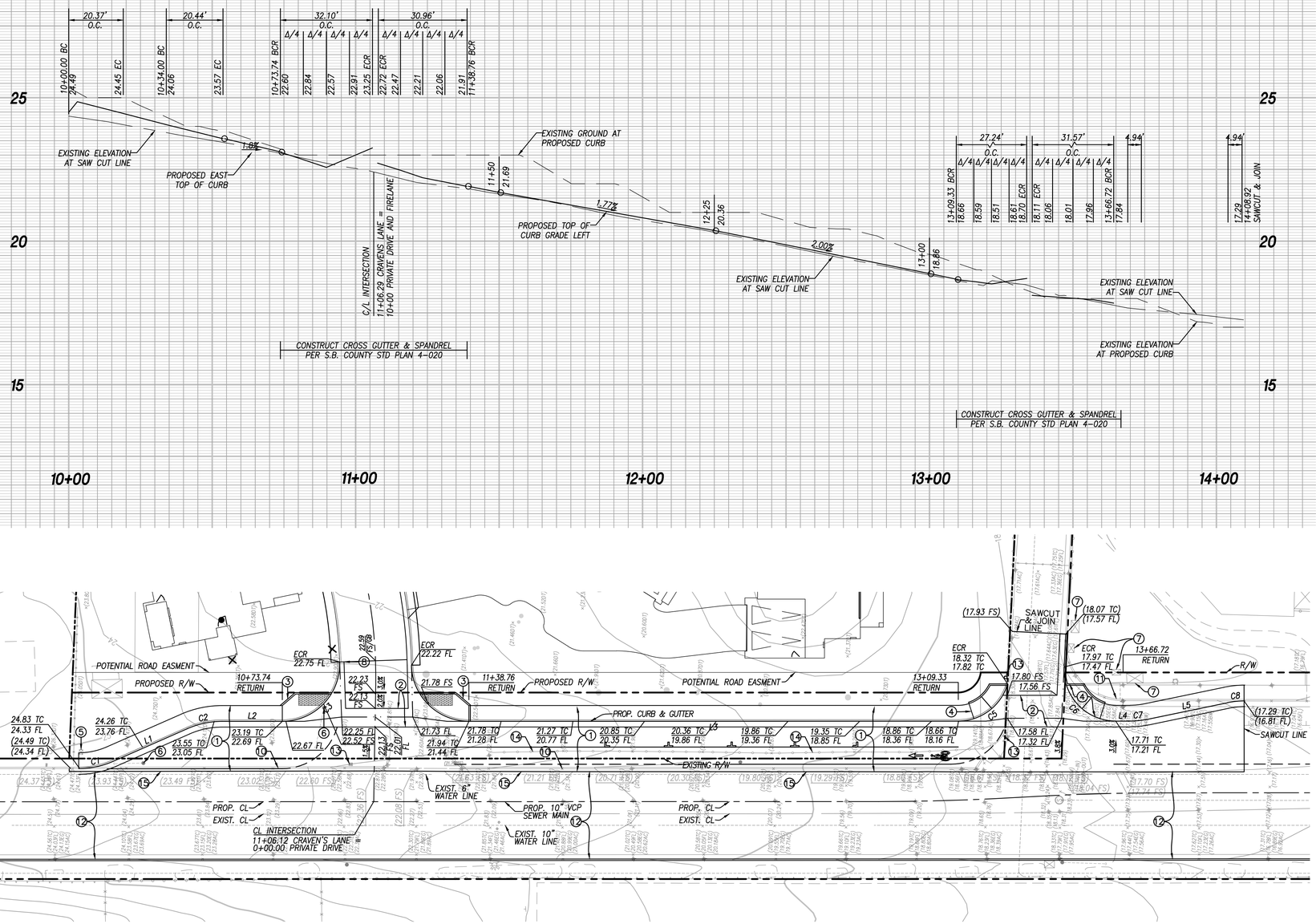
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

CRAVENS LANE STREET PLAN

Sheet 1 of 3 Sheet

SCALE: HORZ. 1"=20'
VERT. 1"=2'
DOUBLE VERTICAL



CONSTRUCTION NOTES

1. CONSTRUCT STREET IMPROVEMENTS PER TYPICAL SECTION HEREON.
2. CONSTRUCT SPANDREL AND CROSS GUTTER PER SANTA BARBARA COUNTY STANDARD DETAIL No. 4-020.
3. CONSTRUCT SPPWC STANDARD PLAN 111-5, CASE D, TYPE 2. Y=7.9', X=5.0'
4. CONSTRUCT MODIFIED CURB RAMP PER SANTA BARBARA COUNTY STANDARD DETAIL No. 5-030.
5. RELOCATED EXISTING WATER METER PER SEPARATE PLANS.
6. REMOVE EXISTING POWER POLE.
7. EXISTING UTILITY BOX TO PROTECT IN PLACE.
8. CONSTRUCT SHEDDING GUTTER TRANSITION TO STANDARD GUTTER.
9. REMOVE EXISTING A.C. PAVEMENT.
10. REMOVE EXISTING CURB.
11. REMOVE EXISTING CURB AND GUTTER.
12. PRE-LEVEL AND OVERLAY WITH A MINIMUM OF 0.14' OF HOT MIX ASPHALT DEPENDING ON THE THICKNESS OF PAVEMENT LIFT.
13. RELOCATE EXISTING MAILBOXES.
14. EXISTING FENCE TO BE REMOVED.
15. SAW CUT AND JOIN LINE.

Line Table		
Line #	Direction	Length
L1	N13°42'43"W	28.31'
L2	N09°59'40"E	20.97'
L3	N09°59'40"E	170.46'
L4	N09°59'40"E	5.00'
L5	S01°42'40"E	28.42'

Curve Table			
Curve #	Length	Radius	Delta
C1	12.37'	30.00'	023°37'23"
C2	12.41'	30.00'	023°42'23"
C3	32.10'	20.00'	091°57'16"
C5	23.18'	18.00'	073°46'17"
C6	29.14'	18.00'	092°45'58"
C7	6.13'	30.00'	011°42'19"
C8	6.13'	30.00'	011°42'19"

0 20 40 60
GRAPHICAL SCALE: 1"=20'

NO.	REVISION	BY	CHKD.	DATE

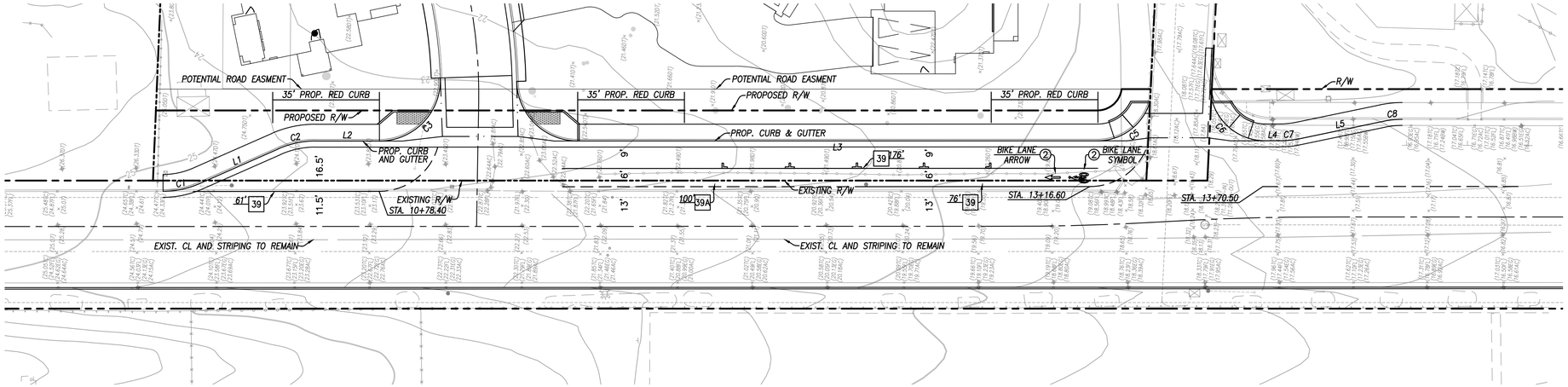
CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 CIVIL STATE OF CALIFORNIA

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

CRAVENS LANE STREET PLAN

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: TCC DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE
SCALE 1"=20'
PROJECT NUMBER 1323
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013
PROJECT ENGINEER: SIEW HUAT NG DATE 12/1/16
Sheet 2 of 3 Sheets



LEGEND

XX	INSTALL CALTRANS STRI□IN□ AND □AVEMENT MAR□ERS□LEN□TH AND DETAIL NO□AS INDICATED □ER □LAN□
----------	E□ISTIN□ STRI□IN□
————	□RO□OSED STRI□IN□
	E□ISTIN□ SI□N AND □OST
	□RO□OSED SI□N AND □OST

SIGNING AND STRIPING NOTES

1. SANDBLAST OR GRIND CONFLICTING EXISTING STRIPING, LEGEND, OR ARROW, EXCEPT AS NOTED TO REMAIN. REMOVED RAISED PAVEMENT MARKERS AS NECESSARY.
2. INSTALL THERMO ARROWS OR LEGEND PER CALTRANS STANDARD PLANS A24A THROUGH A24E, TYPE PER PLAN.
3. RELOCATE EXISTING SIGN AND POST.
4. REMOVE AND SALVAGE EXISTING SIGN AND POST.

GENERAL NOTES

1. ALL SIGNING AND STRIPING SHALL BE ACCORDING TO THE _____ EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD PLANS AND THE 20___ CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD). ALL SIGNING AND STRIPING SHALL BE NEW INSTALLATIONS EXCEPT AS OTHERWISE NOTED.
2. ALL CONFLICTING SIGNING OR STRIPING SHALL BE REMOVED. LINES AND PAVEMENT MARKINGS SHALL BE REMOVED BY SANDBLASTING OR GRINDING. PAVEMENT DAMAGED DUE TO REMOVING RAISED PAVEMENT MARKERS SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER.
3. ALL LANE LINES AT INTERSECTION APPROACHES SHALL BEGIN AND END WITH 50' OF SOLID WHITE.
4. ALL ARROWS SHALL BE THERMOPLASTIC TYPE IV (L OR R), UNLESS OTHERWISE INDICATED.
5. LANE WIDTHS SHALL BE MEASURED BETWEEN THE CENTER LINES OF EACH ADJACENT SINGLE OR DOUBLE STRIPE OR FACE OF CURB AS APPROPRIATE.
6. STRIPING SHALL BE MARKED-OUT AND APPROVED BY THE CITY ENGINEER PRIOR TO FINAL INSTALLATION. CONTRACTOR SHALL WAIT ONE WEEK PRIOR TO FINAL INSTALLATION.
7. PROPOSED LANE LINES SHALL MATCH EXISTING LANE LINES UNLESS OTHERWISE INDICATED.
8. SIGN POSTS SHALL BE "UNISTRUT" 2" SQUARE GALVANIZED STEEL POSTS WITH BREAKAWAY ANCHOR SLEEVE, OR APPROVED EQUAL
9. THIS PLAN I ACCURATE FOR SIGNING AND STRIPING WORK ONLLY.
10. ALL STRIPING SHALL BE THERMOPLASTIC PER STATE STANDARD SPECIFICATIONS, SECTION 84-2.

0 20 40 60

GRAPHICAL SCALE: 1"=20'

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

CRAVENS LANE STREET PLAN

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
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PLANS PREPARED UNDER THE DIRECTION OF:

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.6/30/14 CIVIL STATE OF CALIFORNIA

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: TCC DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE

SCALE 1"=20'

PROJECT NUMBER 1323

REVIEWED BY: DATE

CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

PROJECT ENGINEER: DATE 7-31-17

Sheet 3 of 3 Sheet□

GENERAL NOTES FOR WATER MAIN TESTING PROCEDURES

1. THIS SECTION SHALL CONSIST OF TESTING THE WATER MAIN AND APPURTENANCES FOR BOTH PRESSURE AND LEAKAGE REQUIREMENTS. THESE TESTS WILL BE RUN SIMULTANEOUSLY. PRIOR TO TESTING, THE WATER MAIN SHALL BE SLOWLY AND CAREFULLY FILLED WITH WATER. ALL AIR SHALL BE EXPELLED SLOWLY FROM THE PIPE AND APPURTENANCES IN A MANNER SO AS NOT TO CREATE EXCESSIVE SURGE PRESSURES. ALL APPURTENANCES SHALL BE LEFT ON DURING THE TESTING PROCEDURE.

2. THE CONTRACTOR MAY NOT TEST AGAINST NEW OR EXISTING VALVES. SUSPECTED LEAKING OF THESE VALVES WILL NOT BE ACCEPTED AS A REASON FOR HAVING NOT PASSED THE LEAKAGE TEST REQUIREMENTS. IF AN EXISTING VALVE IS SUSPECTED OF LEAKING, THE CONTRACTOR MAY REPAIR OR REPLACE THE VALVE AT HIS OWN EXPENSE, OR DISCONNECT THE WATER MAIN FROM THE VALVE, INSTALL A BULKHEAD, AND RETEST.

3. THE LENGTH OF WATER MAIN BEING TESTED AT ANY ONE TIME SHALL NOT EXCEED 2,000 FEET UNLESS OTHERWISE APPROVED BY THE DISTRICT ENGINEER, OR ALLOWED IN THE SPECIAL CONDITIONS OF THIS CONTRACT.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, MAINTAINING, AND OPERATING ALL TESTING EQUIPMENT. IN GENERAL, THE TESTING EQUIPMENT CONFIGURATION SHALL CONSIST OF A PUMP RECEIVING WATER FROM A CALIBRATED STORAGE TANK. THE PUMP DISCHARGE SHALL ENTER THE WATER MAIN THROUGH A TAP OR APPURTENANCE. A PRESSURE SUSTAINING VALVE CAPABLE OF BEING ADJUSTED WITHIN THE REQUIRED PRESSURE RANGES SHALL BE PLACED ON A TEE LOCATED IN THE PUMP DISCHARGE LINE. DISCHARGE FROM THE PRESSURE SUSTAINING VALVE SHALL RETURN TO THE CALIBRATED STORAGE TANK. OTHER TYPES OR CONFIGURATIONS OF TESTING EQUIPMENT SHALL BE SUBJECT TO DISTRICT ENGINEER'S APPROVAL. THE PRESSURE PUMP AND PRESSURE SUSTAINING VALVE SHALL REMAIN IN OPERATION CONTINUOUSLY THROUGHOUT THE TEST PERIOD.

5. THE TEST PRESSURE SHALL BE 150% OF THE WORKING PRESSURE, AS CALCULATED FOR THE LOWEST ELEVATION OF THE TEST SECTION, OR 150 PSI, WHICHEVER IS GREATEST. THE PRESSURE MAINTAINED AT THE PUMP SHALL BE ADJUSTED FOR THE DIFFERENCE IN ELEVATION BETWEEN THE LOWEST ELEVATION OF THE TEST SECTION AND THE PUMP LOCATION.

6. THE TEST DURATION SHALL BE 2 HOURS. PRESSURE IN THE WATER MAIN SHALL BE MAINTAINED AS NEAR THE CALCULATED TEST PRESSURE AS POSSIBLE FOR THE FULL TWO HOUR DURATION. THE PRESSURE PUMP AND PRESSURE SUSTAINING VALVE SHALL REMAIN IN OPERATION CONTINUOUSLY THROUGHOUT THE DURATION OF THE TEST.

7. DURING THE PRESSURE AND LEAKAGE TEST, ALL ACCESSIBLE APPURTENANCES SHALL BE INSPECTED FOR VISUAL SIGNS OF LEAKAGE. ALL VISUAL LEAKS SHALL BE CORRECTED IMMEDIATELY, REGARDLESS OF THE AMOUNT OF LEAKAGE AND THE TEST SHALL BE RUN AGAIN FOR ITS FULL DURATION. SHOULD THE PRESSURE AND LEAKAGE TEST FAIL, THE CONTRACTOR SHALL BEGIN TO INVESTIGATE ALL AREAS OF SUSPECTED LEAKAGE AND SHALL MAKE ALL REPAIRS NECESSARY IN ORDER TO AFFECT A SUCCESSFUL TEST. ALL REPAIR METHODS SHALL BE SUBJECT TO DISTRICT ENGINEER APPROVAL. ALL LEAKS DETECTED SHALL BE REPAIRED TO A WATER TIGHT CONDITION. ALL REPAIRS MADE SHALL BE RETESTED IN ACCORDANCE WITH THESE SPECIFICATIONS. ALL REPAIRS SHALL BE MADE AND A SUCCESSFUL TEST ACCOMPLISHED PRIOR TO TAKING BACTERIOLOGICAL SAMPLES.

8. THE INTERIOR OF ALL WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651—4.4.3 AND THESE SPECIFICATIONS. DISINFECTION REQUIREMENTS SHALL INCLUDE PREVENTIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION, FORMS OF CHLORINE AND METHODS OF APPLICATION, FINAL FLUSHING, AND BACTERIOLOGICAL TESTS. THE METHODS AND TECHNIQUES DESCRIBED IN THESE SPECIFICATIONS ARE MINIMUM REQUIREMENTS ONLY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE METHODS AND TECHNIQUES USED TO SUCCESSFULLY DISINFECT THE WATER MAINS AND APPURTENANCES AND FOR DISPOSING OF THE HIGHLY CHLORINATED WATER DURING FLUSHING OPERATIONS.

9. PRECAUTIONS SHALL BE TAKEN TO PROTECT THE INTERIOR OF WATER MAINS AND APPURTENANCES AGAINST CONTAMINATION. THE OPEN ENDS OF ALL WATER MAIN LAID IN THE TRENCH SHALL BE CLOSED FROM ANY FOREIGN INTRUSION WHEN PIPE LAYING HAS STOPPED. IN THE EVENT OF HIGH GROUND WATER, PIPE SHALL BE CLOSED WITH WATER TIGHT PLUG. STOCKPILED PIPE AND APPURTENANCES SHALL ALSO BE PROTECTED FROM CONTAMINATION. IF DIRT OR OTHER CONTAMINATES ENTER THE WATER MAIN OR APPURTENANCES AND, IN THE OPINION OF THE DISTRICT ENGINEER, THE CONTAMINATE WILL NOT BE REMOVED BY THE FLUSHING OPERATION, THE INTERIOR SURFACES SHALL BE CLEANED BY MECHANICAL MEANS.

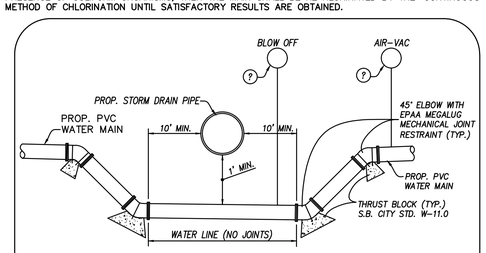
10. WATER MAINS AND APPURTENANCES FLOODED DURING CONSTRUCTION SHALL BE CLEARED OF FLOOD WATER, FLUSHED WITH POTABLE WATER, ISOLATED, AND FILLED WITH CHLORINATED WATER SO THAT AT THE END OF A 24— HOUR HOLDING PERIOD, THE FREE CHLORINE RESIDUAL IS NOT LESS THAN 25 MG/L. THE CHLORINATED WATER SHALL BE FLUSHED AS DESCRIBED UNDER AWWA CONTINUOUS—FEED METHOD. THIS METHOD SHALL CONSIST OF FILLING THE COMPLETED MAINS AND APPURTENANCES TO REMOVE ALL AIR POCKETS, FLUSHING TO REMOVE PARTICULATES, AND REFILLING THE MAINS WITH POTABLE WATER CHLORINATED SO THAT AFTER A 24—HOUR HOLDING PERIOD IN THE MAINS, THERE WILL BE A FREE CHLORINE RESIDUAL OF NOT LESS THAN 10 MG/L. THE METHODS AND TECHNIQUES USED FOR PRELIMINARY FLUSHING AND CHLORINATING THE MAINS SHALL BE AS DESCRIBED IN SECTION 5.2 OF AWWA C651. THE PLACING OF CALCIUM HYPOCHLORITE GRANULES DURING CONSTRUCTION IS OPTIONAL.

11. THE HEAVILY CHLORINATED WATER SHALL BE FLUSHED FROM THE MAINS AND APPURTENANCES AND SHALL NOT REMAIN IN THE MAINS MORE THAN 48 HOURS BEYOND THE TIMES REQUIRED IN THIS SECTION. THE HEAVILY CHLORINATED WATER SHALL BE FLUSHED FROM THE MAINS AND APPURTENANCES UNTIL CHLORINE MEASUREMENTS SHOW THAT THE CONCENTRATIONS IN THE WATER LEAVING THE MAIN IS NO HIGHER THAN THAT GENERALLY PREVAILING IN THE SYSTEM, BUT NOT MORE THAN 1.0 MG/L.

12. THE ENVIRONMENT TO WHICH THE CHLORINATED WATER IS TO BE DISCHARGED SHALL BE INSPECTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE CAUSED BY THE DISCHARGE OF HEAVILY CHLORINATED WATER. IF THERE IS ANY QUESTION THAT THE CHLORINATED DISCHARGE WILL CAUSE DAMAGE TO THE ENVIRONMENT, THEN A REDUCING AGENT SHALL BE APPLIED TO THE WATER TO BE WASTED TO NEUTRALIZE THOROUGHLY THE CHLORINE RESIDUAL REMAINING IN THE WATER. REDUCING AGENTS AND THEIR USE SHALL COMPLY WITH AWWA C651, APPENDIX B. WHERE NECESSARY, FEDERAL, STATE, AND LOCAL REGULATORY AGENCIES SHOULD BE CONTACTED TO DETERMINE SPECIAL PROVISIONS FOR THE DISPOSAL OF HEAVILY CHLORINATED WATER.

13. UPON COMPLETION OF THE DISINFECTION PROCESS, WATER SAMPLES SHALL BE TESTED FOR BACTERIOLOGICAL QUALITY IN ACCORDANCE WITH AWWA "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER" AND SHALL SHOW THE ABSENCE OF COLIFORM ORGANISMS.

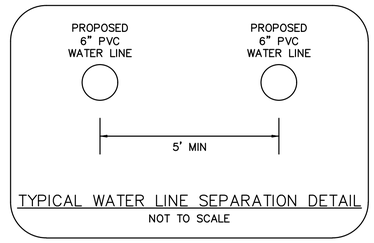
14. IF THE INITIAL DISINFECTION FAILS TO PRODUCE SATISFACTORY BACTERIOLOGICAL SAMPLES, THE MAIN MAY BE REFLUSHED AND SHALL BE RESAMPLED. IF THESE SECOND CHECK SAMPLES CONTINUE TO SHOW THE PRESENCE OF COLIFORM ORGANISMS, THEN THE MAIN SHALL BE RE HLORINATED BY THE CONTINUOUS—FEED METHOD OF CHLORINATION UNTIL SATISFACTORY RESULTS ARE OBTAINED.



WATER LINE CROSSING DETAILS
NOT TO SCALE

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY LOCATION, DEPTH, VERTICAL AND HORIZONTAL ALIGNMENT AND PROTECT IN PLACE ALL OF EXISTING WATER MAINS AND UNDERGROUND STRUCTURES.
2. METERS TO BE 3/4—INCH UNLESS OTHERWISE SPECIFIED.
3. ALL SERVICES ARE TO BE METERED.
4. ALL WATERLINE ELEVATIONS SHOWN ON PLANS ARE TOP OF PIPE UNLESS OTHERWISE NOTED.
5. HOUSE SERVICE LOCATIONS SHALL BE VERIFIED IN THE FIELD IN ORDER TO AVOID METER BOX CONFLICT WITH DRIVEWAYS.
6. MINIMUM SEPARATION BETWEEN WATER SERVICE SADDLES SHALL BE 2—FEET.
7. UNLESS OTHERWISE SHOWN, MINIMUM COVER SHALL BE 36—INCHES FROM FINISH SURFACE.
8. NO SERVICE SHALL BE CLOSER THAN 18—INCHES TO A COUPLING. NO SERVICE CLAMP/REPAIR CLAMP SHALL BE INSTALLED.
9. LOTS ALL WILL HAVE EXPECTED HYDRAULIC GRADIENT RESULTING IN STATIC PRESSURE BETWEEN 80 AND 150 PSI AND WILL REQUIRE INDIVIDUAL PRESSURE REGULATORS AHEAD OF HOUSE PLUMBING IN ACCORDANCE WITH THE 80 PSI LIMITATION IMPOSED BY THE UNIFORM PLUMBING CODE.
10. SHOP DRAWINGS FOR STEEL PIPE AND FITTINGS, INCLUDING PIPE LAYOUT SHEETS SHOWING JOINTS, SHALL BE SUBMITTED FOR APPROVAL BY DISTRICT'S REPRESENTATIVE PRIOR TO FABRICATION OF THE PIPE AND FITTINGS.
11. A FIRE HYDRANT WITH A STANDARD 6" X 2" X 2—1/2" HEAD CONFORMING TO AWWA STANDARD NO. C#503—75 SHALL BE INSTALLED AT EACH OF THE LOCATIONS SHOWN ON THE ENCLOSED PLAN.
12. PAINT FIRE HYDRANTS TNEMEC SERVICES 10 MODIFIED (MEDIUM YELLOW.)
13. BARRICADES SHALL BE INSTALLED AT FIRE HYDRANTS AND BLOW—OFFS NOT LOCATED BEHIND STANDARD FACE CURB
14. CENTERLINE OF FIRE HYDRANT RISER SHALL BE NORMALLY TWO FEET BEHIND CURB FACE EXCEPT WHERE 5—FOOT—WIDE SIDEWALK IS ADJACENT TO CURB, IN WHICH CASE, THE RISER SHALL BE AT SIX FEET MINIMUM BEHIND CURB FACE OR AS SHOWN ON THE PLANS.
15. FOR LOCATION OF METER BOX WITH RESPECT TO ENTRANCE WALKWAYS, DRIVEWAYS AND PROPERTY LINES. FRONT EDGE OF METER BOX TO BE PLACED 6" BEHIND THE BACK OF CURB, EXCEPT WHEN THERE IS A SIDEWALK ADJACENT TO BACK OF CURB. THEN THE FRONT EDGE OF THE METER BOX IS TO BE PLACED 6" BEHIND THE REAR OF THE SIDEWALK.



TYPICAL WATER LINE SEPARATION DETAIL
NOT TO SCALE

CONCRETE THRUST BLOCK NOTES:

1. Concrete mix shall be Class 520-C-2500.
2. Concrete placed against the pipe fitting shall not extend beyond the joints.
3. Concrete thrust blocks shall be installed to the dimensions and configurations as shown. Thrust Block Requirements table is designed for a test water pressure of 150psi and a soil bearing pressure of 2000 psf with a safety factor of 1.5. Thrust blocks for all other values for water pressure and soil bearing must use multiplier tables accordingly, see example below.
4. Concrete thrust blocks shall be placed solidly against firm undisturbed native soil. Soil bearing pressure of undisturbed native soil must be considered in design, see multiplier table below.
5. For configurations with multiple thrust blocks, required bearing area square footage values represent the cumulative total of all thrust block bearing areas.
6. The ratio of thrust block height (H) to length (L) shall be at minimum 1:2 and at maximum 1:1 (square), with preference toward 1:1.
7. All thrust blocks shall extend a minimum of 24" outward from the pipe. Exceptions for small sized thrust blocks may be made at Engineer's discretion.
8. In locations where the water table is higher than the thrust block, special design is required.

THRUST BLOCK REQUIREMENTS (at 150psi water pressure and 2000psf soil bearing capacity):

Pipe inner diameter (in.)	Horizontal Bends (required S.F. bearing area) Tees, crosses, & plugs	90°	45°	22.5°	11.25°	Vertical bends (required C.Y.) 45°	22.5°	11.25°
4	2.0	2.9	1.6	0.8	0.4	0.8	0.4	0.2
6	4.2	5.9	3.2	1.6	0.8	1.7	0.9	0.4
8	7.2	10.2	5.5	2.8	1.4	2.9	1.5	0.8
10	10.9	15.4	8.3	4.2	2.1	4.4	2.2	1.1
12	15.4	21.8	11.8	6.0	3.0	6.2	3.2	1.6
14	20.7	29.3	15.8	8.1	4.1	8.4	4.3	2.1
16	26.8	37.8	20.5	10.4	5.2	10.8	5.5	2.8

SOIL MULTIPLIERS:

Actual Soil Bearing (psf)	Multiplier
1000	2.00
1500	1.33
2000	1.00
2500	0.80
3000	0.67
3500	0.57

WATER MULTIPLIERS:

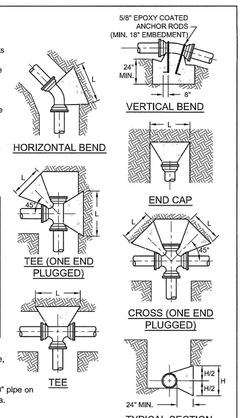
Actual Test Water Pressure (psi)	Multiplier
100	0.67
150	1.00
200	1.33
250	1.67
300	2.00
350	2.33

EXAMPLE:
10" pipe, 90° bend, 250psi test water pressure, 1500psf soil bearing capacity:

From Thrust Block Requirements table, 10" pipe on a 90° bend requires 15.4 S.F. bearing area.

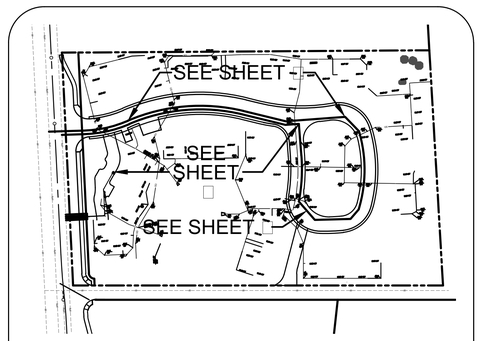
Adjust values using multiplier tables:

Required S.F. = (Table value)(Multiplier, 1500psf soil)(Multiplier, 250psi water)
= (15.4 S.F.)(1.33)(1.67)
= 34.2 S.F. required thrust block bearing area

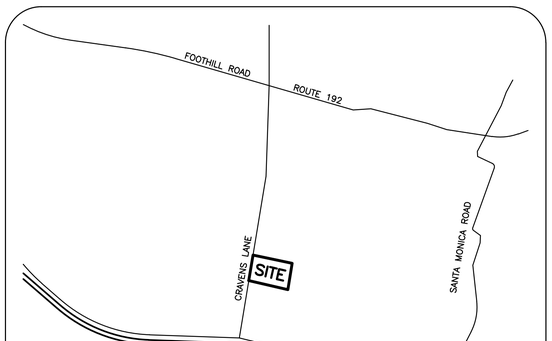


CONCRETE THRUST BLOCK

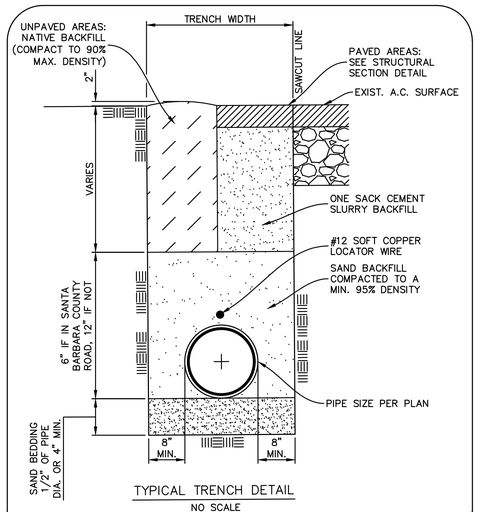
STREETS:	REV. DATE: 11/12	DETAIL: W—11.0	
TRANS OPS:	APPROVED:		
FACILITIES:	CITY ENGINEER		
WATER RESOURCES:	PUBLIC WORKS DIRECTOR		



KEY MAP
SCALE: 1"—100'



VICINITY MAP
N.T.S.



TYPICAL TRENCH DETAIL
NO SCALE

QUANTITIES

1	INSTALL 10" X 6" REDUCER.	1	EA
2	WATER METERS	31	EA
3	INSTALL 1" SERVICE LINE PER CVWD STD. DETAIL NO. C—104. METER BOXES TO BE PLACED 1' BEHIND BACK OF WALK OR CURB.	656	LF
4	INSTALL CONCRETE THRUST BLOCK PER S.B. CITY STANDARD PLAN W—11.0.	17	EA
5	HOT TAP EXISTING 10" ASBESTOS CONCRETE BY KOPPL OR APPROVED EQUAL. PRIOR TO INITIATION OF CONSTRUCTION, CONTRACTOR SHALL BORE AN EXPLORATORY POTHOLE TO DETERMINE INVERT ELEVATIONS.	1	EA
6	HOT TAP EXISTING 6" CML STEEL PIPE PER CVWD STANDARD DETAIL NO. C—1XX. PRIOR TO INITIATION OF CONSTRUCTION, CONTRACTOR SHALL BORE AN EXPLORATORY POTHOLE TO DETERMINE INVERT ELEVATIONS.	1	EA
7	INSTALL 6" FLxMJ GATE VALVE.	8	EA
8	INSTALL COMBINATION AIR—VAC ASSEMBLY PER CVWD STD. NO. C—105. ASSEMBLY TO BE PLACED 2' BEHIND BACK OF WALK.	1	EA
9	EXISTING WATER METER TO BE RELOCATED HERE TO SERVE AS LANDSCAPE WATER METER.	1	EA
10	INSTALL FIRE HYDRANT PER CVWD STD. DETAIL NO. C—104. FIRE HYDRANT TO BE PLACED 2' BEHIND BACK OF WALK OR CURB. INSTALL FIRE HYDRANT GUARD POST PER SANTA BARBARA STD. WATER DETAIL W—03.0.	3	EA

BENCH MARK

NUMBER: NGS BM NO. V 1441 (1989) PID EW9491

DESCRIPTION: STEEL ROD IN NGS WELL

LOCATION: IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF A WITNESS POST.

ELEV. 13.45 FEET NAVD 1988 **ADJUSTMENT** XXXX

SHEET INDEX

1 TITLE SHEET
2 WATER IMPROVEMENTS LINE 1
3 WATER IMPROVEMENTS LINE 1
4 WATER IMPROVEMENTS LINE 1
5 JOINT DETAILS

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

GREEN HERON SPRINGS WATER PLAN

COVER SHEET NOTES AND DETAILS

DIGALERT
DIAL TOLL FREE
1—800—227—2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

CARPINTERIA VALLE□ □ ATER DISTRICT
1301 SANTA □NE□ AVE
CARPINTERIA, CA 93013
PH: (805) 684-2816

CVWD REPRESENTATIVE DATE

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
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AGOURA HILLS, CA 91301
PH: (818) 707-8648
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PLANS PREPARED UNDER THE DIRECTION OF:
SIEWHUAT NG R.C.E. 46026 DATE

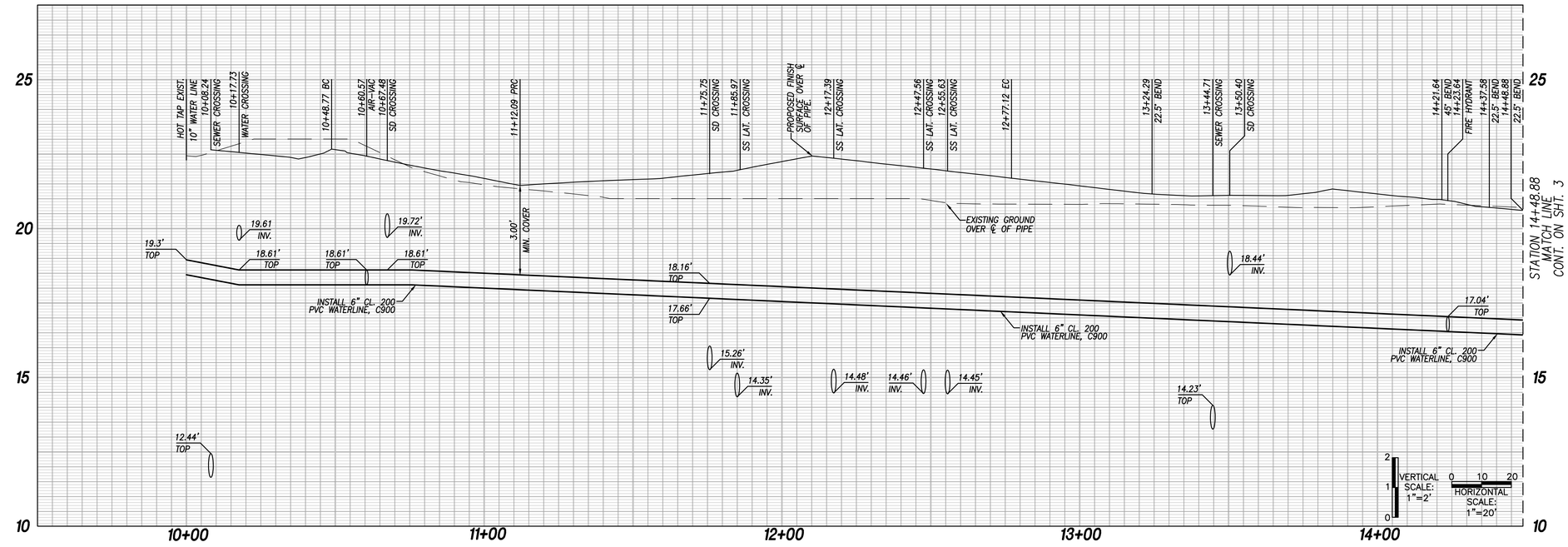
REGISTERED PROFESSIONAL ENGINEER SIEWHUAT NG NO. 46026 CIVIL STATE OF CALIFORNIA
EXP:12/31/15

DESIGNED BY:	DATE	SCALE	REVIEWED BY: DATE
DRAWN BY:	DATE	1"=20'	
CHECKED BY:	DATE	PROJECT NUMBER 1323	CHARLES W. EBELING, P.E., PUBLIC WORKS DIRECTOR/CITY ENGINEER RCE NO. 64371 EXP. 6/30/2013

PROJECT ENGINEER: DATE 7/31/2017

Sheet 1 of 5 Sheet□

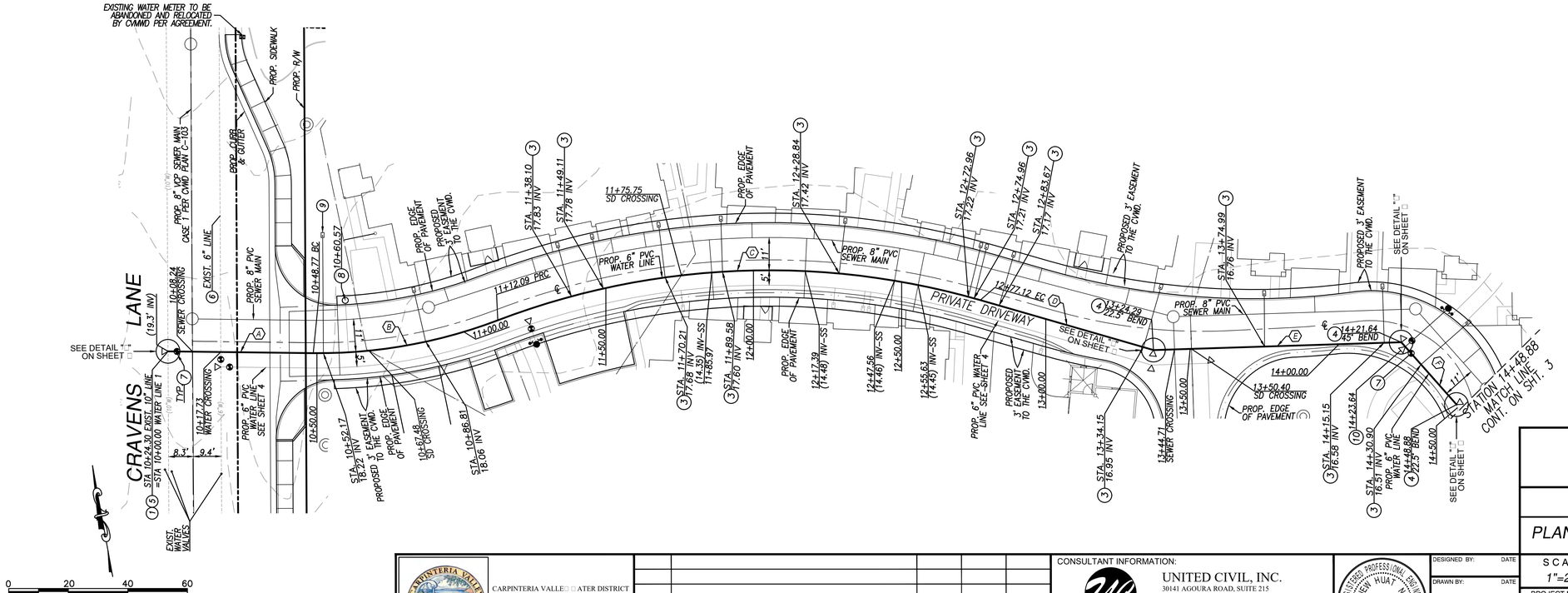
WATER PROFILE – LINE 1



LINE AND CURVE DATA				
NO.	DELTA/BEARING	RADIUS	LENGTH	TANGENT
A	N79°00'22"W	–	48.77'	–
B	21°31'54"	168.50'	63.32'	32.04'
C	36°56'08"	256.00'	165.03'	85.50'
D	N63°36'08"W	–	60.54'	–
E	N81°30'34"W	–	83.25'	–
F	N31°12'15"W	–	27.97'	–

CONSTRUCTION NOTES

1. INSTALL 10" X 6" REDUCER.
2. WATER METERS
3. INSTALL 1" SERVICE LINE PER CVWD STD. DETAIL NO. C-104. METER BOXES TO BE PLACED 1' BEHIND BACK OF WALK OR CURB.
4. INSTALL CONCRETE THRUST BLOCK PER S.B. CITY STANDARD PLAN W-11.0.
5. HOT TAP EXISTING 10" ASBESTOS CONCRETE BY KOPPL OR APPROVED EQUAL. PRIOR TO INITIATION OF CONSTRUCTION, CONTRACTOR SHALL BORE AN EXPLORATORY POTHOLE TO DETERMINE INVERT ELEVATIONS.
6. HOT TAP EXISTING 6" CML STEEL PIPE PER CVWD STANDARD DETAIL NO. C-1XX. PRIOR TO INITIATION OF CONSTRUCTION, CONTRACTOR SHALL BORE AN EXPLORATORY POTHOLE TO DETERMINE INVERT ELEVATIONS.
7. INSTALL 6" FLxMJ GATE VALVE.
8. INSTALL COMBINATION AIR-VAC ASSEMBLY PER CVWD STD. NO. C-105. ASSEMBLY TO BE PLACED 2' BEHIND BACK OF WALK.
9. EXISTING WATER METER TO BE RELOCATED HERE TO SERVE AS LANDSCAPE WATER METER.
10. INSTALL FIRE HYDRANT PER CVWD STD. DETAIL NO. C-104. FIRE HYDRANT TO BE PLACED 2' BEHIND BACK OF WALK OR CURB. INSTALL FIRE HYDRANT GUARD POST PER SANTA BARBARA STD. WATER DETAIL W-03.0.



LEGEND

- EXIST WATER PIPE
- PROPOSED WATER PIPE
- PROPOSED SD PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

GREEN HERON SPRINGS WATER PLAN

PLAN AND PROFILE STATION 10+00.00 TO 14+48.88

CARPINTERIA VALLEY WATER DISTRICT
1301 SANTA ANITA AVE
CARPINTERIA, CA 93013
PH: (805) 684-2816

CVWD REPRESENTATIVE _____ DATE _____

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 _____ DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12/31/13 CIVIL STATE OF CALIFORNIA

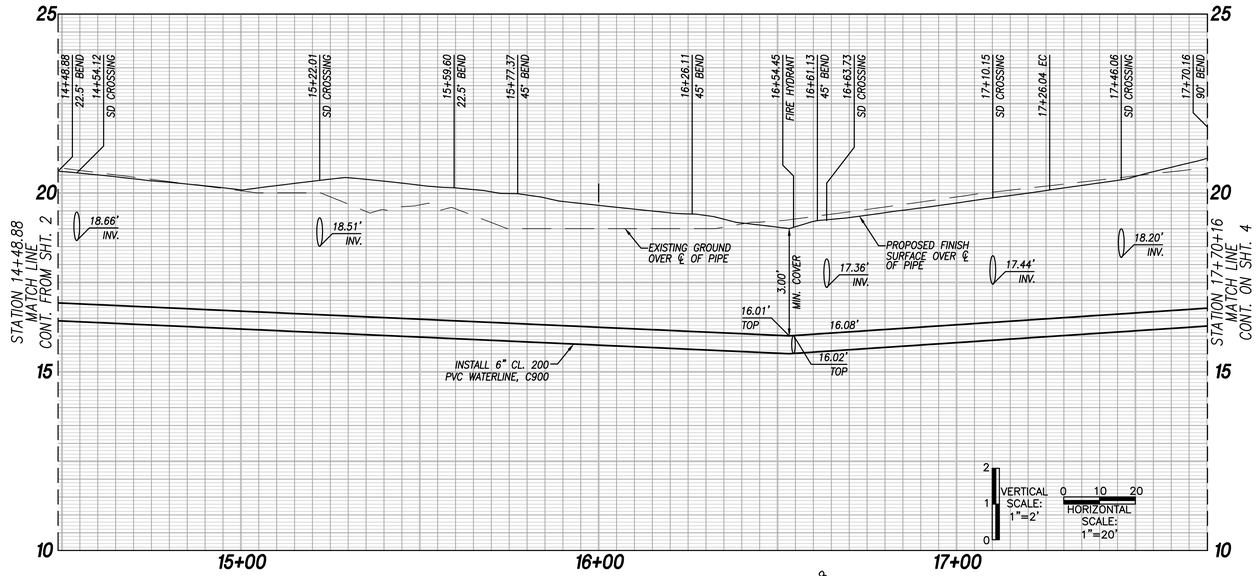
DESIGNED BY:	DATE
DRAWN BY:	DATE
CHECKED BY:	DATE
SCALE	1"=20'
PROJECT NUMBER	1323

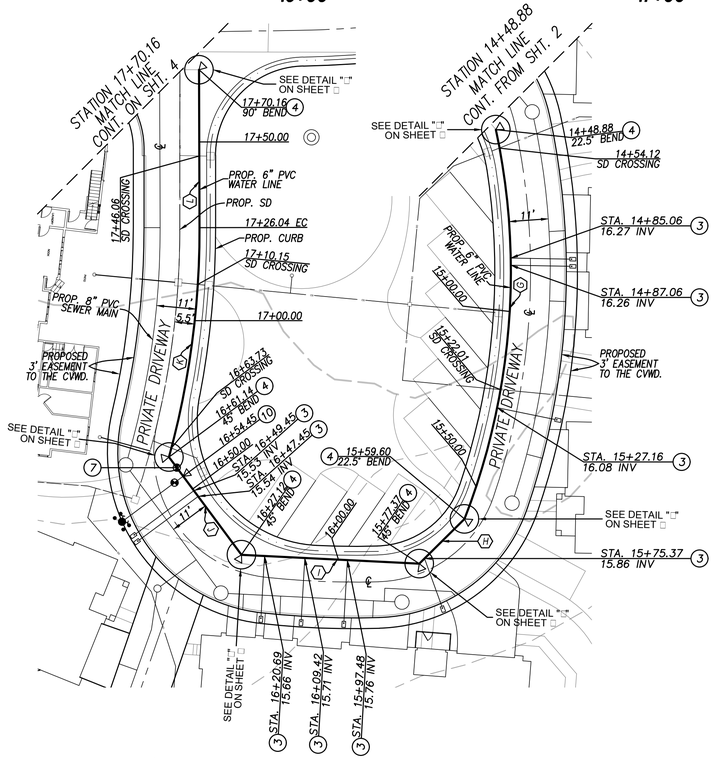
REVIEWED BY: _____ DATE _____
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

PROJECT ENGINEER: _____ DATE 7/31/2017

Sheet 2 of 5 Sheet

WATER PROFILE – LINE 1





0 20 40 60

GRAPHICAL SCALE: 1"=20'

CONSTRUCTION NOTES

(2) WATER METERS

(3) INSTALL 1" SERVICE LINE PER CVWD STD. DETAIL NO. C-104. METER BOXES TO BE PLACED 1' BEHIND BACK OF WALK OR CURB.

(4) INSTALL CONCRETE THRUST BLOCK PER S.B. CITY STANDARD PLAN W-11.0.

(7) INSTALL 6" FLxMJ GATE VALVE.

(10) INSTALL FIRE HYDRANT PER CVWD STD. DETAIL NO. C-104. FIRE HYDRANT TO BE PLACED 2' BEHIND BACK OF WALK OR CURB. INSTALL FIRE HYDRANT GUARD POST PER SANTA BARBARA STD. WATER DETAIL W-03.0.

LINE AND CURVE DATA

NO.	DELTA/BEARING	RADIUS	LENGTH	TANGENT
G	33°18'07"	190.50'	110.72'	56.98'
H	N53°39'40"E	–	17.77'	–
I	N78°48'19"W	–	45.48'	–
J	N28°15'03"W	–	34.02'	–
K	15°31'42"	239.50	64.91'	32.65'
L	N8°09'24"E	–	46.12'	–

LEGEND

- EXIST WATER PIPE
- PROPOSED WATER PIPE
- PROPOSED SD PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

GREEN HERON SPRINGS WATER PLAN

PLAN AND PROFILE STATION 14+48.88 TO 17+70.16

CARPINTERIA VALLEY WATER DISTRICT
1301 SANTA □NE□ AVE
CARPINTERIA, CA 93013
PH: (805) 684-2816

CVWD REPRESENTATIVE _____ DATE _____

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 _____ DATE _____

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____

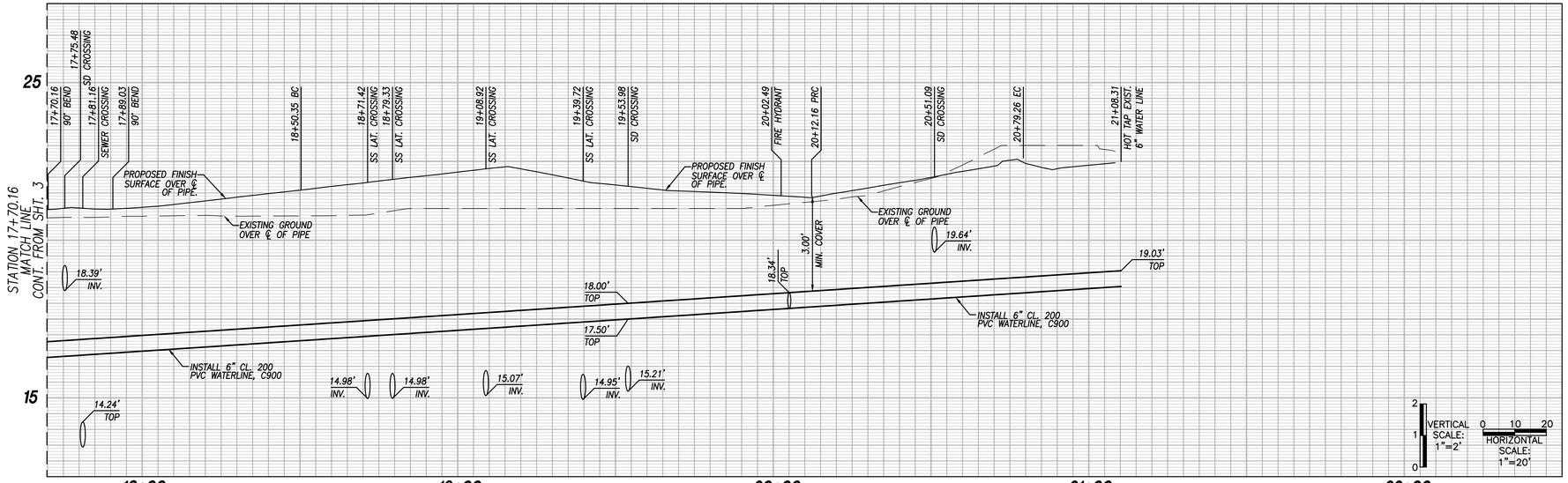
SCALE 1"=20'
PROJECT NUMBER 1323

REVIEWED BY: _____ DATE _____
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

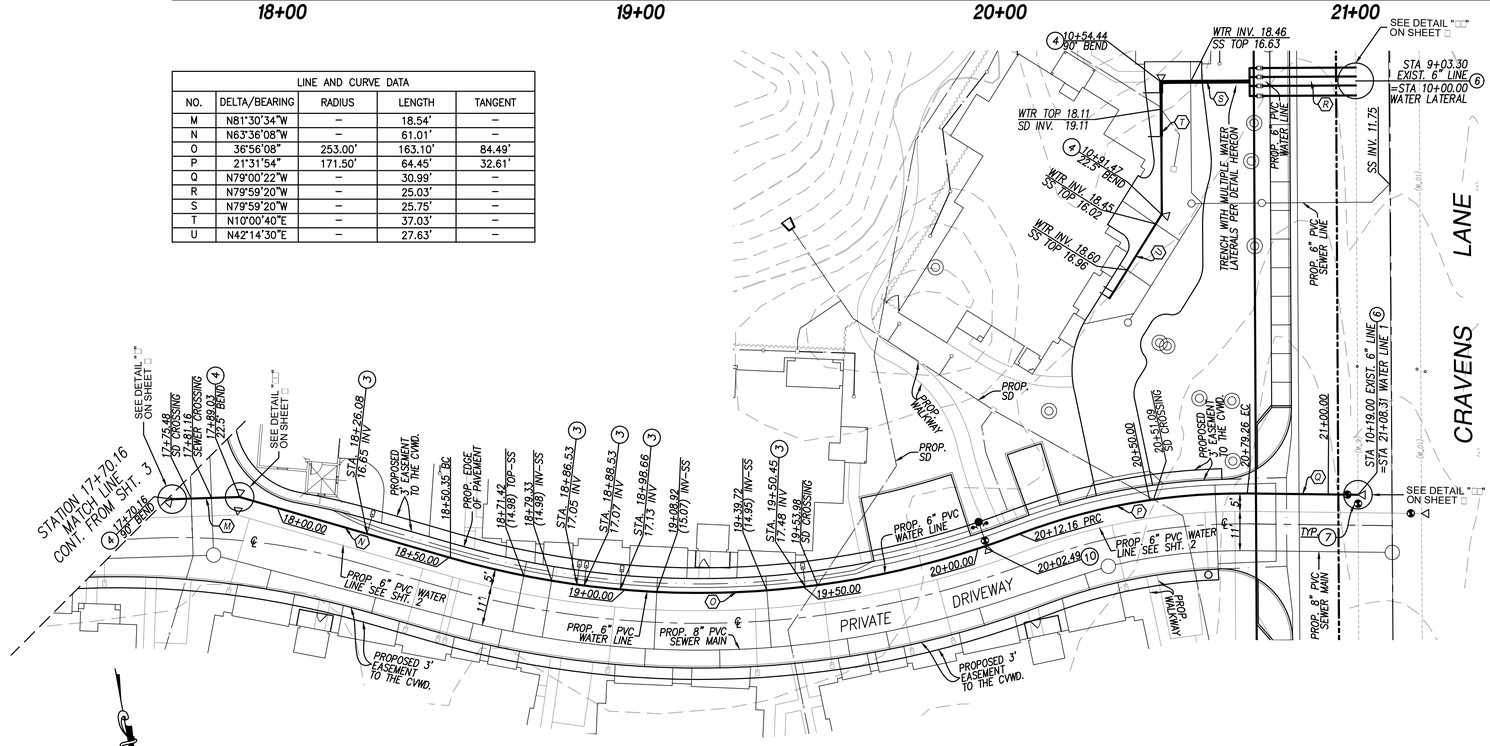
PROJECT ENGINEER: _____ DATE 7/31/2017

Sheet 3 of 5 Sheet□

WATER PROFILE – LINE 1



LINE AND CURVE DATA				
NO.	DELTA/BEARING	RADIUS	LENGTH	TANGENT
M	N81°30'34"W	–	18.54'	–
N	N63°36'08"W	–	61.01'	–
O	36°56'08"	253.00'	163.10'	84.49'
P	21°31'54"	171.50'	64.45'	32.61'
Q	N79°00'22"W	–	30.99'	–
R	N79°59'20"W	–	25.03'	–
S	N79°59'20"W	–	25.75'	–
T	N10°00'40"E	–	37.03'	–
U	N42°14'30"E	–	27.63'	–



CONSTRUCTION NOTES

1. INSTALL 10" X 6" REDUCER.
2. WATER METERS
3. INSTALL 1" SERVICE LINE PER CVWD STD. DETAIL NO. C-104. METER BOXES TO BE PLACED 1' BEHIND BACK OF WALK OR CURB.
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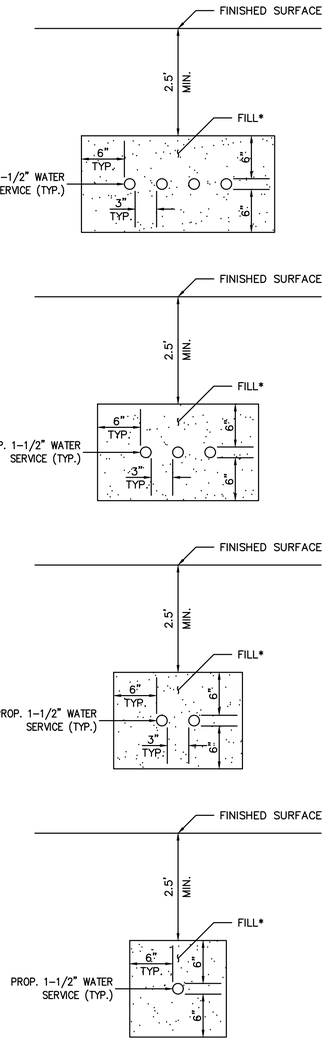


LEGEND

- EXIST WATER PIPE
- PROPOSED WATER PIPE
- PROPOSED SD PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

GREEN HERON SPRINGS WATER PLAN

PLAN AND PROFILE STATION 17+70.16 TO 21+08.31

CARPINTERIA VALLEY WATER DISTRICT
1301 SANTA ANITA AVE
CARPINTERIA, CA 93013
PH: (805) 684-2816

CVWD REPRESENTATIVE _____ DATE _____

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 _____ DATE

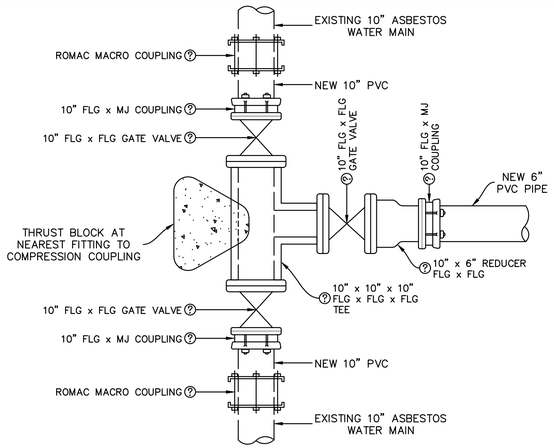
REGISTERED PROFESSIONAL ENGINEER SIEW HUA NG NO. 46026 EXP. 12-31-13 CIVIL STATE OF CALIFORNIA

DESIGNED BY: _____ DATE _____
DRAWN BY: _____ DATE _____
CHECKED BY: _____ DATE _____
PROJECT ENGINEER: _____ DATE 7/31/2017

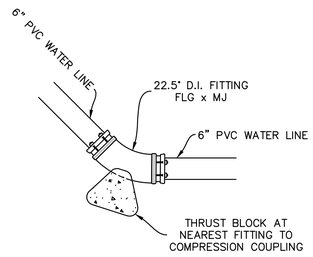
SCALE 1"=20'
PROJECT NUMBER 1323

REVIEWED BY: _____ DATE _____
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

Sheet 4 of 5 Sheet



DETAIL "1"



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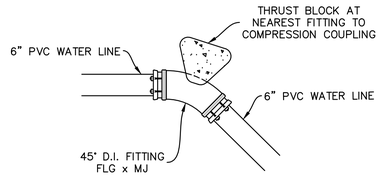

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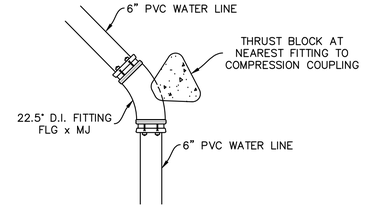

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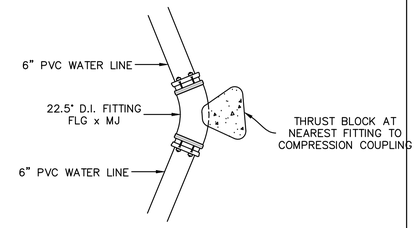

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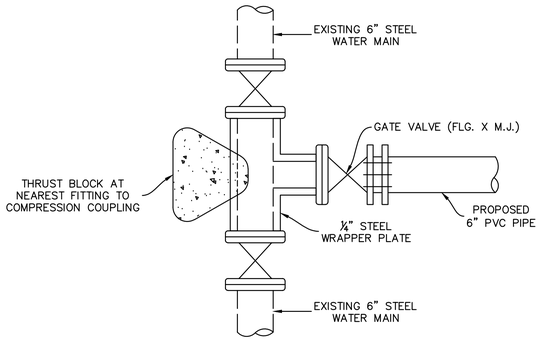

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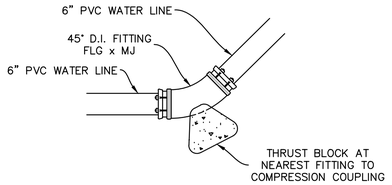

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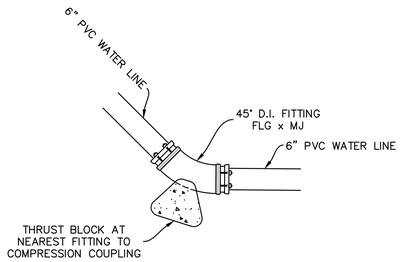

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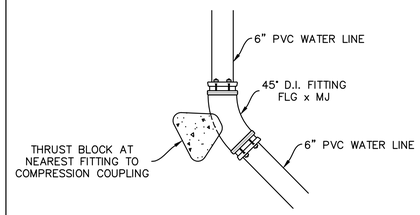

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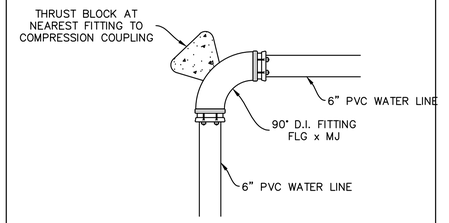

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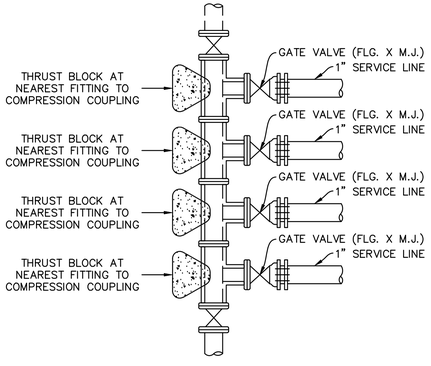

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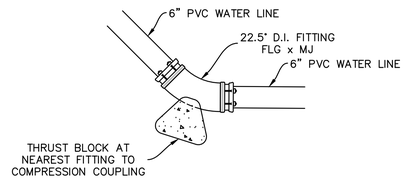

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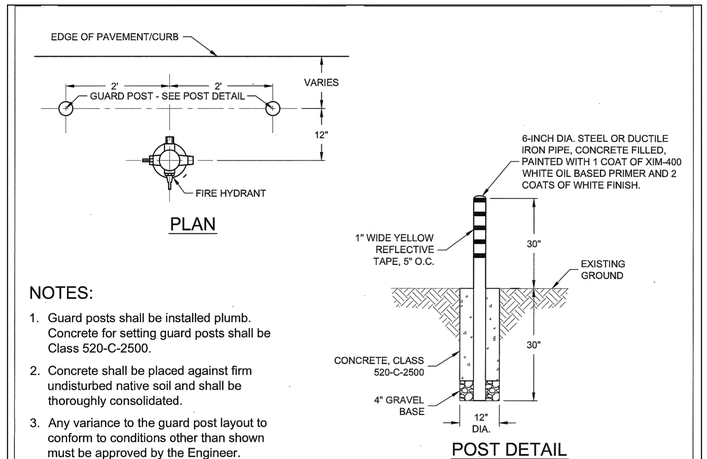


FIRE HYDRANT
GUARD POST

STREETS:	REV. DATE: 11/12 DETAIL: W-03.0
TRANS OPS:	APPROVED:
FACILITIES:	CITY ENGINEER
WATER RESOURCES:	PUBLIC WORKS DIRECTOR

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

GREEN HERON SPRINGS WATER PLAN

JOINT DETAILS

CARPINTERIA VALLEY WATER DISTRICT
1301 SANTA ANE AVE
CARPINTERIA, CA 93013
PH: (805) 684-2816

DWD REPRESENTATIVE _____ DATE _____

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE _____

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-13 CIVIL STATE OF CALIFORNIA

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
SCALE 1"=20'
PROJECT NUMBER 1323
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013
PROJECT ENGINEER: DATE 7/31/2017

Sheet 5 of 5 Sheet

STORMWATER POLLUTION PLAN NOTES

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION-RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING, AND MAY NOT CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION-RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC.
7. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
8. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
9. THE FOLLOWING BMPS AS OUTLINED IN, BUT NOT LIMITED TO, THE "BEST MANAGEMENT PRACTICE HANDBOOK,CALIFORNIA STORM WATER QUALITY TASK FORCE, SACRAMENTO, CALIFORNIA, 1993,"OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY INSPECTORS)

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL PROVIDE SURVEY STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
2. PVC SDR 35 GASKETED PIPE SHALL BE USED FOR THIS PROJECT.
3. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
4. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT THE PROPERTY LINE FIVE FEET BELOW CURB GRADE, EXCEPT AS NOTED. A MINIMUM FOUR (4) INCH DIAMETER SEWER LATERAL AND/OR BUILDING SEWER SHALL BE INSTALLED FOR EACH SINGLE FAMILY RESIDENCE WITH A MINIMUM GRADE OF ONE-QUARTER (¼) INCH PER FOOT (2%) BEGINNING FROM THE BUILDING CLEANOUT CONNECTION TO THE MAIN SEWER LINE IN THE PUBLIC RIGHT-OF-WAY. ANY DEVIANCES FROM THE ABOVE REQUIREMENTS SHALL BE REQUESTED IN WRITING TO THE DISTRICT GENERAL MANAGER.
5. ALL WYES AND/OR HOUSE LATERALS ARE TO BE LOCATED AT LEAST FIVE (5) FEET APART AND NOT CLOSER THAN FIVE (5) FEET TO ANY MANHOLE.
6. WYE BRANCHES MAY BE USED FOR CONNECTIONS TO THE MAINLINE SEWERS, EXCEPT AS NOTED.
7. REFER TO CARPINTERIA VALLEY WATER DISTRICT (CVWD) STANDARD DETAIL C-103 WATER AND SEWER MAIN SEPARATION REQUIREMENTS.
8. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET THE CITY OF CARPINTERIA, SANTA BARBARA COUNTY PUBLIC WORKS, OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH THE PERMITS.
9. FULL COMPLIANCE WITH CVWD C-101 WILL BE REQUIRED FOR BACKFILL. CERTIFICATION OF BACKFILL, COMPACTION, AND SAND EQUIVALENTS BY A QUALIFIED CIVIL ENGINEER SHALL BE PROVIDED BY THE PERMITEE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF PARTIAL ACCEPTANCE.
10. SEWERS TO BE TESTED FOR LEAKAGE PER SECTION 306-1.4.4 OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" AND "SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWER".
11. MANHOLE TOPS IN IMPROVED RIGHT-OF-WAYS TO BE LEVEL WITH FINISHED GRADE.

PRIVATE CONTRACT SEWER GENERAL NOTES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES LISTED HEREON AT LEAST 48 HOURS BEFORE BEGINNING EXCAVATION AND SHALL VERIFY THE LOCATION OF ANY KNOWN UTILITIES AND WHETHER OR NOT A REPRESENTATIVE OF EACH COMPANY WILL BE PRESENT DURING EXCAVATION.
2. THE CONTRACTOR SHALL OBTAIN A CITY OF CARPINTERIA ENGINEERING PERMIT FOR ALL WORK WITHIN CITY LIMITS PRIOR TO COMMENCING ANY WORK OF THIS PROJECT.
3. PRIOR TO ISSUANCE OF THE REQUIRED SEWER CONSTRUCTION PERMIT, THE CONTRACTOR SHALL FILE A PERMIT FOR EXCAVATION AND TRENCHES FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND A CERTIFICATE OF WORKER'S COMPENSATION INSURANCE WITH THE CITY OF CARPINTERIA NAMED AS THE CERTIFICATE HOLDER. THE CITY OF CARPINTERIA SHALL BE NOTIFIED 30 DAYS PRIOR TO CANCELLATION OF THE INSURANCE POLICY.
4. APPROVAL OF THIS PLAN BY THE CARPINTERIA SANITARY DISTRICT DOES NOT CONSTITUTE A REPRESENTATION AS TO ACCURACY OF THE LOCATION OR THE EXISTENCE OR NONEXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
5. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS.
6. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, INCLUDING SUPPLEMENTS AND THE LATEST "SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SANITARY SEWERS" AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE CARPINTERIA SANITARY DISTRICT.
7. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7-10.4.1 OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", IN REGARD TO SAFETY ORDERS AND SHALL CONFORM TO THE "MINIMUM PUBLIC SAFETY REQUIREMENT" AS SHOWN ON THE LOS ANGELES COUNTY PUBLIC WORKS STANDARD PLAN 6008-1.
8. ELEVATIONS ARE IN FEET ABOVE U.S.C. AND G.S. SEA LEVEL DATUM OF 1929.
9. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE CITY ENGINEER.
10. NO REPRESENTATIVE OF THE CARPINTERIA SANITARY DISTRICT WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
11. GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON THE PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTERLINE OF STREETS, OR CENTERLINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES AT ALL POINTS BETWEEN DESIGNATED POINTS. THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE BETWEEN SAID DESIGNATED POINTS.
12. THE PRIVATE ENGINEER SHALL FURNISH THE DIVISION WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND "Y" OR "T" BRANCHES, AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45 DEGREES WITH THE MAIN LINE SEWER. ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
13. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF THE CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
14. AN APPROVED BACKWATER VALVE IS REQUIRED WHERE PAD IS LOWER IN ELEVATION THAN THE TOP OF THE NEXT UPSTREAM MANHOLE.

PRIVATE ENGINEERS NOTICE TO CONTRACTORS:

THE UNDERSIGNED CIVIL ENGINEER CERTIFIES THAT THE GRADING WORK WILL BE SUPERVISED IN ACCORDANCE WITH SECTION 7020 OF THE CITY BUILDING CODE. UTILITY LINES SHOWN ON THESE PLANS ARE OBTAINED FROM A SEARCH OF AVAILABLE RECORDS AND CROSS-REFERENCES WITH OTHER UTILITY PLANS IN THIS AREA. THE EXACT LOCATION OF THE LINES SHOWN CAN ONLY BE OBTAINED BY POTHOLING AND SURVEY IN DIRECT COORDINATION WITH THE UTILITY OWNER.

ELEVATIONS OF EXISTING SEWER LINE AND MANHOLES TO BE VERIFIED IN FIELD BEFORE BEGINNING CONSTRUCTION.

ALLOW NO CONNECTION UNTIL SUCH TIME AS ALL NECESSARY SEWER EASEMENTS HAVE BEEN ACCEPTED.

IN CASE OF AN SEWER EMERGENCY, NOTIFY THE DISTRICT MAIN OFFICE AT (805)684-7214 DURING WEEKDAY HOURS, AND AFTER HOURS, CALL (805) 451-7809

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS
PHONE: (805) 684-5405

GENERAL TELEPHONE COMPANY
PHONE: (805) 966 - 0339

CARPINTERIA VALLEY WATER DISTRICT
PHONE: (805) 684-2816

CARPINTERIA SANITARY DISTRICT
PHONE: (805) 684-7214

COX CABLE OF SANTA BARBARA
PHONE: (805) 683 - 7751

SOUTHERN CALIFORNIA GAS COMPANY
PHONE: (805) 681 - 8029
AND
COASTAL TRANSMISSION DIVISION
PHONE: (805) 681 - 7928

SOUTHERN CALIFORNIA EDISON CO.
PHONE: (805) 683 - 5222

BENCH MARK:

NGS BM NO. V 1441 (1989) PID EW9491
ELEV. = 13.45 NAVD 1988
DESCRIPTION - STEEL ROD IN NGS WELL
LOCATION - IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF THE WITNESS POST.

DIGALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

EROSION CONTROL
EC6 - STRAW MULCH
EC7 - GEOTEXTILES & MATS
EC8 - WOOD MULCHING
EC9 - EARTH DIKES AND DRAINAGE SWALES
EC10 - VELOCITY DISSIPATION DEVICES
EC11 - SLOPE DRAINS
EC12 - STREAMBANK STABILIZATION
EC13 - RESERVED
EC14 - COMPOST BLANKETS
EC15 - SOIL PREPARATION/ ROUGHENING
EC16 - NON-VEGETATED STABILIZATION

TEMPORARY SEDIMENT CONTROL
SE1 - SILT FENCE
SE2 - SEDIMENT BASIN
SE3 - SEDIMENT TRAP
SE4 - CHECK DAM
SE5 - FIBER ROLLS
SE6 - GRAVEL BAG BERM
SE7 - STREET SWEEPING AND VACUUMING
SE8 - SANDBAG BARRIER
SE9 - STRAW BALE BARRIER
SE10 - STORM DRAIN INLET PROTECTION
SE11 - ACTIVE TREATMENT SYSTEMS
SE12 - TEMPORARY SILT DIKE
SE13 - COMPOST SOCKS & BERMS
SE14 - BIOFILTER BAGS

WIND EROSION CONTROL
WE1 - WIND EROSION CONTROL

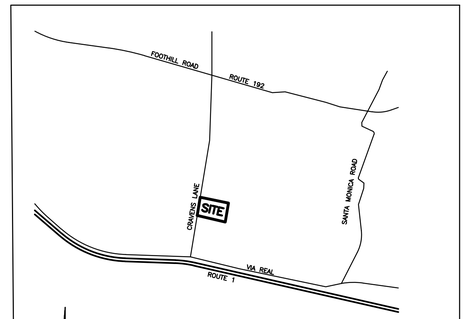
NON-STORMWATER MANAGEMENT
NS1 - WATER CONSERVATION PRACTICES
NS2 - DEWATERING OPERATIONS
NS3 - PAVING AND GRINDING OPERATIONS
NS4 - TEMPORARY STREAM CROSSING
NS5 - CLEAR WATER DIVERSION
NS6 - ILLICIT CONNECTION/DISCHARGE
NS7 - POTABLE WATER/IRRIGATION
NS8 - VEHICLE AND EQUIPMENT CLEANING
NS9 - VEHICLE AND EQUIPMENT FUELING
NS10 - VEHICLE AND EQUIPMENT MAINTENANCE
NS11 - PILE DRIVING OPERATIONS
NS12 - CONCRETE CURING
NS13 - CONCRETE FINISHING
NS14 - MATERIAL AND EQUIPMENT USE
NS15 - DEMOLITION ADJACENT TO WATER
NS16 - TEMPORARY BATCH PLANTS

WASTE MANAGEMENT & MATERIAL POLLUTION CONTROL
WM1 - MATERIAL DELIVERY AND STORAGE
WM2 - MATERIAL USE
WM3 - STOCKPILE MANAGEMENT
WM4 - SPILL PREVENTION AND CONTROL
WM5 - SOLID WASTE MANAGEMENT
WM6 - HAZARDOUS WASTE MANAGEMENT
WM7 - CONTAMINATION SOIL MANAGEMENT
WM8 - CONCRETE WASTE MANAGEMENT
WM9 - LIQUID WASTE MANAGEMENT

INDEX TO PROJECT DRAWINGS

SHT NO.	DESCRIPTION
1	TITLE SHEET
2	SITE PLAN
3	CRAVENS LANE
4	LINE "SS-1"
5	LINE "SS-2"
6	SEWER DETAILS

SE□ ER PLANS □ PROFILES
GREEN HERON SPRING
1300-1326 CRAVENS LANE
CARPINTERIA, SANTA □AR□ARA, CA



VICINITY MAP
N.T.S.

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO.46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

DESIGNED BY: DATE
JEFF VAN FLEET
DRAWN BY: DATE
JEFF VAN FLEET
CHECKED BY: DATE
SIEW HUAT NG R.C.E. 46026
PROJECT ENGINEER: DATE
SIEW HUAT NG R.C.E. 46026 7/17/17

SCALE
1"=20'
PROJECT NUMBER
1323

REVIEWED BY: DATE
CRAIG MURRAY, P.E.,
CARPINTERIA SANITARY DISTRICT ENGINEER

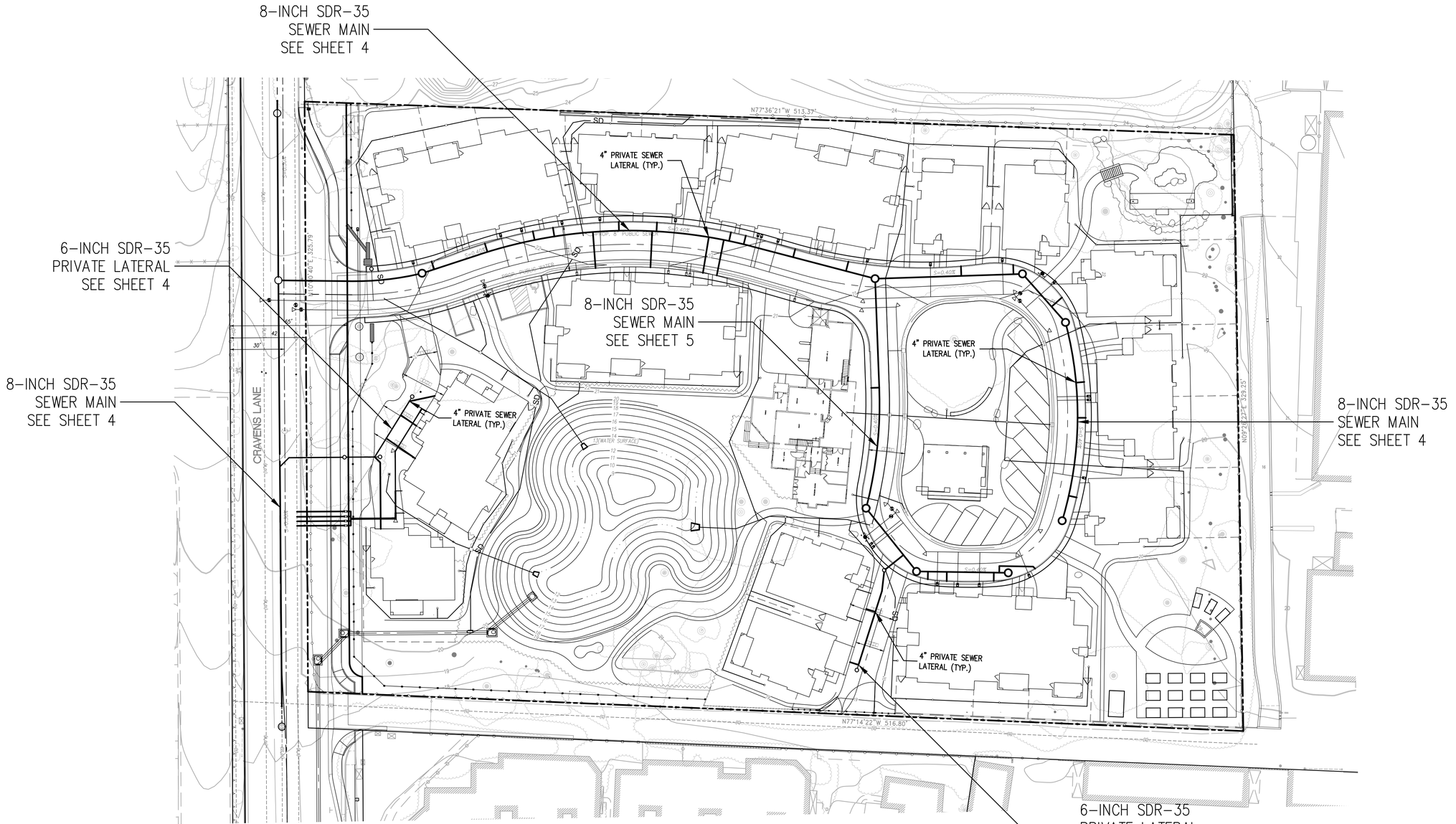
RECORD DRAWING NUMBER

Sheet 1 of 6 Sheet□

CARPINTERIA SANITARY DISTRICT

GREEN HERON SPRING SEWER PLAN & PROFILE

BENCH MARK, VICINITY MAP, STANDARD NOTES



0 15 30 60 120

GRAPHICAL SCALE: 1"=30'

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:

UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO.46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E. 46026 DATE 7/17/17

SCALE 1"=20'

PROJECT NUMBER

REVIEWED BY: DATE
CRAIG MURRAY, P.E.,
CARPINTERIA SANITARY DISTRICT ENGINEER

RECORD DRAWING NUMBER

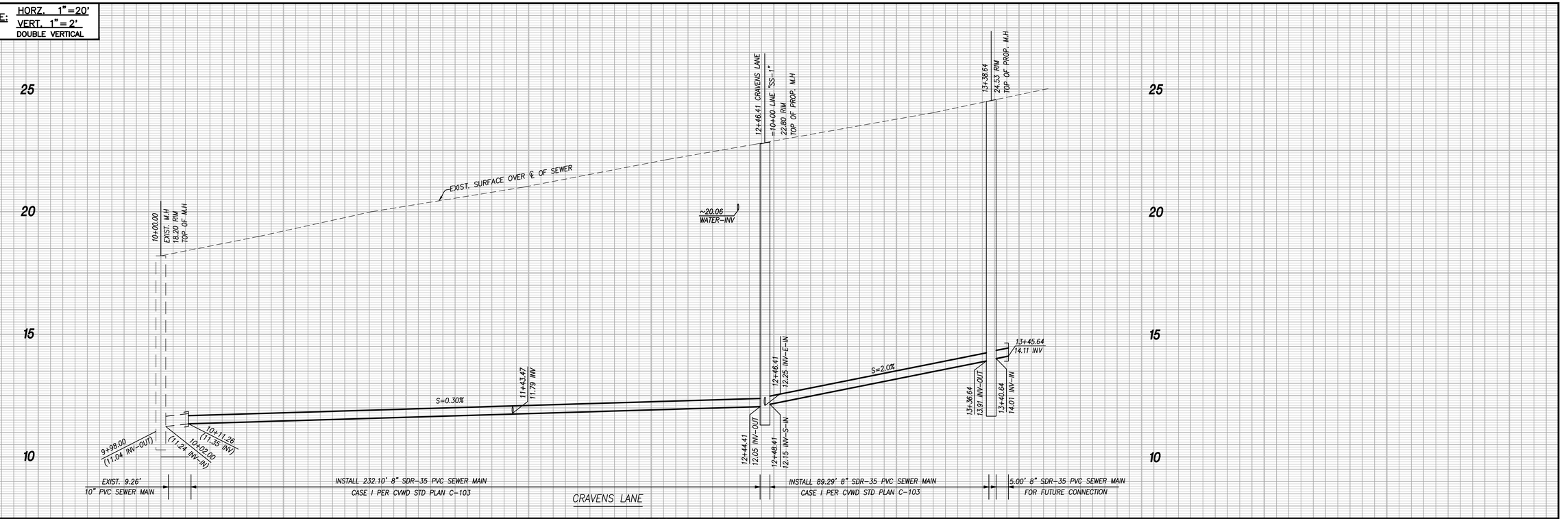
CARPINTERIA SANITARY DISTRICT

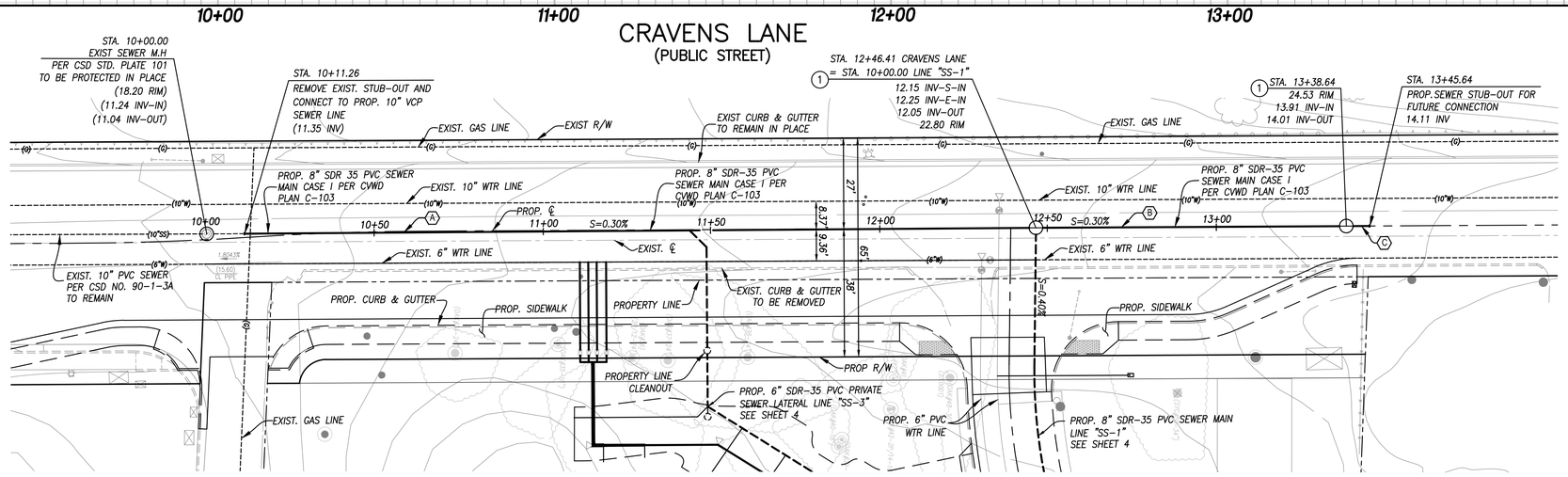
TM 25178

PROPOSED SITE PLAN

Sheet 2 of 6 Sheet

SCALE: HORZ. 1"=20'
VERT. 1"=2'
DOUBLE VERTICAL





C/L SEWER CURVE/LINE DATA				
	DELTA/BEARING	RADIUS	LENGTH	TANGENT
A	N09°52'51"E	–	233.15'	–
B	N09°59'48"E	–	88.22'	–
C	N09°59'35"E	–	5'	–

CONSTRUCTION NOTES:

1. CONSTRUCT STANDARD 48" MH PER CSD PLATE 101, SEE SHEET 5.
2. CONSTRUCT SEWER LATERAL PER CSD PLATE 106 WITH CLEAN OUT TO GRADE AT PROPERTY LINE PER CSD PLATE 110 PLUG LATERALS AND MARK END OF LATERALS FOR THE FUTURE USE, SEE SHEET 5.

NOTES:

TRENCHING AND BACKFILLING TO BE PER CSD PLATE 104, SEE SHEET 5.

0 10 20 40 80
GRAPHICAL SCALE: 1"=20'

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO.46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

CARPINTERIA SANITARY DISTRICT

GREEN HERON SPRING SEWER PLAN & PROFILE

CRAVENS LANE

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E. 46026 DATE 7/17/17

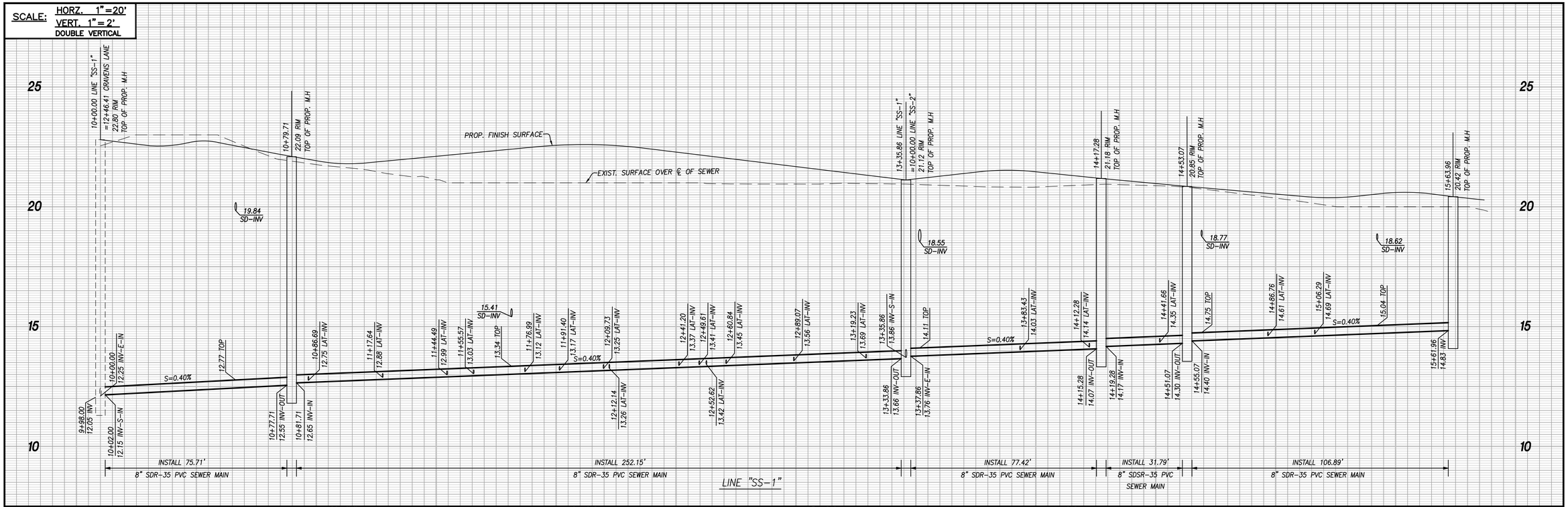
SCALE 1"=20'
PROJECT NUMBER 1323

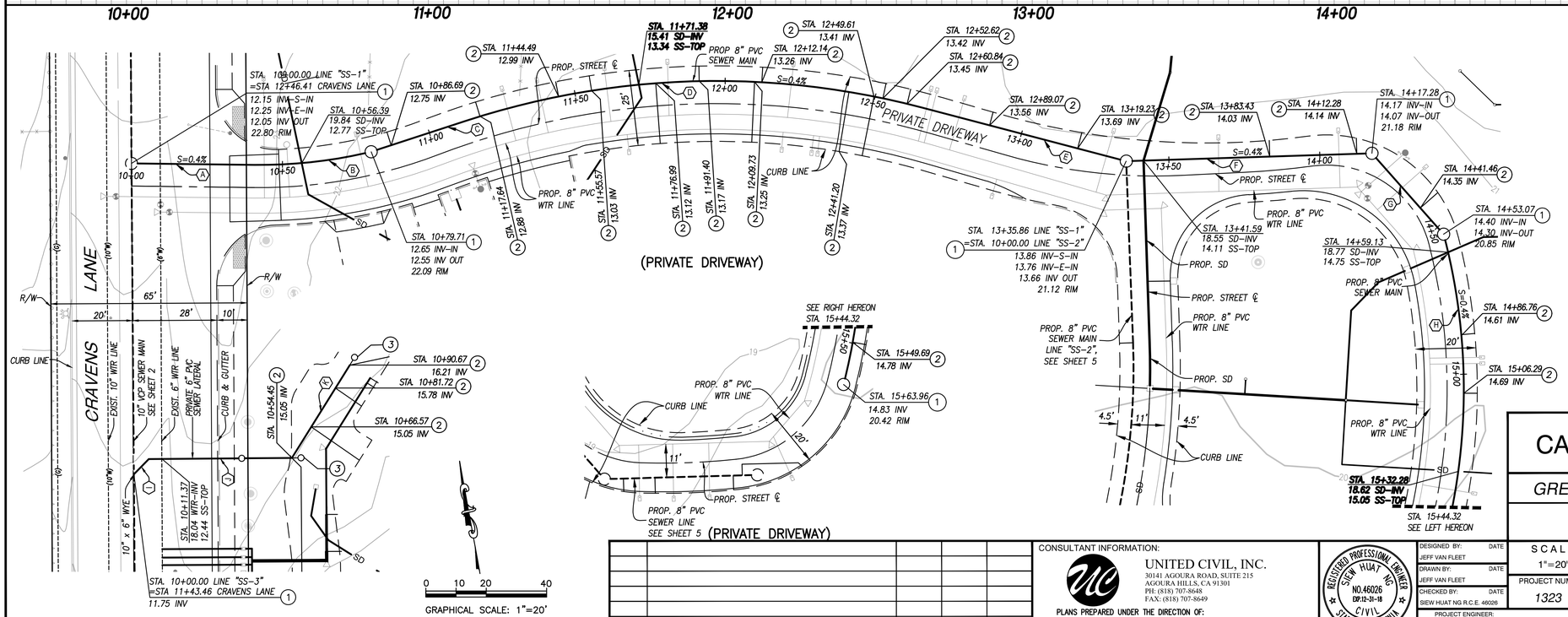
REVIEWED BY: DATE
CRAIG MURRAY, P.E.,
CARPINTERIA SANITARY DISTRICT ENGINEER

RECORD DRAWING NUMBER

Sheet 3 of 6 Sheet

SCALE: HORZ. 1"=20'
VERT. 1"=2'
DOUBLE VERTICAL





C/L SEWER CURVE/LINE DATA				
	DELTA/BEARING	RADIUS	LENGTH	TANGENT
A	N79°00'22"W	–	38.74'	–
B	13°27'01"	157.5	36.97'	18.57
C	N82°14'44"E	–	31.16'	–
D	32°46'16"	267	152.71'	78.51
E	N64°59'00"W	–	68.26'	–
F	N81°30'34"W	–	77.42'	–
G	N31°12'15"	–	31.79'	–
H	30°24'16"	201.5'	106.93'	54.75
I	N54°52'51"E	–	7.07'	–
J	N80°07'09"W	–	47.38'	–
K	N42°14'30"E	–	36.22'	–

CONSTRUCTION NOTES:

1. CONSTRUCT STANDARD 48" MH PER CSD PLATE 101, SEE SHEET 6.
2. CONSTRUCT SEWER LATERAL PER CSD PLATE 106 WITH CLEAN OUT TO GRADE AT PROPERTY LINE PER CSD PLATE 110 PLUG LATERALS AND MARK END OF LATERALS FOR THE FUTURE USE, SEE SHEET 6.
3. CONSTRUCT SEWER SEWER CLEANOUT PER CSD PLATE 110.

NOTES:

TRENCHING AND BACKFILLING TO BE PER CSD PLATE 104, SEE SHEET 6.

CARPINTERIA SANITARY DISTRICT

GREEN HERON SPRING SEWER PLAN & PROFILE

LINE "SS-1"

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO. 46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

DESIGNED BY: DATE
JEFF VAN FLEET
DRAWN BY: DATE
JEFF VAN FLEET
CHECKED BY: DATE
SIEW HUAT NG R.C.E. 46026
PROJECT ENGINEER: DATE
SIEW HUAT NG R.C.E. 46026 7/17/17

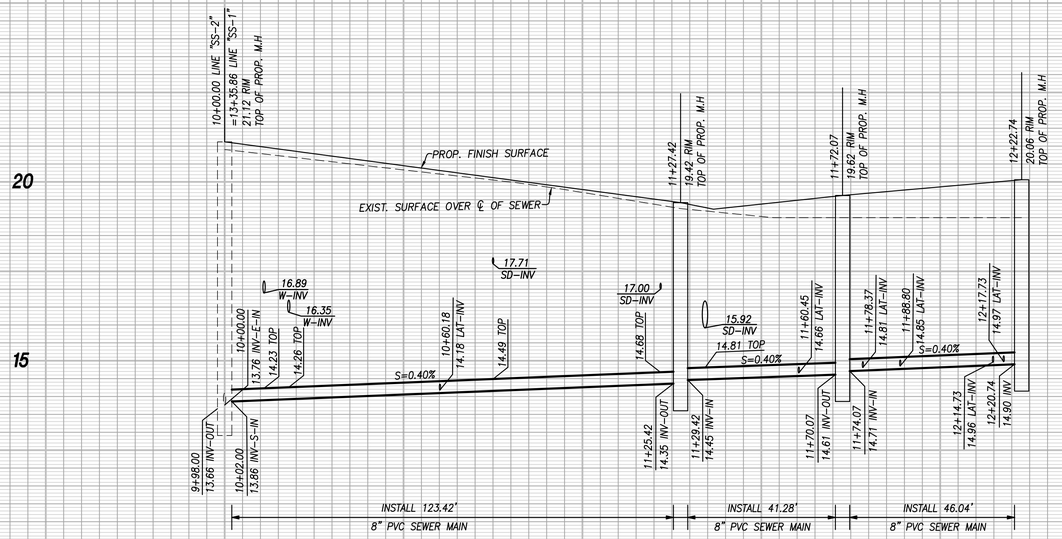
SCALE 1"=20'
PROJECT NUMBER 1323

REVIEWED BY: DATE
CRAIG MURRAY, P.E.,
CARPINTERIA SANITARY DISTRICT ENGINEER

RECORD DRAWING NUMBER

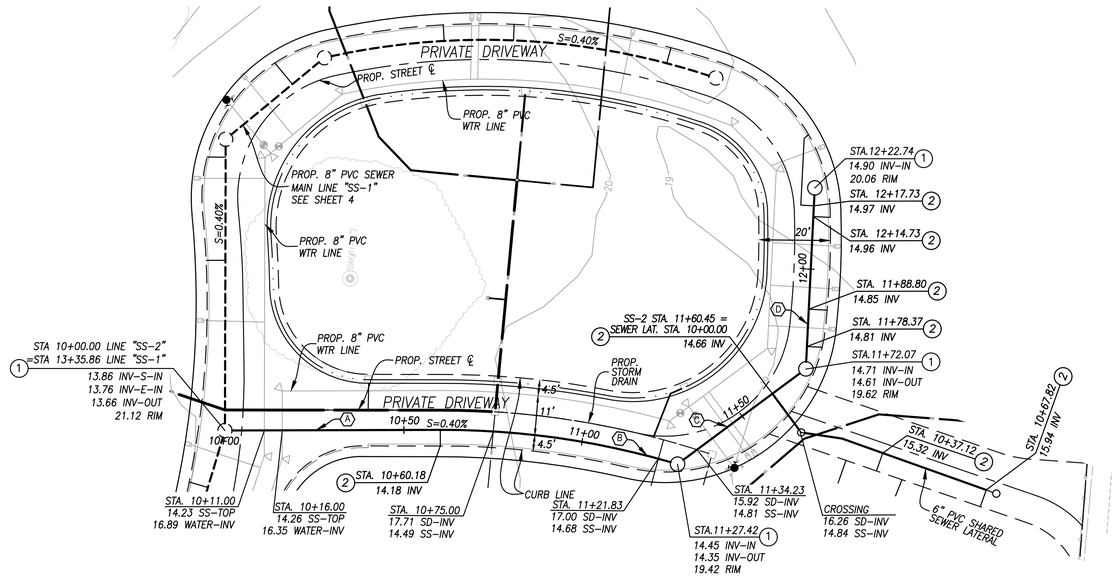
Sheet 4 of 6 Sheet

SCALE: HORZ. 1"=20'
VERT. 1"=2'
DOUBLE VERTICAL



LINE "SS-2"

10+00 11+00 12+00



0 10 20 40 80

GRAPHICAL SCALE: 1"=20'

C/L SEWER CURVE/LINE DATA

	DELTA/BEARING	RADIUS	LENGTH	TANGENT
A	N08°09'24"E	–	58.18'	–
B	16°21'29"W	228.5	65.24'	32.84
C	N28°15'03"W	–	40.65'	–
D	N78°48'19"W	–	46.67'	–

CONSTRUCTION NOTES:

1. CONSTRUCT STANDARD 48" MH PER CSD PLATE 101, SEE SHEET 6.
2. CONSTRUCT SEWER LATERAL PER CSD PLATE 106 WITH CLEAN OUT TO GRADE AT PROPERTY LINE PER CSD PLATE 110 PLUG LATERALS AND MARK END OF LATERALS FOR THE FUTURE USE, SEE SHEET 6.

NOTES:

TRENCHING AND BACKFILLING TO BE PER CSD PLATE 104, SEE SHEET 6.

CARPINTERIA SANITARY DISTRICT

GREEN HERON SPRING SEWER PLAN & PROFILE

LINE SS-2

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO.46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E. 46026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E. 46026 DATE 7/17/17

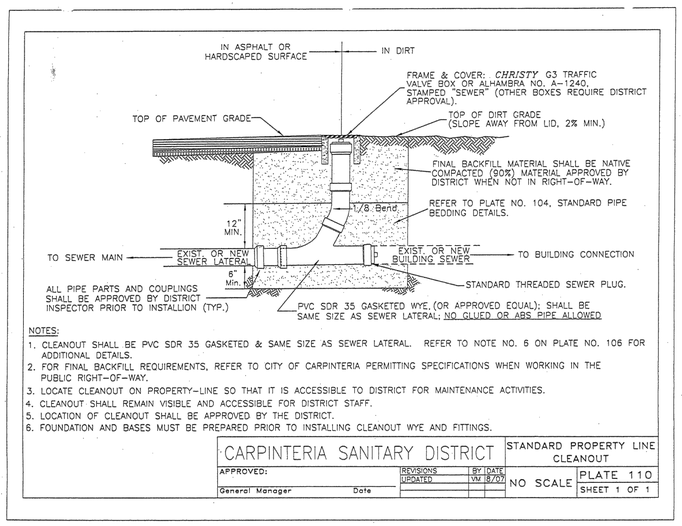
SCALE 1"=20'

PROJECT NUMBER 1323

REVIEWED BY: DATE
CRAIG MURRAY, P.E.,
CARPINTERIA SANITARY DISTRICT ENGINEER

RECORD DRAWING NUMBER

Sheet 5 of 6 Sheet

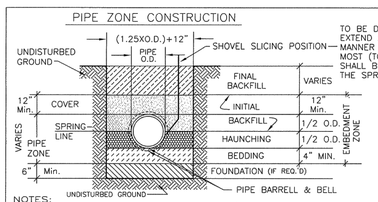


NOTES:

1. CLEANOUT SHALL BE PVC SDR 35 GASKETED & SAME SIZE AS SEWER LATERAL. REFER TO NOTE NO. 6 ON PLATE NO. 106 FOR ADDITIONAL DETAILS.
2. FOR FINAL BACKFILL REQUIREMENTS, REFER TO CITY OF CARPINTERIA PERMITTING SPECIFICATIONS WHEN WORKING IN THE PUBLIC RIGHT-OF-WAY.
3. LOCATE CLEANOUT ON PROPERTY-LINE SO THAT IT IS ACCESSIBLE TO DISTRICT FOR MAINTENANCE ACTIVITIES.
4. CLEANOUT SHALL REMAIN VISIBLE AND ACCESSIBLE FOR DISTRICT STAFF.
5. LOCATION OF CLEANOUT SHALL BE APPROVED BY THE DISTRICT.
6. FOUNDATION AND BASES MUST BE PREPARED PRIOR TO INSTALLING CLEANOUT WYE AND FITTINGS.

CARPINTERIA SANITARY DISTRICT		STANDARD PROPERTY LINE CLEANOUT
APPROVED:	REVISIONS UPDATED / BY / DATE: VM 8/07	NO SCALE
General Manager Date		PLATE 110 SHEET 1 OF 1

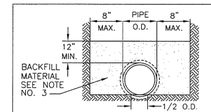
PIPE ZONE CONSTRUCTION



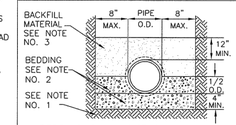
TO BE DONE IN THE HAUNCHING AREA ONLY; TOOL SHALL NOT EXTEND ABOVE SPRINGLINE; SLICING SHALL BE DONE IN A MANNER TO CONSOLIDATE THE BEDDING WHERE IT IS NEEDED MOST (TO ELIMINATE VOIDS BENEATH PIPE; SHOVEL SLICING SHALL BE DONE BEFORE THE BEDDING IS BROUGHT UP TO THE SPRINGLINE.

NOTES:

1. PREPARATION OF FOUNDATION IS REQUIRED WHEN TRENCH BOTTOM IS DISTURBED OR UNSTABLE. TRENCH BOTTOM SHALL BE OVER-EXCAVATED A MINIMUM OF 6" AND FILLED WITH 3/4" MIN./MAX. CRUSHED AGGREGATE ROCK. WHEN REQ.'D, CONTRACTOR SHALL FOLLOW RECOMMENDATION OF SOILS ENGINEER.
2. BEDDING SHALL BE 4" MIN. COMPACTED MATERIAL APPROVED BY DISTRICT OR 3/4" MIN./MAX. CRUSHED AGG. ROCK IN WET SOILS.
3. INITIAL BACKFILL SHALL BE A WHITE PIPE OR WASHED PLASTER SAND (S.E. > 20) & 90% MIN. COMPACTION. WHERE GROUNDWATER EXISTS, USE 3/4" MIN./MAX. CRUSHED AGGREGATE ROCK (NO PEA GRAVEL ALLOWED). BACKFILLING SHALL BE PLACED IN 8" LAYERS & COMPACTED.
5. CERT.'S ARE REQ.'D FOR ALL IMPORTED MATERIAL.
6. PROVIDE UNIFORM & CONTINUOUS SUPPORT OF PIPE BARRELL BE-TWEEN BELL OR COUPLING POINTS FOR ALL CLASSES OF PIPE ON BEDDINGS. NO PART OF THE LOAD SHALL BE SUPPORTED BY THE BELL OR COUPLINGS.
7. FINAL BACKFILL SHALL BE NATIVE, WELL-GRADED MATERIAL, COM-PACTED, WHEN SOIL IS SUIT-ABLE, OR PER CITY OR COUNTY SPECIFICATIONS.
8. CONTRACTOR SHALL AVOID OVER-COMPACTING TO CAUSE PIPE DEFLECTIONS OR DAMAGES TO SEWER PIPE.

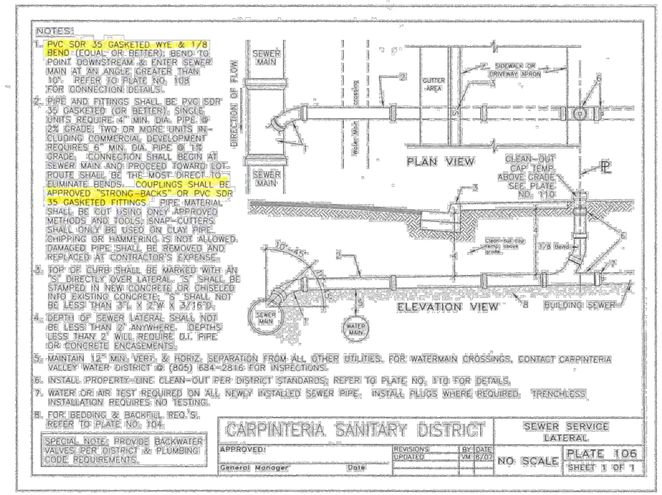


NATIVE UNDISTURBED BEDDING
(FOR BUILDING SEWERS ONLY)

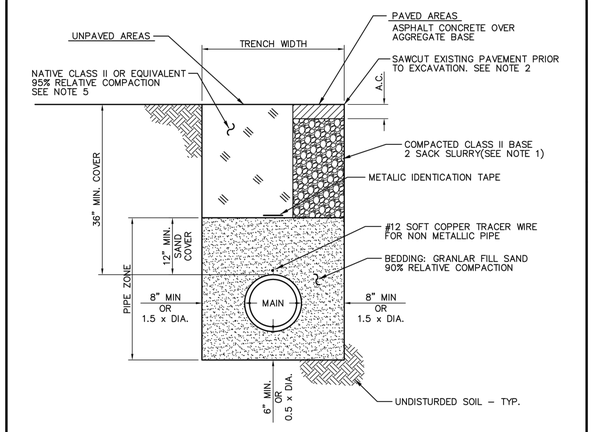


BEDDING ON UNDISTURBED FOUNDATION
(FOR BUILDING SEWERS, SEWER LATERALS & PUBLIC SEWER MAINS)

CARPINTERIA SANITARY DISTRICT		STANDARD PIPE BEDDING DETAILS
APPROVED:	REVISIONS UPDATED / BY / DATE: VM 8/07	NO SCALE
General Manager Date		PLATE 104 SHEET 1 OF 1



CARPINTERIA SANITARY DISTRICT		SEWER SERVICE LATERAL
APPROVED:	REVISIONS UPDATED / BY / DATE:	NO SCALE
General Manager Date		PLATE 106 SHEET 1 OF 1



NOTE 1:
WHEN EXCAVATING AND/OR BACKFILLING WITHIN THE CITY OF CARPINTERIA, COUNTY OF SANTA BARBARA OR STATE OF CALIFORNIA (STREET, ROAD OR HIGHWAY), SPECIFICATIONS AND REQUIRMENTS OF THE AGENCY HAVING JURISDICTION SHALL APPLY TO ALL AREAS OUTSIDE OF THE PIPE ZONE.

NOTE 2:
PRIOR TO FINAL PAVING, ALL SAWCUT EDGES SHALL BE RECUT IF DAMAGED DURING PIPE INSTALLATION AND/OR BACKFILLING.

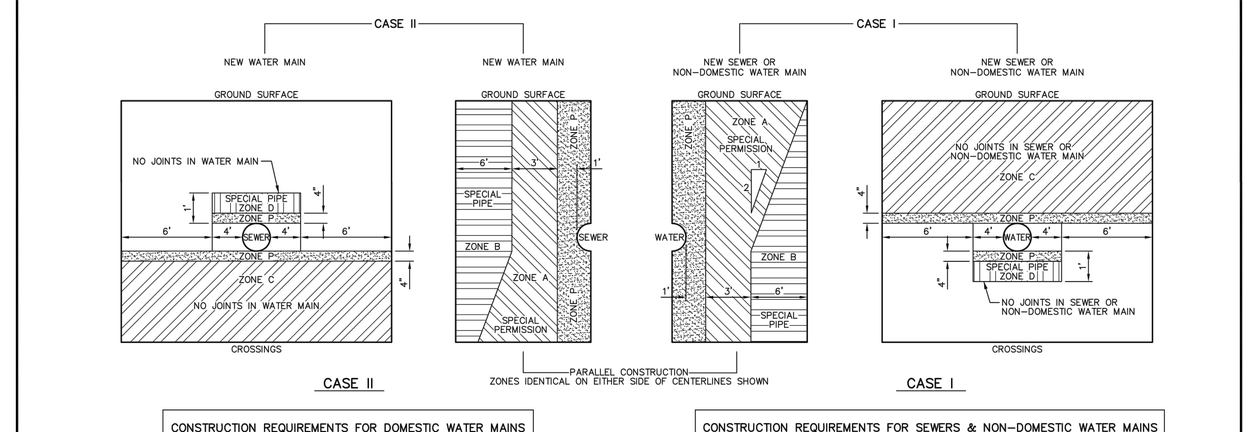
NOTE 3:
ALL EXCAVATIONS AND TRENCHS SHALL BE PROTECTED IN ACCORDANCE WITH THE CALIFORNIA DEPT. OF INDUSTRIAL RELATIONS (CALOSHA) CODE OF REGULATIIONS TITLE 8, SUB-CHAPTER 4 "CONSTRUCTION SAFTEY ORDERS".

NOTE 4:
NO JETTING, PONDING, OR FLOODING WILL BE PERMITTED FOR COMPACTION OF THE TRENCH.

NOTE 5:
NATIVE CLASS II BACKFILL MATERIAL SHALL CONTAIN NO STONES OR PAVEMENT IN EXCESS OF 6" IN GREATEST DIAMETER. BACKFILL SHALL BE COMPACTED TO 95% OF MAXIUM DENSITY AND PLACED IN LAYERS NOT EXCEEDING 1 FOOT IN VERTICAL THICKNESS FOR COMPACTION.

DWG: CVWD STANDARD C-101.DWG

REV.	DATE	BY	CARPINTERIA VALLEY WATER DISTRICT		STANDARD DETAIL NO.
			DRAWN BY: BK/TES	TRENCH EXCAVATION AND BACKFILL	C-101
			SCALE: NONE DATE:		
			APPROVED BY: DISTRICT ENGINEER		SHT 1 OF 1



CONSTRUCTION REQUIREMENTS FOR DOMESTIC WATER MAINS

ZONE

- A — SPECIAL PERMISSION REQUIRED. DO NOT LOCATE ANY PARALLEL WATER MAIN IN THIS AREA WITHOUT DISTRICT ENGINEER APPROVAL
- B — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIRMENTS OF CASE I, ZONE B THE WATER MAIN SHALL BE DIP OR C900 PVC PIPE CLASS 200 WITH PUSH-ON TYPE RUBBER RING JOINTS, OR MORTAR-LINED AND COATED STEEL PIPE (1/4" THICK MINIMUM WALL) WITH FULLY WELDED JOINTS
- C — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIREMENTS OF CASE I, ZONE C, THE WATER MAIN SHALL BE CONSTRUCTED AS DESCRIBED FOR ZONE B ABOVE, WITH THE EXCEPTION THAT THE WATER MAIN SHALL CONTAIN NO JOINTS IN ZONE C
- D — IF THE SEWER OR NON-DOMESTIC WATER MAIN DOES NOT MEET THE REQUIREMENTS OF CASE I, ZONE D, THE WATER MAIN SHALL BE CONSTRUCTED AS DESCRIBED FOR ZONE B ABOVE, WITH THE EXCEPTION THAT THE WATER MAIN SHALL CONTAIN NO JOINTS IN ZONE D
- P — PROHIBITED ZONE; NO DOMESTIC WATER MAINS; SECTION 64630 (e) (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22

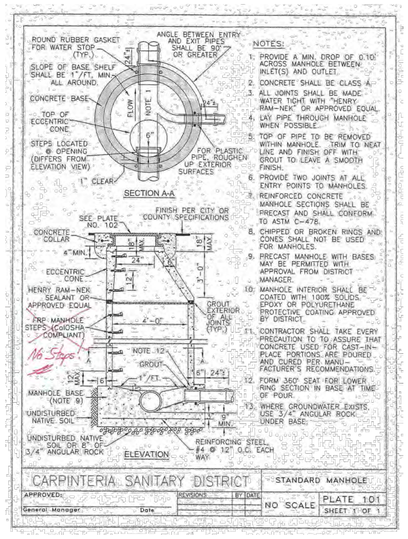
CONSTRUCTION REQUIREMENTS FOR SEWERS & NON-DOMESTIC WATER MAINS

ZONE

- A — SPECIAL PERMISSION REQUIRED. DO NOT LOCATE ANY PARALLEL SEWER OR NON-DOMESTIC WATER MAIN IN THIS AREA WITHOUT DISTRICT ENGINEER APPROVAL
- B — EXTRA STRENGTH VCP WITH COMPRESSION JOINTS, DIP POLYETHYLENE LINED OR PVC SEWER PIPE WITH PUSH-ON TYPE RUBBER RING JOINTS FOR SEWER LINES; C900 PVC PIPE CLASS 200 OR DIP PUSH-ON TYPE RUBBER RING JOINTS FOR NON-DOMESTIC WATER MAINS
- C — DIP POLYETHYLENE LINED WITH MECHANICAL JOINTS, A CONTINUOUS SECTION OF C900 PVC PIPE CLASS 200 CENTERED OVER THE PIPE BEING CROSSED, OR ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED FOR SEWER LINES; FOR NON-DOMESTIC WATER MAINS USE ANY OF ABOVE WITH THE EXCEPTION THAT POLYETHYLENE LINING OF DIP IS NOT REQUIRED
- D — A CONTINUOUS SECTION OF DIP POLYETHYLENE LINED WITH PUSH-ON TYPE RUBBER RING JOINTS, A CONTINUOUS SECTION OF C900 PVC PIPE CLASS 200 CENTERED ON THE PIPE BEING CROSSED, ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED. FOR NON-DOMESTIC WATER MAINS USE ANY OF THE ABOVE WITH THE EXCEPTION THAT POLYTHYLENE LINING OF DIP IS NOT REQUIRED
- P — PROHIBITED ZONE; NO SEWERS OR NON-DOMESTIC WATER MAINS; SECTION 64630 (e) (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22

DWG: CVWD STANDARD C-103.DWG

REV.	DATE	BY	CARPINTERIA VALLEY WATER DISTRICT		STANDARD DETAIL NO.
			DRAWN BY: BK/TES	WATER & SEWER MAIN SEPARATION REQUIREMENTS	C-103
			SCALE: NONE DATE:		
			APPROVED BY: DISTRICT ENGINEER		SHT 1 OF 1



CARPINTERIA SANITARY DISTRICT		STANDARD MANHOLE
APPROVED:	REVISIONS UPDATED / BY / DATE:	NO SCALE
General Manager Date		PLATE 101 SHEET 1 OF 1

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:

UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER — SIEW HUAT NG — NO.46026 — EXP.12-31-18 — CIVIL — STATE OF CALIFORNIA

CARPINTERIA SANITARY DISTRICT

GREEN HERON SPRING SEWER PLAN & PROFILE

SEWER DETAILS

DESIGNED BY: JEFF VAN FLEET	DATE	SCALE 1"=20'	REVIEWED BY: DATE
DRAWN BY: JEFF VAN FLEET	DATE	PROJECT NUMBER 1323	CRAIG MURRAY, P.E., CARPINTERIA SANITARY DISTRICT ENGINEER
CHECKED BY: SIEW HUAT NG R.C.E. 46026	DATE	PROJECT ENGINEER: SIEW HUAT NG R.C.E. 46026	DATE 7/17/17

RECORD DRAWING NUMBER

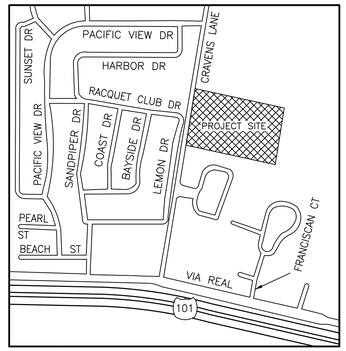
Sheet 6 of 6 Sheet

CIT□ OF CARPINTERIA

OFF–SITE STORM DRAIN IMPROVEMENT PLAN

GREEN HERON SPRING RESIDENTIAL DEVELOPMENT

1300 AND 1326 CRAVENS LANE, CARPINTERIA, CA 93013



VICINITY MA□
N□T□S□

DEVELOPER:

CRAVENS LANE, LLC.
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CALIFORNIA 91302
PHONE: (818) 223–3500
CONTACT: SCOTT DINOVITZ

ARCHITECT:

WILLIAM HEZMALHALCH ARCHITECTS, INC.
2850 RED HILL AVENUE, #200
SANTA ANA, CA 92705
PHONE: (949) 250–0607

GEOTECHNICAL:

EARTH SYSTEMS–SOUTHERN CALIFORNIA
1731–A WALTER STREET
VENTURA, CA 93003
PHONE: (805) 642–6727
FAX: (805) 642–1325
CONTACT: RICHARD M. BEARD

INDE□ TO □RO□ECT DRAWIN□S

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STORM DRAIN PLAN AND PROFILE
3	STORM DRAIN PLAN AND PROFILE
4	DETAIL SHEET

ABBREVIATIONS

BC	BEGINNING OF CURVE
BCR	BEGINNING CURB RETURN
BLDG	BUILDING
CB	CATCH BASIN
℄	CENTERLINE
EC	END OF CURVE
ECR	END CURB RETURN
ELEV	ELEVATION
EM	ELECTRIC METER
EX	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
FS	FINISHED SURFACE
INV	INVERT ELEVATION
MH	MANHOLE
NTS	NOT TO SCALE
ℙ	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
R/W	RIGHT OF WAY
S	SLOPE
SS	SANITARY SEWER
STA	STATION
TC	TOP OF CURB
WA	WATER

CALIFORNIA COUNCIL of CIVIL ENGINEER & LAND SURVEYOR

Construction contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless form any and all liability, real or alleged, in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

UNAUTHORIZED CHANGES & USES

CAUTION: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

PRIVATE ENGINEER'S NOTICE TO CONTRACTORS

The existence and location of any underground utility pipes or structures shown on this plan are obtained by a search or available records. To the best of our knowledge there are no existing utilities except as shown on these plans. The contractor is required to take due precautionary measures to protect the utilities shown and any other lines or structures not shown on these plans.

All contractors and subcontractors performing work shown on or related to these plans shall conduct their operations so that all employees are provided a safe place to work and the public is protected. All contractors and subcontractors shall comply with the "Occupational Safety and Health Regulation" of the U.S. Department of Labor, and with the State of California Department of Industrial Relations' "Construction Safety Orders."

Contractor further agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify and hold the owner and the engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole negligence of the owner or the engineer.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE STAKES BEFORE COMMENCING THE OPERATIONS. SHOULD OCCASION ARISE WHERE THE VALIDITY OF A STAKE IS QUESTIONABLE, EITHER AS TO ITS LOCATION OR THE OFFSET MARKED THEREON, OR AS TO THE ELEVATION OF CUT OR FILL MARKED THEREON, CONTRACTOR SHALL NOTIFY THE ENGINEER WHO WILL CHECK THE STAKE OR STAKES IN QUESTION. ANY STAKES FOUND TO BE IN ERROR WILL BE RESET WITHOUT CHARGE. IT IS UNDERSTOOD THAT THE ENGINEER WILL NOT BE CHARGED FOR ANY STANDBY OR "DOWN" TIME AS A RESULT OF SUCH CHECKING AND/OR RESETTING PROCEDURE. THE ENGINEER IS NOT LIABLE FOR ALLEGED ERRORS WHEN STAKES HAVE BEEN DESTROYED AND FIELD NOTES AND RECORDS INDICATE STAKES WERE SET CORRECTLY.

BASIS OF BEARING:

THE BEARING OF N 10°00'40" E OF THE CENTERLINE OF CRAVENS ROAD PER AMENDING MAP OF TRACT NO. 25147 RECORDED IN BOOK 157 PAGES 44 TO 47, INCLUSIVE OF MAPS, RECORDS OF SANTA BARBARA COUNTY WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCH MARK:

NGS BM NO. V 1441 (1989) PID EW9491

ELEVATION = 13.45 NAVD 1988

DESCRIPTION – STEEL ROD IN NGS WELL

LOCATION – IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF A WITNESS POST.

LEGAL DESCRIPTION:

BEGINNING AT A POINT IN THE CENTER LINE OF CRAVENS LANE, AS SAID CENTER LINE IS DESCRIBED IN THE DEED TO THE COUNTY OF SANTA BARBARA, RECORDED IN BOOK 54, PAGE 305 OF OFFICIAL RECORDS, AT THE POINT OF INTERSECTION OF SAID CENTER LINE WITH THE SOUTHERLY LINE OF HTE TRACT OF LAND DESCRIBED IN THE DEED TO ALBERT J. JARVIS, AND WIFE, RECORDED IN BOOK 212, PAGE 30, OF OFFICIAL RECORDS;

THENCE SOUTH 10° WEST ALONG SAID CENTER LINE, 325.32 FEET TO THE NORTHWEST CORNER OF THE SECOND PARCEL OF LAND DESCRIBED IN THE DEED TO FRANCIS C. GREER RECORDED IN BOOK 334, PAGE 188 OF OFFICIAL RECORDS;

THENCE LEAVING SAID CENTER LINE SOUTH 77°30' EAST ALONG THE NORTH LINE OF SAID LAND, 528.65 FEET TO THE WEST LINE OF THE FIRST PARCEL OF ALND DESCRIBED IN SAID DEED TO FRANCIS C. GREER;

THENCE NORTH 09°27' EAST ALONG THE WESTERLY LINE OF THE LAND SO DESCRIBED IN SAID DEED, 329.20 FEET TO THE SOUTHEAST CORNER OF THE TRACT OF LAND DESCRIBED IN THE DEED TO ALBERT J. JARVIS, HEREINABOVE MENTIONED;

THENCE NORTH 77°54' WEST ALONG THE SOUTHERLY LINE OF THE LAND SO DESCRIBED IN SAID DEED, 525.27 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY INTEREST CONVEYED TO THE COUNTY OF SANTA BARBARA, BY DED DATED OCTOBER 31, 1923, AND RECORDING APRIL 7, 1925, AS INSTRUMENT NO. 3214, IN BOOK 54, PAGE 305 OF OFFICIAL RECORDS.

CONSTRUCTION NOTES

1. BREAK HOLE AT EXISTING CATCH BASIN WALL FOR NEW STORM DRAIN CONNECTION.
2. CONSTRUCT 14" RISE BY 23" SPAN ELLIPTICAL RCP PER DETAIL "A" SHOWN ON SHEET 4. BEDDING PER COUNTY OF SANTA BARBARA STANDARD DETAIL #2–020.
3. TRENCH EXISTING PAVED ROAD FOR RCP INSTALLATION PER COUNTY OF SANTA BARBARA STANDARD DETAIL #2–030. ALSO, SEE TRENCH NOTES PER COUNTY OF SANTA BARBARA STANDARD DETAIL #2–010.
4. CONSTRUCT MANHOLE STRUCTURE PER SPPWC STANDARD PLAN 321–2; L=PER PLAN, T=8", M=PER SECTION C–C.
5. CONSTRUCT MONOLITHIC CATCH BASIN CONNECTION FOR CONNECTING THE PROPOSED ELLIPTICAL RCP TO EXISTING CATCH BASIN PER SPPWC STANDARD PLAN 308–2 (SIDE CONNECTION); A=45°, B=14" RISE, 23" SPAN, AND t=5 ½".
6. CONSTRUCT 36"ø TYPE "B" CMP RISER STRUCTURE WITH 24" HIGH DEBRIS RACK CAGE ON TOP PER CALTRANS STANDARD PLAN D93C. SEE DETAIL "B" SHOWN ON SHEET 4.
7. CONSTRUCT JUNCTION STRUCTURE PER SPPWC STANDARD PLAN 332–2; ∠A=45°.
8. RELOCATE EXISTING 6" PVC CL–200 WATER LINE TO RE–ROUTE IT BELOW THE PROPOSED STORM DRAIN LINE WITH 12" CLEARANCE. THE WATER LINE SHALL HAVE NO JOINTS WITHIN TEN FEET FROM EITHER SIDE OF THE CROSSING AREA.
9. PROTECT–IN–PLACE EXISTING 8" SEWER.

DIGALERT 811

NO□	REVISION	BY	CH□D□	DATE

CONSULTANT INFORMATION:

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30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

DESI□NED BY: DATE
DRAWN BY: DATE
CHEC□ED BY: DATE

SCALE

□RO□ECT NUMBER

REVIEWED BY: DATE
CHARLES W□EBELIN□□□E□
□UBLIC WOR□S DIRECTOR/CITY EN□INEER
RCE NO.□□□□□□

RECORD DRAWIN□ NUMBER

□RO□ECT EN□INEER: DATE

Sheet □ of □ Sheet□

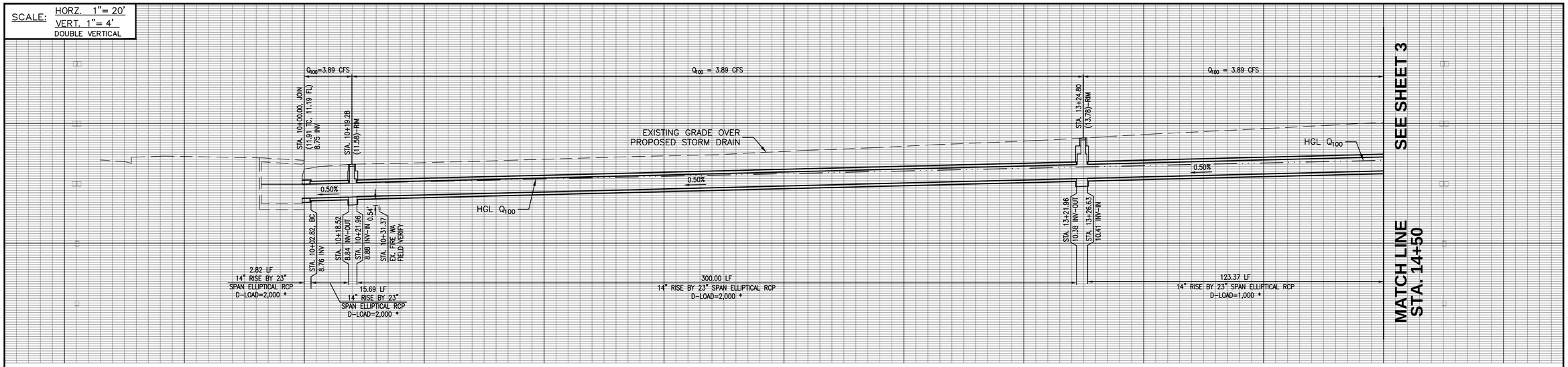
CITY OF CAR□INTERIA

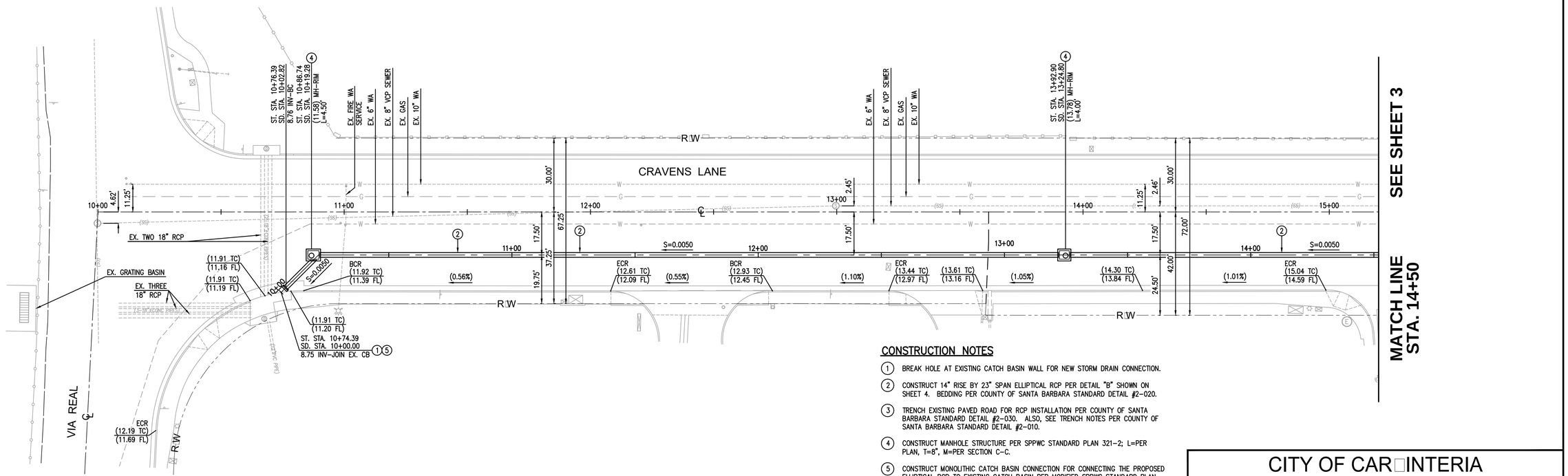
DE□ARTMENT OF □UBLIC WOR□S

TITLE SHEET

GREEN HERON SPRING

SCALE: HORZ. 1"= 20'
VERT. 1"= 4'
DOUBLE VERTICAL





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5. CONSTRUCT MONOLITHIC CATCH BASIN CONNECTION FOR CONNECTING THE PROPOSED ELLIPTICAL RCP TO EXISTING CATCH BASIN PER MODIFIED SPPWC STANDARD PLAN 308-2 (SIDE CONNECTION); A=45°, B=14" RISE, 23" SPAN, AND t=5 ½". SEE SHEET 4 FOR DETAIL.

NOTE:

* D-LOAD VALUE IS PREDICATED ON THE DESIGN SOIL DENSITY EQUATE TO 120 PCF.

DIGALERT 811

SCALE: □□□ □□□

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□RA□HIC SCALE

NO□	REVISION	BY	CH□D□	DATE

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AGOURA HILLS, CA 91301
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SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER
SIEW HUAT NG
NO.46026
EXP.12-31-18
CIVIL
STATE OF CALIFORNIA

DESI□NED BY: DATE
DRAWN BY: DATE
CHEC□ED BY: DATE
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SCALE
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CHARLES W□EBELIN□ □□E□
□UBLIC WOR□S DIRECTOR/CITY EN□INEER
RCE NO□□□□□□ E□□□□□□□□□

RECORD DRAWIN□ NUMBER

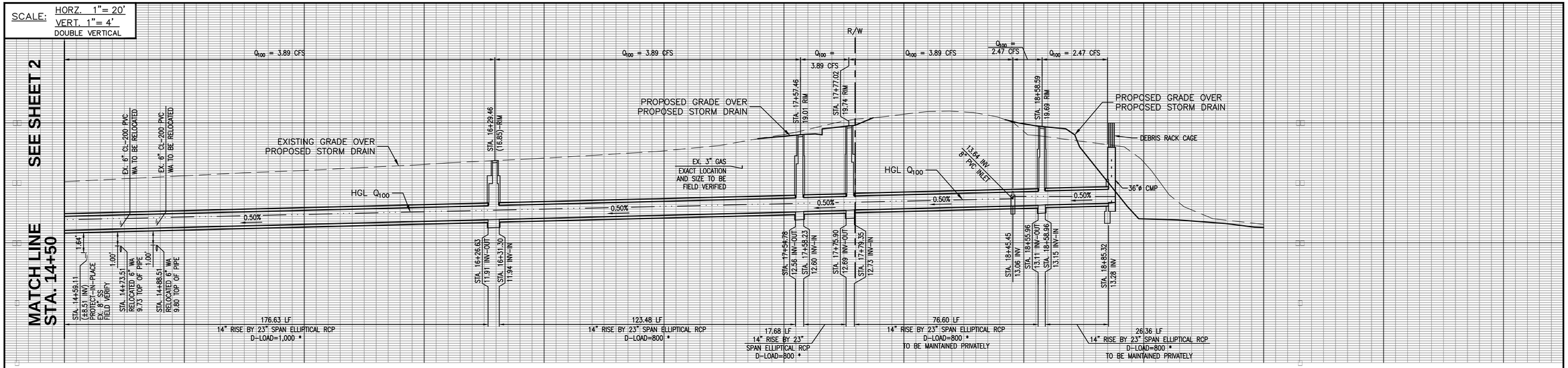
Sheet ____ of ____ Sheet□

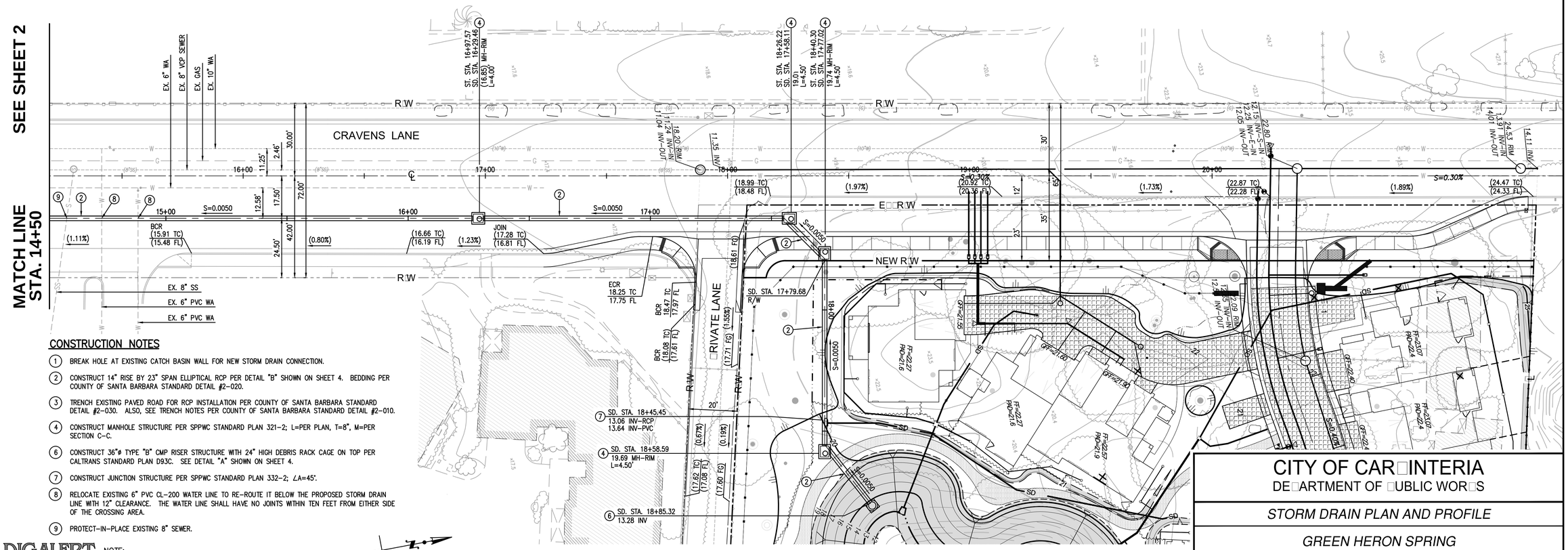
CITY OF CAR□INTERIA
DE□ARTMENT OF □UBLIC WOR□S

STORM DRAIN PLAN AND PROFILE

GREEN HERON SPRING

SCALE: HORZ. 1"= 20'
VERT. 1"= 4'
DOUBLE VERTICAL





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DIGALERT 811

NOTE:

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SCALE: □□□ □□□

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□RA□HIC SCALE

NO□	REVISION	BY	CH□D□	DATE

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SCALE
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CHARLES W□EBELIN□ □□E□
□UBLIC WOR□S DIRECTOR/CITY EN□INEER
RCE NO□□□□□□ E□□□□□□□□□□

RECORD DRAWIN□ NUMBER

Sheet □ of □ Sheet□

CITY OF CAR□INTERIA
DE□ARTMENT OF □UBLIC WOR□S

STORM DRAIN PLAN AND PROFILE

GREEN HERON SPRING

(REFER TO 1-010 FOR ADDITIONAL NOTES)

1. CAL-OSHA AND OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH REQUIREMENTS SHALL BE MET FOR ALL TRENCH OPERATIONS.

2. TRENCHES SHALL BE EXCAVATED DEEP ENOUGH TO ASSURE AT LEAST 2.5' OF COVER FOR THE UNDERGROUND FACILITY. OVER-EXCAVATION MAY BE REQUIRED TO ACHIEVE A STABLE, EVEN FLOOR IN THE TRENCH, AND EXTRA BEDDING MATERIAL PLACED TO PROVIDE A SUITABLE FOUNDATION FOR THE FACILITY.

3. ALL TRENCH BEDDING MATERIAL SHALL COMPLY WITH CALTRANS STANDARD SPECIFICATIONS, SECTION 19-3.

4. NO PONDING, JETTING, OR FLOODING IS PERMITTED UNDER EXISTING ROADS. IN OTHER AREAS, SUCH METHODS MUST BE APPROVED BY THE COUNTY ENGINEER.

5. ALL UTILITIES SHALL BE INSPECTED, TESTED, AND VERIFIED TO THE COUNTY ENGINEER PRIOR TO PLACEMENT OF TRENCH BACKFILL. STREET IMPROVEMENT PLANS SHALL BE SIGNED BY THE UTILITY COMPANIES AND THE COUNTY FIRE DEPARTMENT.

6. WHERE A TRENCH CROSSES UNDER AN EXISTING UTILITY, THE CONTRACTOR MUST PROVIDE ADEQUATE SUPPORT AND AVOID ANY DISTURBANCE OF THE UTILITY. BACKFILLING MUST INCLUDE PREPARING A NEW BED FOR THE EXISTING UTILITY AND PERFORMING COMPACTION TESTS.

7. MAXIMUM DENSITY AND OPTIMUM MOISTURE TESTS MUST BE MADE FOR ALL BACKFILL AND BEDDING MATERIALS EXCEPT CEMENT SLURRY OR 3/4" WASHED CRUSHED ROCK.

8. FOR TRENCHES LESS THAN 6.0' DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, ONE COMPACTION TEST SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.

9. FOR TRENCHES 6.0' OR MORE DEEP AS MEASURED FROM FINISHED GRADE TO FLOOR, TWO COMPACTION TESTS SHALL BE MADE FOR EACH 50' OF TRENCH. TESTS SHALL BE MADE AT VARIOUS DEPTHS OF BACKFILL.

10. EVERY LATERAL UTILITY TRENCH SHALL BE TESTED FOR COMPACTION AT THE SAME SCHEDULE AS THE MAIN TRENCH.

11. PAVING MATERIAL SHALL BE ASPHALTIC CONCRETE PER 1-010, NOTE 16. IT SHALL BE 6" THICK AFTER COMPACTION.

12. ASPHALT PAVING SHALL BE RESTORED WITH A "FOG" SEAL IN CONFORMANCE WITH COUNTY SPECIFICATIONS FOR ITS "FOG" SEAL PROGRAM OF CURRENT DATE. FOG SEALING SHALL EITHER BE A) BONDED FOR AND COMPLETED AFTER SIX MONTHS AND PRIOR TO ONE YEAR FROM THE START OF THE WARRANTY PERIOD, OR B) A PAYMENT SHALL BE MADE TO THE COUNTY BASED ON THE COUNTY'S COST TO PERFORM THE FOG SEAL PLUS 15% FOR ADMINISTRATION AND INSPECTION. PAYMENT SHALL BE MADE PRIOR TO THE ENCROACHMENT PERMIT ISSUANCE.

13. WHERE ASPHALT IS SHOWING SIGNS OF DAMAGE OR WEAR, THE COUNTY ENGINEER MAY REQUIRE A TYPE II SLURRY SEAL INSTEAD OF "FOG" SEAL.

COUNTY OF SANTA BARBARA, CA - DEPARTMENT OF PUBLIC WORKS - TRANSPORTATION		APPROVED BY:
2-010	GENERAL TRENCH NOTES	REVISION BOX / DIRECTOR OF PUBLIC WORKS — DATE 1/1/2011

NOTES: (REFER TO 2-010 FOR ADDITIONAL NOTES)

1. TRENCH WIDTH SHALL BE SUFFICIENT TO FULLY ENCLOSE THE PIPE AND ALLOW COMPACTION TESTING AT THE SPRING LINE.

2. BEDDING MATERIAL FOR UTILITY TRENCHES SHALL MEET THE STANDARDS OF THE UTILITY COMPANY INVOLVED.

3. BEDDING MATERIAL FOR HDPE, RCP AND CMP SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATIONS AND SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. FILL MUST BE PLACED IN LIFTS NO LARGER THAN 8" TO FACILITATE COMPACTION. FOR CMP PIPE, THE BEDDING MATERIAL SHALL BE TESTED FOR A NEUTRAL pH.

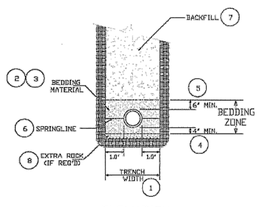
4. THE THICKNESS OF THE LAYER OF BEDDING UNDER THE PIPE SHALL BE AT LEAST 4" OR 10% OF THE PIPE DIAMETER, WHICHEVER IS LARGER.

5. BEDDING MATERIAL SHALL COMPLETELY COVER THE PIPE TO A MINIMUM HEIGHT OF 6" AFTER COMPACTION.

6. CARE MUST BE TAKEN TO PLACE THE BEDDING EVENLY UNDER THE LENGTH OF THE PIPE TO ASSURE ADEQUATE SUPPORT. COMPACTION TESTING IS REQUIRED AT THE SPRINGLINE OF THE PIPE WHEN SAND IS USED AS BEDDING MATERIAL.

7. BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF SBCD STD 2-030 AND 2-040

8. SEE NOTE 2 ON 2-010



ELEVATION

COUNTY OF SANTA BARBARA, CA - DEPARTMENT OF PUBLIC WORKS - TRANSPORTATION		APPROVED BY:
2-020	PIPE BEDDING DETAILS	REVISION DATES / DIRECTOR OF PUBLIC WORKS — DATE 1/1/2011

NOTES: (REFER TO 2-010 FOR ADDITIONAL NOTES)

1. ALL TRENCH WORK ON EXISTING PAVED ROADS SHALL COMPLY WITH THIS STANDARD.

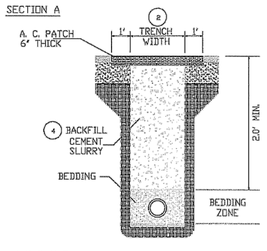
2. PAVEMENT SHALL BE SAW CUT 2' WIDER THAN THE WIDTH OF THE TRENCH PRIOR TO EXCAVATION. RECUT MAY BE NEEDED WHERE TRENCH EDGE IS NOT SOLID AS DETERMINED BY THE COUNTY ENGINEER.

3. BEDDING DETAILS SHALL COMPLY WITH SBCD STD 2-020.

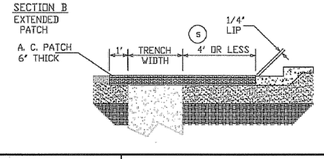
4. BACKFILL MATERIAL UNDER EXISTING ROADS SHALL BE SLURRY CEMENT MEETING CALTRANS STANDARD SPECIFICATIONS, SECTION 19, FOR MATERIALS AND SHALL BE MIXED WITH 1 SACK OF CEMENT PER CUBIC YARD.

5. IF THE EDGE OF THE TRENCH IS WITHIN 4' OF THE EXISTING EDGE OF PAVEMENT (EP), THE SAWCUT SHALL BE MADE AT THE EP OR GUTTER AS SHOWN IN SECTION B.

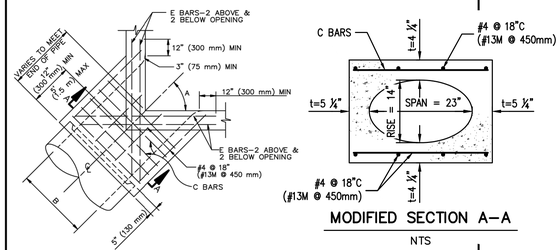
SECTION A



SECTION B



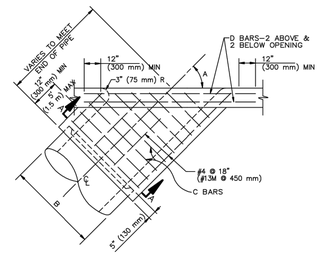
COUNTY OF SANTA BARBARA, CA - DETARTMENT OF PUBLIC WORKS - TRANSPORTATION		APPROVED BY:
2-030	TRENCHES FOR EXISTING PAVED ROADS	REVISION BOX / DIRECTOR OF PUBLIC WORKS — DATE 1/1/2011



PLAN
CORNER CONNECTION

MODIFIED SECTION A-A

NTS



PLAN
SIDE CONNECTION

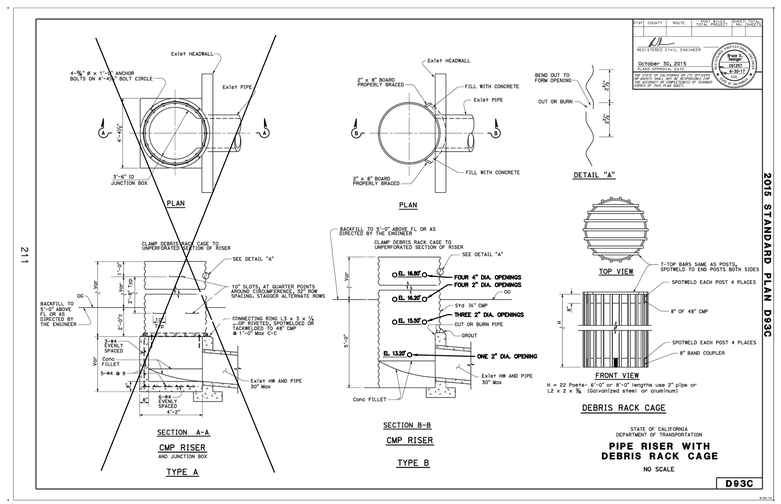
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC., GREENBOOK COMMITTEE 1988, REV. 1998, 2009	MONOLITHIC CATCH BASIN CONNECTION	STANDARD PLAN 308-2
	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	SHEET 1 OF 2

STRUCTURAL DATA							
B	t	C BARS	D&E BARS	B	t	C BARS	D&E BARS
12" (300 mm)	4" (115 mm)	#4 @ 6" (#13M @ 150 mm)	#5 (#16M)	42" (1050 mm)	7 1/2" (190 mm)	#5 @ 6" (#16M @ 150 mm)	#6 (#19M)
15" (375 mm)	4-1/4" (115 mm)			45" (1125 mm)	7 3/4" (190 mm)		
18" (450 mm)	4-1/2" (115 mm)			48" (1200 mm)	8" (215 mm)		
21" (525 mm)	5" (140 mm)			51" (1275 mm)	8 1/2" (215 mm)		
24" (600 mm)	5 1/4" (140 mm)			54" (1350 mm)	9" (240 mm)		
27" (675 mm)	5 1/2" (140 mm)			57" (1425 mm)	9 1/4" (240 mm)		
30" (750 mm)	6" (165 mm)			60" (1500 mm)	9 1/2" (240 mm)		
33" (825 mm)	6 1/4" (165 mm)			63" (1575 mm)	10" (260 mm)		
36" (900 mm)	6 1/2" (165 mm)			66" (1650 mm)	10 1/4" (260 mm)		
39" (975 mm)	7" (190 mm)			69" (1725 mm)	10 3/4" (280 mm)		
				72" (1800 mm)	11" (280 mm)		
FOR B GREATER THAN 72" (1800 mm) SEE PLANS							

NOTES

1. REINFORCING STEEL SHALL BE 1-1/2" (40 mm) CLEAR FROM FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
2. REINFORCING STEEL FOR INSIDE FACE OF CATCH BASIN SHALL BE CUT AT CENTER OF OPENING AND BENT INTO WALLS OF MONOLITHIC CATCH BASIN CONNECTION. REINFORCING STEEL FOR OUTSIDE FACE OF CATCH BASIN SHALL BE CUT 2" (50 mm) CLEAR OF OPENING.
3. CONNECTION SHALL BE PLACED MONOLITHIC WITH CATCH BASIN. THE ROUNDED EDGE OF OUTLET SHALL BE CONSTRUCTED BY PLACING CONCRETE WITH THE SAME CLASS OF CONCRETE AS THE CATCH BASIN AGAINST A CURVED FORM WITH A RADIUS OF 3" (75 mm).
4. CONNECTIONS SHALL BE CONSTRUCTED WHEN:
   (A) PIPES INLET OR OUTLET THROUGH CORNER OF CATCH BASIN
   (B) ANGLE A FOR PIPES THROUGH 30" (750 mm) IN DIAMETER IS LESS THAN 70° OR GREATER THAN 110°.

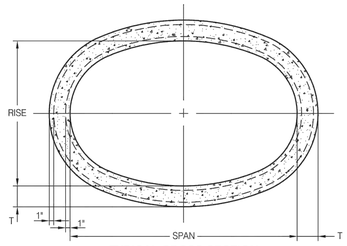
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN
MONOLITHIC CATCH BASIN CONNECTION	308-2
	SHEET 2 OF 2



B MODIFIED 36"ø CMP STANDPIPE STRUCTURE

NOT TO SCALE

CONCRETE ELLIPTICAL PIPE DESIGN



TYPICAL CROSS SECTION

EQUIVALENT SIZE	RISE	SPAN	WATER AREA	WALL T	WT./FT.
INCHES	INCHES	INCHES	SQ. FT.	INCHES	LBS.
18	14	23	1.8	2 3/4	200
24	19	30	3.3	3 1/4	310
30	24	38	5.1	3 3/4	450
36	29	45	7.4	4 1/2	645
42	34	53	10.2	5	835
48	38	60	12.9	5 1/2	1050
54	43	68	16.6	6	1285
60	48	76	20.5	6 1/2	1550
66	53	83	24.8	7	1830
72	58	91	29.5	7 1/2	2130
78	63	98	34.6	8	2475
84	68	106	40.1	8 1/2	2830
90	72	113	46.1	9	3210
96	77	121	52.4	9 1/2	3615
102	82	128	59.2	9 3/4	3930
108	87	136	66.4	10	4265
114	92	143	74.0	10 1/2	4725
132	106	166	99.2	12	5965
144	116	180	118	13	7050

Elliptical pipe is manufactured to standard or special strengths in accordance with ASTM Specifications C507.
Flexible compounds may be used for joint sealant.

Cretex Concrete Products
the shape of solutions

A ELLIPTICAL RCP SPECIFICATION

NOT TO SCALE

NO.	REVISION	BY	CH'D	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

SEW HUAT NG R.C.E. 46026 — DATE

REGISTERED PROFESSIONAL ENGINEER SEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

CITY OF CAR□INTERIA
DE□ARTMENT OF □UBLIC WOR□S

DETAIL SHEET

GREEN HERON SPRING

DESI□NED BY:	DATE
DRAWN BY:	DATE
CHEC□ED BY:	DATE

SCALE

□RO□ECT NUMBER

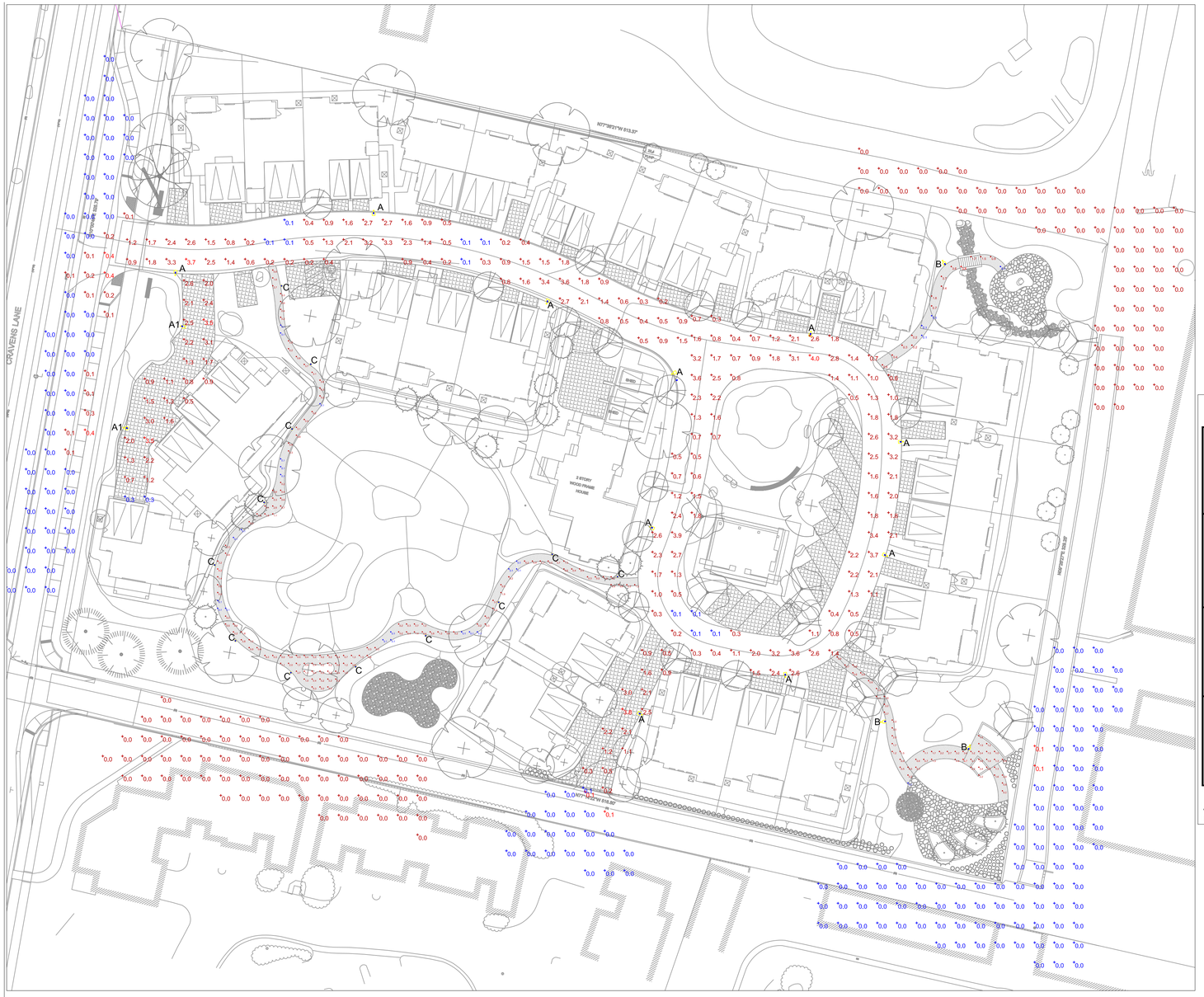
REVIEWED BY: DATE

CHARLES W□EBELIN□□□E□
□UBLIC WOR□S DIRECTOR/CITY EN□INEER
RCE NO□□□□□ E□□□□□□□□□

□RO□ECT EN□INEER: DATE

RECORD DRAWIN□ NUMBER

Sheet ____ of ____ Sheet□



1 E1.0 SITE LIGHTING PHOTOMETRIC PLAN

SCALE: 1"=30'-0"

Statistics					
Description	Symbol	Avg	Max	Min	Max/Avg
Pedestrian (Center Loop)	+	1.0 fc	4.2 fc	0.1 fc	4.2:1
Pedestrian (Community Garden)	+	1.7 fc	4.7 fc	0.1 fc	2.8:1
Pedestrian (Passive Seating Garden)	+	1.3 fc	3.8 fc	0.1 fc	2.9:1
Roadway (Fire Access)	+	1.4 fc	3.8 fc	0.1 fc	2.7:1
Roadway (Loop)	+	1.6 fc	4.0 fc	0.1 fc	2.5:1
Roadway (Off Cravens Ln)	+	1.2 fc	3.7 fc	0.1 fc	3.1:1
Roadway(Permeable Accent Driveway)	+	1.7 fc	3.5 fc	0.3 fc	2.1:1
Spill Zone (South)	+	0.0 fc	0.0 fc	0.0 fc	N/A
Spill Zone (West side)	+	0.0 fc	0.4 fc	0.0 fc	N/A
Spill Zone(Fire Road)	+	0.0 fc	0.1 fc	0.0 fc	N/A
Spill Zone(NE adjacent wetlands)	+	0.0 fc	0.0 fc	0.0 fc	N/A
Spill Zone(SE corner)	+	0.0 fc	0.1 fc	0.0 fc	N/A

LIGHTING FIXTURE SCHEDULE

TYPE(WATT)	MOUNTING	MANUFACTURER	LAMP	DESCRIPTION
A 53W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P6 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1309.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 18' 10 1/4"; LIGHT SOURCE HEIGHT 15'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00074 REV A) ANCHOR BOLTS 3/4" DIAMETER, 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2"; BOLT CIRCLE 5'7/8"	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED FOR (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN
A1 39 W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P4 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1309.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 18' 10 1/4"; LIGHT SOURCE HEIGHT 15'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00074 REV A) ANCHOR BOLTS 3/4" DIAMETER, 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2"; BOLT CIRCLE 5'7/8"	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED FOR (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN
B 27W BUG RATING B1U0G1	POLE	NERI LIGHT 21 # SU - 213L - 02 - 1- P2 - BI LEVEL INTEGRAL STEP DIMMING DRIVER (THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - POST -1309.401 (CUSTOM); TOP - 4102.170.500; LANTERN - SU213L. TOTAL HEIGHT: 9' 3/4"; LIGHT SOURCE HEIGHT 10'-0"; POLE HEIGHT: 13' 3/4"; BRACKET LENGTH FROM POLE CENTER TO LANTERN FIXING POINT - 2'5.1/2" (NERI DRAWING # US-00071 REV A) ANCHOR BOLTS 3/4" DIAMETER; 30" LONG WITH 3" HOOK AND 4" THREAD; CIRCULAR FLANGE FOR FASTENING WITH ANCHOR BOLTS THE FOUNDATION PLINTH - 8 1/2" DIAMETER; 19/32" THICKNESS; n.4X7/8"X 11/4" BOLT HOLES; CENTER HOLE 3 1/2" X 5 7/8" BOLT CIRCLE.	LED 3000K	POLE MOUNTED POST TOP FIXTURE WITH POLE AND BI - LEVEL DIMMING DRIVER. (SEE MANUFACTURER'S DRAWINGS AND SPECIFICATIONS) LIGHTING FIXTURES ON POLE MUST BE WIRED FOR (2) HOTS FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN. IP 55 & IKO8 RATED.
C 41 W	BOLLARD	LIGMAN EURASIA 1 BOLLARD UEU - 10026 - 41W - 1 (DOME) - O (OPAL DIFFUSER) - W30 (3000K LED) - 02 (DARK GREY - RAL 7043) - 120V - STEP SD2 - 120 TRPP - (BI LEVEL INTEGRAL STEP DIMMING DRIVER - THOMAS RESEARCH PRODUCTS SD2 - 120 VOLT STEP DIMMING MODULE 0-10V) - ANCHOR BOLT KIT REFER TO MANUFACTURER'S DATA SHEET FOR FASTENING WITH ANCHOR BOLTS AND FOOTING DETAILS	LED 3000K	48" H (24 LBS) 3000K LED BOLLARD LIGHTING FIXTURES MUST BE WIRED FOR (2) HOTS: FOR 100% OUTPUT AND (1) HOT FOR 50% OUTPUT AFTER 10 PM -WIRED THRU PROGRAMMABLE MULTI CHANNEL ASTRONOMICAL TIME CLOCK FOR FULL ON (DUSK) /50% DIMMING AFTER 10:00 PM/OFF AT DAWN. IP 55 & IKO8 RATED.

LIGHTING FIXTURE NOTES:

EXTERIOR NIGHT LIGHTING SAHLL BE OF LOW INTENSITY, LOW GLARE DESIGN, MINIMUM HEIGHT AND SHALL BE HOODED TYPE TO DIRECT LIGHT DOWNWARD ONTO THE SUBJECT PARCEL AND PREVENT SPILL-OVER ONTO ANY ENVIORNMENTAL SENSITIVE AREAS, WETLAND AREAS INCLUDING THE EXISTING RETENTION BASIN/DRAINAGE POND) AND ADJACENT PARCELS. THE LIGHT FIXTURE CIRCUITING SHALL BE PROVIDED TO BE DIMMED AFTER 10 PM

THE FINAL LOCATION OF ALL LIGHT POLES SHALL BE FIELD COORDINATED WITH ARCHITECTURA/CIVIL/LANDSCAPE DRAWINGS, SUCH THAT NO CONFLICTS EXIST BETWEEN LIGHT POLES AND UTILITIES/LANDSCAPE/ACCESS

SCOTT ELLINWOOD FAIA
resource conscious architecture & planning

resource conscious architecture & planning
1300 CRAVENS LANE
CARPINTERIA, CA 93013
805-684-0593 sefaia@aol.com

GREEN HERON SPRING

ENVIRONMENTALLY RESPONSIBLE HOMES

1300 - 1326
CRAVENS LANE
CARPINTERIA, CA 93013

GREEN HERON SPRING, LLC
1300 CRAVENS LANE
CARPINTERIA, CA 93013

Consultant:

multi-discipline collaborative
MDC engineers,Inc
Consulting Engineers
5101 E. La Palma Ave, Ste. 205
Anaheim Hills, CA 92807
T: 2117.42.2844
F: 2117.42.5453

Stamp:

REGISTERED PROFESSIONAL ENGINEER
THOMAS W. LAW
No.E 17235
Exp.6/30/2018
ELECTRICAL
STATE OF CALIFORNIA

Sheet Title:

Electrical Site Lightng Plan

Sheet No.:

E-1.0

DATE: 5/4/17

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 04/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 1 of 4)
Project Name: Green Heron Springs	Date Prepared:

A. General Information

Project Address: 1300-1326 Cravens Ln Carpinteria, CA 93013	Total Illuminated Hardscape Area: 24,708
Phase of Construction: ☑ New Construction ☐ Addition ☐ Alteration	
Outdoor Lighting Zone (LZ) ☐ LZ-1 ☐ LZ-2 ☑ LZ-3 ☐ LZ-4	
I have confirmed with the AHJ which LZ applies to this site. For default lighting zone designations, see Title 24 Part 6, §10-114	

B. Lighting Compliance Documents (check box for each document included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance documents, refer to the Nonresidential Manual published by the California Energy Commission.

☑	NRCC-LTO-01-E	Certificate of Compliance
☑	NRCC-LTO-02-E	Outdoor Lighting Controls Certificate of Compliance
☑	NRCC-LTO-03-E	Outdoor Lighting Power Allowance Certificate of Compliance
☐	NRCC-LTO-04-E	Outdoor Lighting Existing Conditions Certificate of Compliance

C. Summary of Allowed Outdoor Lighting Power

		Watts
01	**Sum Total ALLOWED** Outdoor Lighting Wattage from NRCC-LTO-03-E, page 1 Alterations with NO increase of connected lighting load may instead use the allowed wattage from NRCC-LTO-04, page 2.	2,522
	Complies ONLY If **Installed** (Box 02) ≤ **Allowed** (Box 01)	
02	**Sum Total INSTALLED** Outdoor Lighting Wattage from NRCC-LTO-01-E, page 3.	1,181

D. Declaration of Required Installation Certificates

Declare by checking all installation Certificates that will be submitted. (Retain copies and verify compliance documents are completed and signed.)

☑ NRCI-LTO-01-E - Must be submitted for all buildings	☐ Field Inspector
☑ NRCI-LTO-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐ Field Inspector

E. Declaration of Required Certificates of Acceptance

Declare by checking all of the Certificates of Acceptance that will be submitted. (Retain copies and verify compliance documents are completed and signed.)

☑ NRCA-LTO-02-A - Must be submitted for outdoor lighting controls.	☐ Field Inspector

F. Schedule of Luminaires Exempt from the Outdoor Lighting Power Requirements in §140.7

01 Name or Symbol	02 Description of exempt luminaire in accordance with the exemptions

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 02/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 3 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

I. Outdoor Lighting Schedule and Field Inspection Energy Checklist

Luminaire Schedule		Installed Watts					Location	Cutoff	Field Inspector	
01	02	03	04		05	06	07	08	09	
Name or Item Tag	Complete Luminaire Description	Watts per Luminaire	How wattage was determined: CEC Default from NAE	How wattage was determined: According to §130.0(k)	Number of Luminaires	Total Installed Watts in this area (3 x 5)	Primary Function area in which the luminaires are installed (Outdoor Lighting Zone)	BUG Rating	Pass	Fail
A	Type A Roadway Pole	53.0	☑	☐	10	530	Automotive Hardscape	UH: n/a UL: n/a FVH: n/a BVH: n/a FH: n/a BH: n/a	☐	☐
A1	Type A1 Roadway Pole	39.0	☑	☐	2	78	Automotive Hardscape	UH: n/a UL: n/a FVH: n/a BVH: n/a FH: n/a BH: n/a	☐	☐
B	Type B Pedestrian Pole	27.0	☑	☐	3	81	Pedestrian Hardscape	UH: n/a UL: n/a FVH: n/a BVH: n/a FH: n/a BH: n/a	☐	☐
				INSTALLED WATTS PAGE TOTAL:		689	Enter sum total of all pages (**Sum Total INSTALLED** Outdoor lighting wattage) into NRCC-LTO-01-E, page 1.		1,181	

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 02/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 4 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Thomas Law	Documentation Author Signature:
Company: MDC Engineers Inc	Signature Date: 5/18/2017
Address: 5105 E La Palma Ave, #205	CEA Certification Identification (if applicable):
City/State/Zip: Anaheim, CA 92807	Phone: 213-746-2844

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Thomas Law	Responsible Designer Signature:
Company: MDC Engineers	Date Signed: 5-18-16
Address: 5101 E La Palma Blvd Ste. 205	License: E17235
City/State/Zip: Anaheim, CA 92807	Phone: 213-746-2844

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 02/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 2 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

G. Schedule of Luminaires Exempt from the Cutoff Requirements in §130.2(b)

01 Name or Symbol	02 Description of exempt luminaire in accordance with the exemptions

H. Schedule of Luminaires Exempt from the Outdoor Lighting Control Requirements in §130.2(c)

01 Name or Symbol	02 Description of exempt luminaire in accordance with the exemptions

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 02/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 3 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

I. Outdoor Lighting Schedule and Field Inspection Energy Checklist

Luminaire Schedule		Installed Watts					Location	Cutoff	Field Inspector	
01	02	03	04		05	06	07	08	09	
Name or Item Tag	Complete Luminaire Description	Watts per Luminaire	How wattage was determined: CEC Default from NAE	How wattage was determined: According to §130.0(k)	Number of Luminaires	Total Installed Watts in this area (3 x 5)	Primary Function area in which the luminaires are installed (Outdoor Lighting Zone)	BUG Rating	Pass	Fail
C	Type C Bollard	41.0	☑	☐	12	492	Pedestrian Hardscape	UH: n/a UL: n/a FVH: n/a BVH: n/a FH: n/a BH: n/a	☐	☐
			☐	☐				UH: UL: FVH: BVH: FH: BH:	☐	☐
			☐	☐				UH: UL: FVH: BVH: FH: BH:	☐	☐
				INSTALLED WATTS PAGE TOTAL:		492	Enter sum total of all pages (**Sum Total INSTALLED** Outdoor lighting wattage) into NRCC-LTO-01-E, page 1.		1,181	

STATE OF CALIFORNIA
OUTDOOR LIGHTING CONTROLS
CEC-NRCC-LTO-02-E (Revised 02/18) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 1 of 3)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

A. Mandatory Outdoor Lighting Control Declaration Statements

Check all that apply:

- ☐ Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with §110.9(a).
- ☐ Lighting shall be controlled by a lighting control system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with §130.4(b).
- ☑ All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with §130.0(d).
- ☐ Part-Night Outdoor Lighting Controls, as defined in Section 100.1(b), shall meet the requirements in Section 110.9(b)5.
- ☐ All outdoor incandescent luminaires rated over 100 watts, determined in accordance with Section 130.0(c), shall be controlled by a motion sensor.
- ☐ All outdoor luminaires rated for use with lamps greater than 150 lamp watts, determined in accordance with Section 130.0(c), shall comply with Uplight and Glare requirements in accordance with Section 130.2(b).
- ☐ All installed outdoor lighting shall be controlled by a photocontrol or outdoor astronomical time-switch control, or other control capable of automatically switching OFF in accordance with Section 130.2(c)1.
- ☑ All installed outdoor lighting shall be independently controlled from other electrical loads by an automatic scheduling control in accordance with Section 130.2(c)2.
- ☐ All installed outdoor lighting, where the bottom of the luminaire is mounted 24 feet or less above the ground, shall be controlled with automatic lighting controls in accordance with Section 130.2(c)3.
- ☐ For Outdoor Sales Frontage, an automatic lighting control shall be installed in accordance with Section 130.2(c)4.
- ☐ For Building Facade, Ornamental Hardscape and Outdoor Dining lighting, an automatic lighting control shall be installed in accordance with Section 130.2(c)5.
- ☑ Before an occupancy permit is granted for the newly constructed building or for the addition, or for any altered outdoor lighting, the outdoor lighting controls shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with §130.4.(a). Outdoor lighting controls shall comply with the applicable requirements of Section 130.2(c) and Reference Nonresidential Appendix NA7.8.

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GREEN HERON SPRING

ENVIRONMENTALLY RESPONSIBLE HOMES

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CRAVENS LANE
CARPINTERIA, CA 93013

GREEN HERON SPRING, LLC
1300 CRAVENS LANE
CARPINTERIA, CA 93013

Consultant:

multi-discipline collaborative
MDC engineers,Inc
Consulting Engineers
5101 E. La Palma Ave, Ste. 205
Anaheim Hills, CA 92807
T: 213.746.2844
F: 213.746.5483

Stamp:

REGISTERED PROFESSIONAL ENGINEER
THOMAS W. LAW
No.E 17235
Exp.6/30/2018
ELECTRICAL
STATE OF CALIFORNIA

Sheet Title:

Electrical Title 24 Calculations

Sheet No.:

E-2.0

STATE OF CALIFORNIA
OUTDOOR LIGHTING CONTROLS
CEC-NRCC-LTO-02-E (Revised 06/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 2 of 3)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

B. Mandatory Outdoor Lighting Control Schedule and Field Inspection Checklist

Outdoor Lighting Control Schedule			Standards Complying With (✓ all that apply, or enter 'E' if Exempted)						✓ if Acceptance Test Required	Field Inspector	
01	02	03	04	05	06	07	08	09	10	11	
Location and Application of Luminaires Being Controlled	Type/ Description of Lighting Control (i.e. outdoor motion sensor, outdoor photocontrol, outdoor astronomical time-switch control, automatic scheduling control, part-night outdoor lighting control)	# of Units	§130.2(a)	§130.2(c)1	§130.2(c)2	§130.2(c)3	§130.2(c)4	§130.2(c)5		Pass	Fail
									☐	☐	☐
									☐	☐	☐
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STATE OF CALIFORNIA
OUTDOOR LIGHTING POWER ALLOWANCES
CEC-NRCC-LTO-03-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 2 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

C. ADDITIONAL "USE IT OR LOSE IT" OUTDOOR LIGHTING POWER ALLOWANCES FOR SPECIFIC APPLICATIONS
☐ The additional specific outdoor lighting power allowance shall be the smaller of the allowed lighting power or the actual lighting power used.
☐ Use Outdoor Lighting Zone (OLZ) that is documented on page 1 of NRCC-LTO-01-E to calculate the specific wattage allowances.

C-1. WATTAGE ALLOWANCE PER APPLICATION – Table 140.7-B
☐ Available only for qualifying locations, which include Building Entrances or Exits; Primary Entrances to Senior Care Facilities, Police Stations, Hospitals, Fire Stations, and Emergency Vehicle Facilities; Drive Up Windows; Vehicle Service Station Uncovered Fuel Dispenser, ATM Machine Lighting
☐ If more than one luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for Which Allowance is Claimed	Number of Qualifying Locations	Wattage Allowance per Qualifying Location	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
								Sum total allowance per application on this site:	0

C-2. WATTAGE ALLOWANCE PER UNIT LENGTH (Sales Frontage) from Table 140.7-B
☐ If more than one luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for Which Allowance is Claimed	Linear Feet of Sales Frontage	Wattage Allowance per Linear Foot	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
								Sum total allowance for sales frontage on the site:	0

STATE OF CALIFORNIA
OUTDOOR LIGHTING CONTROLS
CEC-NRCC-LTO-02-E (Revised 06/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 3 of 3)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Thomas Law	Documentation Author Signature:
Company: MDC Engineers Inc	Signature Date: 5/18/2017
Address: 5105 E La Palma Ave, #205	CEA Certification Identification (if applicable):
City/State/Zip: Anaheim, CA 92807	Phone: 213-746-2844

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Thomas Law	Responsible Designer Signature:
Company: MDC Engineers	Date Signed: 5-18-16
Address: 5101 E La Palma Blvd Ste. 205	License: E17235
City/State/Zip: Anaheim, CA 92807	Phone: 213-746-2844

STATE OF CALIFORNIA
OUTDOOR LIGHTING POWER ALLOWANCES
CEC-NRCC-LTO-03-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 3 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

C-3. WATTAGE ALLOWANCE PER SQUARE FOOT OF HARDSCAPE AREA (Ornamental Lighting) – Table 140.7-B
☐ Allowance for the total site illuminated hardscape area. Luminaires qualifying for this allowance shall be rated for 100 watts or less as determined in accordance with Section 130.0(c), and shall be post-top luminaires, fanterns, pendant luminaires, or chandeliers.
☐ If more than one luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
	ALLOTTED WATTS			DESIGN WATTS					
Name of area for which ornamental allowance is claimed	Square Feet of Hardscape	Wattage Allowance per Square Foot	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
								Sum total allowance for ornamental lighting on the site:	0

C-4. WATTAGE ALLOWANCE PER SQUARE FOOT OF SPECIFIC AREA - Table 140.7-B
☐ Allowances for Building Facades; Outdoor Sales Lots; Vehicle Service Station Hardscape; Vehicle Service Station Canopies; Sales Canopies; Non-sales Canopies; Tunnels; Guard Stations; Student Pick-up/Drop-off zone; Outdoor Dining; Special Security Lighting for Retail Parking and Pedestrian Hardscape.
☐ If more than one luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
	ALLOTTED WATTS			DESIGN WATTS					
Name of Location for Which Allowance is Claimed	Illuminated Area of Application	Wattage Allowance per square Foot	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
								Sum total allowance for specific area on the site:	0

STATE OF CALIFORNIA
OUTDOOR LIGHTING POWER ALLOWANCES
CEC-NRCC-LTO-03-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 1 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

A. OUTDOOR LIGHTING POWER ALLOWANCE SUMMARY

1. General Hardscape Lighting Power Allowance (Site Total from Section B of NRCC-LTO-03-E)								1.	2,522
2. Additional Specific "use it or lose it" Lighting Power Allowances listed in each of these cells shall be identical to total allowed watts determined in Section C-1 to C-4 of NRCC-LTO-03-E.									
PER APPLICATION from Section C-1		PER UNIT LENGTH (SALES FRONTAGE) from Section C-2		PER HARDSCAPE AREA (ORNAMENTAL LIGHTING) from Section C-3		PER SPECIFIC AREA from Section C-4.		2.	0
0	+	0	+	0	+	0	=		
3. **Sum Total ALLOWED** Outdoor Lighting Wattage (add rows 1 and 2)								3.	2,522

B. GENERAL HARDSCAPE LIGHTING POWER ALLOWANCE FROM TABLE 140.7-A

Area Wattage Allowance (AWA)				Linear Wattage Allowance (LWA)			Initial Wattage Allowance (IWA)	Total General Hardscape Lighting Allowance
01	02	03	04	05	06	07	08	09
Name of Area	Illuminated Hardscape Area	AWA Per Square Foot	AWA (B02 x B03)	Perimeter Length of General Hardscape	LPA per Linear Foot	LWA (B05 x B06)	IWA (Watts)	B04 + B07 + B08
Automotive Hardscape	20,948	0.040	838	1,480	0.350	518	520	1,876
Pedestrian Paths	3,760	0.040	150	1,415	0.350	495	0	645
							TOTAL	2,522

STATE OF CALIFORNIA
OUTDOOR LIGHTING POWER ALLOWANCES
CEC-NRCC-LTO-03-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 4 of 4)
Project Name: Green Heron Springs	Date Prepared: 5/18/2017

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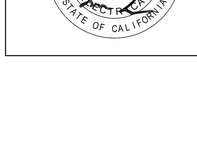

Sheet Title:

Electrical Title 24 Calculations

Sheet No.:

E-2.1

CITY OF CARPINTERIA
PROPOSED FINAL MITIGATED NEGATIVE DECLARATION
OCTOBER 30, 2017

1. Project Title: Green Heron Spring Residential Project

2. Lead Agency: City of Carpinteria
   5775 Carpinteria Avenue
   Carpinteria, CA 93013

3. Contact Person and Phone: Nick Bobroff, Senior Planner (805) 755-4407

4. Project Location: The project site is located at 1300 Cravens Lane in Carpinteria, Assessor's Parcel Number (APN) 004-013-026. The site is located on the east side of Cravens Lane as it transitions from the multi-family residential area at the City's northwestern boundary to the greenhouse and open field agricultural operations north within unincorporated County of Santa Barbara. Figure 1 shows the location of the site in the region and Figure 2 shows the existing uses on the site.

5. Project Sponsor:
   Scott Dinovitz
   Cravens Lane, LLC
   23622 Calabasas Road, Suite 220
   Calabasas, California 91302

6. General Plan/Coastal Plan Designation: Medium Density Residential (MDR)

7. Zoning: Planned Unit Development (PUD) District; Ellinwood Parcel (APN 0004-013-026) Overlay District; Environmentally Sensitive Habitat (ESH) Overlay District; Coastal Appeals (CA) Overlay District; Flood Hazard (FH) Overlay District

8. Description of Project: The Green Heron Spring Project involves a 31-unit multifamily housing complex on an existing 3.87-acre lot. The project would include remodeling of an existing residence, the construction of 30 residences, and one pavilion. Of the 30 new residences, 23 would be multi-family dwellings in a combination of townhome and duplex configurations, and seven would be single-family dwellings. Per the Inclusionary Housing Ordinance for residential dwelling unit projects, four (4) units will be offered for low income families. As shown in Table 1, unit sizes would range from 1,274 square feet to 2,301 square feet and include from two to four bedroom units. The site plan includes village green spaces, community garden, a loop trail, and enhancement of an existing agricultural pond. Per City Ordinance for the Ellinwood Parcel Overlay CMC 14.43.030(1), the project is required to be designed to current standards of LEED Gold or better. Figure 3 shows the proposed site plan.

   After construction, there would be 16 buildings on the site, comprised of 14 new residential buildings, the remodeled existing residence, and one new pavilion. The total square footage of existing and new residential buildings would be 69,929 square feet (livable space plus garage space).The new residences would be two stories in height, ranging from approximately 24 feet 5 inches to 29 feet 6 inches tall, as measured from finished grade. The new residences would be located along the northern and eastern boundaries of the property, and then would come towards the center of the property around the pond.

Table 1 Unit Tabulation

Floor Plan	Unit Mix	Bedrooms	Total Gross Area (square feet)
Plan 1 (1,528 sq ft) 2 Bdrm/2 Bath/1 Car Garage	4	8	6,112
Plan 1X (1,760 sq ft) 2 Bdrm+Den/2 Bath/1 Car Garage	4	8	7,040
Plan 2 (2,430 sq ft) 3Bdrm/2.5 Bath/2 Car Garage	4	12	9,720
Plan 3 (2,345 sq ft) 3 Bdrm/3.5 Bath/2 Car Garage	5	15	11,725
Plan 4 (2,701 sq ft) 3 Bdrm+Den/2.5 Bath/2 Car Garage	6	18	16,206
Plan 5 (2,207 sq ft) 3 Bdrm/2.5 Bath/2 Car Garage	4	12	8,828
Plan 6 (2,723 sq ft) 4 Bdrm/3 Bath/ 2 Car Garage	1	4	2,723
Plan 7 Open Air Pavilion	0	0	0
Plan 8 (1,491 sq ft) 2 Bdrm/2 Bath/ 1 Car Garage	1	2	1,491
Plan 8X (1,639 sq ft) 2 Bdrm/2 Bath/1 Car Garage	1	2	1,639
Existing Residence/Addition			4,445
Total		**81**	**69,929**

The project site currently contains two residences, an outbuilding, a water tower, and 59 trees. Trees onsite include coast live oak (Quercus agrifolia), California sycamore (*Platanus racemosa*), cork oak (*Quercus suber*), king palm (*Archontophoenix cunninghamiana*), Mexican fan palm (*Washingtonia robusta*), Brazilian pepper (*Schinus terebinthifolius*), and coast redwood (*Sequoia sempervirens*).

Construction of the project would require demolition of one residence, the outbuilding, and the water tower. The project will require the removal of 11 native specimen trees: nine (9) coast live oaks, one (1) coast redwood, and one (1) California sycamore. It will also require the relocation of one (1) coast live oak tree. All 52 native trees with a diameter of less than six (6) inches would be removed. Mitigation planting is not recommended for trees less than six (6) inches in diameter. See Appendix C for the full Tree Assessment and Protection Plan.

The existing onsite residence to be maintained would retain the same basic structure and footprint but would have the siding and roof replaced to better relate to the new residences, and a three-car garage would be added. The outbuilding and water tower would be demolished, but the materials would be salvaged and repurposed as part of the existing residence remodel wherever possible. With required approval or notice of exemption from the RWQCB, the existing pond would be dredged, desilted, and the vegetation would be removed and replaced with appropriate native vegetation.

Figure 1 Project Location



Imagery provided by ESRI and its licensors © 2016.

Project Location

N



ISMNDFig 1 Project Location

Figure 2 Project Site



Figure 3 Proposed Site Plan



Construction

Construction of the project would take approximately 24 months. Site work including grading, utilities, and street improvements would take approximately four months to complete. Construction of the buildings would take approximately 20 months, with three separate, but overlapping phases with 10 units per phase. Approximately 1,100 cubic yards (CY) of cut, 3,605 CY of fill, with 2,505 CY of imported soil are anticipated during the grading phase.

Access and Circulation

The buildings would be accessed from a private road that would start approximately two thirds of the way up the site boundary on Cravens Lane. The road would then head east as a two lane road before becoming a one lane road to go around the pavilion and central Village Green. An off-shoot of the road would continue towards the south to provide additional (gated) emergency access to the site from an existing private driveway along the southern boundary of the site. The project proposes to construct a 9-foot wide parallel parking zone, a 6-foot wide bike lane and public sidewalks along the project site frontage adjacent to the proposed driveway.

Water Quality and Drainage

Per the Santa Barbara County Technical Guidance Manual, the project type is Tier 4, as the project includes new or replaced impervious surfaces in excess of 22,500 square feet. As a Tier 4 project, the project must implement Low Impact Development design measures from Tier 1, 2, 3 and 4 requirements. These design measures, which have been incorporated into the project include, but are not limited to, limited disturbance of natural drainage features, limiting clearing, grading, and soil compaction, minimizing impervious surfaces, and dispersing run off to landscape areas. The existing drainage of the site sheet flows southwesterly and is intercepted by the existing onsite pond. In the proposed condition, the existing pond would remain in place and be modified to have a 4:1 slope, and be sized to capture the increased difference in volume of storm water runoff for a 100-year storm event in the proposed condition from the existing condition.

Previous Project

A similar project was previously reviewed and approved for the project site in 2007. That project also consisted of a 31-unit residential development on the site. The vesting tentative tract map approved as part the previous project is still valid. The project included the same number of units. Eleven structures were proposed totaling 61,990 square-feet (sf) of floor area. Construction of the project was anticipated to require 1,270 CY of cut and 3,200 CY of fill with 1,930 CY of imported soil. The project also included improvements to the pond. Implementation of this proposal would have required the removal of five oak trees, relocation of two oak trees, and the potential for 11 additional oak trees to be impacted by encroachment. An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared and approved for that project. The 2007 IS/MND found potentially significant effects that required mitigation for aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, noise, and water resources.

The City Council approved the previous project on November 13, 2007 and directed the City Manager to submit the necessary Rezone and General Plan/Coastal Plan Local Coastal Program Amendment to the California Coastal Commission (CCC) for certification.

The modifications required by the CCC entailed the creation of a new Chapter of the Carpinteria Municipal Code (the Ellinwood Parcel (APN 004-013-026) Overlay District) on April 6, 2009. On July 8, 2009, the California Coastal Commission officially certified Amendment MAJ-2-07 (Green Heron Spring/Ellinwood Parcel).

As part of the approvals granted to the previous iteration of the proposed project, the annexation and rezone of the Green Heron Spring/Ellinwood Parcel site into the City was successfully completed in 2009. The project site was also annexed into the Carpinteria Sanitary District in 2010.

9. Required Approvals

The following entitlements are required for the proposed development:

- *Development Plan*
- *(City of Carpinteria) Coastal Development Permit*

10. Surrounding Land Uses and Setting

The project site is located on Cravens Lane and is bordered by multi-family residences to the south and the Sandpiper Mobile Home Park to the west, across Cravens Lane. To the north and east, the project site is bordered by agricultural uses, such as greenhouses and a flower packing warehouse, located in unincorporated Santa Barbara County. The property immediately to the north includes a flood control detention basin operated and maintained by Santa Barbara County Flood Control District.

11. Other Public Agencies Whose Approval is Required

- The City of Carpinteria is the Lead Agency with responsibility for approving the project. The project is currently under review regarding the jurisdictional status of the on-site pond. The project would require either proof of exemption, or Notice of Intent to obtain coverage under the Construction General Permit of the NPDES issued by the RWQCB. ~~The Central Coast Regional Water Quality Control Board has issued a Waste Discharge Requirement for the use of the pond as an on-site storm water retention basin, which takes into account the beneficial use of the pond as habitat.~~

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Potentially Significant" as indicated by the checklist on the following pages.

X	Aesthetics		Land Use
X	Agricultural Resources		Mineral Resources
X	Air Quality	X	Noise
X	Biological Resources		Population and Housing
X	Cultural Resources		Public Services
X	Geology / Soils		Recreation
	Greenhouse Gas		Transportation and Parking
X	Hazardous Materials / Safety	X	Tribal Cultural Resources
X	Hydrology		Utilities and Services

This document incorporates the Final Program EIR prepared for the City's General Plan and Local Coastal Plan (April 2003), State Clearinghouse Number 1997121111, herein incorporated by reference.

The City's General Plan/Coastal Plan ("the Plan") was developed pursuant to California Law (Government Code §65300, et seq., and Public Resources Code 30000 et seq., respectively). The procedure followed for the preparation of the combined Plan was based upon the State of California General Plan Guidelines and Title 14, Division 5.5 of the California Code of Regulations, §13506 through 13514.

The Plan includes all required elements of a general plan with the exception of the housing element, which was not updated as a part of the project but was separately updated and certified by the State Housing and community Development Department in 2004 (and subsequently updated several times, most recently in 2014). The mandatory elements that are a part of the Plan include Land Use, Circulation, Open Space, Conservation, Noise and Safety. The Plan also includes Community Design, Recreation, and Public Facilities and Services elements. The Plan includes policies and implementation policies that serve as the City's Land Use Plan for the implementation of the policies of Chapter 3 of the California Coastal Act of 1976 concerning coastal resources, hazard areas, coastal access and priority uses. The Plan includes a map of proposed urban boundaries and planned land uses as well as Goals, Objectives, Policies and Implementation Policies that govern the growth of the City.

The Plan area specifically includes the project site as Sphere Study Area 1 "Ellinwood Site". As discussed above under the "previous project" section, the Ellinwood Site was successfully annexed to the City in November 2009. Pursuant to the CEQA Findings included in Resolution No. 4670 adopted by the City Council of the City of Carpinteria on May 29, 2001, the Program EIR was prepared in accordance with CEQA Guidelines §15168, and is not intended to suffice for project-specific review except as it may be utilized for cumulative impact analysis consistent with the tiering provisions of CEQA.

The Program EIR identified numerous mitigation measures designed to reduce potentially significant impacts which might occur under the Plan. These mitigation measures were then incorporated into the City's General Plan/Coastal Plan Policies, Objectives and Implementation Measures.

To this end, the EIR identified one issue area, the conversion of agricultural land to urban use as a Class I, Significant and Unavoidable impact. Although this impact was reduced by selecting a project alternative that substantially lessens the impact, it was still found to be Class I. Pursuant to CEQA §15093, a Statement of Overriding Considerations was made by the City Council. It is noted that ultimately, the California Coastal Commission denied the request to change the designation of the 32-acre Creekwood site with prime agricultural soils, from agriculture to residential. Only two sites totaling approximately 11 acres were permitted to be re-designated from agriculture to residential, one of them the current project site. The text and findings of the City's GP/CP EIR were never revised to reflect the denial of the Creekwood request and the resultant reduction in acreage to be converted out of agriculture.

It is noted that there are no Class II, significant but mitigable impacts listed in the Program EIR. This is because all of the policies recommended in the Draft Program EIR to mitigate potentially significant impacts have been incorporated into the Final General Plan/Coastal Plan. With inclusion of these policies in the Plan itself, all of the Class II impacts identified in the Draft Program EIR have been reduced to Class III.

DETERMINATION
Based on this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

Printed Name _____ Title _____

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) Negative Declaration: "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant" to "Less Than Significant." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures as described in (5) below may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA processes, an effect has been adequately analyzed in an earlier EIR or negative declaration (§15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

1. AESTHETICS Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		X		
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?		X		

Existing Environmental Setting

The project site is located adjacent to the northern edge of the City along Cravens Lane as it transitions from the multi-family residential and mobile home park development at the southern end of Cravens Lane within the City of Carpinteria to the greenhouse and open field agricultural operations to the north in unincorporated Santa Barbara County.

The site is currently developed with two existing residences approximately 25 feet in height, with a detached two-car garage, three storage sheds, one barn, and one water tower. The total footprint of all buildings is approximately 5,286 square feet, with a total floor area of approximately 6,475 square feet. The existing barn and accessory structures totaling 2,966 square feet would be demolished and the materials salvaged. In addition to the structures, there are groves of mature oak, sycamore and eucalyptus trees, coastal redwoods, and an existing man-made pond.

To the north of the site are a Santa Barbara County Flood Control Basin and two single-family homes; to the east is a concrete lined drainage channel, beyond which are greenhouses and a packing warehouse; to the south are multi-family residential uses (Franciscan Village and The Villas); and to the west is Cravens Lane, beyond which is the Sandpiper mobile home park. The properties to the north and east are in unincorporated Santa Barbara County. The 20-foot wide driveway portion of the property to the east is also within the County. The project site is buffered from each of the adjacent properties by trees and other vegetation.

Thresholds of Significance

The assessment of aesthetic impacts involves qualitative analysis that is inherently subjective in nature. Different viewers will have varying opinions and reactions to changes in a viewshed or the appearance of new buildings and structures. This evaluation compares the existing visual characteristics of the project study area against the potential changes in visual characteristics that could result from implementation of the proposed project.

The City of Carpinteria has adopted *Guidelines for the Implementation of the California Environmental Quality Act of 1970, as Amended* (1994), which provide criteria for determining the potential significance of visual impacts. Key factors in assessing the aesthetic resources of a project site include the physical attributes of the site, its relative visibility, and its relative uniqueness. Four types of areas are especially important: coastal and mountain views, the urban fringe, and travel corridors. Based on criteria contained in the City's *Guidelines,* the proposed project would result in a significant visual impact if it would result in one or more of the following conditions:

- *The project would substantially impair a view through a designated public view corridor as shown in an adopted community plan, the General Plan, or the Local Coastal Plan. Minor view blockages would not be considered to meet this condition. In order to determine whether this condition has been met, consider the level of effort required by the viewer to retain the view.*
- *The project would cause substantial view impairment of a public resource (such as the ocean) that is considered significant by the applicable community plan.*
- *The project exceeds the allowed height or bulk regulations, and this excess caused unnecessary view impairment.*
- *The project would have a cumulative effect by opening up a new area for development, which will ultimately cause extensive view impairment (cumulative effects are usually considered significant for a community plan analysis, but not necessarily for individual projects). View impairment would be considered "extensive" when the overall scenic quality of a resource is changed; for example, from an essentially natural view to a largely man-made appearance.*
- *The project exceeds the allowed height or bulk regulations and exceeds patterns of development in the surrounding area by a significant margin.*
- *The project would have an architectural style or use building materials in stark contrast to adjacent development, where the adjacent development follows a single or common architectural theme.*
- *The project would result in the physical loss or degradation of a community identification symbol or landmark (e.g., a stand of trees, coastal bluff, historic landmark) which is identified in the General Plan, applicable community plan or Local Coastal Program.*
- *The project is located in a highly visible area (e.g., adjacent to an interstate highway) and would strongly contrast with the surrounding environment through excessive bulk, signage, or architectural projections.*
- *The project would have a cumulative effect by opening up a new area for development or changing the overall character of the area (e.g., rural to urban and single-family to multifamily).*

For this analysis, changes to existing visual conditions are not considered significant if the project-related changes would be subordinate to the existing visual environment. Only views available from public viewing locations, such as roadways, are evaluated against the above significance thresholds.

Potential aesthetic impacts affecting the adjacent neighborhood are evaluated for informational purposes. However, views of scenic resources from the neighborhood are considered private, and therefore would not be considered significant impacts in accordance with the City's criteria and standard CEQA practice.

Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

A significant impact would occur if the project would substantially impair a view through a designated public view corridor. The project site is not at an elevation where it can be seen from U.S. Highway 101 (U.S. 101) from the south or Foothill Road to the north, both sensitive public view corridors.

The project site is 850 feet north of U.S. 101 and is not visible from the freeway due to vegetation alongside the highway, intervening structures, and trees that line the project site. Additionally, the project site is over 2,000 feet south of Foothill Road (SR 192). The site is not visible from this vantage point due to the vegetation and trees between Foothill Road and the site, as well as agricultural greenhouses that block line of sight.

While the foothills and Santa Ynez Mountains north of the Carpinteria Valley are particularly scenic since they provide a backdrop from many vantage points throughout the City, the location of the project site on the lower elevation of the foothills makes it difficult to see from any "distant view" vantage points throughout the City. Building heights would be two-stories tall and would range from approximately 24 feet to 30 feet, which is similar to the two-story structures located south of the site in the “Villas” and “Franciscan Village” developments. Therefore, due to the proximity from public view corridors, trees and vegetation blocking views of the project, and the similar height of the proposed buildings in relation to adjacent structures, the proposed buildings would not be visible from a scenic corridor and would not have a substantial adverse effect on a scenic vista.

LESS THAN SIGNIFICANT IMPACT

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings in a state scenic highway?

The project site is approximately 850 feet north of U.S. 101. The U.S. 101 is an eligible State Scenic Highway, but is not officially designated as such. The project involves removal of two buildings and 11 specimen trees, and construction of 15 new buildings; however, because the site is not located near a designated Scenic Highway and is not visible from U.S. 101, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The project site is located along a portion of Cravens Lane that includes medium and high density residential developments, and greenhouse/packing house agricultural operations. The project site is visible from the adjacent properties and Cravens Lane. The site currently contains two single family residences, a barn, an agricultural pond, trees, and dense vegetation. The existing vegetation does not allow for views into the site. (See Figure 4 for photos of the dense vegetation and the residence to be demolished). Additionally the residence that would be demolished is older and in disrepair. To ensure that no construction debris remains on site, mitigation measure Aest-3 shall be implemented to clear all excess debris.

Development of the project would involve clearing of some onsite vegetation and demolition of a single residence and outbuilding. However, most of the trees around the perimeter of the site would be maintained, allowing for maintenance of the rural residential character of the site. As noted above, the residence to be removed is in disrepair. The proposed project would add 30 new residences that would be visible from adjacent properties, but would retain the semi-rural character of the site. Proposed

buildings would be of a scale and height that would not substantially conflict with the character of nearby properties.

The PUD zone district requires projects be reviewed by the Architectural Review Board (ARB) of the City of Carpinteria. ARB review is meant to ensure that the project would be in compliance with the architectural standards of the City and that the project would not conflict with the buildings already in the area. Incorporation of Mitigation Measures Aest-1 through Aest-4 would reduce aesthetic impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The site is currently developed with two residences and an outbuilding. The proposed development would increase the number of residences on the site which would increase the amount of glare and lighting on the site. When the previous version of the project was approved in 2007, the Ellinwood Parcel (APN 0004-013-026) Overlay District was created and incorporated as part of the City's Zoning Code and Local Coastal Program. This Overlay District applies to the project site and contains specific development standards. These standards include the following light and glare requirements.

> *"Exterior night lighting shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto any environmentally sensitive areas, wetland areas (including the existing retention basin/drainage pond), and adjacent parcels. A lighting plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. shall be provided prior to any development on the site (*14.43.030)."

The project would be required to adhere to these provisions. Adherence to these provisions as well as mitigation measure Aest-5 would reduce potential impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to aesthetic impacts. However, the project's contribution to cumulative aesthetic impacts would not be considerable and would be further reduced through the implementation of the project specific measures below.

Required Mitigation Measures:

Aest-1 The design, scale and character of the project architecture shall be compatible and blend harmoniously with vicinity development. In addition, the project shall maintain as much of the beneficial screening as possible, with structures located to take advantage of the natural landforms and screening. **Plan Requirement and Timing:** The applicant shall submit architectural, landscape and grading plans of the project for final review by the Architectural Review Board prior to approval of any Building Permit for physical development. **Monitoring:** CDD shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect prior to, and during the construction phase.

Aest-2 Natural building materials and colors compatible with surrounding terrain (earthtones and non-reflective paints) shall be used on exterior surfaces of all structures. **Plan Requirement:** Materials shall be denoted on building plans. **Timing:** Structures shall be painted prior to occupancy clearance. **Monitoring:** CDD shall inspect prior to occupancy clearance.

Aest-3 The developer shall clear the project site of all excess construction debris. **Plan Requirement:** This requirement shall be noted on final building plans. **Timing:** Debris clearance shall occur prior to occupancy clearance. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Aest-4 No signs of any type are approved with this action unless otherwise specified. All signs require a separate Sign Permit and review by the Architectural Review Board and shall comply with the City Zoning Code, Chapter 14.58 (Sign Regulations).

Aest-5 Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the project site and prevent spill-over onto adjacent parcels. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. **Plan Requirements**: The locations of all exterior lighting fixtures and an arrow showing the direction of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector shall inspect structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.

Residual Impact: No impact.

Figure 4 Site Photos



Photo 1 – View looking east from Cravens Lane. Existing residence to be demolished.



Photo 2 – View looking northeast from the west side of Cravens Lane at the dense vegetation on the site.

2. AGRICULTURAL AND FOREST RESOURCES Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use			X	
b) Conflict with existing zoning for agricultural use or a Williamson Act contract			X	
c) Conflict with existing zoning for or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))				X
d) Result in the loss of forest land or conversion of forest land to non-forest use				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use		X		

Existing Environmental Setting

The project site is located at the northwest corner of the City, on the east side of Cravens Lane approximately 800 feet north of Via Real. The City limit is contiguous with the east and north boundary of the project site. The project site was formerly used for agricultural production of avocados. Existing use of the property includes two single-family homes, a barn and several out buildings. Adjacent uses include a mobile home park to the west, a multifamily residential development to the south, a packinghouse and greenhouses to the east, and a County of Santa Barbara Flood Control storm water detention basin to the north.

The project site was selected for inclusion on the City's Sphere of Influence and conversion to residential use (Study Area 1) in the City's General Plan and Coastal Plan Update (2003). This particular site was selected as it is contiguous to City limits, is surrounded by either urbanized development or intensive agricultural development (packinghouse and greenhouse), contains non-

prime agricultural soils and has a history of failed crops due in part to high groundwater. It was recognized that this site would provide an opportunity to establish a transition from higher density condominium development to the south to the agricultural uses to the north and east. This transition area supports City and Coastal Act policies for stabilizing the urban/rural boundary and concentrating urbanized development in areas contiguous to existing neighborhoods.

Ultimately chosen as one of two non-prime agricultural sites currently outside the City's boundary to be included within the City's Sphere of Influence, a Medium Density Residential (MDR) land use designation was applied to the site. This designation allows for consideration of residential uses ranging from 4.7 – 20 dwelling units per acre (du/ac). It was acknowledged that future development of the site would be constrained by the need to establish an appropriate barrier from the adjacent greenhouse and packinghouse operations in order to minimize conflicts.

As part of the approvals granted to the previous iteration of the proposed project, the annexation and rezone of the project site into the City was successfully completed in 2009. With the annexation into the City of Carpinteria, the zoning designation for the property was changed from its former Agricultural classification under the County's jurisdiction to a designation of Planned Unit Development under the City's jurisdiction.

Thresholds of Significance

The City of Carpinteria's *Guidelines for the Implementation of the California Environmental Quality Act of 1970, as Amended* (1994), does not provide specific criteria, but rather provides the following general thresholds:

- Development proposed on any property five acres or greater in size with a Prime Agricultural Soils designation may represent a significant environmental impact.
- Development proposed on any property in an Agricultural Preserve would represent a significant environmental impact.
- Development proposed on any property which in the past five years has been in agricultural production and which is agriculturally zoned may represent a significant environmental impact.
- Development of 10 or more acre non-prime parcels may be significant due to historical use or surroundings (conversion may make adjacent agricultural land ripe for conversion).

In addition, CEQA Appendix G states that a project will have a significant impact on the environment if it will:

- Conflict with adopted environmental plans and goals of the community where it is located.
- Convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land.

Impact Analysis

a) Would the project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is not currently zoned for agricultural uses nor is it under agricultural production. The project site is identified as Urban and Built-Up lands (non-prime soils) in the Farmland Mapping and Monitoring Program Important Farmlands Map (2014). Additionally the site is not in the Agricultural Preserve Program. Therefore, there would be no conversion, changes, or conflicts with agricultural use and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Although the project would be removing trees from the site, the property is not zoned as forest land, or timberland. The project site is designated as Medium Density Residential by the City of Carpinteria and zoned as Planned Unit Development District. Therefore, the proposed project is not on forest land and no impact would occur.

NO IMPACT

e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

As shown on the Santa Barbara County Zoning Map, the properties to the north and east of the project site are designated as Agriculture (AG I-5). This land is partially developed and contains greenhouses, packing warehouses and other developed agricultural uses.

The project proposes four residential units adjacent to the site's east property boundary. While the minimum distance from the structures is approximately 30 feet to the property line, the private backyards of these units would extend to the shared (eastern) property line. Conflicts could arise due to the placement of these units and backyards adjacent to the existing greenhouse and packinghouse operations. A County of Santa Barbara Flood Control channel and access road approximately 25 feet in width combined, help to buffer the agricultural operations to the east from the proposed residences. Thus, the minimum total distance between these units and the neighboring structures is approximately 76 feet which would help to dissipate noise, dust, odor and light impacts between the properties.

The project proposes 12 residential units along the site's northern property boundary, which is adjacent to property under a 100-year easement held by the County of Santa Barbara Flood Control District and operated as a siltation basin. This passive use requires only occasional maintenance so it avoids many of the noise, dust, odor and light impacts typically associated with agricultural uses. Nevertheless, the structures are separated from the siltation basin by approximately 40 feet.

While the adjacent existing agricultural operations are mostly contained within greenhouses and packing warehouses, and buffered by physical separation, there remains the potential for conflicts to occur between future residents of the proposed project and adjacent agricultural operations. If not addressed, ongoing complaints related to noise, dust, odors, or light impacts could interfere with or disrupt the viability of adjacent agricultural operations. Therefore, mitigation measures Ag-1 and Ag-2 are necessary to avoid potentially significant impacts to adjacent existing agricultural operations. Measure Ag-1 requires the project developer to erect and maintain a permanent perimeter wall around the proposed development to provide additional buffering from adjacent agricultural uses. Measure Ag-2 requires the recordation of an informational notice on the title of all residential units in the project alerting future homeowners that the property is adjacent to properties zoned for agricultural uses, and that any inconvenience or discomfort from properly conducted agricultural operations and/or Flood Control siltation basin maintenance activities, including noise, odors, dust, lighting and chemical usage, will not be deemed a nuisance. The buyer notification will be recorded with the Final Map, recorded with the Clerk Recorder's office for appearance in the future units' Title Reports, provided to Santa Barbara County Planning and Development to be noted on the Assessor's Parcel Map pages, and included in the proposed project's Conditions, Covenants and Restrictions (CC&Rs).

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. This particular 3.9-acre site was one of two non-prime soil sites selected to be included in the City's Sphere of Influence. Together with the 32-acre Creekwood site (with prime soils) that had already been within the City's boundaries, these properties constitute conversion of 43 acres of agricultural land under the Plan. The resultant impact to agricultural resources was determined to be a Class I Significant Unavoidable impact for which the City Council made a Statement of Overriding Considerations pursuant to CEQA §15093.

It is noted that ultimately, the California Coastal Commission denied the request to change the designation of the 32-acre Creekwood site from agriculture to residential, although the text and findings of the City's GP/CP EIR were never revised to reflect the denial of the Creekwood request, and reduction in total acreage to be converted out of agriculture.

Cumulative development throughout the Carpinteria Valley would incrementally contribute to agricultural resource impacts. However, the project's contribution to cumulative agricultural impacts would not be considerable and would be further reduced through the implementation of the project specific measures to buffer new residences from adjacent uses and addressing the buyer notification that the project has been developed next to an existing agricultural operation.

Required Mitigation Measures:

Ag-1 In order to protect the existing agricultural operations from encroaching development, site perimeter walls shall be installed along property lines as shown on the proposed site plan and maintained to protect agricultural land from residential intrusion for the life of the project. **Plan Requirement and Timing:** Plans shall be submitted prior to issuance of a Grading or Building Permit; the walls shall be installed prior to Occupancy of the first unit.

Ag-2 The following buyer notification shall be recorded on a separate informational sheet with the Final Map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Reports, provided to County Planning and Development to be noted on the Assessor's Parcel Map pages and included in the project CC&Rs:

IMPORTANT: BUYER NOTIFICATION
This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural growing, packing and shipping operations are located east and north of the property. Delivery trucks use the adjacent 20-foot driveway located south of the property to service the packing shed just east of the project site. Approximately 2.5 acres of the adjacent parcel to the north is occupied by a County of Santa Barbara Flood Control District siltation basin operating under a long term easement agreement. While the Green Heron Spring project design includes site walls and landscape buffers to reduce possible noise, light, odors and dust from impacting residents of the Green Heron project, future buyers are to be notified that these are existing conditions and will not be considered by the City of Carpinteria to be a nuisance requiring extraordinary actions by the adjacent agricultural operators, County of Santa Barbara Flood Control District or landowners. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.

Residual Impact: No project specific impact. Cumulative development throughout the Carpinteria Valley would incrementally contribute to agricultural resource impacts. However, the project's contribution to cumulative agricultural impacts would not be considerable.

3. AIR QUALITY Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Conflict with or obstruct implementation of the applicable air quality plan			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation			X	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)			X	
d) Expose sensitive receptors to substantial pollutant concentrations			X	
e) Create objectionable odors affecting a substantial number of people			X	

Existing Environmental Setting:

The project site is within the South Central Coast Air Basin (SCCAB), which includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The Santa Barbara County Air Pollution Control District (SBCAPCD) is the designated air quality control agency in the Santa Barbara County portion of the SCCAB. The local air quality management agency is required to monitor air pollutant levels to ensure that applicable air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." Santa Barbara County is designated in nonattainment for the state eight-hour ozone standards and the state PM_{10} standard. The County is designated unclassifiable/attainment for the 2008 federal 8-hour ozone standard and the federal and state $PM_{2.5}$ standards.

According to the SBCAPCD's Scope and Content of Air Quality Sections in Environmental Documents (April 2015b), construction-related NO_X, reactive organic compounds (ROC), PM_{10}, and $PM_{2.5}$ emissions from diesel and gasoline powered equipment, paving, and other activities, should be quantified. The SBCAPCD has not adopted quantitative thresholds of significance for construction emissions since such emissions are temporary. However, SBCAPCD uses 25 tons per year for all pollutants except CO as a guideline for determining the significance of construction impacts. In addition, standard dust control measures must be implemented for any discretionary project involving earth-moving activities, regardless of size or duration. According to the SBCAPCD, proper implementation of these required measures reduces fugitive dust emissions to a less than significant level (SBCAPCD, April 2015b).

Thresholds of Significance:

The City of Carpinteria's *Guidelines for the Implementation of the California Environmental Quality Act of 1970, as Amended* (1994), states that for air quality, a project will ordinarily have a significant effect on the environment if it will:

- *Violate any ambient State or Federal air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.*

In addition, as described in the *Scope and Content of Air Quality Sections in Environmental Documents* (April 2015b), a project would not have a significant air quality effect on the environment if operation of the project would:

- *Emit (from all project sources, both stationary and mobile) less than the daily trigger for offsets or Air Quality Impact Analysis set in the APCD New Source Review Rule[1], for any pollutant (i.e., 240 pounds/day for ROC or NO_X; and 80 lbs/day for PM_{10}. There is no daily operational threshold for CO; it is an attainment pollutant[2]); and*
- *Emit less than 25 lbs/day of NO_X or ROC from motor vehicle trips only; and*
- *Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); and*
- *Not exceed the APCD health risk public notification thresholds adopted by the APCD Board (10 excess cancer cases in a million for cancer risk and a Hazard Index of more than one (1.0) for non-cancer risk; and*
- *Be consistent with the latest adopted federal and state air quality plans for Santa Barbara County*

Impact Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

According to the SBCAPCD Guidelines, to be consistent with the SBCAPCD 2016 Ozone Plan a project must conform to the local General Plan and must not result in or contribute to an exceedance of the City's population growth forecast.

As discussed in Section 13(a), Population, the California Department of Finance (DOF) states that the population of Carpinteria in 2016 was 13,928. The Santa Barbara County Association of Governments (SBCAG) estimates that the City's population will increase to 14,792 by 2040.

The DOF estimates that there are approximately 2.81 persons per household in Santa Barbara County (DOF, 2016). Based on this average, the 29 net new units would accommodate approximately 81 people. This would increase the population of Carpinteria to 14,009. This increase in population is within the projected population increase for the City and within forecasts made by SBCAG. Therefore, the increase would not conflict with the implementation of the Ozone Plan.

LESS THAN SIGNIFICANT IMPACT

1 The APCD New Source Review Rule as it existed at the time the APCD Environmental Review Guidelines were adopted (in October, 1995).

2 Due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with congested intersections are not expected to exceed the CO health-related air quality standards. Therefore, CO "Hotspot" analyses are not required anymore.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

The proposed residential development would generate both temporary construction and long-term operational emissions. Emissions generated during construction are typically associated with the operation of heavy diesel equipment and grading. Operational emissions would primarily be dependent upon vehicular traffic increases. Both construction- and operational-phase emissions are discussed below.

Construction Impacts

Table 2 summarizes the estimated maximum daily emissions of pollutants during each year of the construction period in compliance with the above-described requirements. Annual construction emissions of all criteria pollutants would be below the SBCAPCD recommended 25 tons per year guideline. Nonetheless, the SBCAPCD requires implementation of dust and diesel particulate emission control requirements for all projects involving earthmoving activities. With implementation of standard dust and diesel particulate emission control measures, temporary construction emissions would be further reduced. SBCAPCD Rule 345 regulates fugitive dust for any activity associated with construction or demolition of structures.

Table 2 Estimated Construction Maximum Daily Air Pollutant Emissions (tons/year)

	Maximum Emissions				
Construction Phase*	**ROG**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2018 Maximum	0.2	2.0	1.2	0.2	0.1
2019 Maximum	0.4	3.1	2.4	0.2	0.2
2020 Maximum	0.4	1.3	1.1	0.1	0.1
SBCAPCD Guideline tons/year	*25*	*25*	*N/A*	*N/A*	*N/A*
Guideline Exceeded?	**No**	**No**	**N/A**	**N/A**	**N/A**

* All calculations were made using CalEEMod. See Appendix A for calculations. Grading, Paving, Building Construction and Architectural Coating totals include worker trips, soil export hauling trips, construction vehicle emissions and fugitive dust. Numbers may not add up due to rounding.

N/A = not available

The proposed project would be required to comply with Rule 345, as described below.

- *No person shall engage in any construction or demolition activity or earth moving activities subject to this rule in a manner that causes discharge into the atmosphere beyond the property line visible dust emissions of 20% opacity or greater for a period or periods aggregating more than 3 minutes in any 60 minute period.*

- *No person, including facility or site owner or operator of source, shall load or allow the loading of bulk materials or soil onto outbound trucks unless at least one of the following dust prevention techniques is utilized:*
    - *Use properly secured tarps or cargo covering that covers the entire surface area of the load or use a container-type enclosure.*
    - *Maintain a minimum of 6 inches of freeboard below the rim of the truck bed where the load touches the sides of the cargo area and ensure that the peak of the load does not extend above any part of the upper edge of the cargo area.*
    - *Water or otherwise treat the bulk material to minimize loss of material to wind or spillage.*
    - *Other effective dust prevention control measures approved in writing by the Control Officer.*
- *Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be controlled as outlined below:*
    - *Visible roadway dust shall be minimized by the use of any of the following track-out/carry-out and erosion control measures that apply to the project or operations: track-out grates of gravel beds at each egress point, wheel-washing at each egress point during muddy conditions, soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; and*
    - *Visible roadway dust shall be removed at the conclusion of each work day when bulk material removal ceases, or every 24 hours for continuous operations. If a street sweeper is used to remove any track-out/carry-out, only a PM_{10}-Efficient Street Sweeper shall be used. The use of blowers for removal of track-out/carry-out is prohibited.*

Operational Impacts

Table 3 summarizes the estimated emissions associated with the ongoing operation of the proposed project. The majority of project-related operational emissions would be due to area emissions and vehicle trips to and from the site. Associated Transportation Engineers traffic study for the project was used to estimate trip generation and the associated emissions. Project traffic is estimated at 363,285 annual vehicle miles traveled (see Section 16, *Transportation*). As shown in Table 3, project-generated emissions would not exceed SBCAPCD recommended thresholds for ROG, NO_X, and PM_{10}.

The project also includes the addition of outdoor barbeque areas. The outdoor barbeques would be gas; therefore, they would not contribute to operational air pollutant emissions from wood burning sources. The project is required to adhere to the Residential Mandatory Measures in the 2016 CALGreen Code requirements (4.503.1), which pertains to gas installed fireplaces.

Table 3 Project Operational Emissions

Emissions Source	Estimated Emissions (lbs/day)				
	ROG	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Energy (electricity and natural gas)	>0.1	0.2	0.1	>0.1	>0.1
Mobile	0.4	1.4	4.2	0.8	0.2
Area	1.6	>0.1	2.5	>0.1	>0.1
Total Mobile + Area Emissions	**2.0**	**1.4**	**6.7**	**0.8**	**0.2**
Thresholds (Mobile and Area Sources)	*240*	*240*	*None*	*80*	*None*
Threshold Exceeded?	**No**	**No**	**N/A**	**No**	**N/A**
Thresholds (Mobile Sources)	*25*	*25*	*None*	*None*	*None*
Threshold Exceeded?	**No**	**No**	**N/A**	**No**	**N/A**

Notes: See Appendix A for CalEEMod computer model output. Note: Numbers may not add up due to rounding.

LESS THAN SIGNIFICANT IMPACT

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

e) Would the project create objectionable odors affecting a substantial number of people?

The state Air Resources Board's (ARB) Air Quality and Land Use Handbook: A Community Health Perspective (April 2005) recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The project site is not located within 500 feet of a freeway or an urban road with 100,000 vehicles/day, or a rural road with 50,000 vehicles/day. U.S. 101 is the nearest high volume roadway and it is located approximately 850 feet south of the project site. Therefore, the project would not site sensitive receptors within 500 feet of a freeway or an urban road with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day, and the project would not create a human health hazard by exposing sensitive receptors to substantial pollutant concentrations.

Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project involves residential uses and is not expected to produce objectionable odors. Other odors, including the smells of oil or diesel fuels, would be limited to project construction. All off-road construction equipment would be covered by the ARB anti-idling rule (SS2449[d][2]), which limits idling to five minutes. Project construction would be temporary and would not produce long-term odors.

The Westland Floral Company, Inc. J&C Farms own and operate a commercial cut-flower growing and shipping business encompassing approximately 47 acres abutting the project site along the east and north property lines. The Floral Company utilizes enclosed greenhouses, an enclosed warehouse, and a packing shed located east of the project. Any odors, pesticides, or chemicals produced or used by the

agricultural operations, are generally trapped inside the enclosed warehouse and greenhouses to prevent aerial drift into adjacent land uses. In addition, the buyer beware notice for the project listed in required Mitigation Measure Ag-2 states, *Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.* Impacts regarding odors from the project would therefore be less than significant.

LESS THAN SIGNIFICANT IMPACT

Recommended Mitigation Measures:

AQ-1 If the construction site is graded and left undeveloped for over three weeks, the applicant shall employ the following methods immediately to inhibit dust generation:

a. seeding and watering to revegetate graded areas; and/or

b. spreading of soil binders; and/or

c. any other methods deemed appropriate by Community Development.

Plan Requirements: These requirements shall be noted on all plans. **Timing:** Plans are required prior to issuance of a Grading or Building Permit. **Monitoring:** Grading Inspector shall perform periodic site inspections.

AQ-2 Dust generated by development activities shall be kept to a minimum with a goal of retaining dust on the site by following the dust control measures listed below. During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.

b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.

c. During construction, all trucks entering or exiting the site carrying soil or debris shall be tarped.

Plan Requirements: All requirements shall be shown on grading and building plans. **Timing:** Condition shall be adhered to throughout all grading and construction activities. **Monitoring:** CDD shall ensure measures are on plans. CDD Grading and Building Inspectors shall spot check; Grading and Building Inspectors shall ensure compliance on- site. APCD inspectors shall respond to nuisance complaints.

AQ-3 The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. **Plan Requirements:** The name and telephone number of such persons shall be provided to the APCD and the Community Development Department. **Timing:** The dust monitor shall be

designated prior to issuance of a Grading or Building Permit. **Monitoring:** CDD shall contact the designated monitor as necessary to ensure compliance with dust control measures.

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally increase air pollutant emissions, which could cumulatively degrade regional air quality. However, all new development within Carpinteria would be consistent with the City's General Plan/Coastal Plan; therefore, all such development would be within the projections contained in the adopted SBCAPCD 2016 Ozone Plan. Therefore, cumulative development in Carpinteria should not hinder progress toward attainment of the County's air quality objectives and cumulative impacts are considered less than significant.

Residual Impact: No Impact.

4. BIOLOGICAL RESOURCES Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance		X		
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

In December 2016, Rincon Consultants, Inc. (Rincon) conducted a Biological Resource Assessment (BRA) for the project site. The entire BRA can be found in Appendix B. Rincon also prepared a 2017 Tree Assessment and Protection Plan (TAPP) (Appendix C), which updates the 2005 TAPP prepared

by Bill Spiewak, Registered Consulting Arborist #381, and an update to the 2005 Wetland Habitat Enhancement and Monitoring Plan (WHEMP) prepared by Katherine Rindlaub, Biologist. The studies prepared by Rincon are referred to as the 2017 TAPP (Appendix C) and 2017 WHEMP (Appendix D) in the text below and are required pursuant to Carpinteria Municipal Code Chapter 14.43. The analysis below is based largely on these three studies.

Existing Environmental Setting

The project site was historically utilized as an avocado orchard and has been subject to extensive modification in the past. As previously mentioned in Section 8, Project Description, the project site contains multiple structures including two residences, sheds, and an outbuilding. The project site also contains numerous native and non-native plant species and a man-made agricultural pond that was created near the southern boundary of the project site to regulate the high water table that periodically flooded the orchard. During the time of the survey, approximately three inches of water was observed in a small portion of the pond.

The project site's elevation ranges from approximately three to six meters (approximately 10 to 20 feet) above mean sea level, and the topography of the project site is characterized by a minor gradual downward slope southward towards the unnamed private access road adjacent to the project site's southern border. According to the United States Department of Agriculture Web Soil Survey (WSS), the project site is situated on soils mapped as the Camarillo Series, and more specifically named Camarillo, variant, fine sandy loam. This series is generally found on flood plain areas and consists of very deep, somewhat poorly drained loamy soils with moderate permeability that formed in alluvium derived from sedimentary rocks. This type of soil is typically used for growing irrigated truck, field, and specialty crops.

Vegetation

The project site contains several vegetation communities, including coast live oak woodland, arroyo willow woodland, non-native grassland, and non-native ornamental trees. Numerous ornamental species are present throughout the project site, reflecting the site's current and historic use as a residential property. The oak woodland onsite is dominated by coast live oak in the tree layer, with no shrub layer. The herbaceous layer is dominated by non-native, invasive species such as Bermuda buttercup (*Oxalis pes-caprae*), periwinkle (*Vinca major*), and a mix of English ivy (*Hedera helix*) and cape ivy (*Delairea odorata*). One dense stand of non-native trees (*Eugenia* sp.) is present at the center of the site. The open non-native grassland community is dominated by various species of non-native grasses (*Bromus* sp.) as well as Bermuda buttercup. This habitat is mowed and utilized as a lawn for the existing residences onsite. The pond is dominated by arroyo willow in the tree layer. The slopes of the pond are steep (2:1 slope in some areas) and support invasive species such as periwinkle, cape ivy and English ivy. Cattails (*Typha* sp.) fill the bottom of the pond with nut sedge (*Cyperus eragrostis*) present at the perimeter. Duckweed (*Lemna* sp.) was also observed within the limited amount of open water.

General Wildlife

The project site provides suitable habitat for wildlife species that commonly occur in suburban areas of the City. The wildlife species detected onsite are common, widely distributed, and adapted to living in proximity to human development. Common avian species detected on, or adjacent to, the site include California scrub-jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), and American crow (*Corvus brachyrhyncos*). The wildlife and plant species observed on the project site are listed in Table 1 of Appendix B.

Regulatory Setting

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies with the land use control and planning authority of local jurisdictions. The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the State under CEQA and has direct jurisdiction under the California Fish and Game Code (CFGC). Under the State and Federal Endangered Species Acts, the CDFW and the U.S. Fish and Wildlife Service (USFWS) have direct regulatory authority over species formally listed as Threatened or Endangered. The United States Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the United States, under Section 404 of the Federal Clean Water Act (CWA). Under Section 401 of the CWA, every applicant for a federal permit or license for activities that may result in a discharge to a water body requires State Water Quality Certification (WQC) from the Regional Water Quality Control Board (RWQCB) ensuring that the proposed activity will comply with State water quality standards.

Plants or animals may be considered to have "special-status" due to declining populations, vulnerability to habitat change, or restricted distributions. Special-status species are classified in a variety of ways, both formally (e.g. State or Federally listed Threatened and Endangered Species) and informally ("Special Animals"). Species may be formally listed and protected as Threatened or Endangered by the CDFW or USFWS or as California Fully Protected (CFP). Informal listings by agencies include California Species of Special Concern (SCC, a category used by the CDFW for those species considered indicators of regional habitat changes or are potential future protected species), or as USFWS Candidate taxa. CDFW and local governmental agencies may also recognize special listings developed by focal groups (e.g., Audubon Society Blue List; California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR); U.S. Forest Service regional lists). Section 3503.5 of the CFG specifically protects birds of prey, and their nests and eggs against take, possession, or destruction. Section 3503 of the CFG also incorporates restrictions imposed by the federal Migratory Bird Treaty Act (MBTA) with respect to migratory birds (consists of most native bird species).

Impact Analysis

a) *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*

Special-status species are those plants and animals that are: 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (FESA); 2) listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA); 3) recognized as SSC by the CDFW; 4) afforded protection under MBTA (16 U.S.C. §§ 703–712) and/or CFGC (§§ 3503 3503, 3503.5, and 3513); and 5) occurring on lists 1 and 2 of the CDFW CRPR system per the following definitions:

- List 1A = Plants presumed extinct in California
- List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80 percent occurrences threatened)

- List 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened or no current threats known)
- List 2 = Rare, threatened or endangered in California, but more common elsewhere

In addition, special-status species are ranked Globally (G) and Sub-nationally (S) 1 through 5 based on NatureServe's (2010) methodologies:

- G1 or S1 - Critically Imperiled Globally or Sub-nationally (state)
- G2 or S2 - Imperiled Globally or Sub-nationally (state)
- G3 or S3 - Vulnerable to extirpation or extinction Globally or Sub-nationally (state)
- G4 or S4 - Apparently secure Globally or Sub-nationally (state)
- G5 or S5 - Secure Globally or Sub-nationally (state)
- ? - Inexact Numeric Rank
- T - Infraspecific Taxon (subspecies, varieties, and other designations below the level of species)
- Q - Questionable taxonomy that may reduce conservation priority

No special status plant or wildlife species were observed or detected during the field survey. A review of the *City of Carpinteria General Plan / Local Coastal Land Use Plan and Environmental Impact Report* (April 2003) Open Space, Recreation, and Conservation Element did not identify any habitat onsite for any threatened or rare species as listed in Title 14 of the California Code of Regulations. Based on a California Natural Diversity Data Base records search using RareFind 5, 10 special-status plant species, one sensitive vegetation community, and 11 special status wildlife species were identified within a five-mile radius of the site. An additional 44 rare plant species have been recorded within the USGS Carpinteria, California 7.5-minute quadrangle in which the site is located, and eight surrounding quadrangles. Three additional special status wildlife species were also assessed for their potential to occur on the project site due to known occurrences in the region. These species include the white-tailed kite (*Elanus leucurus*) (CDFW Fully Protected), western pond turtle (*Emys marmorata*) (CDFW SSC), and two-striped garter snake (*Thamnophis hammondii*) (CDFW SSC).

The BRA determined the potential for each special status species to occur at the project site based upon various species' life history information and the range and distribution of those special status species known to occur in the region. This information was correlated with onsite conditions such as vegetation communities, habitat composition and quality, soils, aquatic resources, and elevations. The 9-quad CNPS species search area included high elevation chaparral and forest vegetation communities in the Santa Ynez Mountains. Plants that occur in these habitats are not expected to occur at the site. Additionally, other plant species are not expected to occur onsite due to their distributional range or the lack of specific suitable habitat, soils, and substrate. One of the 10 plant species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by CDFW or USFWS has a low potential to occur on the project site. However, this species, Coulter's goldfields (*Lasthenia glabrata* ssp*. coulteri*), is not likely to occur since it prefers salt marshes, playas and vernal pools, which are not present. Additional factors that limit the potential for the species to occur include the project site's history of disturbance as well as the site's geographic location. All proposed disturbance areas were systematically surveyed for all special status plants and no special status species were observed during the site survey conducted for this report. No impacts to special status plant species are expected.

Seven of the 14 wildlife species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by CDFW or USFWS have a low potential to occur on the project site. These species include: monarch butterfly (*Danaus plexippus*), California red-legged frog

(*Rana draytonii*), white-tailed kite, Western pond turtle, two-striped garter snake, and Townsend's big-eared bat (*Corynorhinus townsendii*). Special-status wildlife species typically have specific habitat requirements that include vegetation communities, elevations, topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter). Much of the land within Carpinteria has been converted from open space to commercial, agricultural, residential, and/or recreational uses. As a result, the site is located in an area where habitat has been fragmented by urban development. Developed areas and roads, including U.S. 101 and State Route 192 (SR-192), are within approximately 0.4 and 0.15 miles, respectively, of the project site. The existing developed areas and associated disturbances to wildlife limit the quantity and quality of suitable habitat for special status wildlife, and reduce the ability for self-sustaining special status wildlife species populations to occur.

The pond onsite was previously assessed for its potential to support multiple sensitive species. Previous assessments include the following: a USFWS protocol level red-legged frog (CRLF) survey conducted by Carpinteria City Consulting Biologist Vince Semonsen, a sensitive amphibian and reptile evaluation prepared by Wildlife Biologist Paul W. Collins (June 30, 2005), and a reconnaissance survey for fairy shrimp habitat prepared by Senior Biologist Jeffrey Trow of Foothill Associates (January 9, 2006). In addition, a CRLF night-time survey was conducted by Rincon Consultants Biologist, Thea Benson (July 13, 2017). Per the survey, no CRLF were observed (see Appendix E for the CRLF Survey). According to the previous reports and FMND (2007), the pond does not support, and is not expected to support, any rare or special status species. Current site conditions remain similar to those described in the previous reports, and the site's potential to support rare or special status species has not changed.

Monarch butterfly overwintering roosts are also protected by CDFW. Monarch roosts observed in the Southern California region are generally made up of a stand of eucalyptus trees that contain an open understory surrounding a riparian zone. The project site does not contain the preferred monarch roosting habitat and is not identified in the document "Monarch Butterfly Overwintering Sites in Santa Barbara County, California" (D. Meade, Ph.D. August, 1999). Therefore, monarch butterflies are not expected to roost onsite.

Due to the lack of suitable habitat on the project site as a result of habitat fragmentation by urban development, the project is not expected to have a substantial adverse effect on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. This assessment is consistent with the special status species assessment conducted for the project site and subsequent FMND (2007). The project site contains habitat that can support nesting birds, including raptors, protected under the CFGC and the MBTA. The project could adversely affect raptors and other nesting birds if construction occurs while they are present on or adjacent to the site, through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of the MBTA and CFGC 3503 et. seq., and a potentially significant impact. Implementation of Mitigation Measure Bio-1 would reduce potential impacts to less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in The California Natural Diversity Database (CNDDB). Similar to special-status plant and wildlife species,

vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive.

Plant species observed / detected on the project site include a mix of native and non-native species. No CNDDB records exist on the project site for special-status species or sensitive natural communities and no special status species have been observed during multiple site surveys. The man-made agricultural pond onsite contains wetland vegetation that would be temporarily impacted by project construction and are less than significant impacts. Adverse effects resulting from the temporary impacts to the pond are discussed in further detail in subsection “c” below.

The proposed project does not have the potential to result in direct or indirect adverse effects to sensitive habitat types or vegetation communities as identified by the CNDDB. There would be no impact.

LESS THAN SIGNIFICANT IMPACT

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The man-made agricultural pond onsite contains wetland habitat. Proposed project activities include dredging, desilting, and removing vegetation from the pond and completing a habitat enhancement of the pond and surrounding upland habitat. The Ellinwood Parcel Overlay District has specific requirements pertaining to the pond laid out in the Carpinteria Municipal Code Chapter 14.43.030 - Development standards. In addition, Katherine Rindlaub prepared a Conceptual Wetlands Mitigation and Enhancement Plan for the project in 2005. Rincon prepared a 2017 update to the 2005 WHEMP that includes requirements specified in the Chapter 14.43.030, such as a 35-foot setback from the pond to be restored, recommendations and measures to ensure the level of the pond will not be allowed to drop more than six inches below the elevation of the average water level, and a five-year monitoring plan. The 2017 update to the WHEMP is included as Appendix D.

Previous pond assessments have determined that the pond and associated wetland vegetation does not support, and is not expected to support, any SSC. Per the previous FMND prepared for the project site, the USACE and EPA have determined that they do not have jurisdiction over the agricultural pond because it is not connected to waters of the U.S. as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.). The pond is regulated under the Central Coast Basin Plan of the RWQCB ~~and considered a water of the state.~~ The site is located within the California Coastal Zone; therefore the proposed project is also regulated by the California Coastal Commission (CCC). In September 1978, the property owner was granted permission by the County of Santa Barbara, and a Coastal Development Permit (184-01) issued by the Coastal Commission, to re-grade the property, resulting in creation of the existing pond. CCC regulations typically exempt man-made agricultural ponds from wetland designation pursuant to certain criteria as enumerated in California Code of Regulations Section 13577(b)(2). As part of the project, the pond would be incorporated into the proposed development and would be dredged, desilted, and removed of vegetation. The 2017 WHEMP outlines restoration to be implemented following disturbance to the pond. Compliance with the WHEMP pursuant to Municipal Code requirements would improve the habitat value of the pond, through restoration in the required 35-foot setback, as compared to existing conditions.

WHEMP requirements include a development setback of 35 feet from the pond and that all wetland/upland areas within the 35-foot setback shall be restored/enhanced to increase their habitat value. Additionally, all landscaping of private yards for residential units located within 35 feet of the pond/stormwater detention basin shall be limited to appropriate native plants consistent with the goals

and objectives of the WHEMP. Implementation of the WHEMP would increase the habitat complexity and species diversity of the pond, improving the functional value of the habitat for native birds and wildlife.

Facility construction adjacent to the pond could result in stormwater runoff entering the pond, potentially impacting water quality. Section 9, Hydrology and Water Quality, of this Initial Study/Mitigated Negative Declaration discusses compliance with Section 402 with the CWA, compliance with the City of Carpinteria's Post Construction Requirements for new development projects, and the requirement for the project applicant to comply with a General Construction Permit under the National Pollutant Discharge Elimination System (NPDES). Under the conditions of the permit, the project applicant would be required to eliminate or reduce non stormwater discharges to waters of the nation, develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for project construction activities, and perform inspections of the storm water pollution prevention measures and control practices to ensure conformance with the site SWPPP.

The project would result in temporary adverse effects to wetland vegetation associated with the pond. Through the implementation of required mitigation measures Bio-2 and Bio-3, impacts would be less than significant with adherence to the WHEMP and SWPPP.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites are present on the project site. Therefore, the proposed project would not have an impact on wildlife movement or native wildlife nursery sites. There would be no impact.

LESS THAN SIGNIFICANT IMPACT

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project site is subject to the requirements of the Carpinteria Municipal Code Chapter 14.43, Ellinwood Parcel (APN 004-013-026) Overlay District. The Overlay District provides specific development standards that all new development on the project site shall be required to comply with, including a Tree Protection and Replacement Plan and a Wetland Habitat Enhancement and Monitoring Plan (WHEMP). In 2005, a Tree Assessment and Protection Plan (TAPP) and WHEMP were prepared for the project site. In May 2017, Rincon prepared an updated TAPP (2017 TAPP) and WHEMP (2017 WHEMP) based on current site conditions and in compliance with Carpinteria Municipal Code Chapter 14.43. Tree Removal Guidelines in the City's *Revised Environmental Review Regulations Pursuant To the California Environmental Quality Act of 1970 And Carpinteria Municipal Chapter 8.48, As Amended* are utilized for the review of impacts to trees.

<u>Tree Assessment and Protection Plan</u>

As described in the 2017 TAPP, there are 59 trees on the project site. Carpinteria Municipal Code Chapter 8.48 defines specimen trees as trees, shrubs or other plantings which have been designated by resolution of the City Council as having a high degree of value due to type, age, size, conformation or location. Specimen species observed include coast live oak, California sycamore, cork oak, king palm, Mexican fan palm, Brazilian pepper, and coast redwood. A line of eucalyptus trees is present

along the east side of the study area, as well as sporadically on the south. The project would require the removal of 13 specimen trees including: nine coast live oaks, one coast redwood, one Mexican fan palm, one cork oak, and one California sycamore. It will also require the relocation of one coast live oak tree.

In addition to the specimen trees, biologically valuable trees, native trees whose size does not meet the definition of a specimen tree, were observed. Seven additional biologically valuable coast live oaks and one California sycamore are present. These trees are all less than six inches in diameter; and therefore, are not specimen trees. In addition, a small cluster of eucalyptus surrounding the specimen sycamore trees are considered biologically valuable.

The 2017 TAPP found that the overall condition of the trees in 2016 has declined compared to the 2005 observations when the majority of trees were rated in good to fair condition. At present the majority (75 percent) are in fair to poor condition. This may be a result of either root rot caused from a persisting perched water table or from a lack of water as result of the drought that has been ongoing for the past five years. Table 3 of the 2017 TAPP outlines impacts to each individual tree and recommended mitigation measures. In instances where trees are in poor condition or structural integrity could potentially be compromised by the project, the TAPP recommends removal of the tree. The criteria used to determine whether a tree should be removed is dependent upon whether 30 percent of more of the tree would be impacted by the project. The project would remove a total of 64 biologically valuable trees; 11 specimen trees and 53 trees that are not specimens. Carpinteria Municipal Code Section 14.43.030(3)(k) requires replacement of any native trees removed, relocated and/or damaged with saplings on a ten to one basis. Replacement plantings will occur at a 10 to 1 ratio as approved by the Ellinwood Parcel Overlay District. In compliance with Carpinteria Municipal Code Chapter 14.43, the TAPP provides a number of recommendations to protect the remaining trees and for the planting and maintenance of replacement trees. Compliance with the TAPP as required per Carpinteria Municipal Code Chapter 14.43 and included as mitigation measure BIO-3 would ensure impacts on local tree policies would be less than significant.

Wetland Habitat Enhancement and Monitoring Plan

Carpinteria Municipal Code Chapter 14.43 requires the preparation of a WHEMP. This WHEMP is discussed in subsection “c” above. Compliance with the WHEMP is required per the municipal code and included as mitigation measure BIO-2 would ensure impacts on local policies pertaining to wetlands would be less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is not subject to an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City’s General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to biological resource impacts. However, the project’s contribution to cumulative biological resource impacts would not be considerable

and would be further reduced through the implementation of the project specific measures addressing wetland restoration/enhancement, native tree protection and replacement, and nesting bird surveys.

Required Mitigation Measures

The below Mitigation Measures reduce impacts to special status species, migratory birds, native trees and wetland habitat less than significant levels.

Bio-1 To avoid disturbance of nesting and special-status birds, including raptor species protected by the MBTA and CFGC, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30), if feasible. If construction must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 14 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the Project Boundary, including a 300-foot buffer (500-foot for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. The qualified biologist shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program. A report summarizing the results of the nesting bird survey and monitoring activities shall be prepared and submitted to CDD once all survey and monitoring activities are completed.

Bio-2 In order to protect the existing pond and improve its habitat functions and values, the applicant shall implement the Wetlands Mitigation Program contained within the Wetlands Mitigation Habitat Enhancement and Monitoring Plan. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Wetlands Mitigation Program to CDD for review and approval. The Final Wetland Mitigation Program shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision requiring all landscape areas within the mandatory 35-foot setback from the onsite pond/wetland, including private yards of individual residences, be maintained in, and limited to, appropriate native plants, and shall be enforced and maintained by the Homeowners' Association. All aspects of the Program shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee successful re-establishment of the wetland and upland habitat. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD shall conduct site inspections throughout all phases of development to ensure compliance with the Program. Release of performance security requires CDD staff signature.

Bio-3 In order to protect existing native trees and minimize adverse effects of grading and construction onsite, the applicant shall implement the recommendations contained within the Tree Assessment and Protection Plan. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Tree Protection and Replacement Plan to CDD for review and approval. The Final Tree Protection and Replacement Plan shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision prohibiting the use of rodenticides containing anticoagulant compounds, and shall be enforced and maintained by the Homeowners' Association. All aspects of the plan shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable *to* CDD to guarantee tree replacement. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD, or a qualified monitor acceptable to the CDD, shall conduct site inspections throughout all phases of development to ensure compliance with all tree protection and replacement measures. Release of performance security requires CDD staff signature.

Bio-4 To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be modified to be wildlife permeable (i.e., with a wooden (not wire) rail at the top and with a space greater than 14 inches between the ground and the bottom rail). **Plan Requirements and Timing:** The applicant shall provide a detail of the wildlife permeable fence sections and the location of where the fence would be installed on the construction and/or grading and building plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and staff shall site inspect throughout the construction period to ensure proper installation.

Residual Impact: With incorporation of these mitigation measures, residual impacts would be less than significant.

5. CULTURAL RESOURCES Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5		X		
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5		X		
c) Disturb any human remains, including those interred outside of formal cemeteries		X		
d) Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074		X		

Existing Environmental Setting

The project site has been previously disturbed by both agricultural and residential development. The site is not identified as a sensitive cultural area on any City or County documents, and there are no known cultural resources within the site. According to records at the County of Santa Barbara, a survey was completed on the parcel directly to the south (E-764), and no sensitive resources were found. Pursuant to Government Code Section 65352.3 and Senate Bill 18 [2004], the Santa Ynez Band of Chumash (Mission) Indians Tribal Elders Council was consulted. The Elders Council has no immediate knowledge of the project area as being spiritual or ceremonial.

The applicant has submitted a *Historic Resources Report* dated October 13, 2005 (Appendix F), prepared by San Buenaventura Research Associates assessing the historical and architectural significance of the existing structures and any adverse impacts on historic resources with the implementation of the proposed project. The Report concludes that due to low ranking scores, the property does not meet the criteria for landmark eligibility for the County of Santa Barbara. The Report continues that, because the property does not appear to qualify for listing on the National Register of Historic Places (NHRP), California Register of Historic Resources (CRHR) or local landmark listing, the proposed project does not represent an adverse impact on historic resources.

Thresholds of Significance

Per the definition from the Carpinteria Environmental Review Guidelines, the cultural resources thresholds determine whether a project may disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group and whether it may conflict with established religious uses of the area. Cultural resources include prehistoric, historic, and Native American ethnic sites (1994).

Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

b) Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

d) Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?

The site is developed with two single family residences, an outbuilding, and unpaved driveways; however, most of the site contains vegetation and/or open space. Macfarlane Archaeological Consultants conducted a Phase 1 Archaeological Resources Survey, dated July 20, 2017. The Survey is attached and included in Appendix F. Since the site was previously developed, any surficial cultural, archaeological, geological, or paleontological resources that may have been present at one time have likely been disturbed. Therefore, the topmost layers of soil in the project area are not likely to contain intact cultural resources. The possibility of encountering previously undisturbed cultural or paleontological resources during project construction or impacting historical, archaeological, paleontological, or unique geological resources is remote. However, due to large areas of the project site that are unpaved and undeveloped, intact cultural deposits could potentially be present. Thus, ground disturbing activities could potentially disturb as yet undiscovered cultural resource deposits, which would result in a potentially significant impact. Implementation of mitigation measure CR-1 would reduce impacts to a less than significant level.

If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to the Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to cultural resource impacts.

However, the project's contribution to cumulative cultural resource impacts would not be considerable and would be further reduced through the implementation of the project specific measure addressing standard discovery provisions.

Required Mitigation Measures

The following mitigation measure would reduce the potential of adversely impacting cultural resources to a less than significant level.

CR-1 In the event archaeological remains are encountered during grading, work shall be stopped immediately or redirected until a CDD-qualified archaeologist and Native American representative are retained by the applicant to evaluate the significance of the find pursuant to Phase 2 investigation specifications of the City Archaeological Guidelines. If remains are found

to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field. The qualified archaeologist and a Native American monitor shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program.

Residual Impact: With incorporation of this standard discovery mitigation measure, impacts to cultural resources would be less than significant.

6. GEOLOGY AND SOILS Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault			X	
2. Strong seismic ground shaking			X	
3. Seismic-related ground failure, including liquefaction		X		
4. Landslides		X		
b) Result in substantial soil erosion or the loss of topsoil		X		
c) Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse		X		
d) Be located on expansive soil, as defined in Table 1-B of the *Uniform Building Code*, creating substantial risks to life or property		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater				X

Existing Environmental Setting

Earth Systems Southern California prepared a Geotechnical Engineering Report, dated March 17, 2005. An update to this report was prepared by Earth Systems Southern California and is dated July 2017. Both of these studies are included as Appendix G to this document. The report documents the site setting and soil conditions and addresses potential geologic hazards regarding fault rupture, seismic shaking, liquefaction, landslides and rockfall and seismically induced flooding. Recommendations regarding grading and structural design are also included in the report. The report concludes that the site is suitable for the proposed development from a Geotechnical Engineering

standpoint provided that the recommendations contained in the report are successfully implemented in the field.

The Geotechnical Engineering Reports are on file and may be reviewed at the City of Carpinteria Community Development Department.

Thresholds of Significance

The City of Carpinteria's *Guidelines for the Implementation of the California Environmental Quality Act of 1970, as Amended* (1994), states the following conditions or impacts shall be considered significant:

- The graded or cleared portion of the site includes more than 10,000 square feet of area having a slope greater than 15 percent.
- There is a significant risk that more than 2,500 square feet will be unprotected or inadequately protected from erosion during any portion of the rainy season.
- Grading or clearing will occur within 50 feet of any watercourse or 100-year floodplain.
- Grading will involve cut and fill volumes of 3,000 cubic yards or more, or cut or fill heights of 15 feet or greater.
- The project will significantly increase water runoff, velocities, peak discharges, or water surface elevations on or off-site. Coordinate with the Department of Public Works for clarification.
- The project will produce erosion impacts which constitute a structural hazard or significant visual impact, or will result in sediment or excessive drainage flows which cannot be contained or controlled on-site.
- The project will result in impacts which violate or are in conflict with any of the Federal, State, or local policies, ordinances or regulations listed above.
- Any cut or fill slope over 15 feet in height is potentially significant for grading, visual, erosion, siltation and community character impacts.
- Any grading which includes the addition, removal or moving of earth is potentially significant.
- Any grading proposed within environmentally sensitive areas is potentially significant.

Impact Analysis

a1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

a2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The Carpinteria Valley is subject to geologic hazards related primarily to earthquakes and secondary hazards, such as landslides and liquefaction. The project site is located over one mile north of the Rincon and Carpinteria Faults. These faults are not delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, as they are not "active" faults. As noted in the Carpinteria General Plan/Coastal Plan, there are no Alquist-Priolo Special Studies Zones for the Carpinteria Planning Area. There has been no recent movement, or recent fault rupture that has been identified along the known faults in the area. There is the potential for an earthquake in the Carpinteria area that would cause

seismic shaking and could affect the project site. The project would be required to conform to the Uniform Building Code (UBC) requirements, which would ensure that impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

b) Would the project be located on a geologic unit or soil that is unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

c) Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?

A Geotechnical Engineering Report (GER) by Earth Systems Southern California was prepared when development on this site was previously proposed in 2005. An update to this study was also prepared by Earth Systems Southern California in July 2017. The original report and the update indicate the subsurface soils are generally alluvial deposits, consisting of interbedded clays, silts, and sands. The GER analysis indicates that soils lie in the “low” expansion range of Table 18-1B of the California Building Code (CBC). Liquefaction analysis predicts there will be no ground damage, although there is a potential for differential settlement. The GER concludes that there are no identified landslides or rockfalls either on or trending into the site; therefore, hazards associated with landslides would be low.

Because soils on the site have been identified as expansive, mitigation measures Geo-1 and Geo-3 would be required. These measures outline grading, erosion and sediment control plans designed to provide stability. Implementation of these mitigation measures would reduce impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

d) Would the project result in substantial soil erosion or the loss of topsoil?

Grading on the site would involve 1,100 CY of cut and 3,605 CY of fill. Thus, approximately 2,505 CY would need to be imported. Substantial soil erosion is not anticipated as the site is generally flat, with a less than 2 percent overall slope from the north to the south property lines. Since the project would disturb an area larger than one acre, development of a SWPPP would be required. Standard dust and erosion control mitigation measures that are outlined in the SWPPP would be required to reduce soil erosion and loss of topsoil. These measures include watering exposed dirt and replacing ground cover. The project includes landscaping in the open space areas. The inclusion of this landscaping would reduce the potential for soil erosion during operation of the project. With compliance with the SWPPP and installation of the proposed landscaping, impacts would be reduced to less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The septic tanks serving the existing two residences would be abandoned and the proposed project would be connected to, and served by, the Carpinteria Sanitary District (CSD). Therefore, septic systems would not be required and no impact would occur.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to geologic resource impacts. However, the project's contribution to cumulative geologic resource impacts would not be considerable and would be further reduced through the implementation of the project specific measures addressing standard Uniform Building Code provisions and grading and erosion control.

Required Mitigation Measures:

The following mitigation measures would reduce the potentially significant impacts resulting from expansive soils and erosion to a less than significant level.

Geo-1 Project construction and grading shall comply with all recommendations outlined in the 2005 and 2016 Updated Geotechnical Engineering Report prepared by Earth Systems Southern California, to the satisfaction of the City Engineer. **Plan Requirements:** Grading and building plans shall include all required measures as determined by the City Engineer. **Timing:** Prior to issuance of building and grading permits and during grading and construction. **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.

Geo-2 Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP. All provisions and mitigation control measures in the Stormwater Pollution Prevention Plan (SWPPP) shall be implemented. **Timing:** Continuous throughout site preparation, grading and construction activities.

Geo-3 Grading, erosion and sediment control plans shall be implemented to minimize erosion. Efforts shall include the following:

a) Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins and spot grading shall be used to reduce erosion and siltation during grading and construction activities.

b) All entrances/exits to the construction site shall be stabilized (e.g., using rumble plates, gravel beds or other best available technology) to reduce transport of sediment off site.

Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods.

c) Storm drain inlets shall be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters and excavated inlet sediment traps.

d) Graded areas shall be revegetated within 3 weeks of final grading activities with deep rooted, native, drought-tolerant species to minimize slope failure and erosion potential. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

Plan Requirements: The grading, erosion and sediment control plan shall be submitted for review and approved by CDD prior to issuance of a Grading Permit. The plan shall be designed to address erosion and sediment control during all phases of development of the site. The applicant shall notify CDD prior to commencement of grading. **Timing**: Components of the grading plan shall be implemented prior to occupancy clearance. Erosion and sediment control measures shall be in place throughout grading and development of the site until all disturbed areas are permanently stabilized. **Monitoring**: CDD shall inspect revegetation and ensure compliance with plan. Grading inspector shall monitor installation and maintenance of erosion control measures throughout all grading and construction activities.

Geo-4 All exposed graded surfaces shall be reseeded with ground cover vegetation to minimize erosion. **Plan Requirements:** This requirement shall be noted on all grading and building plans. **Timing:** Graded surfaces shall be reseeded within 3 weeks of final grading completion, with the exception of surfaces graded for the placement of structures. These surfaces shall be reseeded if construction of structures does not commence within 3 weeks of grading completion. **Monitoring:** CDD shall site inspect during grading and 3 weeks after grading to verify reseeding and to verify the construction has commenced in areas graded for placement of structures.

Residual Impact: With incorporation of the mitigation measures Geo-1 through Geo-4, impacts would be less than significant.

7. GREENHOUSE GAS EMISSIONS Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment			X	
b) Conflict with any applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases			X	

Existing Environmental Setting

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O_x), fluorinated gases, and ozone. GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (Cal EPA, 2006).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (Cal EPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Thresholds of Significance

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions and analysis of the effects of GHG emissions. The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). The SBCAPCD has developed GHG thresholds for stationary projects, which include equipment, processes, and operations that require an APCD permit to operate. Neither the City of Carpinteria nor the SBCAPCD has developed or adopted GHG significance thresholds for residential and commercial projects; however, Santa Barbara County recommends the use of San Luis Obispo County Air Pollution Control District (SLOAPCD) Greenhouse Gas Thresholds, as adopted in April 2012. SLOAPCD GHG thresholds are summarized in Table 4.

Table 4 SLOAPCD GHG Significance Determination Criteria

GHG Emission Source Category	Operational Emissions
Residential and Commercial Projects	Compliance with Qualified GHG Reduction Strategy OR Bright-Line Threshold of 1,150 MT of CO_2e/yr OR Efficiency Threshold of 4.9 MT CO_2e/SP*/yr

* SP = Service Population (residents + employees)

For projects other than stationary sources, compliance with either a Qualified Greenhouse Gas Reduction Strategy, or with the Bright-Line (1,150 CO_2e/ yr.) or Efficiency Threshold (4.9 MT CO_2e/SP/yr.) would result in an insignificant determination, and in compliance with the goals of AB 32. The construction emissions of projects will be amortized over the life of a project and added to the operational emissions. Emissions from construction-only projects (e.g. roadways, pipelines, etc.) will be amortized over the life of the project and compared to an adopted GHG Reduction Strategy or the Bright-Line Threshold only.

The SLOAPCD "bright-line threshold" was developed to help reach the AB 32 emission reduction targets by attributing an appropriate share of the GHG reductions needed from new land use development projects subject to CEQA. Land use projects that generate emissions within these thresholds would not have "cumulatively considerable" impacts because they would be helping to solve the cumulative climate change problem as a part of the AB 32 process. Such small sources would not significantly add to global climate change and would not hinder the state's ability to reach the AB 32 goal, even when considered cumulatively. The threshold is intended to assess small and average sized projects, whereas the per-service population guideline is intended to avoid penalizing larger projects that incorporate GHG-reduction measures such that they may have high total annual GHG emissions, but would be relatively efficient, as compared to projects of similar scale. Therefore, the bright-line threshold is the most appropriate threshold for the proposed project and the proposed project would have a potentially significant contribution to GHG emissions if it would generate emissions in excess of 1,150 metric tons (MT) of CO_2E per year.

Impact Analysis

a) Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The project's proposed construction activities, energy use, daily operational activities, and mobile sources (traffic) would generate GHG emissions. CalEEMod was used to calculate emissions resulting from project construction and long-term operation. Project generated vehicle trips were obtained from the counts included in the ATE traffic study (see Section 16, *Transportation*). Project-related construction emissions are confined to a relatively short period of time in relation to the overall life of the proposed project. Based on the construction schedule provided by the applicant, construction activity is anticipated to occur over a period of approximately 24 months. Table 5 combines the construction, operational, and mobile GHG emissions associated with development of the proposed project. The combined annual emissions are estimated at 281 MT of CO_2e per year. Thus, GHG emissions associated with the proposed project would not exceed the 1,150 MT of CO_2e threshold. See Appendix A for a breakdown of individual emissions factors and how they were calculated.

Table 5 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions of MT CO_2e/year
Construction	14
Operational	
Area	>1
Energy	98
Solid Waste	9
Water	6
Mobile	
CO_2 and CH_4	146
N_2O	8
Project Total Emissions	**281**

Sources: See Appendix A for calculations and for GHG emission factor assumptions.

LESS THAN SIGNIFICANT IMPACT

b) Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Senate Bill 375, signed in August 2008, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTP) for the purpose of reducing GHG emissions. In August 2013, SBCAG adopted the 2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). SBCAG's RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development in order to comply with SB 375. A goal of the RTP/SCS is to "promote the development of better places to live and work through measures that encourage more compact development, varied housing options, bike and pedestrian improvements, and efficient transportation infrastructure."

The proposed project involves development that would be located within walking distance of commercial activities and public transportation (less than 800 feet from Via Real and Cravens Lane bus station), thereby reducing vehicle trips. The proposed project would provide a variety of housing options through the inclusion of single family residences, townhomes, and flats. In addition, the project would be required to comply with existing State regulations, which include increased energy conservation measures, such as energy efficient lighting and appliances, and other actions adopted to achieve the overall GHG emissions reduction goals identified in AB 32. Per City Ordinance for the Ellinwood Overlay CMC 14.43.030(1), the project is also required to be designed to current standards of LEED Gold or better. LEED Gold certification includes green building designs and energy efficiency ratings that reduce the project's impact on energy use and further, greenhouse gas emissions.

The proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and would be consistent with the objectives of the RTP/SCS, AB 32, and SB 375.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative development throughout the Carpinteria Valley would incrementally contribute to greenhouse gas emission impacts. However, the project's contribution to cumulative greenhouse gas emission impacts would not be considerable.

8. HAZARDS AND HAZARDOUS MATERIALS Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school			X	
d) Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		X		
e) For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area				X
f) For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan				X

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands				X

Existing Environmental Setting

In response to a January 24, 2007 comment letter from the County of Santa Barbara Fire Department Hazardous Materials Site Mitigation Unit, Dudek conducted a soil investigation in accordance with the Soil Investigation Work Plan dated March 2007 and the Santa Barbara County Fire Department approval letter for the work plan dated March 26, 2007. Soil samples were collected in the area around the pond and the barn. While the samples from the area in the vicinity of the pond did not show pesticides above the residential Cal/EPA California Human Health Screening Levels, the samples from the area adjacent to the barn contained soils contaminated with lead, petroleum hydrocarbons, and dieldrin at concentrations exceeding Santa Barbara County Fire Department Investigation Levels and residential cleanup goals.

The County of Santa Barbara Fire Department Hazardous Materials Site Mitigation Unit reviewed the preliminary site assessment and based on that review determined that remediation by removal and legal offsite disposal of the contaminated soil would likely be required. Because the vertical and lateral extent of contamination had not yet been determined, the Fire Department has not yet approved a specific remediation plan. Due to the relatively small scale of the agricultural operation and the type of contaminants found (in the vicinity of the barn only, where tractors and automobiles have been parking for decades in a dirt parking area) the Fire Department does not find this to be out of the ordinary, or cause for significant alarm. A coordinated effort with the Fire Department is and will continue to be underway until the site is properly remediated.

Dudek prepared a Soil Sampling Work Plan in April 2017 (Appendix I). The objective of the work plan is to outline the soil sampling methods and procedures to determine the lateral and vertical extent of the contaminants identified onsite per the 2007 Final Soil Investigation Report. The chemicals of potential concern include pesticides, lead and total petroleum hydrocarbons (TPH). A Remedial Action Agreement was entered into between Santa Barbara County Public Health Department and the current property owner on May 30, 2017.

Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The project site is developed with two single family residences. The proposal to develop the site with additional residential uses would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Residential properties typically do not cause significant hazards to the public or the environment through an accidental release of hazardous materials into the environment. The types and quantities of hazardous materials present or stored on the site would be limited to those commonly associated with residential uses, such as

batteries, oil, paints, solvents, fertilizers and gasoline. Impacts with regard to the use, release and transport of hazardous materials would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The closest school is Aliso Elementary School, which is over a mile from the project site. The proposed residential project would not emit or involve the handling of hazardous materials, substances or waste. Therefore, impacts with regard to hazardous materials near schools would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d) Would the project be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The following databases compiled pursuant to Government Code Section 65962.5 were checked (Aug 5, 2016) for known hazardous materials contamination at the project site:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database;
- Geotracker search for leaking underground storage tanks (LUST); and
- The Department of Toxic Substances Control's Site Mitigation and Brownfields Database

The CERLCIS and Envirostor showed no evidence of toxic substances at the project site.

Geotracker revealed evidence consisting of potential soil concern around the pond and existing barn. Following initial assessment of the former agricultural property in 2007, no additional work was done and the site became inactive. While the soil samples from the area around the pond did not show pesticides above the residential Cal/EPA California Human Health Screening Levels, the soil samples from the area adjacent to the outbuilding contained lead, petroleum hydrocarbons, and dieldrin at concentrations exceeding Santa Barbara County Fire Department Investigation Levels and residential cleanup goals. A Site Assessment Report by Dudek completed in May 2007 recommended additional assessment. As discussed in the Existing Environmental Setting, a follow up Draft Soil Sampling Work Plan was submitted in April 2017 and the owner recently entered into a Remedial Action Agreement with the County concerning the additional sampling and clean-up work (see Appendix I for the full report).

Since no documentation has been provided showing that the case has been closed by the Fire Department, and the draft Soil Sampling Work Plan has yet to be implemented to determine the extent of potential soil contamination, impacts remain potentially significant. Therefore, mitigation measures Haz-1 and Haz-2 are required. Compliance with these mitigation measures would reduce impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

f) For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?

The airport closest to the project site is the Santa Barbara Airport, located approximately 17 miles west of the project site. The City of Carpinteria does not have any airports or airstrips, and the project site is not located within an airport land use plan, or within two miles of a public or private airstrip. No impact would occur.

NO IMPACT

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project site is located on a developed parcel adjacent to multi-family residences and agricultural lands developed with greenhouses. The development of additional residences on the site would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. No impact would occur.

NO IMPACT

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project site is located adjacent to multi-family residences and agricultural lands developed with greenhouses. The project site is not adjacent to or in close proximity to wildlands. As shown on the most recent Fire Severity Zone Map for Santa Barbara County, the project is in a Non- Very High Fire Hazard Severity Zone area (2007). Therefore the project would not have the potential to expose people to a significant risk as a result of wildland fires. No impact would occur.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to hazardous materials / safety impacts. However, the project's contribution to cumulative safety impacts would not be cumulatively considerable and would be further reduced by the project specific mitigation measures Haz-1 and Haz-2.

Required Mitigation Measures

The following mitigation measures would bring the potential impact of contaminated soil to a less than significant level by requiring remediation.

Haz-1 The applicant shall provide proof that required remediation has been completed and that the County of Santa Barbara Public Health Department has closed the case or the applicant shall conduct additional assessments, complete the remediation work including

removal of contaminated soils, and have the case formally closed by the Public Health Department. **Plan Requirements:** The plan and completion remediation shall be certified by the County of Santa Barbara Public Health Department. **Timing:** Shall be completed prior to issuance of grading permits on the site. **Monitoring:** CDD shall review the documentation prior to issuance of a grading permit.

Haz-2 In the event any contaminated, odorous or discolored soil or groundwater/surface water is encountered during grading, work shall be stopped immediately and the Hazardous Materials Division of the County Public Health Department shall be called at 805-346-8460. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

Residual Impact: With incorporation of these measures, residual hazardous materials / safety impacts would be less than significant.

9. HYDROLOGY AND WATER QUALITY Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Violate any water quality standards or waste discharge requirements		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?		X		
d) Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite		X		
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff		X		
f) Otherwise substantially degrade water quality		X		
g) Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map			X	
h) Place structures in a 100-year flood hazard area that would impede or redirect flood flows			X	

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam			X	
j) Result in inundation by seiche, tsunami, or mudflow			X	

Existing Environmental Setting

The project site slopes gently from the northeast corner toward the southwest corner. The project site in its existing configuration can be divided into three drainage subareas 1A, 2B, and 3C. Subarea 1A is the middle portion of the site and the offsite tributary area northerly of the project site, totaling 2.25 acres. Subarea B is the easterly portion of the site with 0.24 acres, and subarea 3C is the westerly portion of the site with 1.89 acres. Runoff from subarea 1A sheet flows southerly over existing ground surface into the existing onsite pond. The onsite pond is currently under review regarding whether a 401 permit is required, or if the pond is exempt from permitting. The storage capacity of the existing pond is approximately 0.79 acre feet; once the existing pond reaches full capacity, overflow runoff sheet flows across the southerly project site and discharges onto the private driveway along the southern boundary of the site. The runoff is conveyed by curb and gutter, westerly to Cravens Lane. Subareas 2B and 3C flow southerly over existing ground surface onto the private driveway along the southerly border of the site where it combines with any overflow runoff from subarea 1A. Further discussion of the existing facilities and applicable plans/policies are embedded within the analysis below. United Civil conducted a Hydrology Study for the project site dated July 27, 2017 (see Appendix J).

The eastern half of the project is located within the 100-year floodplain, Zone A, according to the current Flood Insurance Rate Map (FIRM) for the area prepared by the Federal Emergency Management Agency (FEMA).

The site currently receives municipal water service from the Carpinteria Valley Water District.

Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements?

The project site is currently developed and partially paved. The project would be required to comply with Chapter 8.10 of the City of Carpinteria Municipal Code, which addresses stormwater pollution prevention. Additionally, the project would be required to comply with the NPDES program to control both construction and operational (i.e., occupancy) storm water discharges. In California, the State Water Quality Control Board administers the NPDES permitting program and is responsible for developing permitting requirements. Under the conditions of the permit, the project applicant would be required to eliminate or reduce non stormwater discharges to waters of the nation, develop and implement a SWPPP for project construction activities, and perform inspections of the storm water pollution prevention measures and control practices to ensure conformance with the site SWPPP. The state permit prohibits the discharge of materials other than storm water discharges, and prohibits all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4. The state permit also specifies that construction activities must meet all applicable provisions of Sections 30 and 402 of the CWA.

The project would be required to comply with the City of Carpinteria's Stormwater Management Plan (CMC 8.10), which requires the project to comply with Tier 4 Post Construction Requirements (PCR's). The Low Impact Design (LID) measures from Tiers 1-3 are satisfied and described in the Stormwater Control Plan, included as Appendix H. Strategies include the preservation of natural drainage features, use of permeable pavements, and controlling all runoff on site. Other measures, including filter inserts, and directing runoff from impervious areas to pervious, self-retaining landscaped areas, are described and outlined in the Stormwater Control Plan. The Tier 4 requirement, (as discussed further in item c, d, e, f) is demonstrated for compliance through the analysis of peak storm events and that the modified pond would be equipped to handle two-year through 100-year storm events.

Conformance with the City of Carpinteria Municipal Code, the NPDES Permit, and the SWPPP would ensure that the proposed project would not violate water quality standards or waste discharge requirements, substantially decrease groundwater, or interfere with groundwater recharge. Conformance with the aforementioned permits, programs, and plans are included as required mitigation measures. With incorporation of the identified mitigation measures, impacts would be reduced to less than significant levels.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The project would continue to receive water service from the Carpinteria Valley Water District. Water service for the site is discussed more thoroughly in Section 17, *Utilities*. The project would increase the amount of impervious surface on the site. Current stormwater requirements, including NPDES permit, associated SWPPP, Section 14.43.030(4) of the Carpinteria Municipal Code, require stormwater to be contained onsite, which would aid in recharge. Therefore, the project would not substantially decrease groundwater or interfere with groundwater recharge. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

d) Would the project substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite

e) Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

f) Would the project otherwise substantially degrade water quality?

As stated in the Hydrology Study (Appendix J), the existing pond near the center of the site would be modified to provide enough capacity that the post development peak storm water runoff discharge rate would not exceed the pre development rate for the 2-year through 100-year storm events. This would satisfy the Tier 4 requirements of the Santa Barbara County Stormwater Technical Guide, as well as the requirements of the CMC 8.10. The discussion below is broken down into pre-development and post-development conditions.

Pre-Development Conditions

The Hydrology Study divided the site into three drainage subareas 1A, 2B, and 3C (see Appendix J). Subarea 1A is the middle portion of the site and the offsite tributary area north of the project site, totaling 2.25 acres; subarea 2B is the eastern portion of the site with 0.24 acres; and subarea 3C is the western portion of the site with 1.89 acres. Runoff from subarea 1A sheet flows southerly over existing ground surface into the existing pond near the center of the site. The storage capacity of the existing pond is about 0.8 acre feet. Once the existing pond fills up, the runoff overflows onto the ground surface and discharges onto the driveway along the southerly boundary of the site. The runoff, conveyed by curb and gutter, continues to flow westerly until it turns southerly along Cravens Lane. Runoff from subarea 2B and 3C surface flows southerly over existing ground surface onto the driveway along the southern boundary of the site, where it combines with the runoff from subarea 1A. The total discharge from the offsite run-on (collected water from offsite locations) and onsite runoff onto the driveway along the southerly boundary of the site are shown in Table 6.

Table 6 Total Discharge in Existing and Post Development Conditions (in acre feet)

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Existing Pre Development Conditions	1.02	2.03	2.77	3.70	4.65	5.07
Proposed Post Development Condition	0.82	1.49	2.09	3.36	4.28	5.05
Comparison	-0.20	-0.54	-0.68	-0.34	-0.37	-0.02

Post Development Conditions

As required in the Carpinteria Municipal Code 14.43.030 (4) and (6), the project includes a water harvesting/ bio-filtration/storage/reuse system that also uses the enhanced onsite pond to provide storm water retention and landscape irrigation.

The hydrology study divided the project site into four drainage subareas for analysis of post-development conditions. These subareas are titled 1A, 2A, 3B, and 4C.

Subarea 1A comprises the 0.63-acre offsite tributary area to the north of the project site. Runoff from Subarea 1A would be intercepted by grated inlets at the north boundary of the project site, and would be conveyed to the proposed underground storm drain outlet directly. Since the off-site drainage would not be comingled with on-site drainage, it can be directly conveyed to the proposed discharge point and no treatment is needed.

Subarea 2A is 3.53 acres in size and comprises most of the project site. The runoff from subarea 2A would be intercepted by grated inlets throughout the project site or infiltrate thru permeable pavement along the onsite driveway, and would be discharged into the modified pond near the center of the site. The modified pond would have a storage capacity of 0.84 acre feet from the groundwater elevation of 13 feet to the proposed top of pond elevation at 18 feet, and would provide incidental infiltration and detention for the tributary runoff. The outlet riser is custom designed with multiple vertical orifices at different elevations to control the peak discharge outflow such that it does not exceed those of the existing pre-development condition from 2-year to 100-year storms. There would also be an emergency overflow opening at the top of the riser. Storm water would secondarily overflow near the southern

portion of the pond across the walkway and surface flow onto the existing paved driveway along the southern boundary of the site.

Subarea 3B is the easterly and southerly 0.32 acre portion of the site. The majority of this subarea would be undisturbed, with a proposed Community Organic Garden constructed at existing grades at the southeast corner. The southeast corner is a sump area approximately four inches lower than the existing paved driveway along the southerly boundary of the project site. The surface runoff flows southerly towards the southeast corner where the LID runoff is retained for infiltration. Every fourth block at grade of the perimeter block wall would be removed to allow surface runoff to overflow onto the existing paved driveway to mimic the existing drainage pattern.

Subarea 4C is the westerly 0.32 acre portion of the site that would be dedicated to the City of Carpinteria for the widening of the Cravens Lane road right-of-way. The parkway and sidewalk would be sloped towards the proposed curb and gutter along Cravens Lane, and the flow would be conveyed southerly along Cravens Lane. A proposed cross gutter at the existing paved driveway along the southerly boundary of the site would convey the flow southerly along Cravens Lane.

The total discharge at the southerly boundary of the site in post development conditions are shown for each size storm event in Table 6.

The Hydrology Study determined that with the modified pond near the center of the project site, the total peak runoff flowrates and volumes from the site in the proposed post-development condition would be less than that in the existing predevelopment condition. The tributary storm water runoff from the project site, would not adversely affect persons or properties on-site, existing drainage patterns or downstream drainage facilities, and are in conformance with the City of Carpinteria design criteria, guidelines, policies, and procedures. Therefore, impacts would be less than significant.

During construction, soil, dust, paints, concrete and plaster may inadvertently enter the storm water drainage system. As discussed in response “A” above, the project would be required to adhere to the Santa Barbara County Stormwater Technical Guide’s Tier 1-4 requirements. The design measures from Tiers 1-3 are satisfied, briefly described below, and are located in the Stormwater Control Plan, included as Appendix H.

- Tier 1:On-site impervious surfaces are minimized by proposed permeable pavement along driveway and landscape areas around proposed residential buildings. Stormwater runoff is dispersed to landscape areas and the proposed driveway with permeable pavement.

- Tier 2/ Tier 3:Tier 2 projects are required to detain and treat runoff produced by a rainfall intensity of 0.2 inches per hour, whereas Tier 3 projects are required to detain and treat runoff from events up to the 95th percentile rainfall event. The 95th percentile rainfall intensity for the project site is 2.3 inches per hour, which is more stringent than the Tier 2 requirement; therefore, meeting Tier 3 requirement would also meet Tier 2 requirement. The 95th percentile storm event runoff would be retained within the project site by dispersing runoff to self-retaining areas. These self-retaining areas include landscape areas around the proposed buildings, proposed driveways with permeable pavement, and the on-site detention basin. Runoff would infiltrate via pervious surfaces (landscape areas and driveways with permeable pavement). The proposed permeable pavement has the capacity to infiltrate and retain runoffs from events up to the 95th percentile rainfall event.

In addition, a SWPPP addressing water quality protection during the construction phase of the project would be implemented by the applicant pursuant to the Federal NPDES State Construction Activities

Storm Water General Permit. Mitigation measure Hyd-2 includes the preparation and implementation of a SWPPP. Since the project would need to comply with these standards, the project's resulting impacts to water quality and drainage would be less than significant with mitigation incorporated.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

g) Would the project place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?

h) Would the project place in a 100-year flood hazard area structures that would impede or redirect flood flows?

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding including that occurs as a result of the failure of a levee or dam?

The western half of the project site is located in Zone X of the FEMA FIRM (Map # 06083C1420G; December 4, 2012). Zone X is characterized as having a 0.2 percent chance for an annual flood. This portion of the proposed project would not increase exposure of people, housing, or other property to risks associated with flooding within a 100-year flood hazard area. However, the eastern half of the site is located in Zone A, indicating risk from a 100-year flood. In accordance with Municipal Code Section 14.43.030(4), the project would resize the existing pond to capture the increase in volume of storm water runoff of the 100-year storm event. The Hydrology Study prepared for the project (Appendix J) concludes that the proposed plans for development are in conformance with the City of Carpinteria and Santa Barbara County Flood Control District design criteria, guidelines, policies and procedures. In addition, the applicant is currently submitting a Conditional Letter of Map Revision (CLOMR) through FEMA to request that the project be removed from the 100 year flood plain designation. Implementation of mitigation measure Hyd-8 would ensure impacts would be reduced to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

j) Would the project result in inundation by seiche, tsunami, or mudflow?

A tsunami is a series of traveling ocean waves of extremely long length generated primarily by vertical movement on a fault (earthquake) occurring along the ocean floor. As a tsunami reaches the shallow waters of the coast, the waves slow down and the water can pile up into a wall 30 feet or more in height. The project site is not susceptible to inundation by tsunami as stated by the California Emergency Management Agency's "Tsunami Inundation Map for Emergency Planning". The tsunami inundation zone ends at U.S. 101, which is 850 feet south of the project site; therefore, impacts associated with tsunamis would be less than significant.

Mudflows commonly occur in conjunction with landslides, due to slope instability. The project site is generally flat and, according the City of Carpinteria General Plan/Coastal Plan, the site is not located in an area of high risk for landslides (2003). Therefore impacts associated with mudflows would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to water resource impacts. However, based on the analysis above, the project's contribution to cumulative water resource impacts would not be considerable.

Required Mitigation Measures:

Hyd-1 The project has been designed to provide for on-site retention of storm water runoff, infiltration, and recharge utilizing an environmentally enhanced onsite pond. The pond would be designed in accordance with the WHEMP, and the procedures outlined in mitigation measure Bio-2. The pond shall be maintained for the life of the project by the Homeowners' Association. Recharge systems shall be developed in conjunction with Public Works and CDD. **Plan Requirements:** A Final Drainage Plan showing the location and design of the pond/retention basin and site infrastructure shall be submitted to CDD and Public Works for review and approval.

Installation and maintenance for five years shall be ensured through a performance security provided by the applicant. Long term maintenance requirements shall be specified in the Homeowners' Association's CC&Rs. **Timing:** The retention system shall be installed (landscaped and irrigated subject to CDD and Public Works approval) prior to occupancy clearance. **Monitoring:** CDD shall site inspect for installation and maintenance of landscaping. Public Works approval is required on final grading/drainage plans, and CDD approval is required for release of the performance security.

Hyd-2 The applicant shall submit proof of exemption or a copy of the Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System issued by the California Regional Water Quality Control Board. **Plan Requirements and Timing:** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP.

Hyd-3 To prevent illegal discharges to storm drains, all on-site storm drain inlets, whether new or existing, shall be labeled to advise the public that the storm drain discharges to the ocean and that dumping waste is prohibited (e.g., "Don't Dump - Drains to Ocean"). The information shall be provided in English and Spanish. **Plan Requirements and Timing:** Location of storm drain inlets shall be shown on site, building and grading plans prior to approval of grading permits. Labels shall be installed prior to occupancy clearance.

Standard labels are available from Public Works or other label designs shall be shown on the plans and submitted to CDD and Public Works prior to approval of grading permits. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Hyd-4 The project has been designed to provide for an on-site permanent biofilter/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professional to ensure that the retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by CDD to be infeasible. Invasive plants shall not be used in the biofilter. Biofilters shall not replace existing riparian vegetation or native vegetation unless otherwise approved by CDD. **Plan Requirements**

and Timing: The applicant shall include the biofilter design, including the plant palette and the source of plant material, on the grading and drainage and landscape plans, and depict it graphically. The applicant shall submit a maintenance plan for the biofilter to CDD for review and approval. A performance security shall be required to ensure installation and five-year maintenance. Long-term maintenance shall be the responsibility of the Homeowners' Association. Maintenance requirements shall be specified in the CC&Rs. The plans and a copy of the long-term maintenance program shall be submitted to CDD and Public Works for review prior to approval of a Grading Permit/Building Permit. **Monitoring:** CDD and Public Works shall site inspect for installation and periodically inspect for maintenance throughout the five-year performance period. Performance security release requires CDD approval.

Hyd-5 To reduce runoff from impervious areas and allow for infiltration, the applicant shall incorporate pervious materials or surfaces (e.g., porous pavement or unit pavers on sand) into the project design. **Plan Requirements and Timing:** Pervious surfaces shall be described and depicted graphically on the site, building, grading and landscape plans. The plans shall be submitted to CDD for review prior to issuance of a Grading/Building Permit. **Monitoring:** CDD shall site inspect for installation.

Hyd-6 A Homeowners' Association shall be responsible for the long-term maintenance of the water quality conditions of approval. **Plan Requirements and Timing:** The proposed maintenance responsibilities and schedule shall be included in the CC&Rs. The CC&Rs shall be submitted for review by CDD and Public Works prior to recordation of the Final Map. Annual records of the maintenance activities shall be maintained by the HOA and submitted to CDD upon request. **Monitoring:** CDD shall review the maintenance records or site inspect, as needed. Costs shall be borne by the Homeowners Association.

Hyd-7 Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Additionally, all heavy equipment that is parked on the site overnight or during the weekends shall be parked over plastic or drip pans. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials, and the required use of drip pans under parked heavy equipment shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities.

Hyd-8 The applicant shall submit proof of a CLOMR prior to issuance of Grading/Building Permits.

OR

If the project's CLOMR is not approved, all Grading/Building Plans must be designed to show compliance with City floodplain requirements as reviewed and approved by City Floodplain Administrator.

Residual Impact: With incorporation of these measures, residual hydrology and water quality impacts would be less than significant.

10. LAND USE AND PLANNING Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Physically divide an established community				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect			X	
c) Conflict with an applicable habitat conservation plan or natural community conservation plan				X

Existing Environmental Setting

This property of approximately 3.9 acres, is located at the northwest end of the City on the east side of Cravens Lane approximately 800 feet north of Via Real. The City limit is contiguous with the east and north boundary of the area. Existing use of the property includes two single-family homes, a barn and several out buildings. Adjacent uses include a mobile home park to the west, a condominium project to the south, greenhouses to the east and a packinghouse and a storm water retention basin to the north. Partial street improvements front the property and all utilities are currently available to the site, except sewer service.

This site was included within the City's Sphere of Influence in the 2003 adopted General/Coastal Plan due to it being contiguous to city limits and surrounded by either urbanized development or intensive agricultural development (i.e., packinghouse, greenhouse and retention basin). Further, the area provided an opportunity to establish a transition from higher density residential condominium development to the south to agricultural uses to the north. A Medium Density Residential (MDR) land use designation was applied. This designation allows for consideration of residential use ranging from 4.7 – 20 du/ac.

As part of the previous approved iteration of the project, the annexation of the subject property into the City of Carpinteria was approved and completed in 2009. The project site was also annexed into the Carpinteria Sanitary District in 2010 as part of the previous project.

Impact Analysis

a) Would the project physically divide an established community?

The proposed project involves the demolition of two existing buildings and the construction of 30 residences. The site is bordered by residential uses to the south and west. To the north and east, the site is bordered by developed agricultural land, two single family homes, greenhouses, a packing warehouse and the Santa Barbara County Flood Control District sedimentation basin. The City of Carpinteria General Plan/Coastal Plan designates the site as Medium Density Residential. No project

improvements are proposed (such as new roads) that would divide an established community. No impact would occur.

NO IMPACT

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The site is designated Medium Density Residential by the City of Carpinteria General Plan/Coastal Plan. The project has a zoning designation of Planned Unit Development which allows for comprehensively planned residential developments. Additionally the site is subject to the Ellinwood Parcel (APN 004-013-026) Overlay District which includes specific development standards that the project would be required to comply with. These include drainage, lighting, and biological resource protection requirements. Carpinteria Municipal Code Chapter 14.43 requires the preparation of a WHEMP and TAPP. In 2005, a TAPP and WHEMP were prepared for the project site. Rincon prepared an updated TAPP (2017 TAPP) and WHEMP (2017 WHEMP) based on current site conditions and in compliance with Carpinteria Municipal Code Chapter 14.43. The project would be consistent with the land use designation and zoning for the site, as well as the applicable development standards outlined in the City's Municipal Code. Compliance with the applicable development standards would ensure that all land use impacts would be reduced to less than significant levels.

LESS THAN SIGNIFICANT IMPACT

c) Would the project conflict with an applicable habitat conservation plan or natural community conservation plan?

The project site is not located in an area covered by a habitat conservation plan or natural community conservation plan. Section 4, *Biological Resources*, contains a thorough discussion of the applicable biological regulations for the site and how the project would comply. No impact would occur.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to land use impacts. However, based on the analysis above, the project's contribution to cumulative land use impacts would not be considerable.

11. MINERAL RESOURCES Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X

Existing Environmental Setting

There are no known mineral resources on the project site, nor are there any active or historical mining facilities on site.

Impact Analysis

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

According to the Carpinteria General Plan/Coastal Plan, oil is the only mineral resource available in significant quantities in the City. Current oil mining and extraction activities in the City are limited to onshore oil storage, and processing and transmission facilities. Therefore, the project would not result in the loss of availability of a known mineral resource. No impact would occur.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to mineral impacts. However, based on the analysis above, the project's contribution to cumulative mineral resource impacts would not be considerable.

12. NOISE Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels			X	
c) A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above those existing prior to implementation of the project		X		
e) For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels				X
f) For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise				X

Existing Environmental Setting

The project site is located between the 55 to 60 dBA noise contour, according to the City's Existing Noise Contour Map. The predominant noise source impacting the site is U.S. 101 traffic.

The Westland Floral Company, lnc. J&C Farms own and operate a commercial cut-flower growing and shipping business encompassing approximately 47 acres abutting the project site along the east and north property lines. The narrow strip to the south, 20 feet in width, is developed with a driveway serving the greenhouses and packing shed located east of the project (Florabundance, 1296 Cravens Lane). Florabundance conducts the commercial shipping operation within the packing house pursuant to a Conditional Use Permit approved by the Santa Barbara County Board of Supervisors in 1990 (project number 89-CP-51). At the Board of Supervisors hearing for the project, a number of residents from the adjacent Franciscan Village and The Villas developments testified that the location and the hours of the loading activities, and the noise from the refrigeration units atop the delivery vehicles, were causing substantial noise impacts.

The Board of Supervisors ultimately approved the Conditional Use Permit with several conditions intended to reduce the noise impacts.

In addition to modifying the packing house structure to add a loading dock on the north side of the structure, away from the residents to the south, the conditions of approval restricted the hours of loading and unloading from the southern loading docks between the hours of 7:00 a.m. and 7:00 p.m. during the week and 9:00 a.m. to 3:00 p.m. on Saturday. Use of the new northern loading dock was restricted to the hours between 8:00 a.m. and 5:00 p.m. on Saturday. Exceptions were made to the weekend hours of operations for six heavy demand holidays.

Another condition required that refrigeration units on all the operators' vehicles were to be shut down upon entering the property. Condition #16 requires that all exterior lighting be hooded with no unobstructed beam of exterior light directed towards any area zoned for or developed with residential uses. Condition #19 requires that there shall be no audible radio noise, loudspeakers, or other unnecessary noise from the packing shed facility.

It is acknowledged that Conditional Use Permits are subject to revocation and therefore, in this case, these conditions should not be relied upon to mitigate any nuisance noise and light from the adjacent agricultural operations. However, they will continue to be enforced by the County as long as they are in effect.

Sensitive receptors in the vicinity of the project site include residential development. The nearest residences are multi-family development to the east and south of the project site. Multi-family development is located approximately 35 feet south of the project site and a mobile home park is located approximately 100 feet to the west, across Cravens Lane.

Noise Background

Noise is defined as unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the ambient noise level to be judged as twice as loud. In general, a 3 dBA change in the ambient noise level is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while areas adjacent to arterial streets are the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5-10 dBA (Federal Transit Administration

[FTA] 2006). The manner in which homes in California are constructed generally provides a reduction of exterior-to-interior noise levels of about 25 dBA with closed windows (FTA 2006).

Vibration is a unique form of noise. It is unique because its energy is carried through buildings, structures, and the ground, whereas noise is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise; e.g., the rattling of windows from passing trucks. This phenomenon is caused by the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, groundborne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB) in the U.S.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel wheeled trains, and traffic on rough roads.

Some land uses are considered more sensitive to ambient noise levels than other uses due to the amount of noise exposure and the types of activities involved. Residences, motels, hotels, schools, libraries, churches, nursing homes, auditoriums, parks, and outdoor recreation areas are more sensitive to noise than are commercial and industrial land uses. The City of Carpinteria defines noise-sensitive receptors to be land uses that are sensitive to noise, with the most-sensitive uses generally considered residences, schools, churches, hospitals, and convalescent care facilities (City of Carpinteria 2003). These uses are considered sensitive because the presence of excessive noise may interrupt normal activities typically associated with their use.

The following analysis of noise impacts is based on the Noise Study prepared for the project (Rincon 2016), included as Appendix K.

Environmental Thresholds

The City's CEQA Threshold Guidelines provide thresholds for the analysis of noise impacts. The Guidelines establish both interior and exterior thresholds for noise compatibility, as well as thresholds for construction-related noise generation. The maximum interior noise exposure for residential uses is 45 dBA CNEL when doors and windows are closed. The exterior noise level threshold is 65 dBA CNEL for exterior living space. Exterior living space includes yards and patios, pool areas, balconies, and recreation areas. Exterior usable areas do not include residential front yards or balconies unless the balconies are part of the usable open space calculation for multi-family units. Temporary construction noise which exceeds 75 dB(A) CNEL for 12 hours within a 24-hour period at residences would be considered significant.

Impact Analysis

a) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

The City of Carpinteria has adopted Community Noise Exposure Standards, which establish acceptable noise levels for residential land uses. Multi-family development would be normally acceptable in areas with ambient noise levels less than 60 dBA Ldn or CNEL and conditionally acceptable with 60-70 dBA Ldn or CNEL. Additionally, the City's *Environmental Thresholds Manual* (1994) defines 65 dBA Ldn as the threshold for outdoor living areas of noise sensitive receptors.

In order to determine ambient noise levels at the project site and at nearby sensitive receptors, two 15-minute noise measurements were taken at the project site (see Figure 5). The noise measurements recorded the Leq at each location. In a suburban setting, peak hourly Leq is representative of daily CNEL. Noise measurement results are shown in Table 7.

Table 7 Noise Measurement Results

Measurement Number	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	Leq[15] (dBA)[1]	Lmin (dBA)	Lmax (dBA)
1	Cravens Lane-northwest corner of project site	7:53 - 8:08 AM	Cravens Lane - 12 feet	63.5	37.8	90.3
2	Cravens Lane-southwest corner of project site	8:13 - 8:28 AM	Cravens Lane - 12 feet	63.3	41.9	82.7

See Noise Study, Appendix K

[1] The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over the period of time (essentially, the average noise level). For this measurement, the Leq was over a 15-minute period (Leq[15])

Ambient noise levels during the peak hour range from 63.3 to 63.5 dBA Leq at the project site. Per the City of Carpinteria General Plan, multi-family residential development is conditionally acceptable in areas with ambient noise levels between 60-70 dBA Ldn or CNEL. Leq is generally equivalent to Ldn in suburban areas, such as the project site. Consequently, ambient noise levels on the project site are in the conditionally acceptable range for single and multi-family residences. The project would not expose residents to noise levels that exceed the threshold for outdoor living areas of noise sensitive receptors of 65 dBA Ldn.

Because the Westland Floral Company, Inc./J&C Farms would continue to operate a commercial cut-flower growing and shipping business immediately to the east and north of the project site, with trucks traveling via the driveway immediately south of the project site, residences would periodically be exposed to noise generated by these operations. The nearest residence to the packing house would be setback from the property line by a minimum of 30 feet. This setback, in combination with the County of Santa Barbara Flood Control District channel and access road (25 feet), would create an approximately 75-foot separation between the nearest residence and commercial shipping activities, allowing noise to dissipate. In addition, the Conditional Use Permit (CUP) for the commercial shipping operation limits loading dock hours, requires refrigeration units on trucks to be shut down upon entering the property, and prohibits the use of audible radio noise, loudspeakers, or other unnecessary noise from the packing house facility. These conditions would reduce impacts on the project site from the adjacent agricultural and commercial shipping use. Additionally, the project would include a 6-foot high masonry wall along the eastern borders, further reducing noise from trucks and loading dock activities. The combination of distance, CUP conditions, and masonry wall would ensure that periodic noise from agricultural operations does not increase noise levels at the project site above 65 dBA Ldn.

Based on an estimated 25 dBA reduction due to exterior-to-interior attenuation associated with modern residential construction materials and techniques (FTA 2006), the interior noise level at the residences would be 38 dBA Leq, which is equivalent to 38 dBA Ldn in suburban areas. Therefore, the proposed project would not be exposed to noise above interior noise standards.

As discussed in Section 2, *Agricultural and Forest Resources*, Mitigation Measure Ag-2 requires a buyer notification to be recorded on a separate informational sheet with the Final Map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Reports, provided to County Planning and Development to be noted on the Assessor's Parcel Map pages and included in the project CC&Rs. The buyer notification would detail that the project site is located adjacent to property that has been zoned and planned for an agricultural use. Existing agricultural uses, including growing, packing, and shipping operations are located adjacent to the project site. While the project includes design features to limit noise impacts on residents, existing conditions will not be considered by the City of Carpinteria to be a nuisance requiring extraordinary actions by the adjacent agricultural operators, County of Santa Barbara Flood Control District, or landowners. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, would not be deemed a nuisance.

LESS THAN SIGNIFICANT IMPACT

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Vibration impacts would be significant if they exceed the following thresholds, which were taken from the Federal Railroad Administration (FRA):

- 65 VdB where low ambient vibration is essential for interior operations, such as hospitals and recording studios
- 72 VdB for residences and buildings where people normally sleep, including hotels
- 75 VdB for institutional land uses with primary daytime use, such as churches and schools
- 95 VdB for physical damage to extremely fragile historic buildings
- 100 VdB for physical damage to buildings

Construction-related vibration impacts would be less than significant for residential receptors if they are below the threshold of physical damage to buildings and occur during the City's normally permitted hours of construction. Because these construction hours are during the daytime, construction activities would not normally interfere with sleep. Standard construction hours are set by Municipal Code Chapter 15.16.170 and limit construction to between 7:00 AM and 8:00 PM Monday through Friday, between 8:00 AM and 8:00 PM on Saturday, and between 10:00 AM and 8:00 PM on Sunday, however more restrictive construction hours may be imposed as a mitigation measure or condition of project approval.

Project construction activities would result in some vibration that may be felt on adjacent properties, as commonly occurs with construction projects. Table 8 identifies various vibration velocity levels for different types of construction equipment. Project construction would not involve the use of pile drivers, but could involve the use of bulldozer and jackhammers on the project site. Additionally, loaded trucks carrying construction materials would operate on the project site and some surrounding streets during construction.

Figure 5 Noise Measurement and Sensitive Receptor Locations

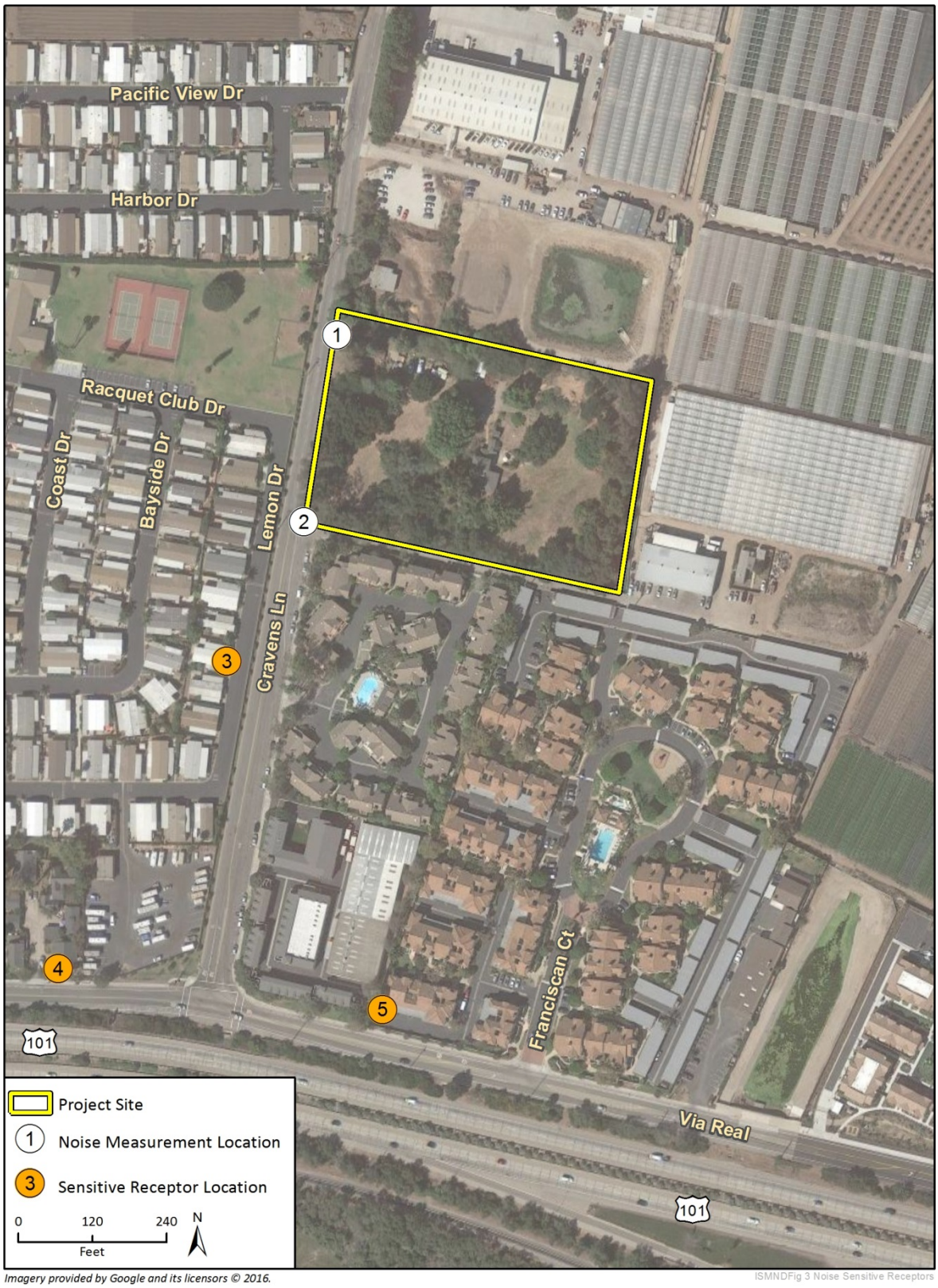

Table 8 Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB at Nearest Sensitive Receptors	
	25 Feet	100 Feet
Large Bulldozer	87	69
Loaded Trucks	86	68
Jackhammer	79	61
Small Bulldozer	58	40

Source: Federal Transit Administration, 2006.

Vibration levels would be as high as approximately 87 VdB at the closest residences. This exceeds the 72 VdB threshold for residences and buildings where people normally sleep, but below the 100 VdB threshold where vibration causes damage to buildings. The Carpinteria Municipal Code prohibits construction outside daytime hours; therefore, construction vibration would not be significant at these receptors because activities would occur outside hours when people normally sleep. The project would not result in excessive ground-borne vibration or noise. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project result in a substantial permanent increase in ambient noise levels above those existing prior to implementation of the project?

The project would introduce new residential development on the project site. Existing residences near the project site may periodically be subjected to noise associated with on-site and off-site noise generation. Off-site noise would be generated from increased traffic on area roadways, including Cravens Lane, Via Real, and U.S. 101.

On-site noise generation would be typical noise from residential development and would be consistent with nearby development. Noise would be generated by human voices in outdoor spaces and car doors slamming. This would be consistent with noise generated at the residences to the south and west of the project site. On-site noise would not significantly impact nearby residential receptors. Figure 5 shows the sensitive receptor locations.

Off-site traffic generation on area roadways would incrementally increase noise in the area. Traffic noise was modeled using Traffic Noise Model 2.5 (TNM 2.5) to show noise levels under existing, existing plus project, cumulative, and cumulative plus project traffic scenarios. For model details, please see Appendix K.

The FTA has recommended noise criteria related to traffic generated noise. Recommendations contained in the FTA's *Transit Noise and Vibration Assessment* (2006) can be used as guidance to determine whether or not a change in traffic would result in a substantial permanent increase in noise. Under FTA standards, the allowable noise exposure increase is reduced with increasing existing ambient noise exposure, such that the higher ambient noise levels have a lower allowable noise exposure increase. Table 9 shows the recommended allowable increase in traffic related noise levels. Traffic-related noise would have a significant impact if noise levels increased by greater than the FTA recommendation.

Table 9 Significance of Changes in Operational Roadway Noise Exposure

Existing Noise Exposure (dBA Ldn or Leq)	Allowable Noise Exposure Increase (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

Source: Federal Transit Administration. Transit Noise and Vibration Impact Assessment. May 2006

Existing and existing plus project noise levels are shown in Table 10. Impacts would be significant if project related noise increases are greater than the threshold. Project-generated traffic would marginally increase noise levels at three of the five receptor locations; however, the increase would be less than the significance threshold.

Table 10 Existing and Existing Plus Project Noise Modeling Results

Receptor	Existing Noise Level (dBA CNEL)	Existing Plus Project Noise Level (dBA CNEL)	Project Increase	Significance Threshold	Significant?
1	64.0	64.9	0.9	2	No
2	65.7	66.5	0.8	1	No
3	64.7	65.2	0.5	1	No
4	78.9	78.9	0.0	0	No
5	78.1	78.1	0.0	0	No

See Noise Study, Appendix K.

Cumulative development in the project area would incrementally increase noise levels along area roadways. Cumulative noise levels were modeled with and without project-generated traffic, as shown in Table 11. In order for the project to cause a significant cumulative impact, the project would have to cause a significant portion of the increase. As shown in Table 11, development under the cumulative plus project scenario would cause a 0.1 dBA CNEL increase. However, without the project, the cumulative development would still cause the 0.1 dBA CNEL increase. Therefore the project's contribution to the cumulative impact would be less than significant and impacts related to a permanent increase in noise would also be less than significant.

Table 11 Cumulative and Cumulative Plus Project Noise Modeling Results

Receptor	Cumulative Noise Level (dBA CNEL)	Cumulative Plus Project Noise Level (dBA CNEL)	Project Increase	Significance Threshold	Significant?
1	64.0	65.0	1.0	2	No
2	65.7	66.5	0.8	1	No
3	64.8	65.2	0.4	1	No
4	78.9	78.9	0.0	0	No
5	78.2	78.2	0.0	0	No

See Noise Study, Appendix K

LESS THAN SIGNIFICANT IMPACT

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Project construction would generate temporary noise levels that could be audible to receptors near the project site. Noise impacts are a function of the type of activity being undertaken and the distance to the receptor location. Nearby noise-sensitive land uses include residential units located directly south of the site, and west of the site across Cravens Lane. The residences closest to the site are those located to the south and west, which are approximately 35-100 feet from the project fence line. During project construction, construction equipment would be active on the site, and construction workers and trucks would also drive to and from the site.

Impacts from construction noise would be considered significant if noise levels exceeded 75 dBA CNEL for more than 12 hours over a 24 hour time period. Project construction would last approximately 24 months, with site preparation, utilities, and street improvements taking approximately four months and building construction taking approximately 20 months. Building construction would occur in three overlapping phases of 10 units each. Throughout construction, peak noise levels would depend on the types of equipment in operation at any given time and phase of construction. Table 12 shows typical peak noise levels associated with various types of heavy construction equipment expected during each construction phase. Noise levels are based on the FHWA *Highway Construction Noise Handbook* (2006). Peak noise levels associated with the use of individual pieces of heavy equipment can range from about 70 to 89 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FHWA 2006).

Table 12 Typical Noise Levels Generated by Construction Equipment

Equipment	Type	Typical Lmax (dBA) 50 Feet from the Source
Air Compressor	Stationary	81
Backhoe	Mobile	80
Compactor	Mobile	83
Concrete Mixer	Stationary	85
Excavator	Mobile	81
Generator	Stationary	81
Grader	Mobile	83
Paver	Mobile	89
Saw	Stationary	70
Scraper	Mobile	89
Truck	Mobile	88
Welder	Stationary	74

Source: FHWA, 2006

Noise sensitive uses near the project site include residences located to the west and south. These sensitive land uses may experience a temporary increase in noise during construction activities on the project site.

Table 13 shows the maximum expected noise levels at a variety of distances from construction activities, including the specific distances to nearby sensitive receptors described above (50 feet and 100 feet), during different phases of construction. This analysis is representative of worst case conditions, as it is assumed that all equipment contained on site would operate simultaneously and continuously for at least 70 percent of the workday. While residences to the south would be located approximately 35 feet from the edge of the project site, the majority of construction would occur at 50 feet or more from the adjacent residences. Noise levels are based on a standard noise attenuation rate of 6 dBA per doubling of distance from the highest-volume individual pieces of equipment shown in Table 12.

Table 13 Construction Noise Levels at Various Distances from Project Construction

Construction Phase	Equipment	Estimated CNEL	
		50 Feet	100 Feet
Demolition	Concrete Industrial Saw, Excavators, Dozers	85	79
Site Preparation	Dozers, Backhoes	84	78
Grading	Excavator, Dozer, Backhoes, Grader	83	77
Building Construction	Crane, Forklifts, Generator Set, Welder	82	76
Architectural Coating	Air Compressor	72	66
Paving	Cement Mixers, Paver, Paving Equipment, Rollers, Backhoe	85	79

Source: FHWA, 2006

Construction noise levels could exceed 75 dBA CNEL during all phases except architectural coating. Construction would result in a noise increase of more than 5 dBA over the existing 63.5 dBA Leq ambient noise level during all phases. Construction noise levels would be the greatest during demolition and paving. During these phases, noise levels could reach up to 85 dBA at the residences to the south of the project site and up to 79 dBA at the residences west of the project site. While project construction would conform to the construction hours set by the City of Carpinteria Municipal Code, preventing the generating of construction noise during regular sleep hours, mitigation is required to reduce noise levels to less than 75 dBA during construction. Compliance with Mitigation Measures N-1 through N-5 would reduce construction noise impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

e) For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise?

The project site is located over 17 miles from the nearest airport, the Santa Barbara Municipal Airport. Noise related to airplanes would not be significant at the project site and people residing at the project site would not be exposed to excessive airport-related noise levels. There would be no impact related to airports and private air strips.

NO IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to noise impacts. However, the project's contribution to cumulative noise impacts would not be considerable and temporary noise impacts would be further reduced by the required mitigation measures.

Required Mitigation Measures:

The following mitigation measures would reduce construction noise impacts on surrounding sensitive receptors.

N-1 Construction activity for site preparation and for future development shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions. **Plan Requirements:** Two signs stating these restrictions shall be provided to the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** Building Inspector shall spot check and respond to complaints.

N-2 A sound curtain shall be installed and maintained along the southern property line throughout the duration of all construction activities on the project site. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing:** The sound curtain shall be in place prior to the beginning of and throughout all demolition, grading, and construction activities. **Monitoring:** Building inspector shall spot check and respond to complaints.

N-3 Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. Equipment engine shrouds shall be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer shall require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

N-4 Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

N-5 Stationary construction equipment that generates noise that exceeds 60 dBA Leq at the boundaries of the nearby residential uses shall be shielded. **Plan Requirements:** Temporary noise barriers used during construction activity shall be made of noise resistant material sufficient to achieve a Sound Transmission Class (STC) rating of STC 40 or greater, based on sound transmission loss data taken according to ASTM Test Method E90. Such a barrier may provide as much as a 10 dB insertion loss, provided it is positioned as close as possible to the noise source or to the receptors. To be effective, the barrier must be long and tall enough (a minimum height of eight feet) to completely block the line-of-site between the noise source and the receptors. The gaps between adjacent panels must be filled-in to avoid having noise penetrate directly through the barrier. The recommended minimum noise barrier or sound blanket requirements would reduce construction noise levels by at least 10 dB.

Timing/Monitoring: The equipment area with appropriate acoustical shielding shall be designated on building and grading plans. Equipment and shielding shall remain in the designated location throughout construction activities.

N-6 All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity. **Plan Requirements:** The notes on all building and grading plans shall include these requirements. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

N-7 A disturbance coordinator shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. **Plan Requirements:** A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. **Timing/Monitoring:** CDD shall monitor implementation of this measure throughout building and grading.

Residual Impact: With the incorporation of these mitigation measures, residual noise impacts would be less than significant.

13. POPULATION AND HOUSING Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)			X	
b) Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere			X	
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere			X	

Existing Environmental Setting

The project site is located adjacent to the northwestern edge of the City along Cravens Lane as it transitions from the multi-family residential and mobile home park development at the southern end of Cravens Lane within the City of Carpinteria, to the greenhouse and open field agricultural operations to the north within the unincorporated County of Santa Barbara.

The site is currently improved with two existing residences and several accessory structures. Water, electric, telephone and cable television services are available to currently serve the parcel.

Impact Analysis

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project site is currently developed with two single family residences. The project proposes to construct 30 new residences, one of the existing residences would be remodeled and the other would be demolished. Of these 30 new residences, seven would be single family dwellings, 10 would be flats and 13 would be townhomes. Therefore, the project would result in a net addition of 29 residences. The DOF states that the population of Carpinteria in 2016 was 13,928. SBCAG estimates that the City's population will increase to 14,792 by 2040.

The DOF estimates that there are approximately 2.81 persons per household in Santa Barbara County (DOF, 2016). Based on this average, the 29 new units would accommodate approximately 81 people. This would increase the population of Carpinteria to 14,009. This increase in population is within the projected population increase for the City and SBCAG forecasts. The population increase associated with the proposed medium density housing project was foreseen within the adopted General Plan/Coastal Plan.

In addition, the project proposes an extension of the existing sewer main that runs along Cravens Lane towards the northern edge of the City boundary. Although the sewer mains capacity would be increased, there are no planned/pending developments in the area that would access the extension and no population growth is anticipated beyond the project's individual contribution. The sewer

extension would not place pressure on existing agricultural land to be converted to non-agricultural uses, and would not induce or create potential growth induced impacts. Project impacts to population growth would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The project site is currently developed with two residences. One of these residences would be removed, the other would remain on site, and 30 residences would be built. The project would not displace substantial numbers of existing housing or people. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to population and housing impacts. However, the project's contribution to cumulative population and housing impacts would not be considerable.

14. PUBLIC SERVICES Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1. Fire protection			X	
2. Police protection			X	
3. Schools			X	
4. Parks			X	
5. Other public facilities			X	

Existing Environmental Setting

This property of approximately 3.9 acres includes two single-family homes, a barn and several out buildings. The parcel is currently served by the Carpinteria Valley Water District and utilizes two separate septic systems for waste disposal. As discussed in the project description, the site was annexed into the Carpinteria Sanitary District in 2010. Partial street improvements front the property and with approval of the Annexation to the Carpinteria Sanitary District, all utilities would be available to the site.

Impact Analysis

a1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?

Fire services are provided by the Carpinteria-Summerland Fire Protection District, with auxiliary service from the Santa Barbara County Fire Department. The District is an “All Risk” emergency response agency, with experienced/trained personnel ready to respond 24 hours a day, 7 days a week. The operations division is composed of a Battalion Chief and six Fire Captains who deliver service through six engine companies (2016). The closest fire station to the property is the Carpinteria Fire Station, approximately 1.5 miles away. In a Standards of Response Cover and Headquarters Staffing Adequacy Study produced by Citygate Associates, the District is currently meeting some, but not all, of its needs through its own fire response resources (Citygate 2016). Development of the project would

incrementally increase demand for fire service to the site but would not expand the service area or create a need for new fire facilities.

As part of the City of Carpinteria Development Impact Mitigation Fees, new residential properties would be subject to City, School, Fire, and Parks and Recreation Fees/Taxes. These funds would go toward the select programs as part of a mitigation process for the introduction of new development and residents to the City of Carpinteria. The required fees/taxes would ensure that the proposed development would marginalize its impacts on community infrastructure, and bring potential impacts to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

a2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?

The Santa Barbara County Sheriff's Department currently provides police protection services to the site. The Patrol Division is commanded by a Police Captain, and staffed 24 hours a day, seven days a week. The Patrol Structure has seven teams of officers who continually serve the County and provide specialized service. The Carpinteria City Hall and Sheriff's sub-station is located approximately 2.5 miles southeast of the site. The project site is currently developed with two single family residences and a barn. Development of the project would incrementally increase demand for sheriff and police service to the site but would not expand the service area or create a need for new sheriff or police facilities. Therefore impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?

Carpinteria is served by the Carpinteria Unified School District. Students living on the project site would attend Aliso Elementary School, Carpinteria Middle School and Carpinteria High School. As shown in Table 14, the project would result in an increase of approximately 60 students in the Carpinteria Unified School District, which would equate to an increase of approximately four percent.

Table 14 School Capacity and Student Generation

	Enrollment	Students Generated by Project (0.7/du)	Percent (%) Increase
Aliso Elementary	405	20	5
Carpinteria Junior High	490	20	4
Carpinteria High	648	20	3
Total	1,543	60	4

Source: State of California Office of Public School Construction website

The Carpinteria Unified School District would be able to accommodate the incremental percentage increase of students from the project. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?

Refer to Section 15, *Recreation* for ratios, and performance objectives for parks and recreation space. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

The Carpinteria Library is located at 5141 Carpinteria Avenue and is part of the City of Santa Barbara Central Branch Library District. Based on numbers from the City's General Plan/Coastal Plan and population estimates, (referenced in Section 13, *Population and Housing*), the city will maintain acceptable service ratios, response times, and other performance objectives for public facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to public service impacts. However, the project's contribution to cumulative public service impacts would not be considerable partially due to the payment of Development Impact Fees. Conditions of approval will require the applicant to pay DIFs and all special district fees. Any fees required as part of a new development would reduce the project's cumulative impacts to a less than significant level.

15. RECREATION Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment			X	

Existing Environmental Setting

The City of Carpinteria has a total of 97.6 acres of City Parks, along with Carpinteria State Beach. As of 2016, City population is approximately 14,000 and with approximately 98 acres of parks and open space in the City inventory, there are approximately 7 acres of space per 1,000 residents. The region's other public open spaces (e.g. beaches and mountains) available to the public also provide recreational areas.

Impact Analysis

a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

The project includes the demolition of an existing residence, remodel of an additional existing residence and the construction of 30 residences for a total of 31 residential units. This increase in units could result in an increase in the demand for parks and other recreational facilities. However, the project design includes a pavilion, village green spaces, community gardens, and a walking path around the pond which would provide some private recreational services to the site. An existing agricultural pond would be enhanced and incorporated into the project as part of the open space. All of these features would provide onsite recreational space for the project residents. As stated in Section 14, *Public Services*, the applicant would be required to pay the Development Impact Fees for Land Acquisition for additional Parks and Recreational Facilities, Parks and Recreational Facilities Development and Aquatics Facilities.

The City of Carpinteria has a total of 97.6 acres of City Parks, along with Carpinteria State Beach. As of 2016, City population was approximately 14,000 and with approximately 98 acres of parks and open space in the City inventory, there are approximately seven acres of space per 1,000 residents. The region's other public open spaces (e.g. beaches and mountains) available to the public also provide recreational areas. This is higher than the target contained in the California Government Quimby Act,

which intends to provide roughly three acres of recreational space per 1,000 residents. The increase in population from the project would not conflict with the ratios of recreational area to residents; therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to recreation impacts. However, the project's contribution to cumulative recreation impacts would not be considerable especially in light of the Development Impact Fees that would be paid to support additional recreational facilities throughout the City.

16. TRANSPORTATION Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?			X	

Existing Environmental Setting

Carpinteria is served by a network of roadways, bikeways, the Santa Barbara Metropolitan Transportation District and the Carpinteria Area Rapid Transit. The City is considered the gateway to recreational beaches within the County. Recreational traffic is a major element of transportation demand which must be served by the circulation system.

The site is currently served by a network of highways, arterial roadways and collector streets. The following text briefly describes the major components of the street network.

U.S. Highway 101, located south of the site, connects the City of Carpinteria with the Santa Barbara-Goleta area to the north and the Ventura-Oxnard area to the south. U.S. 101 is generally a north-south facility within California, however the segment within the study area extends in an east-west direction. U.S. 101 provides regional access to the project site via the U.S. 101 northbound on and off ramps at Santa Monica Road, and the U.S. 101 southbound on and off ramps at Padaro Lane.

Via Real, located south of the project site, is a 2-lane primary road paralleling the freeway as a frontage road. The street extends between Carpinteria and Summerland along the north side of U.S. 101.

Santa Monica Road, located east of the project site, is a 2-lane north-south collector street that extends north from Via Real and the U.S. 101 northbound ramps. Santa Monica Road is controlled by a stop sign at the Via Real intersection. The road serves residential and rural land uses north of the city.

Cravens Lane, located just west of the project site, is a 2-lane north-south secondary roadway that extends about one mile north from Via Real to Foothill Road (SR-192). The roadway provides access to the project site and a right turn driveway provides ingress to the project site.

Environmental Thresholds

The impacts of project-generated traffic are assessed against the following City thresholds which are also utilized by Santa Barbara County. A significant traffic impact occurs when:

A. The addition of project traffic to an intersection increases the volume to capacity (V/C) ratio by the value provided below or sends at least 5, 10, or 15 trips to an intersection operating at Level of Service (LOS) F, E, or D, respectively. This is shown in Table 15.

Table 15 Thresholds Criteria

Level of Service (including project)	Increase in V/C Greater Than
A	0.20
B	0.15
C	0.10
	Or the addition of
D	15 trips
E	10 trips
F	5 trips

Source: Santa Barbara County Environmental Thresholds Manual

B. Project access to a major road or arterial road would require a driveway that would create an unsafe situation, or a new traffic signal or major revisions to an existing traffic signal.

C. Project traffic would utilize a substantial portion of an intersection(s) capacity where the intersection is currently operating at acceptable levels of service (A-C) but with cumulative traffic would degrade to or approach LOS D (V/C 0.81) or lower. Substantial s defined as a minimum change of 0.03 for intersections which would operate from 0.80 to 0.85 and a change of 0.02 for intersections which would operate from 0.86 to 0.90 and 0.01 for intersections operating at anything lower.

If the above thresholds were to be exceeded, construction of improvements or project modification to reduce the levels of significance to insignificance would be required.

Impact Analysis

a) Would the project conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The development of the project would increase the amount of daily trips to the site. A Traffic Study was completed for the project by Associated Transportation Engineers (May 2017) (See Appendix L). This study estimated the trip generation of the project, which is shown in Table 16. The project would generate an estimated 201 average daily trips (ADT). The analysis is based on a mix of units (seven single family dwellings, and 23 townhomes), which was therefore used for the Level of Service (LOS) and roadway operations analysis included in the Traffic Study.

Table 16 Estimated Project Traffic Trip Generation

ITE Land Use	Size	Weekday Peak Hour		Total Daily Trips (ADT)
		AM	PM	
Single-Family	7 Units	5	7	67
Condominium	23 Units	10	12	134

Source: ATE Traffic Analysis (2016). See Appendix L.

These trips were then added to Via Real west and east of Cravens Lane. The project would not cause the roadway to be over capacity. Table 17 compares the existing plus project traffic volumes on Via Real west and east of Cravens Lane to the capacity of the roadway segment.

Table 17 Existing + Project Roadway Operations

Roadway Segment	Existing + Project	Capacity	Significant Impact?
Via Real w/o Cravens Lane	8,139	10,990	No
Via Real e/o Cravens Lane	6,497	10,990	No

Source: ATE Traffic Analysis (2016). See Appendix L.

As shown in Table 17, the existing plus project traffic levels would not exceed the capacity as determined by Santa Barbara County Thresholds. Roadway impacts would be less than significant.

LOS were calculated for the study area intersections using the assumed traffic volumes shown above in Table 17. LOS is based on a rating of A-F, with F grades signifying a failing intersection in terms of delay and service. Table 18 shows the existing plus project impacts with regard to level of service and delay.

Table 18 Existing + Project Peak Hour Levels of Service

Intersection	AM		Significant Impact?	PM		Significant Impact?
	Existing	Existing Plus Project		Existing	Existing Plus Project	
Padaro Lane/Via Real	C	C	No	C	C	No
U.S. 101 NB Ramps/Padaro Lane	A	A	No	A	A	No
U.S. 101 SB Ramps Santa Claus Lane/Padaro Lane	A	A	No	A	A	No
Cravens Lane/Via Real	C	C	No	B	B	No
U.S. 101 Northbound Ramps-Santa Monica Road/Via Real	E	E	No	C	C	No

Source: ATE Traffic Analysis (2016). See Appendix L.

Table 18 shows that most of the study area intersections are forecasted to continue to operate at LOS C or better during the peak hour periods with existing plus project volumes. The U.S. 101 Northbound Ramps – Santa Monica Road/Via Real is forecast to operate at LOS E during the AM peak hour period. This intersection is currently operating at LOS E and the project would add seven AM peak hour trips to this location, which is not a significant project-specific impact based on the City's impacts thresholds (minimum addition of 10 trips). Impacts would therefore be less than significant.

Cumulative traffic volumes were forecasted based on a list of approved and pending projects located in Carpinteria. The Traffic Study also incorporated approved and pending projects in the Santa Barbara County area west of the site. Table 19 shows the cumulative traffic plus project traffic conditions.

Table 19 Cumulative + Project Roadway Operations

Roadway Segment	Available Capacity	Cumulative	Project	Cumulative Plus Project	Significant Impact?
Via Real w/o Cravens Lane	10,990	8,253	112	8,365	No
Via Real e/o Cravens Lane	10,990	7,850	92	7,942	No

Source: ATE Traffic Analysis (2016). See Appendix L.

As shown in Table 19, the project would not contribute to significant cumulative roadway impacts based on the Santa Barbara County Thresholds. Roadway operations would continue to operate at acceptable levels and impacts would be less than significant.

LOS with cumulative impacts were calculated for the study area intersections. Table 20 shows the existing plus project cumulative impacts with regard to level of service and delay.

Table 20 Cumulative + Project Peak Hour Levels of Service

	AM			PM		
Intersection	Cumulative	Cumulative Plus Project	Significant Impact?	Cumulative	Cumulative Plus Project	Significant Impact?
Padaro Lane/Via Real	C	C	No	C	C	No
U.S. 101 NB Ramps/Padaro Lane	A	A	No	A	A	No
U.S. 101 SB Ramps Santa Claus Lane/Padaro Lane	A	A	No	A	A	No
Cravens Lane/Via Real	C	C	No	B	B	No
U.S. 101 Northbound Ramps-Santa Monica Road/Via Real	E	E	No	C	C	No

Source: ATE Traffic Analysis (2016). See Appendix L.

As shown in Table 20, the project plus cumulative conditions would not change any existing LOS service levels, or increase a delay that would be of significant impact. The project is forecast to add 0.3 seconds of delay to the U.S 101 Northbound Ramps-Santa Monica Road/Via Real location, which is not

considered a significant cumulative impact based on the City's impact thresholds (minimum added increase of two seconds at LOS E. Impacts regarding cumulative impacts and levels of service would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The closest airport to the project site is the Santa Barbara Airport, located approximately 17 miles northwest of the project site. Carpinteria does not have any airports or airstrips, and the proposed project is not located within an airport land use plan, or within two miles of a public or private airstrip. Development of the project would have no impact with respect to air traffic.

NO IMPACT

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

Site access would be from Cravens Lane. The internal access road would loop around the site, and would not create any hazardous or dangerous conditions. No new intersections are proposed, nor is use of incompatible equipment.

The existing speed limit on Cravens Lane is 35 mph. The Caltrans stopping sight distance standard for a private road driveway is 250 feet for a 35 mph design speed. A line of sight analysis was completed in the Traffic Study by ATE, and concluded that drivers exiting the site would have more than a 250-foot line of sight to the north and south, which meets Caltrans stopping sight distance standards. Impacts regarding hazards or dangerous conditions are less than significant.

LESS THAN SIGNIFICANT IMPACT

e) Would the project result in inadequate emergency access?

Access to the site would be provided via an internal roadway connection to Cravens Lane. The roadway continues as an interior private drive where it narrows to a one way loop on the eastern side of the site. An additional emergency fire access gate is also proposed. This gate would allow access to a private driveway located just south of the site. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f) Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?

The City of Carpinteria has established a Development Impact Fee (DIF) mitigation program to collect funds to implement long term improvements. The project would be required to contribute to future improvements via the fees.

Project implementation would improve the Cravens Lane frontage by constructing a nine-foot wide parallel parking zone, a six-foot wide bike lane, and a five and one half foot wide sidewalk along the site adjacent to the proposed driveway. The area currently has a curb with no available parking, bike lane or

sidewalks. Development would not conflict with any plans or performance measures, and would improve existing conditions. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts are discussed throughout the section. Although the project would add vehicle trips compared to the existing setting, no cumulatively considerable impacts would occur.

17. Tribal Cultural Resources Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Would the project be listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
b) Would the project cause a substantial change to a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Cod Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe.		X		

Existing Environmental Setting

The project site has been previously disturbed by both agricultural and residential development. The site is not identified as a sensitive cultural area on any City or County documents, and there are no known cultural resources within the site. According to records at the County of Santa Barbara, a survey was completed on the parcel directly to the south (E-764), and no sensitive resources were found. Pursuant to Government Code Section 65352.3 and Senate Bill 18 [2004], the Santa Ynez Band of Chumash (Mission) Indians Tribal Elders Council was consulted. The Elders Council has no immediate knowledge of the project area as being spiritual or ceremonial.

The applicant has submitted a *Historic Resources Report* dated October 13, 2005, prepared by San Buenaventura Research Associates assessing the historical and architectural significance of the existing structures and any adverse impacts on historic resources with the implementation of the proposed project. The Report concludes that due to low ranking scores, the property does not meet the criteria for landmark eligibility for the County of Santa Barbara. The Report continues that, because the property does not appear to qualify for listing on the National Register of Historic Places (NHRP), California Register of Historic Resources (CRHR) or local landmark listing, the proposed project does not represent an adverse impact on historic resources. In addition, a Phase 1 Archaeological Resources Survey was conducted by Macfarlane Archaeological Consultants. The survey is attached in Appendix F.

Impact Analysis

a., b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is (a) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or (b) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1?

Tribal cultural resources are defined in Public Resources Code 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either:

- *Included or determined to be eligible for inclusion in the California Register of Historical Resources*
- *Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1*

The project involves construction and demolition which would require excavation and ground disturbing activities. The site is currently partially paved and developed, and has previously been disturbed through construction and agricultural operations.

Letters for AB52 consultation were sent by Macfarlane Archaeological Consultants to Chumash Tribal representative Julie Tumamait-Stenslie on June 14, 2017. Ms. Tumamait-Stenslie has expressed concern with the potential to impacts sites and places with ties to Chumash ancestry and their predecessors. Since the project involves ground disturbance and general construction activity, the potential to disturb tribal cultural resources is unknown, and this impact remains potentially significant. With incorporation of the mitigation measures CR-1, discussed in Section 5, *Cultural Resources*, impacts would be reduced to less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Cumulative Impacts: Similar to Section 5, *Cultural Resources,* the project would not have cumulatively considerable impacts.

Required Mitigation Measures:

The following mitigation measures would reduce impacts regarding tribal cultural resources to a less than significant level.

CR-1 See mitigation measure CR-1 from Section 5, *Cultural Resources.*

Residual Impact: With the incorporation of these mitigation measures, residual impacts would be less than significant.

18. UTILITIES AND SERVICE SYSTEMS Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board			X	
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects			X	
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed			X	
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments			X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste			X	

Existing Environmental Setting

Wastewater collection and treatment services are managed by the Carpinteria Sanitary District (CSD) and solid waste generated at the site is taken to the Gold Coast Recycling and Transfer Station in Ventura. Further discussion of the existing facilities, water supply, and applicable plans/policies are embedded within the analysis below.

Wastewater collection and treatment services are managed by the CSD. This community-wide service agency has the obligation of operating and maintaining this system for the transmission, treatment and disposal of sewage generated within this area. CSD is also responsible for providing treatment to the level necessary to meet various discharge requirements set by the Regional Water Quality Control Board and other state and federal agencies.

Water Reliability is a major issue with water systems anticipating success when dealing with water shortages, especially in California. In four year drought scenarios, the City of Carpinteria has implemented management practices to safeguard against dry years. On February 12, 2014 the Carpinteria Valley Water District adopted Resolution 972, declaring a Stage One (1) Drought emergency to address drought conditions. Ordinance 15-2 was adopted in May 2015 declaring a Stage Two (2) Drought Condition with mandatory water use restrictions to cut usage by 25 percent.

Impact Analysis

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The CSD owns and operates a municipal wastewater treatment plant capable of treating up to 2.5 million gallons of wastewater a day. Based on wastewater generation rates developed by the Sanitation Districts of Los Angeles County, and shown below in Table 21, the proposed project would generate an estimated 4,520 gallons per day (gpd). Since one unit currently exists on the site and one would be demolished, the net gain from 29 units would result in an increase of wastewater generation around 4,400 gpd. The wastewater generation from the house that would be remodeled has not been included in this analysis since it would generate the same amount of wastewater before and after development of the project.

Table 21 Estimated Wastewater Generation

Land Use	Quantity	Generation Factor	Amount (gpd)
Proposed Residences to be Constructed			
2 Bedroom	8	120/du	960
3 Bedroom	21	160/du	3,360
4 Bedroom	1	200/du	200
Existing Residence to be Demolished			
2 Bedroom	1	120/du	120
Net Change (Proposed – Existing)			**4,400**

gpd = gallons per day

Source: Los Angeles County Sanitation District Loadings for Each Class of Land Use

This increase constitutes about 0.002 percent of the available wastewater treatment capacity of 2.5 million gpd. Thus, the project's wastewater generation would not exceed the capacity of the City's wastewater systems, or require the construction of new wastewater treatment facilities. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

See Section 9, *Hydrology and Water Quality*, items c,d,e,f for a full discussion on stormwater drainage facilities.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The Carpinteria Valley Water District's 2016 Urban Water Management Plan (UWMP) reports total district water demand for 2015 was 4,143 acre feet. This is projected to increase by 52 acre feet (or 0.01 percent) to 4,205 acre feet in 2040. The UWMP reports that projected water supply for 2040 is 8,013 acre feet, leaving a 3,808 acre feet per year surplus. Therefore, there would be adequate water supplies to meet future demand.

Project water demand is estimated to be 120 percent of the wastewater generated. Based on the project's estimated wastewater generation, project water demand is estimated at 5,280 gpd while the existing structure requires 144 gpd. This is an increase of 5,136 gpd or 5.75 acre feet per year, which is within the City's water supply surplus projections. Project water demand would represent less than 0.1 percent of the forecast citywide increase in water demand. Based on the project's incremental contribution to future demand, new sources of water supply would be not required to meet project water needs. The project would comply with applicable water use restrictions and water conservation requirements. Impacts to water supply would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The proposed project involves demolition of an existing building, renovation of one building and construction of 30 new units. The Santa Barbara County Environmental Thresholds and Guidelines Manual Guide contains solid waste generation rates for residences. The waste generation rates and totals are shown in Table 22.

Table 22 Estimated Solid Waste Generation

Land Use	Quantity Dwelling Units	Number of people per Unit	Generation Factor (tons/resident/year)	Total Amount (tons/year)
Proposed Multi Family Residences	23	2.65	0.95	58
Proposed Single Family Residences	7	3.01	0.95	20
			Total Proposed	**78**
Existing Single Family Residence to be Demolished	1	3.01	0.95	3
			Net Change (Proposed – Existing)	**75**

Source: Santa Barbara County Environmental Thresholds and Guidelines Manual Guide (2008).

Based on these rates, the project would generate an estimated 78 tons of solid waste per year and a net increase in waste of approximately 75 tons per year.

Waste generated at the site is taken to the Gold Coast Recycling and Transfer Station in Ventura. It is then transferred to Toland Road Landfill in Santa Paula, a Class II municipal facility, which is managed by the Ventura Regional Sanitation District. The proposed project would generate 75 tons a year or approximately 0.2 tons per day, while the Toland Landfill has a maximum permitted throughput of 1,500 tons per day. The project would contribute about 0.01 percent to the current throughput capacity. Expansion in recent years has extended the lifespan of the landfill to 2027 and the landfill has a remaining capacity of 5.9 million tons. Based on the disposal capacity of the landfill serving the project site, the incremental increase in waste generation would not affect the availability of solid waste disposal capacity. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts: Cumulative impacts have been addressed in the EIR prepared for the City's General Plan and Coastal Plan (April 2003), herein incorporated by reference. Cumulative development throughout the Carpinteria Valley would incrementally contribute to utility and service impacts. However, based on the analysis above, the project's contribution to cumulative utility and service impacts would not be considerable.

19. MANDATORY FINDINGS OF SIGNIFICANCE Would the project:	**POTENTIALLY SIGNIFICANT IMPACT**	**POTENTIALLY SIGNIFIANT IMPACT UNLESS MITIGATION INCORPORATED**	**LESS THAN SIGNIFIANT IMPACT**	**NO IMPACT**
a) Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

a) Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As presented in this Initial Study, development of the Green Heron Spring project has the potential to degrade the quality of the environment in several issue areas without the incorporation of the identified mitigation measures. As discussed in Section 4, *Biological Resources*, 11 specimen trees are designated for removal and adjacent to construction related activities which have the potential to disrupt nesting birds. Implementation of mitigation measure Bio-1 would reduce this impact to a less than significant level. In addition, the fencing around the pond shall be made permeable in order to allow wildlife to pass through. This action has been included in mitigation measure Bio-4 and would reduce impacts to a less than significant level. The project site does not currently provide substantial habitat for wildlife. The applicant's proposal to biologically enhance the existing on-site pond and incorporate it into the project would be a beneficial impact. As discussed in Section 5, *Cultural Resources,* the project has the potential to uncover and disturb intact cultural resources that contain examples of California history.

Through the implementation of mitigation measures CR-1 and CR-2, impacts would be less than significant. The proposed dismantling and reuse of the existing residence, outbuilding and storage shed would have a less than significant effect on any major periods of California history. Incorporation of mitigation measure CR-1 would ensure that the project would have a less than significant impact on unanticipated cultural resources.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

As described in the discussion of environmental checklist Sections 1 through 18, the project would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all environmental issues. The project would be consistent with the current General Plan/Coastal Plan land use designation for the site as well as the land use pattern in the project site vicinity. As discussed in Section 7, *Greenhouse Gases*, project emissions would not exceed SLOAPCD thresholds. Additionally, as discussed in Section 17, *Transportation and Traffic*, implementation of the proposed project would not contribute to a significant cumulative traffic impact. There are no other planned or pending projects in the immediate vicinity of the project site that would create cumulative impacts.

LESS THAN SIGNIFICANT IMPACT

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Effects to human beings are generally associated with air quality, geology and soils, noise, traffic safety, and hazards. As discussed in this Initial Study, implementation of the project would result in potential environmental impacts with respect to air quality, noise, and hazards and hazardous materials. The mitigation measures outlined in Section 3, *Air Quality*, Section 6 *Geology and Soils*, Section 8 *Hazardous Materials*, and Section 12, *Noise* would reduce health and safety risks to human beings, and would result in less than significant impacts. The project would not cause substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant with mitigation.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

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Appendices

Appendix A – Air Quality and Greenhouse Gas Reports and Emissions Output

Appendix B – Biological Resources Assessment

Appendix C – Tree Assessment and Protection Plan

Appendix D – Wetland Habitat Enhancement and Monitoring Plan

Appendix E – California Red Legged Frog Survey

Appendix F – Historic Resources Report and Archaeological Resource Survey

Appendix G – Geotechnical Engineering Report

Appendix H – Stormwater Control Plan

Appendix I – Soil Investigations Report and Work Plan

Appendix J – Hydrology Study

Appendix K – Noise Study

Appendix L – Traffic Study

Appendix M – Response to Comments

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Appendix A

Air Quality and Greenhouse Gas Report with CalEEMod Worksheets

Cravens Lane, LLC

Green Heron Spring Residential Project

Air Quality and Greenhouse Gas Study

July 2017

rincon

Environmental Scientists Planners Engineers

Air Quality and Greenhouse Gas Study

Green Heron Spring Residential Project

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Green Heron Condominium Project
Air Quality and Greenhouse Gas Study
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Appendix A: CalEEMod Worksheets

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AIR QUALITY AND GREENHOUSE GAS STUDY

Green Heron Spring Project
City of Carpinteria

This study details the analysis of the potential air quality and greenhouse gas (GHG) impacts of the proposed project located at 1300 and 1326 Cravens Lane, in the City of Carpinteria. The study has been prepared by Rincon Consultants, Inc. under contract to Green Heron Spring, LLC for use by the City of Carpinteria, in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the project's air pollutant and GHG emissions and the associated impacts. The study considers both temporary impacts that would result from project construction and potential long-term impacts associated with the location and operation of the proposed project.

PROJECT DESCRIPTION

The project involves the remodel one existing single family home and construction of 30 new residences on 3.89 acres located at 1300 and 1326 Cravens Lane (Assessor Parcel Number, [APN] 004-013-026). The 30 residences include 10 flats, 13 townhouses and 7 single family homes. The proposed buildings would have a footprint of approximately 37,767 square feet with heights less than 30 feet.

Proposed parking includes 21 head-in parking spaces and 53 garage parking spaces. Vehicular access to the project site would be provided by an entrance located along Cravens Lane.

Outdoor use areas would include a pavilion, village green, and enhancement of an existing agricultural pond as open space. General landscaping would include trees, grassy areas and bushes.

Construction of the project would take approximately 24 months. Site work, including grading, utilities, and street improvements would take approximately four months. Construction of the buildings would take approximately 20 months, with three separate, but overlapping, phases of 10 units each. Grading of the project would include approximately 1,100 cubic yards (cy) of cut and 3,605 cy of fill, with an anticipated 2,505 cy of imported fill.

The project site is bordered by agriculture (flower packing warehouse, agriculture, and greenhouses) to the north and east and residential uses to the south and west.

AIR QUALITY

Local Climate and Meteorology

The project site is within the South Central Coast Air Basin (SCCAB), which includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The climate of the SCCAB is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific. With a Mediterranean-type climate, the Project area is characterized by warm, dry summers and cool winters with occasional rainy periods.

Precipitation generally occurs between November and April, providing approximately 14 inches of rain annually.

Cool, humid marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer months. The region is subject to a diurnal cycle in which daily onshore winds from the west and northwest are replaced by mild offshore breezes flowing from warm inland valleys during night and early morning hours. This alternating cycle can create a situation where suspended pollutants are swept offshore at night, and then carried back onshore the following day. Dispersion of pollutants is further degraded when the wind velocity for both day and nighttime breezes is low.

Air pollutant emissions within the SCCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

Air Quality Regulation

The federal and state governments have established ambient air quality standards for the protection of public health. The United State Environmental Protection Agency (US EPA) is the federal agency designated to administer air quality regulation, while the Air Resources Board (ARB) is the state equivalent in the California EPA. Air Pollution Control Districts (APCDs) provide local management of air quality. The ARB has established air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. The ARB has established 14 air basins statewide.

The U.S. EPA has set primary national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, the State of California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards. Table 1 lists the current federal and state standards for regulated pollutants.

The Santa Barbara County Air Pollution Control District (SBCAPCD) is the designated air quality control agency in the SCCAB. Santa Barbara County is designated in nonattainment for the state eight-hour ozone standards and the state PM_{10} standard. The County is designated unclassifiable/attainment for the 2008 federal 8-hour ozone standard and the federal and state $PM_{2.5}$ standards. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	---	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	---	---
	24-Hour	---	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	---	20 $\mu g/m^3$
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
PM_{25}	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$
	24-Hour	35 $\mu g/m^3$	---
Lead	30-Day Average	---	1.5 $\mu g/m^3$
	3-Month Average	0.15 $\mu g/m^3$	---

ppm = parts per million;
$\mu g/m^3$ = micrograms per cubic meter
Source: ARB, May 2016, Ambient Air Quality Standards
http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Ozone

Ozone (O_3) is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG[1]). NO_X is formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations only near fuel combustion equipment and other sources of carbon monoxide. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. CO's health effects are related to its affinity for

[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide

NO_2 is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. NO_2 absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (which measures no more than 10 microns in diameter) and $PM_{2.5}$, (a fine particulate measuring no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer particulates, $PM_{2.5}$, are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Current Air Quality

The SBCAPCD monitoring station nearest to the project site is the Carpinteria-Gobernador monitoring station, located approximately 4.5 miles east of the project site. Table 2 indicates the number of days each of the standards was exceeded at this station in each of the last three years for which data is available. The ozone concentration exceeded state one-hour standards on three days in 2014, but did not exceed the state one-hour standards for ozone in 2013 or 2015. Ozone concentration exceeded state 8 hour standards on seven days in 2014, one day in 2013, and no days in 2015. Ozone concentration exceeded National standards four times in 2014, but did not exceed standards in 2013 or 2015. Data for $PM_{2.5}$, PM_{10}, Carbon Monoxide, Sulfur Dioxide, or Hydrogen Sulfide is not collected at the Carpinteria-Gobernador monitoring station.

Table 2
Ambient Air Quality at the Gobernador Monitoring Station

Pollutant	2013	2014	2015
Ozone (ppm), Worst Hour			
Number of days of State exceedances (>0.09 ppm)	0	3	0
Ozone (ppm), 8-hr			
Number of days of State exceedances (>0.07 ppm)	1	7	0
Number of days of Federal exceedances (>0.07 ppm)	0	4	0
Carbon Monoxide, ppm – Worst 8 Hours			
Number of days of State/Federal exceedances (>9.0 ppm)	*	*	*
Nitrogen Dioxide, ppm – Worst Hour			
Number of days of State exceedances (>0.18 ppm)	0	0	0
Particulate Matter[1] > 10 microns, ug/m^3 Worst 24 Hours			
Estimated Number of Days of State exceedances (>50 μg/m^3)	3	3	0
Estimated Number of Days of Federal exceedances (>150 μg/m^3)	0	0	0
Particulate Matter[1] <2.5 microns, μg/m^3 Worst 24 Hours			
Estimated Number of Days of Federal exceedances (>35 μg/m^3)	0	0	0

Data collected for the Carpinteria-Gobernador monitoring station
** There was insufficient (or no) data available to determine the value*
[1]Data from next nearest station at 700 East Canon Perdido, Santa Barbara
Source: ARB Top Four Summary available at http://www.arb.ca.gov/adam/topfour/topfour1.php

Air Quality Management Plan

The U.S. EPA and the ARB develop and implement air quality standards, and, using the ambient air monitoring data collected at the 17 stations around the county, determine the attainment classification for the county. Santa Barbara County's attainment classification drives the clean air planning process, identifying the required emissions reductions that must be obtained and determining the deadlines.

The California Clean Air Act requires that every three years areas update their Clean Air Plans to attain the state 1-hour ozone standard. The 2013 Clean Air Plan was adopted by the District Board on March 19, 2015 and is the three-year update required by the state to show how Santa Barbara County plans to meet the state eight-hour ozone standard.

The 2013 Clean Air Plan was prepared to address both federal and state requirements. The federal requirements pertain to provisions of the federal Clean Air Act that apply to the City's current designation as an attainment area for the federal 8-hour ozone standard (SBAPCD, 2015). Areas designated as attainment for the federal 8-hour ozone standard and attainment for the previous federal 1-hour ozone standard with an approved maintenance plan must submit an 8-hour maintenance plan under section 110(a)(1) of the federal Clean Air Act. The California Clean Air Act, under Health and Safety Code sections 40924 and 40925, requires areas to update their clean air plans every three years with the goal of attaining the state 1-hour ozone standard. The 2013 CAP provides a three-year update to the SBCAPCD's 2010 CAP. The Clean Air Plan

forecasting process sheds light on short-term and long-term issues and challenges for the county's air quality.

The Santa Barbara County 2016 Ozone Plan is the eight triennial update to the state Air Quality Attainment Plan adopted by SBCAPCD in 1991. While the county is yet to attain the state 8-hour ozone standard, the plan updates have implemented 'every feasible measure strategy' to continued progress towards the state ozone standards attainment. The 2016 Ozone Plan update continues with the proposed stationary source control measures from the 2013 Clean Air Plan that are pending rule adoption. The County also moved two stationary source control measures that were listed as "further study" measures to proposed control measures and one control measure that was scheduled for adoption in the 2013 Clean Air Plan was moved to the "further study" list. Marine shipping accounts a large percentage of the County's inventory and the County's programs are focused on near-term NOx reductions in the marine shipping category.

Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore, schools and hospitals. Sensitive receptors likely to be affected by air quality impacts associated with project construction include multi-family residences adjacent to the project site. Construction activities would occur 25 feet north of The Villas condominium area and 100 feet east of Sandpiper Mobile Park, which is on the opposite site of Cravens Lane.

Methodology and Significance Thresholds

Methodology

This air quality analysis conforms to the methodologies recommended in the SBCAPCD's *Environmental Review Guidelines* (2015a) and *Scope and Content of Air Quality Sections in Environmental Documents* (2015b). The construction activities associated with development would generate diesel emissions and dust. Construction equipment that would generate criteria air pollutants includes excavators, graders, dump trucks, and loaders. Some of this equipment would be used during grading activities, as well as when structures are constructed. It is assumed that all construction equipment used would be diesel-powered. The construction emissions associated with development of the proposed project were calculated using the California Emissions Estimator Model (CalEEMod) software 2016.3.1. CalEEMod defaults were used to estimate the types and number of pieces of equipment that would be used on-site during each of the construction phases.

Operational emissions associated with existing and proposed on-site development were estimated using CalEEMod. Operational emissions include mobile source emissions, energy emissions, and area source emissions. Mobile source emissions are generated by the increase in motor vehicle trips to and from the project site associated with operation of on-site development. Vehicle trips were based on traffic counts and data provided by the Traffic and Circulation produced by Associated Transportation Engineers in May 2017. Emissions attributed to energy use include natural gas consumption for space and water heating. Area

source emissions are generated by landscape maintenance equipment, consumer products and architectural coating.

Significance Thresholds

To determine whether a proposed project would have a significant impact to air quality, Appendix G of the *CEQA Guidelines* asks whether a project would:

- *Conflict with or obstruct implementation of the applicable air quality plan*
- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation*
- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)*
- *Expose sensitive receptors to substantial pollutant concentrations*
- *Create objectionable odors affecting a substantial number of people*

Construction Emissions Thresholds

The SBCAPCD has not adopted quantitative thresholds of significance for construction emissions since such emissions are temporary. However, according to the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (April 2015b), construction-related NO_X, reactive organic compounds (ROC), PM_{10}, and $PM_{2.5}$ emissions from diesel and gasoline powered equipment, paving, and other activities, should be quantified. SBCAPCD uses 25 tons per year for all pollutants except CO as a guideline for determining the significance of construction impacts, but this is not an adopted threshold. In addition, standard dust control measures must be implemented for any discretionary project involving earth-moving activities, regardless of size or duration. According to the SBCAPCD, proper implementation of these required measures reduces fugitive dust emissions to a less than significant level (SBCAPCD, April 2015b).

Operational Emissions Thresholds

As described in the *Scope and Content of Air Quality Sections in Environmental Documents* (April 2015b), a project would not have a significant air quality effect on the environment if operation of the project would:

- *Emit (from all project sources, both stationary and mobile) less than the daily trigger for offsets or Air Quality Impact Analysis set in the APCD New Source Review Rule[2], for any pollutant (i.e., 240 pounds/day for ROC or NO_X; and 80 lbs/day for PM_{10}. There is no daily operational threshold for CO; it is an attainment pollutant[3]); and*
- *Emit less than 25 lbs/day of NO_X or ROC from motor vehicle trips only; and*

[2] The APCD New Source Review Rule as it existed at the time the APCD Environmental Review Guidelines were adopted (in October, 1995).
[3] Due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with congested intersections are not expected to exceed the CO health-related air quality standards. Therefore, CO "Hotspot" analyses are not required anymore.

- *Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); and*
- *Not exceed the APCD health risk public notification thresholds adopted by the APCD Board (10 excess cancer cases in a million for cancer risk and a Hazard Index of more than one (1.0) for non-cancer risk; and*
- *Be consistent with the latest adopted federal and state air quality plans for Santa Barbara County*

Air Quality Impact Analysis

Construction Impacts

Table 3 summarizes the estimated maximum daily emissions of pollutants during each year of the construction period with compliance with the above described requirements. Annual construction emissions of all criteria pollutants are below the SBCAPCD recommended 25 ton per year guideline. Nonetheless, the SBCAPCD requires implementation of dust control requirements for all projects involving earthmoving activities. With implementation of standard dust control measures, temporary construction emissions would be further reduced. SBCAPCD Rule 345 regulates fugitive dust for any activity associated with construction or demolition of structures.

Table 3
Estimated Construction Maximum Daily
Air Pollutant Emissions (tons/year)

	Maximum Emissions				
Construction Phase	**ROG**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2017 Maximum	0.2	2.0	1.2	0.2	0.1
2018 Maximum	0.4	3.1	2.4	0.2	0.2
2019 Maximum	0.4	1.3	1.1	0.1	0.1
SBCAPCD Guideline tons/year	**25**	**25**	**n/a**	**n/a**	**n/a**
Threshold Exceeded?	**No**	**No**	**n/a**	**n/a**	**n/a**

Notes: All calculations were made using CalEEMod. See Appendix A for calculations. Grading, Paving, Building Construction and Architectural Coating totals include worker trips, soil export hauling trips, construction vehicle emissions and fugitive dust. Numbers may not add up due to rounding.
n/a= not available

The proposed project would be required to comply with Rule 345, as described below.

- *No person shall engage in any construction or demolition activity or earth moving activities subject to this rule in a manner that causes discharge into the atmosphere beyond the property line visible dust emissions of 20% opacity or greater for a period or periods aggregating more than 3 minutes in any 60 minute period.*
- *No person, including facility or site owner or operator of source, shall load or allow the loading of bulk materials or soil onto outbound trucks unless at least one of the following dust prevention techniques is utilized:*

  - *Use properly secured tarps or cargo covering that covers the entire surface area of the load or use a container-type enclosure.*
  - *Maintain a minimum of 6 inches of freeboard below the rim of the truck bed where the load touches the sides of the cargo area and ensure that the peak of the load does not extend above any part of the upper edge of the cargo area.*
  - *Water or otherwise treat the bulk material to minimize loss of material to wind or spillage.*
  - *Other effective dust prevention control measures approved in writing by the Control Officer.*
- *Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall be controlled as outlined below:*
  - *Visible roadway dust shall be minimized by the use of any of the following track-out/carry-out and erosion control measures that apply to the project or operations: trac-out grates of gravel beds at each egress point, wheel-washing at each egress point during muddy conditions, soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; and*
  - *Visible roadway dust shall be removed at the conclusion of each work day when bulk material removal ceases, or every 24 hours for continuous operations. If a street sweeper is used to remove any track-out/carry-out, only a PM_{10}-Efficient Street Sweeper shall be used. The use of blowers for removal of track-out/carry-out is prohibited.*

Operational Impacts

Table 4 summarizes estimated emissions associated with operation of the proposed project. The majority of project-related operational emissions would be due to area emissions and vehicle trips to and from the site. Associated Transportation Engineers traffic study for the project was used to estimate trip generation and the associated emissions. Project traffic is estimated at 363,285 annual vehicle miles traveled. As shown in Table 4, project-generated emissions would not exceed SBCAPCD recommended thresholds for ROG, NO_X, and PM_{10}.

Table 4
Project Operational Emissions

Emissions Source	Estimated Emissions (lbs/day)				
	ROG	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Energy (electricity and natural gas)	>0.1	0.2	0.1	>0.1	>0.1
Mobile	0.4	1.4	4.2	0.8	0.2
Area	1.6	>0.1	2.5	>0.1	>0.1
Total Mobile + Area Emissions	**2.0**	**1.4**	**6.7**	**0.8**	**0.2**
Thresholds (Mobile and Area Sources)	*240*	*240*	*None*	*80*	*None*
Threshold Exceeded?	**No**	**No**	**N/A**	**No**	**N/A**
Thresholds (Mobile Sources)	*25*	*25*	*None*	*None*	*None*
Threshold Exceeded?	**No**	**No**	**N/A**	**No**	**N/A**

See Appendix A for CalEEMod computer model output. Note: Numbers may not add up due to rounding.

Toxic Air Contaminants

ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The project site is not located within 500 feet of a freeway or urban road with 100,000 vehicles/day, or a rural road with 50,000 vehicles/day. U.S. Highway 101 (US 101) is the nearest high volume roadway and it is located approximately 850 feet south of the project site. Therefore, the project would not site sensitive receptors within 500 feet of a freeway or an urban road with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day, and the project would not create a human health hazard by exposing sensitive receptors to substantial pollutant concentrations.

Odors

Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project includes residential uses and is not expected to produce objectionable odors. Other odors, including the smells of oil or diesel fuels, would be limited to project construction. All off-road construction equipment would be covered by the ARB anti-idling rule (SS2449(d)(2)), which limits idling to five minutes. Project construction would be temporary and would not produce long-term odors.

The Westland Floral Company, lnc. J&C Farms own and operate a commercial cut-flower growing and shipping business encompassing approximately 47 acres abutting the project site along the east and north property lines. The Floral Company utilizes enclosed greenhouses, an enclosed warehouse, and a packing shed located east of the project. Any odors, pesticides, chemicals produced by the agricultural operations, are generally trapped inside the enclosed warehouse and greenhouses to prevent aerial drift. The enclosed spaces trap the pesticides and

chemicals that may drift into adjacent land uses. In addition, the buyer beware notice for the project would state: *Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.*

Clean Air Plan Consistency

The California Clean Air Act requires that air districts create a Clean Air Plan (CAP) that describes how the jurisdiction will meet air quality standards. These plans must be updated every three years. The most recent SBCAPCD CAP, the 2016 Ozone Plan, was adopted in 2016.

In order to be consistent with the CAP, all projects involving earthmoving activities must implement SBCAPCD's standard dust control measures (SBCAPCD, April 2015b). By definition, consistency with the CAP means that direct and indirect emissions associated with the project are accounted for in the CAP's emissions growth assumptions and the project is consistent with policies adopted in the CAP (SBCAPCD, April 2015a). The CAP relies primarily on the land use and population projections provided by the Santa Barbara County Association of Governments (SBCAG) and the ARB on-road emissions forecast as a basis for vehicle emission forecasting. The 2013 CAP utilized SBCAG's Regional Growth Forecast 2010-2040, adopted December 2012, to project population growth and associated air pollutant emissions for all of the Santa Barbara County incorporated and unincorporated areas.

The project would not involve any additional land use changes or development in Carpinteria that would result in a significant increase to population. The project site is zoned for Planned Unit Development District (PUD). Under this zoning designation, residential development is permitted to include mobile/modular home subdivisions and mobile/modular home planned unit developments for single family occupancy, public parks, playgrounds and community/recreation centers, and child day care facility. The project would include development compatible with the allowed uses permitted in the Carpinteria Municipal Code, §14.17.040 Uses Permitted. The project would include 30 new residential units, generating approximately 81 new residents (California Department of Finance 2016). The City of Carpinteria has a total population of 13,928 persons (California Department of Finance 2016). The current population of 13,928 is more than the SBCAG forecast of 13,284 for the year 2020, 13,825 for the year 2035, and 13,893 for the year 2040. The 81 person increase would bring the total population to 14,009 persons. The proposed project would contribute marginally to these exceedances by increasing the population by about 0.6 percent.

According to SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (April 2015b), a project would be consistent with the CAP if they are consistent with SBCAPCD rules and regulations. The project would not conflict with SBCAPCD rules and regulations and would be required to implement SBCAPCD's standard dust control measures. The project would be consistent with the CAP (2016 Ozone Plan).

GREENHOUSE GASES

This section analyzes GHG emissions associated with the proposed project and potential impacts related to climate change.

Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2014), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century (IPCC, 2014).

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHG. The gases that are widely seen as the principal contributors to human-induced climate change include CO_2, CH_4, N_2O, fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHG because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHG are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, globally-averaged temperature, and sea level rise are generally well within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHG absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2007).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the

consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The following discusses the primary GHGs of concern.

Carbon Dioxide

The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (US EPA, 2014). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the second half of the 20th century. Concentrations of CO_2 in the atmosphere have risen approximately 40 percent since the industrial revolution. The global atmospheric concentration of CO_2 has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Administration [NOAA], 2010). The average annual CO_2 concentration growth rate was larger between 1995 and 2005 (average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, CO_2 represents an estimated 74 percent of total GHG emissions (IPCC, 2007). The largest source of CO_2 emissions, and of overall GHG emissions, is fossil fuel combustion.

Methane

CH_4 is an effective absorber of radiation, though its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10 to 12 years. It has a GWP approximately 25 times that of CO_2. Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148 percent (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH_4 include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (U.S. EPA, 2014).

Nitrous Oxide

Concentrations of N_2O began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). N_2O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of N_2O emissions. The GWP of nitrous oxide is approximately 298 times that of CO_2 (IPCC, 2007).

Fluorinated Gases (HFCS, PFCS and SF_6)

Fluorinated gases, such as HFCs, PFCs, and SF_6, are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are

phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but these compounds have much higher GWPs. SF_6 is the most potent GHG the IPCC has evaluated.

Greenhouse Gas Emissions Inventory

Worldwide anthropogenic emissions of GHGs were approximately 46,000 million metric tons (MMT, or gigatonne) CO_2e in 2010 (IPCC, 2014). CO_2 emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, carbon dioxide was the most abundant accounting for 76 percent of total 2010 emissions. Methane emissions accounted for 16 percent of the 2010 total, while nitrous oxide and fluorinated gases account for 6 and 2 percent respectively (IPCC, 2014).

Total U.S. GHG emissions were 6,870.5 MMT CO_2e in 2014 (US EPA, 2016). Total U.S. emissions have increased by 7.4 percent since 1990; emissions increased by 1.0 percent from 2013 to 2014 (US EPA, 2016). The increase from 2013 to 2014 was due to relatively cool winter conditions, which led toan increase in fuels consumed for heating and cooling for the residential and commercial sectors. Additionally, transportation emissions increased as a result of a small increase in vehicle miles traveled (VMT) and fuel use across on-road transportation modes. There also was an increase in industrial production across multiple sectors resulting in slight increases in industrial sector emissions (US EPA, 2016). Since 1990, U.S. emissions have increased at an average annual rate of 0.3 percent. In 2014, the industrial and transportation end-use sectors accounted for 29.2 percent and 26.4 percent of CO_2 emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 16.6 percent and 17.1 percent of CO_2 emissions, respectively (US EPA, 2016).

Based upon the ARB California Greenhouse Gas Inventory for 2000-2014, California produced 441.5 MMT CO_2E in 2014 (ARB, 2016). The major source of GHG in California is transportation, contributing 37 percent of the state's total GHG emissions. Industrial sources are the second largest source of the state's GHG emissions, contributing 24 percent of the state's GHG emissions (ARB, 2016). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. The CARB has projected statewide unregulated GHG emissions for the year 2020 will be 509.4 MMT CO_2e (ARB, 2016). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The global combined land and ocean temperature data show an increase of about

0.89°C (0.69°C–1.08°C) over the period 1901–2012 and about 0.72°C (0.49°C–0.89°C) over the period 1951–2012 when described by a linear trend. Several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT as well as sea surface temperatures have increased. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC, 2014).

According to the CalEPA's *2010 Climate Action Team Biennial Report*, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, 2010). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Energy Commission [CEC], 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase. Many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR], 2008; California Climate Change Center (CCCC), 2009).
This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR, 2008).

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. According to The Impacts of Sea-Level Rise on the California Coast, prepared by the CCCC (CCCC, 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO], 2013). As a result, sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO, 2013). Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report (2013) predicts a mean sea–level rise of 11-38 inches by 2100. This prediction is more than 50 percent higher than earlier projections of 7-23 inches, when comparing the same emissions scenarios and time periods. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. I*n addition, i*ncreased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $30 billion annual agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2006).

Regulatory Setting

The following regulations address both climate change and GHG emissions.

International Regulations

The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was produced in 1992. The UNFCCC is an international environmental treaty with the objective of, "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This is generally understood to be achieved by stabilizing global GHG concentrations between 350 and 400 ppm, in order to limit the global average temperature increases between 2 and 2.4°C above pre-industrial levels (IPCC, 2007). The UNFCCC itself does not set limits on GHG emissions for individual countries or enforcement mechanisms. Instead, the treaty provides for updates, called "protocols," that would identify mandatory emissions limits.

Five years later, the UNFCCC brought nations together again to draft the *Kyoto Protocol* (1997). The Kyoto Protocol established commitments for industrialized nations to reduce their collective emissions of six GHGs (CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs) to 5.2 percent below 1990 levels by 2012. The United States is a signatory of the Kyoto Protocol, but Congress has not ratified it and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007). The first commitment period of the Kyoto Protocol ended in 2012. Governments, including 38 industrialized countries, agreed to a second commitment period of the Kyoto Protocol beginning January 1, 2013 and ending either on December 31, 2017 or December 31, 2020, to be decided by the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its seventeenth session (UNFCCC, 2011).

In Durban (17th session of the Conference of the Parties in Durban, South Africa, 2011), governments decided to adopt a universal legal agreement on climate change. Work began on that task immediately under a new group called the Ad Hoc Working Group on the Durban Platform for Enhanced Action. Progress was also made regarding the creation of a Green Climate Fund (GCF) for which a management framework was adopted (UNFCCC, 2011; United Nations, 2011).

In December 2015, the 21st session of the Conference of the Parties (COP21) adopted the Paris Agreement. The deal requires all countries that ratify it to commit to cutting greenhouse gas emissions, with the goal of peaking greenhouse gas emissions "as soon as possible" (Worland, 2015). The agreement includes commitments to (1) achieve a balance between sources and sinks of greenhouse gases in the second half of this century; (2) to keep global temperature increase "well below" 2 degrees Celsius (C) or 3.6 degrees Fahrenheit (F) and to pursue efforts to limit it to 1.5 C; (3) to review progress every five years; and (4) to spend $100 billion a year in climate finance for developing countries by 2020 (UNFCCC, 2015). The agreement includes both legally binding measures, like reporting requirements, as well as voluntary or non-binding measures while, such as the setting of emissions targets for any individual country (Worland, 2015).

Federal Regulations

The United States Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act.

The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The first annual reports for these sources were due in March 2011.

On May 13, 2010, the U.S. EPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 tons CO_2e per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold will require a permit after that date. On November 10, 2010, the U.S. EPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." The U.S. EPA's guidance document is directed at state agencies responsible for air pollution permits under the Federal Clean Air Act to help them understand how to implement GHG reduction requirements while mitigating costs for industry. It is expected that most states will use the U.S. EPA's new guidelines when processing new air pollution permits for power plants, oil refineries, cement manufacturing, and other large pollution point sources.

On January 2, 2011, the U.S. EPA implemented the first phase of the Tailoring Rule for GHG emissions Title V Permitting. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and they emit at least 75,000 tons CO_2e per year. Under Phase 1, no sources were required to obtain a Title V permit solely due to GHG emissions. Phase 2 of the Tailoring Rule went into effect July 1, 2011. At that time new sources were subject to GHG Title V permitting if the source emits 100,000 tons CO_2e per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 tons CO_2e per year.

On July 3, 2012 the U.S. EPA issued the final rule that retains the GHG permitting thresholds that were established in Phases 1 and 2 of the GHG Tailoring Rule. These emission thresholds determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

California Regulations

ARB is responsible for the coordination and oversight of State and local air pollution control programs in California. California has a numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction from 2009 levels by 2012 and 30 percent by 2016. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025,

when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (ARB, 2011).

In 2005, the governor issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent below 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc. In April 2015 the governor issued EO B-30-15, calling for a new target of 40% below 1990 levels by 2030.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05), and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan. Implementation activities are ongoing and CARB is currently the process of updating the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines CARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 goals set forth in EO S-3-05. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (ARB, 2014).

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead

agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

ARB Resolution 07-54 establishes 25,000 MT of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, CARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035.

Renewables Portfolio Standards (RPS) pursuant to SB 1038, SB 1078, SB 1250, and SB 107 requires retail sellers of electricity to increase the amount of renewable energy they procure each year by at least 1 percent until 20 percent of their retail sales are served with renewable energy.

- *Senate Bill 1038 (Chapter 515, Statutes of 2002). The pertinent provisions of SB 1038 were formerly codified in Public Utilities Code Sections 383.5 and 445, but are now codified in Public Resources Code Sections 25740 through 25751 as a result of Senate Bill 183 (Chapter 666, Statutes of 2003).*
- *Senate Bill 1078; Chapter 516, Statutes of 2002. The pertinent provisions of SB 1078 are codified in Public Utilities Code Section 399.11 through 399.15. This law was subsequently amended to add Sections 399.16, 399.17, and 399.12.5 under Senate Bill 67 (Chapter 731, Statutes of 2003), Assembly Bill 200 (Chapter 5, Statutes of 2005), and Assembly Bill 2189 (Chapter 747, Statutes of 2006), respectively.*
- *Senate Bill 1250; Chapter 512, Statutes of 2006. SB 1250 amends pertinent provisions in Public Resources Code Sections 25740 through 25751*
- *Senate Bill 107; Chapter 464, Statutes of 2006. SB 107 amends pertinent provisions in Public Resources Code Sections 25740 through 25751 and Public Utilities Code Sections 399.11 through 399.16*

In early 2010, ARB adopted a regulation for reducing SF_6 emissions from electric power system gas-insulated switchgear (17 CCR 95350). SF_6 gas is commonly used as an arc quenching and insulating medium for high and medium voltage switchgear systems used in electrical substations. The regulation requires owners of such switchgear to: (1) annually report their SF_6 emissions; (2) determine the emission rate relative to the SF_6 capacity of the switchgear; (3) provide a complete inventory of all gas-insulated switchgear and their SF_6 capacities; (4) produce a SF_6 gas container inventory; and (5) keep all information current for ARB enforcement staff inspection and verification. Changes to the switching station owned by PG&E and any gas insulated switchgear associated with the project would be subject to this regulation.

In April 2011, the governor signed SB 2X requiring California to generate 33 percent of its electricity from renewable energy by 2020.

On September 8, 2016, the governor signed SB 32 into law, which requires the State to further reduce GHGs to 40 percent below 1990 levels by 2030. SB 32 is an extension of AB 32. The other provisions of AB 32 remain unchanged. CARB is currently working to update the Scoping Plan to provide a framework for achieving the 2030 target. The updated Scoping Plan is expected to be completed and adopted by CARB in 2017 (CARB 2015).

California Environmental Quality Act

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, a variety of air districts have adopted quantitative significance thresholds for GHGs.

Methodology and Significance Thresholds

Methodology

Calculations of CO_2, CH_4, and N_2O emissions are provided to identify the magnitude and nature of the proposed project's potential GHG emissions and environmental effects. The analysis focuses on CO_2, CH_4, and N_2O because these make up 98.9 percent of all GHG emissions by volume (IPCC, 2007) and are the GHG emissions that the project would emit in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis, but because the project is a residential development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Emissions of all GHGs are converted into their equivalent GWP in MT CO_2e. Small amounts of other GHGs (such as CFCs) would also be emitted; however, these other GHG emissions would not substantially add to the total GHG emissions. Calculations are based on the methodologies discussed in the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change* white paper (CAPCOA, 2008) and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR, 2009).

GHG emissions associated with the proposed project were calculated using the CalEEMod version 2016.3.1 (see Appendix A for calculations).

Operational Emissions

CalEEMod provides operational emissions of CO_2, N_2O, and CH_4. Emissions from energy use include emissions from electricity and natural gas use. The emissions factors for natural gas combustion are based on EPA's AP-42, (Compilation of Air Pollutant Emissions Factors) and CCAR. Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour (CalEEMod User Guide, 2016). The default electricity consumption values in CalEEMod include the CEC sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies.

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, US EPA, and district supplied emission factor values (CalEEMod User Guide, 2016).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2016). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater use calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California.

For mobile sources, CO_2 and CH_4 emissions from vehicle trips to and from the project site were quantified using CalEEMod. Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using the California Climate Action Registry General Reporting Protocol (January 2009) direct emissions factors for mobile combustion (see Appendix A for calculations). The estimate of total daily trips associated with the proposed project was based on a Traffic and Circulation Study produced by ATE in May 2017. Emission rates for N_2O emissions were based on the vehicle fleet mix output generated by CalEEMod and the emission factors found in the CCAR General Reporting Protocol.

A limitation of the quantitative analysis of emissions from mobile combustion is that emission models, such as CalEEMod, evaluate aggregate emissions, meaning that all vehicle trips and related emissions assigned to a project are assumed to be new trips and emissions generated by the project itself. Such models do not demonstrate, with respect to a regional air quality impact, what proportion of these emissions are actually "new" emissions, specifically attributable to the project in question. For most projects, the main contributor to regional air quality emissions is from motor vehicles; however, the quantity of vehicle trips appropriately characterized as "new" is usually uncertain as traffic associated with a project may be relocated trips from other locales. In other words, vehicle trips associated with the project may include trips relocated from other existing locations, as people begin to use the proposed project instead of similar existing uses. Because the proportion of "new" versus relocated trips is unknown, the VMT estimate generated by CalEEMod is used as a conservative, "worst-case" estimate.

Construction Emissions

Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the *CEQA and Climate Change* white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA, 2008). GHG emissions from construction of the proposed project are amortized over a 50-year period, as recommended by the SLOAPCD, and added to annual operating emissions to determine whether or not the annual GHG emissions from the proposed project would be significant.

Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading

typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. CalEEMod was used to estimate emissions associated with the construction period, based on the CalEEMod defaults. Complete results from CalEEMod and assumptions can be viewed in Appendix A.

Significance Thresholds

According to the adopted CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases*.

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). The SBCAPCD has developed GHG thresholds for stationary projects, which include equipment, processes, and operations that require an APCD permit to operate. Neither the City of Carpinteria nor the SBCAPCD has developed or adopted GHG significance thresholds for residential and commercial projects; however, Santa Barbara County recommends the use of San Luis Obispo Air Pollution Control District (SLOAPCD) Greenhouse Gas Thresholds, as adopted in April 2012. SLOAPCD GHG thresholds are summarized in Table 5.

Table 5
SLOAPCD GHG Significance Determination Criteria

GHG Emission Source Category	Operational Emissions
Residential and Commercial Projects	Compliance with Qualified GHG Reduction Strategy OR Bright-Line Threshold of 1,150 MT of CO_2e/yr OR Efficiency Threshold of 4.9 MT CO_2e/SP*/yr

**SP = Service Population (residents + employees)*
For projects other than stationary sources, compliance with either a Qualified Greenhouse Gas Reduction Strategy, or with the Bright-Line (1,150 CO_2e/ yr.) or Efficiency Threshold (4.9 MT CO_2e/SP/yr.) would result in an insignificant determination, and in compliance with the goals of AB 32. The construction emissions of projects will be amortized over the life of a project and added to the operational emissions. Emissions from construction-only projects (e.g. roadways, pipelines, etc.) will be amortized over the life of the project and compared to an adopted GHG Reduction Strategy or the Bright-Line Threshold only.

The SLOAPCD "bright-line threshold" was developed to help reach the AB 32 emission reduction targets by attributing an appropriate share of the GHG reductions needed from new

land use development projects subject to CEQA. Land use projects that generate emissions within these thresholds would not have "cumulatively considerable" impacts because they would be helping to solve the cumulative climate change problem as a part of the AB 32 process. Such small sources would not significantly add to global climate change and would not hinder the state's ability to reach the AB 32 goal, even when considered cumulatively. The threshold is intended to assess small and average sized projects, whereas the per-service population guideline is intended to avoid penalizing larger projects that incorporate GHG-reduction measures such that they may have high total annual GHG emissions, but would be relatively efficient, as compared to projects of similar scale. Therefore, the bright-line threshold is the most appropriate threshold for the proposed project, and the proposed project would have a potentially significant contribution to GHG emissions if it would result in emissions in excess of 1,150 metric tons of CO_2E per year.

Greenhouse Gas Impact Analysis

Construction Emissions

Based on the construction schedule provided by the applicant, construction activity is anticipated to occur over a period of approximately 24 months. As shown in Table 6, construction activity associated with the proposed project would generate an estimated maximum of 689 metric tons (MT) of CO_2e. Following the SLOAPCD's recommended methodology for amortizing construction emissions over a 50-year period (the assumed life of the project), construction of the proposed project would generate an estimated 14 MT of CO_2e per year.

Table 6
Estimated Construction Emissions of Greenhouse Gases

Year	Annual Emissions MT CO_2e/year
2018	187
2019	344
2020	158
Total	**689**
Amortized over 50 years	**14**

See Appendix A for CalEEMod Results.

Combined Construction, Stationary, and Mobile Source Emissions

Long-term emissions relate to area sources, energy use, solid waste, water use, and transportation. Each of these sources is discussed below.

Area Source Emissions. CalEEMod was used to calculate direct sources of air emissions located at the project site. These include consumer product use and landscape maintenance equipment. Area emissions are estimated at <1 MT of CO_2e per year.

Energy Use. Operation of onsite development would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels emits CO_2, and to a smaller extent, N_2O and CH_4. As discussed above, annual electricity and natural gas emissions can be

calculated using default values from the CEC sponsored CEUS and RASS studies which are built into CalEEMod. Electricity consumption associated with the project would generate approximately 61 MT CO_2e per year. Natural gas use would generate approximately 37 MT CO_2e per year. Thus, overall energy use at the project site would generate an estimated 98 MT CO_2e per year.

Solid Waste Emissions. In accordance with AB 939 and the adopted County of Los Angeles diversion rate, it was assumed that the project would achieve at least a 50 percent diversion rate. Based on this estimate, solid waste associated with the project would generate an estimated 9 MT CO_2e per year.

Water Use Emissions. Based on the amount of electricity generated in order to supply and convey water for the proposed project, the project would generate an estimated 6 MT of CO_2e per year.

Transportation Emissions. Mobile source GHG emissions were estimated using the average daily trips for the project according to the project traffic study and based on the total vehicle miles traveled (VMT) estimated in CalEEMod. The project would generate about 363,285 annual VMT. As noted above, CalEEMod does not calculate N_2O emissions related to mobile sources. As such, N_2O emissions were calculated based on the project's VMT using calculation methods provided by the California Climate Action Registry General Reporting Protocol (January 2009). The project would emit an estimated 154 MT CO_2e per year from mobile sources.

Combined Construction, Stationary, and Mobile Source Emissions. Table 7 combines the construction, operational, and mobile GHG emissions associated with development of the project. The combined annual emissions are estimated at 281 MT CO_2e per year. Thus, GHG emission associated with the proposed project would not exceed the 1,150 MT CO_2e threshold.

Table 7
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions MT CO_2e/year
Construction	14
Operational	
Area	>1
Energy	98
Solid Waste	9
Water	6
Mobile	
CO_2 and CH_4	146
N_2O	8
Project Total Emissions	**281**

Sources: See Appendix A for calculations and for GHG emission factor assumptions.

Consistency with GHG Reduction Plans

Senate Bill 375, signed in August 2008, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTP) for the purpose of reducing GHG

emissions. In August 2013, SBCAG adopted the *2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). SBCAG's RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development in order to comply with SB 375. A goal of the RTP/SCS is to "promote the development of better places to live and work through measures that encourage more compact development, varied housing options, bike and pedestrian improvements, and efficient transportation infrastructure."

The proposed project consists of development that would be located within walking distance to commercial activities and public transportation (less than 800 feet from Via Real & Cravens bus station), thereby reducing vehicle trips. The proposed project would provide a variety of housing options through the inclusion of single family residences, townhomes, and flats. In addition, the project would be required to comply with existing State regulations, which include increased energy conservation measures, such as energy efficient lighting and appliances, and other actions adopted to achieve the overall GHG emissions reduction goals identified in AB 32.

No significant impacts were identified; therefore, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and would be consistent with the objectives of the RTP/SCS, AB 32, and SB 375.

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Appendix B

Biological Resources Assessment

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December 23, 2016 (Revised December 29, 2016)
Project No: 16-02960

Scott Dinovitz, Managing Member
Green Heron Spring, LLC
23622 Calabasas Road, Suite 220
Calabasas, CA, 93101
via Nancy Johns' email: wildflowerdevelopment@yahoo.com

Subject: Green Heron Spring Development Project Biological Resource Assessment
1300 and 1326 Cravens Lane, Carpinteria, CA, 93013

Dear Mr. Dinovitz:

This report documents the findings of a biological resources assessment conducted by Rincon Consultants, Inc. (Rincon) for the Green Heron Spring Development Project (project) located in the City of Carpinteria, California. The purpose of this report is to document the existing conditions of the project site and to evaluate the potential for impacts to special-status biological resources for compliance with the City's California Environmental Quality Act (CEQA) review process.

Project Location and Description

The project is located at 1300 and 1326 Cravens Lane in the City of Carpinteria, Santa Barbara County, California. The regional location is depicted in Figure 1, while Figure 2 depicts the project location in its neighborhood context. The project site is bordered to the west by Cravens Lane and residential housing, to the south by an unnamed road and residential housing, to the east by a County of Santa Barbara Flood Control District channel and access road, and plant nursery, and to the north by a County of Santa Barbara Flood Control District siltation basin. The project site is zoned as Planned Unit Development District (PUD) Residential and was historically used as an avocado orchard. The project site is depicted in Section 19, Township 4 North, and Range 25 West of the U.S. Geological Survey (USGS) *Carpinteria, California* 7.5-minute topographic quadrangle (Figure 3).

The project involves the proposed construction of townhomes, flats, and single family homes for a total of 31-units on an existing 3.87 acre lot. The project would include the dismantling of an existing residence, barn and storage shed, remodeling of an existing residence, and construction of 30 new residential units and 74 parking spaces. The project also includes a common open space with a community orchard, garden, village green, and enhancement of an existing man-made agricultural pond.

The project site currently contains two residences with a detached two-car garage, three storage sheds, a barn, a water tower, and 59 trees. Tree species onsite include coast live oak (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), cork oak (*Quercus suber*), king palm (*Archontophoenix cunninghamiana*), Mexican fan palm (*Washingtonia robusta*), Brazilian pepper (*Schinus terebinthifolius*), coast redwood (*Sequoia sempervirens*), and eucalyptus trees (*Eucalyptus rudis*). A total of 13 trees are proposed for removal, including nine coast live oaks, one coast redwood, one Mexican fan palm, and one California sycamore. One coast live oak tree is proposed for relocation.

The existing residence would retain the same basic structure and footprint, but would have the siding and roof replaced and a three-car garage added. The barn would be demolished, but the materials would be salvaged and used on-site, wherever possible. The existing pond would be dredged and desilted, and the vegetation would be removed. All areas surrounding the pond that will require wetland vegetation removal are proposed to be replanted with native species.

Following construction, there would be 16 buildings on the site, comprised of 14 new residential buildings, the remodeled existing residence, and one new pavilion. The new residences would be two stories tall, approximately 24 feet 5 inches to 29 feet 6 inches tall. The new residences would be located along the northern and eastern boundaries of the property, and continue towards the center of the property around the pond. The buildings would be accessed from a private road that would start approximately two thirds of the way up the site boundary on Cravens Lane. The road would then head east as a two lane road before becoming a one lane road and continuing around the pavilion and Village Green. An off-shoot of the road would continue towards the south to provide emergency access to the site from an existing driveway along the southern boundary of the site.

Project History

A similar project was previously reviewed and approved for the project site in 2007. This project also consisted of a residential development on the site, with the same number of residential units, and improvements to the pond. A total of 11 structures were proposed, equaling 61,990 square feet of floor area. Construction of the project was anticipated to require 1,270 cubic yards (cy) of cut and 3,200 cy of fill, requiring 1,930 cy of imported soil. Implementation of this proposal would have required the removal of five oak trees, relocation of two oak trees, and the potential for 11 additional oak trees to be impacted by encroachment. An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared for that project. This IS/MND found potentially significant effects that required mitigation for biological resources.

Regulatory Background

Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies with the land use control and planning authority of local jurisdictions. The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the state under CEQA and has direct jurisdiction under the California Fish and Game Code (CFGC). Under the state and federal Endangered Species Acts, the CDFW and the U.S. Fish and Wildlife Service (USFWS) have direct regulatory authority over species formally listed as Threatened or Endangered. The United States Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the U.S., under Section 404 of the federal Clean Water Act (CWA). Under Section 401 of the CWA, every applicant for a federal permit or license for activities that may result in a discharge to a water body requires state Water Quality Certification (WQC) from the Regional Water Quality Control Board (RWQCB) ensuring that the proposed activity will comply with state water quality standards. The *City of Carpinteria General Plan / Local Coastal Land Use Plan and Environmental Impact Report* (April 2003) Open Space, Recreation, and Conservation Element also applies to the project.

Plants or animals may be considered to have “special-status” due to declining populations, vulnerability to habitat change, or restricted distributions. Special-status species are classified in a variety of ways, both formally (e.g. state or federally Threatened and Endangered Species) and informally (“Special Animals”). Species may be formally listed and protected as Threatened or Endangered by the CDFW or

USFWS, or as California Fully Protected (CFP). Informal listings by agencies include California Species of Special Concern (SSC, a category used by the CDFW for those species considered indicators of regional habitat changes or are potential future protected species), or as USFWS Candidate taxa. CDFW and local governmental agencies may also recognize special listings developed by focal groups (e.g., Audubon Society Blue List; California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR); U.S. Forest Service regional lists). Section 3503.5 of the CFG specifically protects birds of prey, and their nests and eggs against take, possession, or destruction. Section 3503 of the CFG also incorporates restrictions imposed by the federal Migratory Bird Treaty Act (MBTA) with respect to migratory birds (consists of most native bird species).

CDFW issued a comment letter on January 26, 2007 for the Draft MND prepared for the previous project at the Green Heron Spring property. Within the letter, CDFW recommended mitigation for oak tree removal and for nesting birds. No additional special-status species or special status species mitigation was stated in the letter; consequently, CDFW did not require permits for the project.

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined within the *CEQA Guidelines*, Appendix G – Initial Study Checklist, are used as the basis to evaluate potential environmental effects. Based on these criteria, a proposed project would have a significant effect on biological resources if it would:

a) *Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*

b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.*

c) *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc…) through direct removal, filling, hydrological interruption, or other means.*

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.*

Methodology

The biological resources assessment consisted of a review of relevant literature followed by a field reconnaissance survey and preparation of this report. The analysis of potential presence of special status species was based on the literature review and field survey designed to assess habitat suitability and presence or absence of special status species.

Literature Review

As part of the Biological Resources Assessment, and to characterize the existing biological resources onsite and in the immediate vicinity, the *City of Carpinteria General Plan / Local Coastal Land Use Plan and Environmental Impact Report* (April 2003) Open Space, Recreation, and Conservation Element, current and historic aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data related to the site and vicinity were reviewed. Relevant federal, state, and local plans, City ordinances, policies, and regulations were also reviewed. In addition, Rincon reviewed the following existing documents prepared for the previous project on the property:

- Impact Assessment and Wetland Delineation; September 2002, prepared by Katherine Rindlaub, Botanist
- Conceptual Wetlands Mitigation Habitat Enhancement and Monitoring Plan; December 2005, prepared by Katherine Rindlaub, Botanist
- Sensitive Amphibian and Reptile Evaluation of a Man-Made Pond on the Ellinwood Property in the Carpinteria Valley; June 30, 2005, prepared by Paul W. Collins, Wildlife Biologist
- Reconnaissance Survey for Fairy Shrimp Habitat at a Proposed Development (Green Heron Springs) 1300 Cravens lane, Carpinteria California; January 9, 2006, prepared by Jeffrey Trow, Senior Biologist, Foothill Associates
- Tree Assessment and Protection Plan for Green Heron Spring LLC; November 8, 2005, prepared by Bill Spiewak, Consulting Arborist.

Rincon conducted a search and review of the CDFW California Natural Diversity Data Base (CNDDB) (CDFW 2016a) and Biogeographic Information and Observation System (BIOS) (CDFW 2016b), as well as the USFWS Critical Habitat Portal (USFWS 2016a), to determine if there were any recorded observations of special status species, habitats, or other special status biological resources within the vicinity of the project site. Other resources reviewed include the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (CNPS 2016), CDFW Special Animals List and Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2016c), and *Monarch Butterfly Overwintering Sites in Santa Barbara County, California* (D. Meade, Ph.D. August, 1999). References used in this report are included in Appendix A.

Site Surveys

Rincon Senior Biologist Robin Murray conducted a reconnaissance-level field survey on December 19, 2016, to assess the habitat suitability for potential special status species, map the existing vegetation, map any sensitive biological resources currently present onsite, note the presence of potential jurisdictional waters or wetlands, document any wildlife connectivity/movement features, assess the general health of the trees, and record all incidental observations of plant and wildlife species. The survey area included the proposed project site. Adjacent areas were also observed to provide context for the assessment. The survey area was photographed and site photos are included in Appendix B. Due to the small size of the site, the biologist was able to survey the entire site for the presence of, or potential habitat for, special status species. A tree inventory and health assessment was conducted for trees within the proposed disturbance footprint by a Rincon International Society of Arboriculture Certified Arborist®, Stephanie Lopez (WE-10-442A) with assistance of Rincon biologists on September 21 and October 28, 2016.

Existing Conditions

The project site was historically utilized as an avocado orchard and has been subject to extensive modifications in the past. As previously mentioned in the project description, the project site contains numerous structures such as residences, sheds, and a barn. The project site also contains numerous native and non-native plant species and a man-made agricultural pond that was created near the southern boundary of the project site to regulate the high water table that flooded the orchard. During the time of the survey, approximately three inches of water was observed in a small portion of the pond. All plant and wildlife species observed during the reconnaissance survey are presented in Table 1.

The current observed project site conditions are consistent with project site conditions as described in the City of Carpinteria Green Heron Spring Condominium Project Final Mitigated Negative Declaration (FMND) prepared for the project site (November 13, 2007).

Topography and Soils

Elevations at the site range from approximately 3 to 6 meters (approximately 10-20 feet) above mean sea level, and the topography of the project site is characterized by a minor gradual downward slope southward towards the unnamed road adjacent to the project site's southern border. According to the USDA Web Soil Survey (USDA 2016), the project site is situated on soils mapped as the Camarillo Series, and more specifically named Camarillo, variant, fine sandy loam. This series is generally found on flood plain areas and consists of very deep, somewhat poorly drained loamy soils with moderate permeability that formed in alluvium derived from sedimentary rocks.

Vegetation

The project site contains several vegetation communities including coast live oak woodland, arroyo willow woodland, non-native grassland, and non-native ornamental trees (Figure 4). Numerous ornamental species are present throughout the project site, reflecting the site's current and historic use a residential property. The oak woodland onsite is dominated by coast live oak in the tree layer, with no shrub layer. The herbaceous layer is dominated by non-native, invasive species such as Bermuda buttercup (*Oxalis pes-caprae*), periwinkle (*Vinca major*), and a mix of English ivy (*Hedera helix*) and cape ivy (*Delairea odorata*). One dense stand of trees (*Eugenia* sp.) is present at the center of the site. The open non-native grassland community is dominated by various species of non-native grasses (*Bromus* sp.) as well as Bermuda buttercup. This habitat is mowed and utilized as a lawn for the existing residences onsite. The pond is dominated by arroyo willow in the tree layer. The slopes of the pond are steep (2:1 slope in some areas) and support numerous invasive species such as periwinkle, cape ivy and English ivy. Cattails (*Typha* sp.) fill the bottom of the pond with nut sedge (*Cyperus eragrostis*) present at the perimeter, and duckweed (*Lemna* sp.) was also observed within the limited amount of open water.

General Wildlife

The project site provides suitable habitat for wildlife species that commonly occur in suburban areas of the City. The wildlife species detected onsite are common, widely distributed, and adapted to living in proximity to human development. Common avian species detected on or adjacent to the site include California scrub-jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), and American crow (*Corvus brachyrhyncos*). The wildlife and plant species observed within the project site are included in Table 1.

Table 1. Wildlife and Plant Species Observed Within the Project Site (2016)

Scientific Name	Common Name	Native or Introduced
PLANTS		
Archontophoenix cunninghamiana	king palm	Non-native
Baccharis pilularis	coyote brush	Native
Baccharis salicifolia	mule fat	Native
Bolboschoenus maritimus	alkali bulrush	Native
Bougainvillea sp.	Bougainvillea	Non-native
Brassica nigra	black mustard	Non-native
Bromus sp.	brome	Non-native
Cardamine californica	milk maids	Native
Cirsium sp.	thistle sp.	Non-native
Cynodon dactylon	Bermuda grass	Non-native
Cyperus eragrostis	nut sedge	Native
Delairea odorata	cape ivy	Non-native
Erodium cicutarium	red-stemmed filaree	Non-native
Eucalyptus rudis	western Australian gum	Non-native
Eugenia sp.	eugenia	Non-native
Ficus sp.	fig	Non-native
Hedera helix	English ivy	Non-native
Hirschfeldia incana	short podded mustard	Non-native
Iris sp.	iris	Non-native
Lemna sp.	duckweed	Native
Malva nicaeensis	bull mallow	Non-native
Malva parviflora	cheeseweed mallow	Non-native
Myoporum laetum	lollypop tree	Non-native
Oxalis pes-caprae	Bermuda buttercup	Non-native
Paspalum dilatatum	dallis grass	Non-native
Persea americana	avocado	Non-native
Pittosporum undulatum	Victorian box	Non-native
Plantago lanceolata	English plantain	Non-native
Platanus racemosa	sycamore	Native
Pyracantha sp.	firethorn	Non-native
Quercus agrifolia	coast live oak	Native
Raphanus sativa	wild radish	Non-native
Ricinus communis	castor bean	Non-native
Rumex sp.	dock	Native
Salix lasiolepis	arroyo willow	Native
Schinus terebinthifolius	Brazilian pepper tree	Non-native
Tagetes sp.	marigold	Non-native
Tropaeolum majus	nasturtium	Non-native
Typha sp.	cattail	Non-native
Vinca major	bigleaf periwinkle	Non-native
Vitis vinifera	cultivated grape	Non-native
Washingtonia robusta	Mexican fan palm	Non-native
WILDLIFE		
Birds		
Aphelocoma californica	California scrub-jay	Native
Corvus brachyrhynchos	American crow	Native
Haemorhous mexicanus	house finch	Native

Impact Analysis and Mitigation Measures

This section discusses the possible adverse impacts to biological resources that may occur from implementation of the proposed project, and suggests appropriate mitigation measures that would reduce those impacts to less than significant levels. Criteria used to evaluate potential project-related impacts to biological resources are presented in the Section Guidelines for Determining CEQA Significance.

Special Status Species

Special-status species are those plants and animals 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (FESA); 2) listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA); 3) recognized as SSC by the CDFW; 4) afforded protection under MBTA (16 U.S.C. §§ 703–712) and/or CFGC (§§ 3503 3503, 3503.5, and 3513); and 5) occurring on lists 1 and 2 of the CDFW CRPR system per the following definitions:

- List 1A = Plants presumed extinct in California
- List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened)
- List 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened or no current threats known)
- List 2 = Rare, threatened or endangered in California, but more common elsewhere

In addition, special-status species are ranked Globally (G) and Subnationally (S) 1 through 5 based on NatureServe's (2010) methodologies:

- G1 or S1 - Critically Imperiled Globally or Subnationally (state)
- G2 or S2 - Imperiled Globally or Subnationally (state)
- G3 or S3 - Vulnerable to extirpation or extinction Globally or Subnationally (state)
- G4 or S4 - Apparently secure Globally or Subnationally (state)
- G5 or S5 - Secure Globally or Subnationally (state)
- ? - Inexact Numeric Rank
- T - Infraspecific Taxon (subspecies, varieties, and other designations below the level of species)
- Q – Questionable taxonomy that may reduce conservation priority

No special status plant or wildlife species were observed or detected during the field survey. A review of the *City of Carpinteria General Plan / Local Coastal Land Use Plan and Environmental Impact Report* (April 2003) Open Space, Recreation, and Conservation Element did not identify any habitat onsite for any threatened or rare species as listed in Title 14 of the California Code of Regulations. Based on a CNDDB records search using RareFind 5 (CDFW 2016a), ten special-status plant species, one sensitive vegetation community, and eleven special status wildlife species were identified within a 5-mile radius of the site. Figure 5 shows the locations of CNDDB occurrences within the 5-mile search area. An additional 44 rare plant species have been recorded within the USGS Carpinteria, California 7.5-minute quadrangle in which the site is located, and eight surrounding quadrangles (CNPS 2016). Three additional special status wildlife species were also assessed for their potential to occur on the project site due to known occurrences in the region. These species include the white-tailed kite (*Elanus*

leucurus) (CDFW Fully Protected), western pond turtle (*Emys marmorata*) (CDFW Species of Special Concern), and two-striped garter snake (*Thamnophis hammondii*) (CDFW Species of Special Concern).

A list of the special status species (as defined above) recorded within the 5-mile radius CNDDB search and 9-quad CNPS search are presented in Table 2. The listing status and habitat requirements of each species are provided, along with the potential for occurrence onsite. The potential for special status plants and wildlife to occur at the site was assessed based upon various species' life history information and the range and distribution of those special status species known to occur in the region. This information was correlated with onsite conditions such as vegetation communities, habitat composition and quality, soils, aquatic resources, and elevations. The 9-quad CNPS species search area included high elevation chaparral and forest vegetation communities in the Santa Ynez Mountains. Plants that occur in these habitats are not expected to occur at the site. Additionally, other plant species are not expected to occur onsite due to their distributional range or the lack of specific suitable habitat, soils, and substrate. The overarching basis for the determination of species occurrence is as follows:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

Table 2. Special-Status Species Potentially Occurring on the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR,CDFW G-Rank/S-Rank	Habitat Requirements	Potential for Occurrence / Basis for Determination
Plants			
Atriplex coulteri Coulter's saltbush	-- / -- 1B.2 G3 / S1S2	Perennial herb. Blooms Mar-Oct. Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. 10-440m (30-1445ft).	**Not Expected.** Suitable habitat not present onsite. Grasslands onsite have been mowed, and alkaline soils are absent.
Calochortus fimbriatus sate-flowered mariposa-lily	-- / -- 1B.3 G3 / S3	Perennial bulbiferous herb. Blooms June-Aug. Chaparral, cismontane woodland, riparian woodland. Dry, open coastal woodland, chaparral; on serpentine. 275-1905 m (900-6250ft).	**Not Expected.** Suitable habitat not present onsite. Site is outside preferred elevation range.
Calochortus palmeri var. *palmeri* Palmer's mariposa lily	-- / -- 1B.2 G3T3? / S3?	Perennial bulbiferous herb. Blooms Apr-Jul. Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 600-2245m (1970-7365ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site is outside preferred elevation range.
Chloropyron maritimum ssp. *maritimum* salt marsh bird's-beak	FE / SE 1B.2 G4?T1 / S1	Annual herb (hemiparasitic). Blooms May-Oct. Coastal salt marsh, coastal dunes. Limited to the higher zones of the salt marsh habitat. 0-30m (0-100ft).	**Not Expected.** Suitable habitat not present onsite. Site lacks coastal salt marsh and dunes.
Delphinium umbraculorum umbrella larkspur	-- / -- 1B.3 G3 / S3	Perennial herb. Blooms Apr-Jun. Cismontane woodland. Mesic sites. 400-1600m (1310-5250ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site is outside preferred elevation range.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	-- / -- 1B.1 G4T2 / S2	Annual herb. Blooms Feb-Jun. Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1400m (3-4595ft).	**Low Potential.** Elements of suitable habitat present onsite; however, site has history of disturbance and species has not been observed onsite.
Lonicera subspicata var. *subspicata* Santa Barbara honeysuckle	-- / -- 1B.2 G5T2? / S2?	Perennial evergreen shrub. Blooms May-Feb. Chaparral, cismontane woodland, coastal scrub. 35-1000m (115-3280ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site is outside preferred elevation range. Site has history of disturbance and species has not been observed onsite.
Monardella hypoleuca ssp. *hypoleuca* white-veined monardella	-- / -- 1B.3 G4T2T3 / S2S3	Herb. Blooms Apr-Dec. Chaparral, cismontane woodland. Dry slopes. 50-1525m (165-5005ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site is outside preferred elevation range. Site has history of disturbance and species has not been observed onsite.
Quercus dumosa Nuttall's scrub oak	-- / -- 1B.1 G3 / S3	Perennial evergreen shrub. Blooms Feb-Aug. Closed-cone coniferous forest, chaparral, coastal scrub. More common scrub oak now = Q. berberidifolia. Generally on sandy soils near the coast; sometimes on clay loam. 15-640m (50-2100ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site has history of disturbance and species has not been observed onsite. Site lacks preferred elevation.
Thelypteris puberula var. *sonorensis* Sonoran maiden fern	-- / -- 2B.2 G5T3 / S2	Perennial rhizomatous herb. Blooms Jan-Sep. Meadows and seeps. Along streams, seepage areas. 50-550m (165-1805ft).	**Not Expected.** Elements of suitable habitat present onsite; however, site has history of disturbance and species has not been observed onsite. Site lacks preferred elevation.
Plant Communities			
southern coastal salt marsh	-- / -- -- G2 / S2.1	Marsh and swamp. Wetland.	**Not Expected.** Plant community not observed onsite during site surveys. Pond is not salt marsh due to the absence of marine influence.

Scientific Name Common Name	Status Fed/State ESA CRPR,CDFW G-Rank/S-Rank	Habitat Requirements	Potential for Occurrence / Basis for Determination
Invertebrates			
Cicindela hirticollis gravida sandy beach tiger beetle	-- / -- -- G5T2 / S1	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sands not affected by wave action.	**Not Expected.** Suitable habitat not present onsite. Site lacks water for the majority of the year and lacks sand.
Coelus globosus globose dune beetle	-- / -- -- G1G2 / S1S2	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico. Inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation.	**Not Expected.** Suitable habitat not present onsite. Site lacks sand dune habitat.
Danaus plexippus monarch butterfly	-- / -- -- G5 / S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**Low Potential.** Suitable roosting habitat not present onsite, since Eucalyptus trees are either in hedgerows or single individuals. Individuals of the species may forage onsite.
Panoquina errans wandering (saltmarsh) skipper	-- / -- -- G4G5 / S2	Southern California coastal salt marshes. Requires moist saltgrass for larval development.	**Not Expected.** Suitable habitat not present onsite. Site lacks salt marsh and saltgrass.
Fish			
Eucyclogobious newberryi tidewater goby	FE / -- SSC G3 / S2S3	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to mouth of Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Not Expected.** Suitable habitat not present onsite. Site lacks permanent source of water. Pond onsite is isolated from other bodies of water.
Amphibians			
Emys marmorata western pond turtle	-- / -- SSC G3G4 / S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Low Potential.** Elements of suitable habitat present in pond onsite; however, pond is isolated from other bodies of water and is dry for majority of year. The species has not been observed during site surveys.
Rana boylii foothill yellow-legged frog	-- / -- SSC G3 / S2S3	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	**Not Expected.** Suitable habitat not present onsite. Site lacks stream and cobble substrate.
Rana draytonii California red-legged frog	FT / -- SSC G2G3 / S2S3	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Low Potential.** Elements of suitable habitat present in pond onsite; however, pond is isolated from other bodies of water and is dry for majority of year. The species was not observed during protocol level surveys.
Thamnophis hammondii two-striped garter snake	-- / -- SSC G4 / S3S4	Coastal California from vicinity of Salinas to northwest Baja California. From sea level to about 7,000-foot elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**Low Potential.** Elements of suitable habitat present in pond onsite; however, pond is isolated from other bodies of water and is dry for majority of year. The species has not been observed during site surveys.
Birds			
Charadrius alexandrinus nivosus western snowy plover	FT / -- SSC G3T3 / S2	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Not Expected.** Suitable habitat not present onsite. Site lacks sandy, gravelly and friable soils.

Scientific Name Common Name	Status Fed/State ESA CRPR,CDFW G-Rank/S-Rank	Habitat Requirements	Potential for Occurrence / Basis for Determination
Elanus leucurus white-tailed kite	-- / -- FP G5 / S3S4	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low Potential.** Elements of suitable nesting and foraging habitat present onsite; however, no raptor nests have been observed during site surveys and frequent site disturbances limit the potential for occurrence.
Passerculus sandwichensis beldingi Belding's savannah sparrow	-- / SE -- G5T3 / S3	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in Salicornia on and about margins of tidal flats.	**Not Expected.** Suitable nesting habitat not present onsite, as the species is strongly associated with pickleweed and salt marshes, elements which are not present at the site.
Rallus longirostris levipes light-footed clapper rail	FE / SE FP G5T1T2 / S1	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on molluscs and crustaceans.	**Not Expected.** Suitable habitat not present onsite. Site lacks salt marsh habitat and plants required by the species for nesting.
Mammals			
Corynorhinus townsendii Townsend's big-eared bat	-- / CAN ST SSC G3G4 / S2	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low Potential.** Elements of suitable habitat present onsite; however, frequent site disturbances limit the potential for occurrence.

Regional Vicinity refers to within a 5 mile radius of site.

FT = Federally Threatened
FC = Federal Candidate Species
FE = Federally Endangered
SE = State Endangered
ST = State Threatened
SR = State Rare
SSC = CDFW Species of Special Concern

CRPR (CNPS California Rare Plant Rank):
1A=Presumed Extinct in California
1B=Rare, Threatened, or Endangered in California and elsewhere
2=Rare, Threatened, or Endangered in California, but more common elsewhere
3=Need more information (a Review List)
4=Plants of Limited Distribution (a Watch List)
CRPR Threat Code Extension:
.1=Seriously endangered in California (> 80% of occurrences threatened / high degree and immediacy of threat)
.2=Fairly endangered in California (20-80% occurrences threatened)
.3=Not very endangered in California (<20% of occurrences threatened)

FP = CDFW Fully Protected
G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind 5.

Based on the above species assessment, one of the ten plant species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by CDFW or USFWS has a low potential to occur on the project site. However, this species, Coulter's goldfields (*Lasthenia glabrata* ssp*. coulteri*), is not likely to occur, as it prefers salt marshes, playas and vernal pools, which are not present. Additional factors that limit the potential for the species to occur include the project site's history of disturbance as well as the site's geographic location. All proposed disturbance areas were systematically surveyed for all special status plants and no special status species were observed during the site survey conducted for this report. No impacts to special status plant species are expected.

Seven of the 14 wildlife species identified as candidate, sensitive or special status species in local or regional plans, policies or regulations, or by CDFW or USFWS have a low potential to occur on the project site. These species include: monarch butterfly (*Danaus plexippus*), California red-legged frog (*Rana draytonii*), white-tailed kite, Western pond turtle, two-striped garter snake, and Townsend's big-eared bat (*Corynorhinus townsendii*). Special-status wildlife species typically have specific habitat requirements that include vegetation communities, elevations, topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter).

Much of the land within the City has been converted from open space to commercial, agricultural, residential, and/or recreational uses. Regional wildlife habitat is severely restricted due to the urbanized nature of the City. As a result, the site is located in an area where habitat has been fragmented by urban development. Developed areas and roads, including State Route 1 (SR-1) and SR-192, are within approximately 0.4 and 0.15 miles, respectively, of the project site. The existing developed areas and associated disturbances to wildlife limit the quantity and quality of suitable habitat for special status wildlife, and reduce the ability for self-sustaining special status wildlife species populations to occur.

The pond onsite has been previously assessed for its potential to support multiple sensitive species. Previous assessments include the following: a USFWS protocol level red-legged frog surveys conducted by Carpinteria City Biologist Vince Semonsen, a sensitive amphibian and reptile evaluation prepared by Wildlife Biologist Paul W. Collins (June 30, 2005), and a reconnaissance survey for fairy shrimp habitat prepared by Senior Biologist Jeffrey Trow of Foothill Associates (January 9, 2006). According to the previous reports and FMND (2007), the pond does not support, and is not expected to support, any rare or special status species. The current site conditions remain similar to those described in the previous reports, and its potential to support rare or special status species has not changed.

Monarch butterfly overwintering roosts are also protected by CDFW. Monarch roosts observed in the Southern California region are generally made up of a stand of eucalyptus trees that contain an open understory surrounding a riparian zone. The project site does not contain the preferred monarch roosting habitat and is not identified in the document "Monarch Butterfly Overwintering Sites in Santa Barbara County, California" (D. Meade, Ph.D. August, 1999). Therefore, monarch butterflies are not expected to roost onsite.

Two young unidentified hawks that were likely red-tailed hawks (*Buteo jamaicensis*) were observed perching in sycamore trees onsite during the survey conducted in July of 2016 for the Tree Assessment and Protection Plan (Rincon 2016). The project site provides suitable nesting, perching, and foraging habitat for raptor (i.e., birds of prey) species. No raptor nests were observed in the trees during the survey.

The project is not expected to have a substantial adverse effect on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. This assessment is consistent with the special status species assessment conducted for the project site and subsequent FMND (2007). The project site contains habitat that can support nesting birds, including raptors protected under the CFGC and the MBTA. Furthermore, CDFW protects raptor nests regardless of nesting status (active vs. inactive). The project could adversely affect raptors and other nesting birds if construction occurs while they are present on or adjacent to the site, through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of the MBTA and CFGC 3503 et. seq., and a potentially significant impact. Implementation of the following Mitigation Measure would reduce potential impacts to less than significant.

Mitigation Measure

BIO-1 To avoid disturbance of nesting and special-status birds, including raptor species protected by the MBTA and CFGC, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 1 through August 30), if feasible. If construction must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 14 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside

the Project Boundary, including a 300-foot buffer (500-foot for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practical. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. If a raptor nest is observed in a tree proposed for removal, the Applicant must consult with CDFW. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/ nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

Implementation of the recommended measure would reduce the potential for adverse effects to nesting birds, including raptors, to a less than significant level.

Sensitive Plant Communities

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in CNDDB. Similar to special-status plant and wildlife species, vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive.

Plant species observed / detected on the project site include a mix of native and non-native species. No CNDDB records exist on the project site for special-status species or sensitive natural communities and no special status species have been observed during multiple site surveys. The man-made agricultural pond onsite contains wetland vegetation that will be temporarily impacted by the proposed project activities. Adverse effects resulting from the temporary impacts to the pond are discussed below.

The proposed project does not have the potential to result in direct or indirect adverse effects to sensitive habitat types or vegetation communities as identified by the CNDDB. Due to the absence of potential impacts, no measures are recommended.

Jurisdictional Waters and Wetlands

The man-made agricultural pond onsite contains wetland habitat. Proposed project activities include dredging, desilting, and removing vegetation from the pond. The Ellinwood Parcel Overlay District has specific requirements pertaining to the pond. In addition, a Conceptual Wetlands Mitigation and Enhancement Plan was prepared for the project in 2005 by Katherine Rindlaub. Rincon Restoration Specialists are preparing a Wetland Habitat Enhancement and Monitoring Plan (WHEMP) that will update the 2005 plan and meet the requirements specified in the Overlay District (Chapter 14.43, Section 14.43.030 – Development standards, #5).

Previous pond assessments have determined that the pond and associated wetland vegetation does not support, and is not expected to support, any special status species. Per the previous FMND prepared for the project site, the USACE and EPA have determined that they do not have jurisdiction over the agricultural pond because the pond is not connected to waters of the U.S. federally protected wetlands or waters as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal

pool, coastal, etc.) do not occur on-site. Therefore, a Section 404 permit would not be required for the proposed project activities that impact the pond.

The pond is regulated under the Central Coast Basin Plan of the RWQCB and considered a water of the state. The site is located within the California Coastal Zone; therefore the proposed development on the project site is regulated by the California Coastal Commission (CCC). In September 1978 the property owner was granted permission by the County of Santa Barbara, and a Coastal Development Permit (184-01) issued by the Coastal Commission, to re-grade the property resulting in creation of the existing pond. CCC regulations typically exempt man-made agricultural ponds like this one from wetland designation pursuant to certain criteria as enumerated in Section 13577(b)(2). The project site has since been annexed into the City.

As part of the project, the pond would be incorporated into the proposed development and would be dredged, desilted, and removed of vegetation. The 2016 WHEMP outlines mitigation to be implemented following disturbance to the pond. Compliance with the WHEMP pursuant to municipal code would improve the habitat value of pond as compared to existing conditions.

WHEMP requirements include a development setback of 35 feet from the pond and that all wetland/upland areas within the 35 foot setback shall be restored/enhanced to increase their habitat value. Additionally, all landscaping of private yards for residential units located within 35 feet of the pond/stormwater detention basin shall be limited to appropriate native plants consistent with the goals and objectives of the WHEMP. Implementation of the WHEMP would increase the habitat complexity and species diversity of the pond, improving the functional value of the habitat for native birds and wildlife.

Facility construction adjacent to the pond could result in stormwater runoff entering the pond, potentially impacting water quality. Section 9 of the Mitigated Negative Declaration, Hydrology and Water Quality, discusses compliance with Section 402 with the CWA and the requirement for the project to complete a General Construction Permit under the National Pollutant Discharge Elimination System (NPDES). This permit would also require a Stormwater Pollution Prevention Plan (SWPPP) which would include water quality BMPs that would be submitted to the RWQCB for review and approval.

The proposed project will result in temporary adverse effects to wetland vegetation associated with the pond. Potential impacts would be reduced to less than significant with adherence to the WHEMP and SWPPP.

Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network. The habitats within the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically habitat linkages are contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending upon the species using a corridor, specific physical resources (such as rock outcroppings, vernal pools, or oak trees) may need to be located within the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat

linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time. Wildlife movement corridors can be both large and small scale. Regionally, the project site is not located within an Essential Connectivity Area (ECA) as mapped in the report, California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (2010). ECAs are mapped based on coarse ecological condition indicators, rather than the needs of particular species and thus serve the majority of species in each region.

Much of the land within the City has been converted from open space to commercial, agricultural, residential, and recreational uses, resulting in habitat fragmentation. Regional wildlife movement is restricted due to the urbanized nature of the City in which the project site is located, including SR-1 and SR-192, located on each side of the project site.

No native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites exist on the project site. Therefore, the proposed project activities are not expected to have an impact on wildlife movements or native wildlife nursery sites.

The proposed project would not adversely affect wildlife movement or native wildlife nursery sites. Due to the absence of potential impacts to wildlife movement, no measures are recommended.

Local Policies and Ordinances

The project site is subject to the requirements of the Carpinteria Municipal Code Chapter 14.43, Ellinwood Parcel (APN 004-013-026) Overlay District. The Overlay District provides specific development standards that all new development on the subject parcel shall be required to comply with including a Tree Protection and Replacement Plan and a WHEMP. In 2005 a Tree Assessment and Protection Plan (TAPP) and WHEMP were prepared for the project site. In December of 2016, Rincon Consultants prepared an updated TAPP (2016 TAPP) and WHEMP (2016 WHEMP) based on current site conditions and in compliance with Carpinteria Municipal Code Chapter 14.43. Rincon reviewed and compared the old TAPP inventory and recommendations for removals stated therein when developing the updated TAPP and observed similar net result impacts.

Tree Assessment and Protection Plan

Tree Removal Guidelines in the City's *Revised Environmental Review Regulations Pursuant To the California Environmental Quality Act of 1970 And Carpinteria Municipal Chapter 8.48, As Amended* are utilized for the review of impacts to trees. The Tree Removal Guidelines define specimen trees as trees, shrubs or other plantings which have been designated by resolution of the City Council as having a high degree of value due to type, age, size, conformation or location. Specimen trees are defined as those with a diameter of at least six inches measured four and one half feet (54 inches) above the ground with a minimum height of at least six feet. Additionally, the guidelines state that all native tree species, regardless of size, should be considered to be biologically valuable. In accordance with the guidelines, young oak trees which do not meet the definition of specimen trees are a significant biological resource due to declining oak populations. Eucalyptus trees can be significant resources where trees in general are rare, where they provide roosting habitat, and where they provide some wildlife habitat, their inherent biological value is generally limited due to the high level of disturbance of such areas. The project site contains numerous species of trees in addition to eucalyptus trees that are biologically valuable and provide habitat for wildlife. Therefore, the eucalyptus trees onsite would not likely be considered a significant resource. This project is also subject to the development standards outlined in the CCC's Ellinwood Parcel (Assessor's Parcel Number 004-013-026) Overlay District.

As described in the 2016 TAPP prepared by Rincon, there are a total of 59 trees located on the project site. Specimen species observed include coast live oak, California sycamore, cork oak, king palm, Mexican fan palm, Brazilian pepper, and coast redwood. A line of eucalyptus trees is present along the east side of the study area, as well as sporadically on the south. The Project Description states that the project will require the removal of 13 specimen trees including nine coast live oaks, one coast redwood, one Mexican fan palm, and one California sycamore. One coast live oak tree is proposed for relocation. Eucalyptus trees, all of which determined to be non-specimen, are also proposed for removal with adherence to the recommendations made in the updated TAPP. In addition to the specimen trees, biologically valuable trees were also observed. Seven biologically valuable coast live oaks and one California sycamore are present, but these trees are less than 6 inches in diameter and are therefore not considered to be specimen trees. In addition, a small cluster of eucalyptus surrounding the specimen sycamore trees is biologically valuable.

In compliance with Carpinteria Municipal Code Chapter 14.43, the TAPP provides a number of recommendations to protect the remaining tree and for the planting and maintenance of replacement trees. Compliance with the TAPP as required per Carpinteria Municipal Code Chapter 14.43 would ensure impacts on local tree policies would be less than significant.

Wetland Habitat Enhancement and Monitoring Plan

Carpinteria Municipal Code Chapter 14.43 requires the preparation of a WHEMP. This WHEMP is discussed in the wetlands analysis section above. Compliance with the WHEMP as required per municipal code would ensure impacts on local policies pertaining to biological resources would remain less than significant.

The proposed project will result in impacts to trees and wetland habitat. Adherence to the TAPP and WHEMP would reduce potential impacts to trees and wetland habitat.

Conservation Plans

The project site is not within any Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan areas. The proposed project would not conflict with the provisions of any such plans and no impact would occur.

Conclusions

Potential impacts to nesting birds, wetland vegetation, and protected trees would be less than significant with implementation of the mitigation measures recommended herein and with adherence to plans prepared for the project (e.g., WHEMP, TAPP). No significant impacts are proposed to any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS. The project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Additionally, the proposed project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

Limitations

This limited biological analysis was prepared for use solely and exclusively by Rincon for Green Heron Spring, LLC. No other use or disclosure is intended or authorized by Rincon, nor shall this analysis be relied upon or transferred to any other party without the express written consent of Rincon Consultants. Green Heron Spring, LLC agrees to hold Rincon harmless for any inverse condemnation or devaluation of said property that may result if Rincon's report or information generated is used for other purposes. The findings and opinions conveyed in this analysis are based on the material reviewed and the limited field reconnaissance. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources reviewed. Thank you for selecting Rincon Consultants to provide you with this biological technical study. Please call if you have questions, or if we can be of further assistance.

Sincerely,

Rincon Consultants, Inc.

Robin Murray
Senior Biologist

Steven J. Hongola
Principal / Senior Ecologist

Attachments:

Appendix A. References
Appendix B. Representative Site Photographs
Figure 1. Regional Location
Figure 2. Project Location
Figure 3. Project Location on USGS Topographic Map
Figure 4. Vegetation Communities
Figure 5. Sensitive Elements Reported in the California Natural Diversity Database

Appendix A

References

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Appendix B

Representative Site Photographs

Appendix B
Representative Site Photographs



Photograph 1. Typical view of landscaped vegetation and existing structures onsite. View looking north from the central portion of the site.



Photograph 2. Typical view of wetland vegetation in the man-made agricultural pond. View looking northeast.



Photograph 3. Typical view of existing residence and driveway. View looking southwest from the northeast portion of the site.



Photograph 4. Typical view of open brome grassland. View looking northwest from the southeast portion of the site.

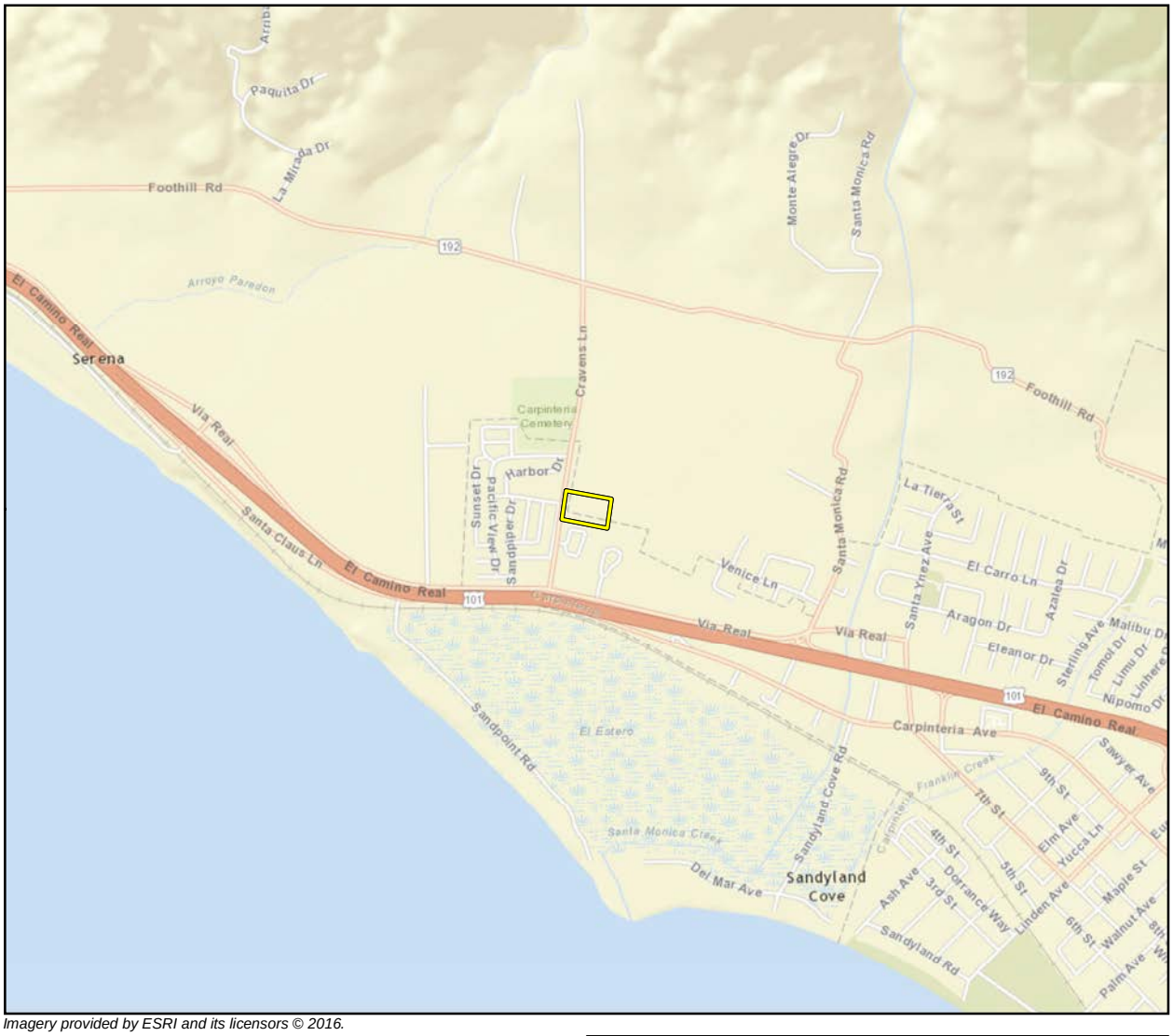


Photograph 5. Typical view of disturbed site conditions. View to the northeast in the northeast portion of the site.



Photograph 6. Typical view of arroyo willow trees surrounding the pond. View to the south.

Figures



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Project Location

N

0 1,000 2,000

Feet



Regional Location

Figure 1



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Project Location

Figure 2



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Project Location on USGS Topographic Map Figure 3



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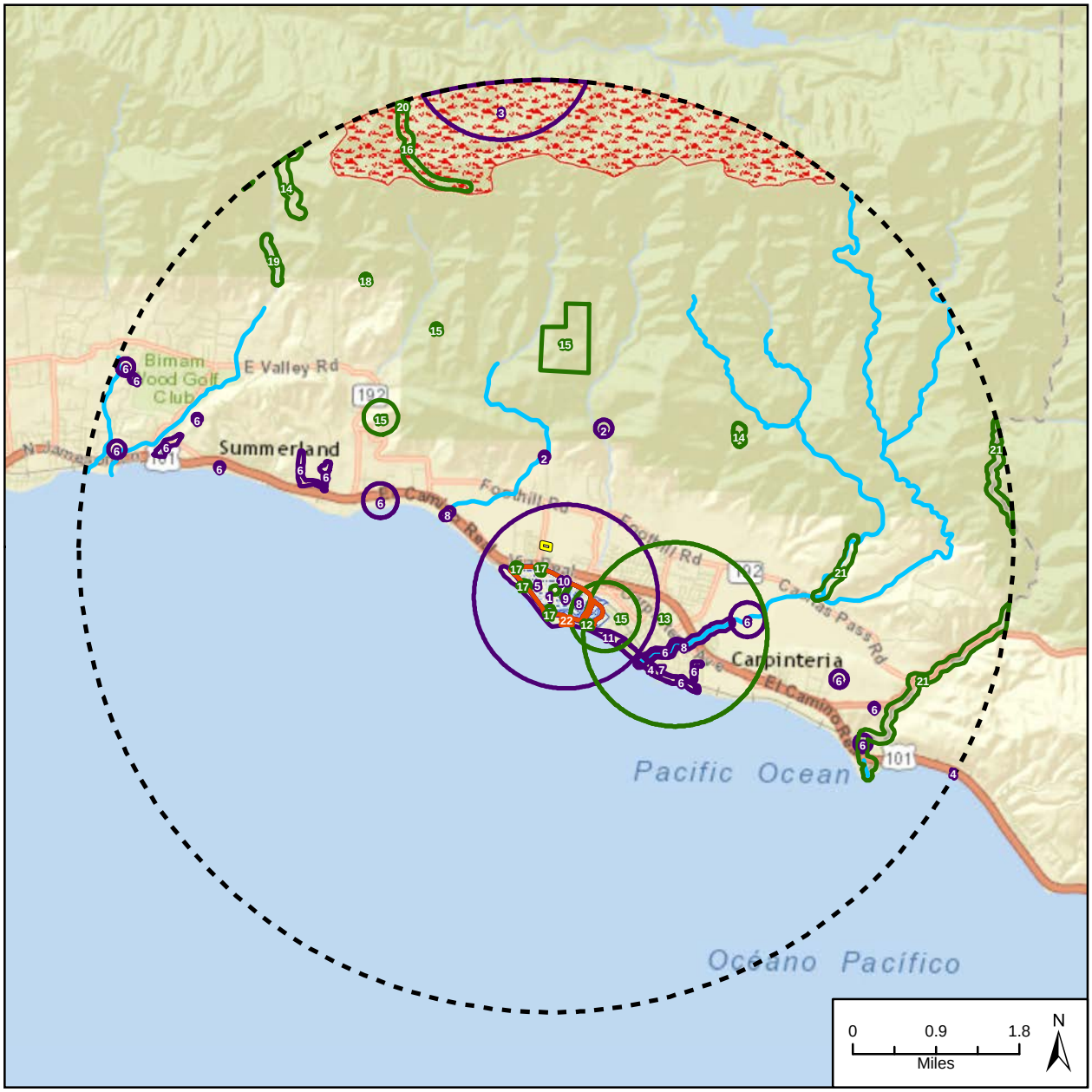
Vegetation Communities

Figure 4



Imagery provided by ESRI and its licensors © 2016. Special status species data source: California Natural Diversity Database, December, 2016. For more information please contact the Department of Fish and Game. Critical habitat data source: U.S. Fish and Wildlife Service, October, 2016. Final critical habitat acquired via the USFWS Critical Habitat Portal. It is only a general representation of the data and does not include all designated critical habitat.
Contact USFWS for more specific data.

Project Boundary
5 Mile Buffer

CNDDB
Animals
Plants
Natural Communities

Critical Habitat
California red-legged frog
Tidewater goby
Ventura Marsh Milk-vetch
Steelhead

1 - Belding's savannah sparrow
2 - California red-legged frog
3 - foothill yellow-legged frog
4 - globose dune beetle
5 - light-footed clapper rail
6 - monarch - California overwintering population
7 - sandy beach tiger beetle
8 - tidewater goby
9 - Townsend's big-eared bat
10 - wandering (=saltmarsh) skipper
11 - western snowy plover
12 - Coulter's goldfields
13 - Coulter's saltbush
14 - late-flowered mariposa-lily
15 - Nuttall's scrub oak
16 - Palmer's mariposa-lily
17 - salt marsh bird's-beak
18 - Santa Barbara honeysuckle
19 - Sonoran maiden fern
20 - umbrella larkspur
21 - white-veined monardella
22 - Southern Coastal Salt Marsh

Sensitive Elements Reported in the California Natural Diversity Database

Figure 5

Appendix C

Tree Assessment and Protection Plan

Cravens Lane, LLC

Green Heron Spring Condominium Project

Tree Assessment and Protection Plan

May 2017

rincon

Environmental Scientists Planners Engineers

Tree Assessment and Protection Plan

Green Heron Spring Condominium Project
City of Carpinteria, California

Prepared for:

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May 2017

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APPENDICES

Appendix A 2005 Tree Assessment and Protection Plan for Green Heron Spring

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1.0 INTRODUCTION

A previous version of the Green Heron Spring Development Project was originally reviewed and approved by the City of Carpinteria (City), County of Santa Barbara, and California Coastal Commission (CCC) in 2007. An Initial Study - Mitigated Negative Declaration (IS-MND) was adopted for that project in November of 2007. The project was not implemented at that time.

This report provides an update to the approved Tree Assessment and Protection Plan for the Green Heron Spring Development Project dated November 2005, prepared by Bill Spiewak for the original project.

This Tree Assessment and Protection Plan (Plan) is required by the City for review and approval, in order to protect existing trees and minimize adverse effects of grading and construction onsite for the proposed project.

The 2005 report indicated that the study area was an avocado orchard until 1979 when a perched water table drowned all but two small avocado trees. Between 1979 and 2005 numerous coast live oaks sprouted and matured on site with little maintenance. Other trees were planted as landscaping. It is unknown whether or not a perched or high water table is currently present on site. This report provides findings from the 2016 tree survey and a brief comparison of the 2016 and 2005 findings when applicable.

2.0 REGULATORY BACKGROUND

Tree Removal Guidelines in the City's *Revised Environmental Review Regulations Pursuant To the California Environmental Quality Act of 1970 And Carpinteria Municipal Chapter 8.48, As Amended* are utilized for the review of impacts to trees. The Tree Removal Guidelines define specimen trees as trees, shrubs or other plantings which have been designated by resolution of the City Council as having a high degree of value due to type, age, size, conformation or location. Specimen trees are defined as those with a diameter of at least six inches measured four and one half feet (54 inches) above the ground with a minimum height of at least six feet.

Additionally, the guidelines state that all native tree species, regardless of size, should be considered to be biologically valuable. In accordance with the guidelines, young oak trees which do not meet the definition of specimen trees are a significant biological resource due to declining oak populations. Per the guidelines, eucalyptus trees can be significant resources where trees in general are rare, where they provide roosting habitat, and where they provide some wildlife habitat, their inherent biological value is generally limited due to the high level of disturbance of such areas. This project is also subject to the development standards outlined in the CCC's Ellinwood Parcel (Assessor's Parcel Number 004-013-026) Overlay District.

3.0 PROJECT LOCATION AND DESCRIPTION

The project site is located at 1300 and 1326 Cravens Lane in Carpinteria. The site is located on the east side of Cravens Lane as it transitions from the multi-family residential area to the greenhouse and open field agricultural operations north within the County of Santa Barbara. Figure 1 shows the location of the site in the region.

The proposed Green Heron Spring Development Project proposes the creation of a 30-unit housing complex and the rehabilitation of one (1) existing unit on an existing 3.87-acre lot. The project would include remodeling of an existing residence, the construction of 29 residences and one pavilion.



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Project Location

N



Regional Location

Figure 1

City of Carpinteria

4.0 METHODOLOGY

A tree inventory and health assessment was conducted for trees within the proposed disturbance footprint as illustrated on Figure 1; hereinafter referred to as the "study area." The field surveys were conducted by a Rincon Consultants, Inc. (Rincon) International Society of Arboriculture (ISA) Certified Arborist®, Stephanie Lopez (WE-10-442A) with assistance of Rincon biologists on September 21, October 28, 2016, and March 3, 2017.

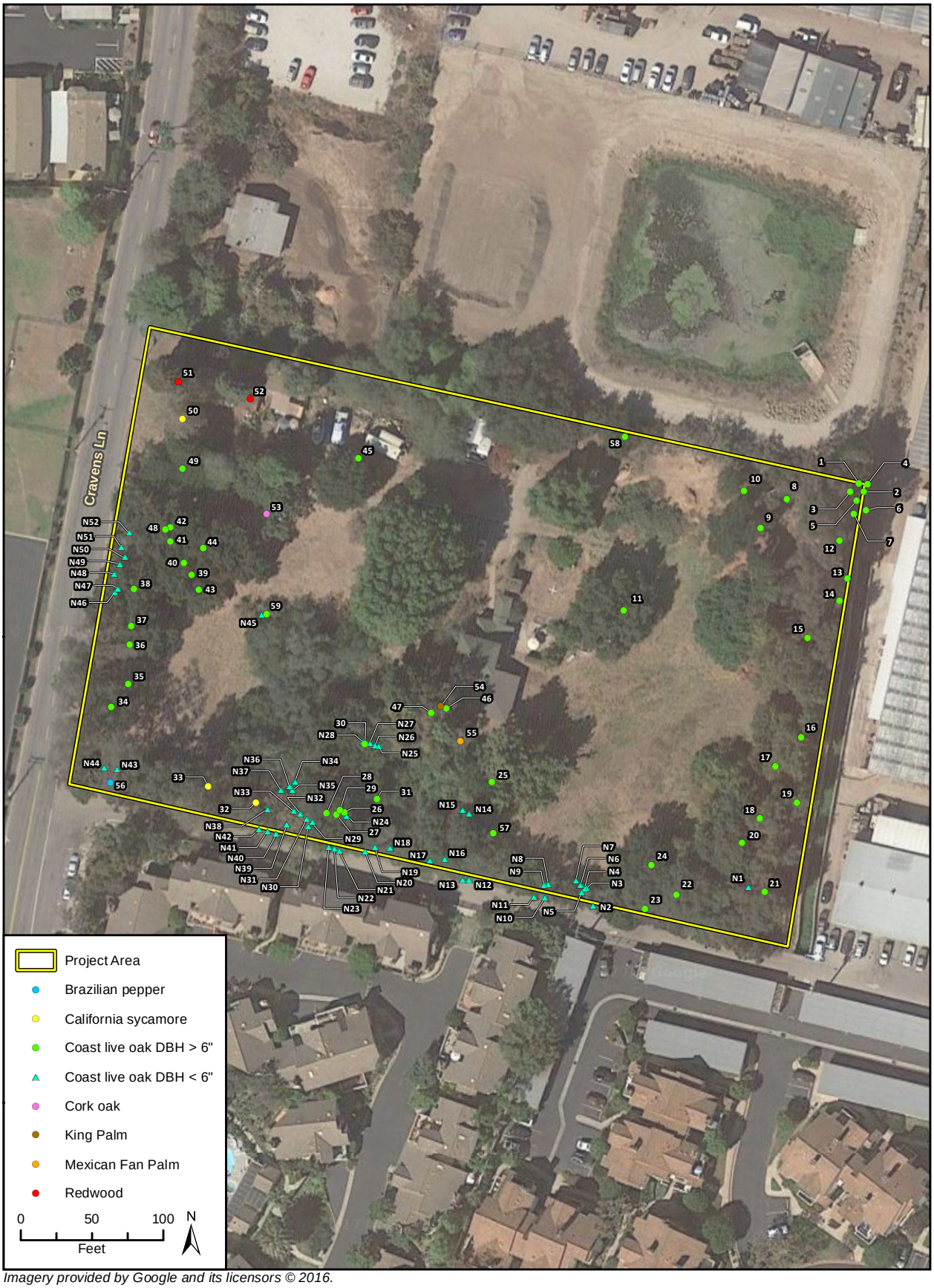
Specimen trees were mapped and visually evaluated for tree health based on the above ground portions of the trees. Location, size and species data of native (biologically valuable) trees with a dimeter of less than six inches at breast height was also collected. Current data for non-natives (eucalyptus, avocado, myoporum, pittosporum, pepper and eugenia trees) was not collected. In 2005 the non-native trees were generally accounted for, and were recommended and approved for removal. The eucalyptus was considered to be in very poor condition or inhibited growth of native oaks. The condition of the eucalyptus trees remains the same or is worse and removal of the trees in fair to poor condition is still recommended, with the exception of those discussed in Section 4 below. Eucalyptus tree locations were generally mapped. The following information was gathered for all other specimen and biologically valuable trees:

- Scientific and common name
- Geographic location of each tree using a Trimble® Geo 7x Global Positioning System handheld unit with integrated rangefinder
- Diameter of all trees at 54 inches above natural grade (i.e., diameter at breast height [DBH]) using an English unit diameter tape or caliper. Trees were considered multiple trunk if a split occurs at or below DBH. Where deformity occurs at DBH, measurement was taken immediately below or above deformity, as close to 54 inches above natural grade as possible
- Visual estimation of tree height and canopy spread
- Health assessment of tree characteristics including evidence of disease, insect pests, structure, damage and vigor with results incorporated into the overall health rating based on archetype trees of the same species with criteria described in Table 1 below

Table 1. Overall Condition Rating Criteria

Rating	Structure
Excellent	In addition to attributes of a 'good' rating, the tree exhibits a well-developed root flare and a balanced canopy. Provides shading or wildlife habitat and is aesthetically pleasing.
Good	Trunk is well developed with well attached limbs and branches; some flaws exist but are hardly visible. Good foliage cover and density, annual shoot growth above average. Provides shading or wildlife habitat and has minor aesthetic flaws.
Fair	Flaw in trunk, limb and branch development are minimal and are typical of this species and geographic region. Minimal visual damage from existing insect or disease, average foliage cover and annual growth.
Poor	Limbs or branches are poorly attached or developed. Canopy is not symmetrical. Trunk has lean. Branches or trunk have physical contact with the ground. May exhibit fire damage, responses to external encroachment/obstructions or existing insect/disease damage.
Dead	Trunk, limbs or branches have extensive visible decay or are broken. Canopy leaves are non-seasonally absent or uniformly brown throughout, with no evidence of new growth.

All trees inventoried during the surveys with a DBH of greater than 6 inches were tagged with a unique identifying number with the exception of two California sycamore trees. Juvenile hawks were perched in trees at the time of the survey and were distressed by the arborist's presence so tags were not nailed into the trees. The two sycamore trees (#s 32 and 33) were inventoried and are not proposed for removal. Tree locations are shown in Figure 2.



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Project Site and Tree Locations

Figure 2

5.0 TREE INVENTORY AND HEALTH ASSESSMENT

Rincon recorded a total of 59 specimen trees on site. Specimen species observed include coast live oak (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), cork oak (*Quercus suber*), king palm (*Archontophoenix cunninghamiana*), Mexican fan palm (*Washingtonia robusta*), Brazilian pepper (*Schinus terebinthifolius*), and coast redwood (*Sequoia sempervirens*). A tree inventory matrix, Table 2, providing the survey observations is below. Tree numbers, impacts and replacement planting recommendations are included. The data from the 2005 report are also shown in the table for reference.

Approximately 25% (15 of the 59 trees) of the specimen trees observed on site are in good condition. The remaining 75% of specimen trees are classified as either fair or poor condition (44 trees), the majority of which exhibit some level of rot, decay, pests, and/or exhibit other signs of stress. Trees exhibiting a minor level of foliar necrosis, rot, branch dieback, epicormics growth, and canopy asymmetry were given a fair rating. Trees identified as having poor health exhibited an excessive extent of those conditions described above for fair trees, with the addition of defoliation, broken branches, trunk lean, excessive trimming and/or topping.

In addition to the specimen trees, biologically valuable trees were observed. Fifty-two (52) biologically valuable coast live oaks and one (1) California sycamore are present. These trees are less than six inches in diameter and are therefore not considered to be specimen trees. In addition, a small cluster of eucalyptus trees surrounding the two specimen sycamore trees are biologically valuable because they are intertwined with the canopy of the sycamores that two juvenile hawks were observed perched in. The two young hawks (species undetermined due to age) were observed perched in the sycamore trees and therefore have wildlife value. A discussion regarding the trees' habitat value is provided in the Biological Resources Assessment (Rincon 2016a) and updated IS-MND (Rincon 2016b). No adult hawks or hawk nests were observed, nor was flight or attempts of flight from either juvenile hawk during the survey.

Comparison of 2005 and 2016 Observations

The 2005 report documented 47 specimen trees in the tree data table including pittosporum and avocado which are not native (Appendix A). In some instances the trees listed in the table were not shown on the project plans. In other instances there may have been errors in mapping the specimen trees as they correspond with the number listed in the table. As mentioned above, 59 specimen trees were observed during the 2016 survey.

The overall condition of the trees in 2016 has declined compared to the 2005 observations; the majority of trees were rated in good to fair condition in 2005. At present the majority (75%) are in fair to poor condition. This may be a result of either root rot caused from a persisting perched water table or from a lack of water as result of the drought that has been ongoing for the past five years.

One coast live oak (#7461), one Monterey pine (*Pinus radiata*) (#7460), and one Roxburg pine (*Pinus roxburghii*) (#7464) were removed sometime between 2005 and when the 2016 survey was conducted.

Native trees less than six inches in diameter were not addressed in the 2005 report.

Table 2. Green Heron Spring Tree Findings

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	DBH (Inches)	Overall Health	Health Observations
1	7122	-	Coast live oak	18.5	Poor	Excessive past trimming. Cankers.
2		X	Coast live oak	8.5	Poor	Topped. Epicormic growth in crown.
3		X	Coast live oak	11.5	Poor	
4		X	Coast live oak	17.5	Fair	Trees 1-4 leaning canopy and canopy competition.
5	7123	-	Coast live oak	16	Fair	Excessive trimming. Epicormics.
6		X	Coast live oak	17.5	Fair	Excessive trimming. Epicormics.
7		X	Coast live oak	7	Fair	
8		X	Coast live oak	10.5	Good	Excessive lean.
9	-	-	Coast live oak	29	Poor	Cankers. Ants.
10		X	Coast live oak	11.5	Fair	Excessive past trim. Epicormics.
11	7113	-	Coast live oak	32	Fair	Evidence of rot in trunk and branches. Rot at codominant branch connection.
12		X	Coast live oak	8	Fair	Broken branches and eucalyptus tree litter in canopy.
13		X	Coast live oak	7	Fair	Eucalyptus tree litter in canopy. Epicormics.
14	7133	-	Coast live oak	17.5	Fair	Eucalyptus tree litter in canopy. Epicormics.
15	7134	-	Coast live oak	17	Poor	Canopy covered by vines. Eucalyptus tree litter in canopy.
16	7142	-	Coast live oak	19.5	Fair	Vines throughout canopy. Eucalyptus tree litter in canopy.
17	7144	-	Coast live oak	16.5	Poor	Dead lower canopy and vines throughout upper canopy.
18	7148	-	Coast live oak	34	Poor	Vines throughout canopy. Senescent.
19	7146	-	Coast live oak	29	Poor	Codominant trunk has split. Vine and eucalyptus canopy competition.
20	7149		Coast live oak	31	Fair	Senescent.
21		X	Coast live oak	10	Fair	Broken codominant stem. Dead lower canopy.
22	7150	-	Coast live oak	30	Poor	Senescent.
23		X	Coast live oak	13.5	Fair	Competition with Myoporum.
24	7197	-	Coast live oak	35	Fair	Codominant main stems. Patchy canopy death.
25	7195?	-	Coast live oak	7.5	Fair	
26	7327	-	Coast live oak	11	Fair	Rot on trunk throughout. Lower canopy dead.
27		X	Coast live oak	15.5	Fair	Lower canopy death.
28		X	Coast live oak	8.5	Good	Canopy competition with oaks.
29		X	Coast live oak	17	Good	Evidence of rot in trunk.
30	7222	-	Coast live oak	31	Fair	Rot at base of trunk.
31		X	Coast live oak	7	Good	
32	7328	-	California sycamore	20	Fair	No tag. DBH estimated due to juvenile raptors
33	7332	-	California sycamore	22	Good	No tag. DBH estimated due to juvenile raptors.
34		X	Coast live oak	12	Good	
35	7357	-	Coast live oak	16	Good	
36	7364	-	Coast live oak	14	Good	Canopy lean away from eucalyptus.

Table 2. Green Heron Spring Tree Findings

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	DBH (Inches)	Overall Health	Health Observations
37	7365	-	Coast live oak	21	Good	
38	7366	-	Coast live oak	32	Good	
39	-	X	Coast live oak	18	Good	Canopy competition with other oaks.
40	7372	-	Coast live oak	16	Fair	Leaning and canopy competition.
41	-	X	Coast live oak	11	Fair	Broken limbs.
42	7457	-	Coast live oak	33	Fair	Ivy on trunk, broken branches.
43	7373	-	Coast live oak	18	Fair	Rot at base of trunk.
44	7374	-	Coast live oak	31	Good	
45	7424	-	Coast live oak	21	Good	
46	7321	-	Coast live oak	29	Fair	Rot at base some dead branches.
47	7319	-	Coast live oak	26.5	Fair	Ivy in canopy rot on trunk
48	7371	-	Coast live oak	22.5	Fair	Rot and ivy on trunk.
49	7458	-	Coast live oak	31	Fair	Ants and canker on trunk.
50	7462	-	California sycamore	32	Fair	Rot at base of tree, buttress roots at east side.
51	7463	-	Coast redwood	42.5	Poor	Building is immediately adjacent to trunk, removal of building will impact tree.
52	-	-	Coast redwood	32	Poor	Growing into existing building.
53	7375	-	Cork oak	35	Poor	Rot and ants.
54	7323	-	King palm	9	Fair	Rot at base ivy on trunk insect holes.
55	7322	-	Mexican fan palm	15	Fair	Entire trunk covered by ivy.
56	7322	-	Brazilian pepper	0		
57	-	X	Coast live oak	18.5	Good	Dense Myoporum at base.
58	7114	-	Coast live oak	14	Poor	Canopy death.
59	-	X	Coast live oak	9	Good	Under canopy of avocados.
None	7461	-	Coast live oak			Removed prior to 2016 survey.
None	7460	-	Monterey pine			Removed prior to 2016 survey.
None	7464		Roxburg pine			Removed prior to 2016 survey.
None	7115	-	Coast live oak			Removed due to damage from wind storm.

Table 2. Green Heron Spring Tree Findings (Cont'd)

Biologically Valuable Trees – Less Than 6 Inches DBH		
New Tree #	**Common Name**	**DBH (Inches**
N1	Coast live oak	<6
N2	Coast live oak	<6
N3	Coast live oak	<6
N4	Coast live oak	<6
N5	Coast live oak	<6
N6	Coast live oak	<6
N7	Coast live oak	<6
N8	Coast live oak	<6
N9	Coast live oak	<6
N10	Coast live oak	<6
N11	Coast live oak	<6
N12	Coast live oak	<6
N13	Coast live oak	<6
N14	Coast live oak	<6
N15	Coast live oak	<6
N16	Coast live oak	<6
N17	Coast live oak	<6

N18	Coast live oak	<6
N19	Coast live oak	<6
N20	Coast live oak	<6
N21	Coast live oak	<6
N22	Coast live oak	<6
N23	Coast live oak	<6
N24	Coast live oak	<6
N25	Coast live oak	<6
N26	Coast live oak	<6
N27	Coast live oak	<6
N28	Coast live oak	<6
N29	Coast live oak	<6
N30	Coast live oak	<6
N31	Coast live oak	<6
N32	Coast live oak	<6
N33	Coast live oak	<6
N34	Coast live oak	<6
N35	Coast live oak	<6
N36	Coast live oak	<6
N37	Coast live oak	<6
N38	Coast live oak	<6
N39	Coast live oak	<6
N40	Coast live oak	<6
N41	Coast live oak	<6
N42	Coast live oak	<6
N43	Coast live oak	<6
N44	Coast live oak	<6
N45	Coast live oak	<6
N46	Coast live oak	<6
N47	Coast live oak	<6
N48	Coast live oak	<6
N49	Coast live oak	<6
N50	Coast live oak	<6
N51	Coast live oak	<6
N52	Coast live oak	<6

6.0 PROPOSED IMPACTS & MITIGATION PLANTING

The project proponent completed extensive design work to ensure the project footprint avoids and limits impacts to existing specimen trees to the extent possible.

The project will require the removal of 11 native specimen trees: nine (9) coast live oaks, one (1) coast redwood, and one (1) California sycamore. It will also require the relocation of one (1) coast live oak tree. Two coast live oaks have been removed since the 2005 survey, one (1) was damaged by wind. See Figure 3 for tree removals. All 52 native trees (biologically valuable) with a diameter of less than six (6) inches would be removed. Mitigation planting is not recommended for trees less than six (6) inches in diameter.

Where impacts are projected to occur to 30% of the trees' canopies and/or root systems or less, mitigation planting is not recommended. Trees that are mature and in poor health should be removed when construction impacts occur, the tree is already stressed, or when the tree is located where a structural failure poses safety risks (ISA, 2008). Typically, ISA recommends that activities affecting roots or crown of a tree impact no more than 20 to 25 percent of the root zone

or crown of the tree (ISA 2010). When construction activities impact 40 to 50 percent of the root zone of a tree, the tree typically dies (USDA Forest Service, 2003; CDF, 1989a; CDF, 1989b).

In instances where trees are in poor condition or structural integrity could potentially be compromised by the proposed impacts, removal has been recommended. Because the entire root zone cannot be observed, impacts must be estimated based on the location of the project footprint, distance from the trunk, size of roots exposed, and whether cuts to major roots can be avoided.

For native specimen tree removals, a replacement ratio of 10:1 is required per the previously approved Ellinwood Parcel Overlay District. Numerous eucalyptus trees and other non-native vegetation will be removed creating space for clusters of the replacement trees (see Figure 4). Tree species should be placed depending upon underground water availability if a perched water table is present. Sycamores should be planted closest to water and the coast live oaks further from the water. If a perched water table is present more sycamores should be planted versus coast live oaks. Sycamores are more likely to survive over time with water present at the root system.

Comparison of 2005 and 2016 Impacts

The 2005 report identified the removal of five (5) coast live oaks and one (1) coast redwood, as well as impacts to ten (10) coast live oaks. For the removal or impacts to coast live oaks a replacement ratio of 10:1 was recommended in 2005, using saplings. For redwoods a 3:1 ratio was recommended using 24-inch box replacements. For some of the oaks that were to be impacted the ratio differed depending upon the condition of the trees. A total of 133 replacement sapling plantings were recommended.

This study identified 11 native specimen trees for removal. Mitigation for the removal of the 11 specimen trees is recommended at a replacement ratio of 10:1 saplings for coast live oaks and California sycamores, and at a ratio of 3:1 in 24-inch boxes for the coastal redwoods. No mitigation plantings are recommended for the removal of trees that do not meet specimen criteria.

Differences between the 2005 and 2016 report are a result of a number of factors. There are 20 additional trees that were observed and inventoried in 2016 that were not reported on in 2005. In addition, technology now allows for more precise location data to be collected which in turn allows for a more accurate assessment of potential impacts. The 2005 report recommended mitigation planting for trees that would be impacted nearly at the same rate as for those that would be removed. We recommend the removal of trees that would be impacted to the degree that they would need to be mitigated for at that level. For trees that will be impacted but not to the point that they would likely parish, we recommend that trees be protected in place with fencing. This is a common best management practice. If an impacted and protected tree dies from the construction impacts, then the tree would need to be mitigated for with a replacement planting at the 10:1 ratio. While there are 20 more trees on site than were reported in 2005, the

project has been designed to avoid the majority of trees and the impacts from the 2005 report are similar to the impacts assessed here.

A summary of the approved 2005 removals and mitigation compared to the 2016 proposed removals and mitigation is provided in Table 3.

Recommended avoidance and minimization measures should be implemented during construction as feasible and as detailed in Section 7 below.



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Tree Removals

Figure 3

Table 3. Green Heron Spring Tree Impacts and Mitigation

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	Remove/ Impact - in 2016	Remove/ Impact - Approved In 2005	Mitigation/ Tree Protection	Projected Canopy Impact/Trim	Projected Root Impact	Current Replacement Planting	Approved Replacement Planting
1	7122		Coast live oak	No	No					
2		X	Coast live oak	No						
3		X	Coast live oak	No						
4		X	Coast live oak	No						
5	7123		Coast live oak	No	No					
6		X	Coast live oak	No						
7		X	Coast live oak	No						
8		X	Coast live oak	No						
9	7115		Coast live oak	Impact 20% or less	Remove	Install gravity wall to protect in place	Trim 20%	Impact 20%		
10		X	Coast live oak	Impact 25% or less	No	Grading adjusted	Trim 25%	Impact 25%		
11	7113		Coast live oak	Impact 20% or less	No	Install temporary protective fencing during construction	Trim 20%	Impact 20%		
12		X	Coast live oak	No						
13		X	Coast live oak	No						
14	7133		Coast live oak	No	No					
15	7134		Coast live oak	Remove	Remove				Plant 10 coast live oak saplings	
16	7142		Coast live oak	Impact 30% or less	No	Install gravity wall to protect in place	Trim 30%, remove vines	Impact 30%		
17	7144		Coast live oak	Remove	No				Plant 10coast live oak saplings	
18	7148		Coast live oak	Impact 25% or less	No	Grading adjusted	Trim 25%	Impact 25%		
19	7146		Coast live oak	No	No		Remove vines			
20	7149		Coast live oak	No	No		Remove vines			
21		X	Coast live oak	No			Remove vines			
22	7150		Coast live oak	Impact 25% or less	No	Protective fencing during construction	Trim 25%, remove vines	Impact 25%		

Table 3. Green Heron Spring Tree Impacts and Mitigation

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	Remove/ Impact - in 2016	Remove/ Impact - Approved In 2005	Mitigation/ Tree Protection	Projected Canopy Impact/Trim	Projected Root Impact	Current Replacement Planting	Approved Replacement Planting
23		X	Coast live oak	Remove					Plant 10 coast live oak saplings	
24	7197		Coast live oak	Remove	Remove				Plant 10 coast live oaks	
25	7195?		Coast live oak	Remove	Remove				Plant 10 coast live oak saplings	
26	7327		Coast live oak	Impact 10% or less	No		Trim 10%	Impact 10%		
27		X	Coast live oak	No						
28		X	Coast live oak	No						
29		X	Coast live oak	Impact 10% or less			Trim 10%	Impact 10%		
30	7222		Coast live oak	Impact 20% or less	No	Use gravity wall to protect in place	Trim 20%	Impact 20%		
31		X	Coast live oak	Impact 25% or less		Use gravity wall to protect in place	Trim 25%	Impact 25%		
32	7328		California sycamore	Impact 15% or less	No		Trim 15%	Impact 15%		
33	7332		California sycamore	Impact 15% or less	No		Trim 15%	Impact 15%		
34		X	Coast live oak	Impact 25% or less		Use gravity wall to protect in place	Trim 25%	Impacts 25%		
35	7357		Coast live oak	Impact 30% or less	Impact and mitigate w/ replacement trees		Trim 30%	Impact 30%		Plant 10 coast live oak saplings
36	7364		Coast live oak	Impact 15% or less	Impact and mitigate w/ replacement trees		Trim 15%	Impact 15%		Plant 10 coast live oak saplings
37	7365		Coast live oak	Impact 15% or less	Impact and mitigate w/ replacement trees		Trim 15%	Impact 15%		Plant 10 coast live oak saplings

Table 3. Green Heron Spring Tree Impacts and Mitigation

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	Remove/ Impact - in 2016	Remove/ Impact - Approved In 2005	Mitigation/ Tree Protection	Projected Canopy Impact/Trim	Projected Root Impact	Current Replacement Planting	Approved Replacement Planting
38	7366		Coast live oak	Impact 15% or less	Impact and mitigate w/ replacement trees		Trim 15%	Impact 15%		Plant 10 oak saplings
39		X	Coast live oak	Impact 10% or less				Impacts 10%		
40	7372		Coast live oak	Impact 20% or less	Impact and mitigate w/ replacement trees	Grading adjusted. Construct bridge or ramp in driveway to go over/avoid tree roots	Trim 20%	Impact 20%		Plant 10 coast live oak saplings
41		X	Coast live oak	No						
42	7457		Coast live oak	No	No	Remove ivy				
43	7373		Coast live oak	Remove	Remove				Plant 10 coast live oak saplings	
44	7374		Coast live oak	Impact 25% or less	Impact and mitigate w/ replacement trees	Use gravity wall to protect in place or adjust grading	Trim 25%	Impact 25%		Plant 10 coast live oak saplings
45	7424		Coast live oak	Remove	Relocate				Plant 10 coast live oak saplings	
46	7321		Coast live oak	Impact 25% or less	No	Use gravity wall to protect in place or adjust grading	Trim 25%	Impact to 25% roots or less		
47	7319		Coast live oak	Impact 25% or less	No	Use gravity wall to protect in place or adjust grading	Trim 25%, remove ivy	Impact 25%		
48	7371		Coast live oak	Impact 25% or less	Impact and mitigate w/ replacement trees	Use gravity wall to protect in place or adjust grading	Trim 25%, remove ivy	Impact 25%		Plant 10 coast live oak saplings
49	7458		Coast live oak	Remove	Impact and mitigate w/ replacement trees				Plant 10 coast live oak saplings	Plant 10 coast live oak saplings
50	7462		California sycamore	Remove	No				Plant 10 sycamore saplings	

Table 3. Green Heron Spring Tree Impacts and Mitigation

New Tree #	Old Tree #	Data Not Provided in 2005 Report	Common Name	Remove/ Impact - in 2016	Remove/ Impact - Approved In 2005	Mitigation/ Tree Protection	Projected Canopy Impact/Trim	Projected Root Impact	Current Replacement Planting	Approved Replacement Planting
51	7463		Coast redwood	No	No	Monitor, possible removal				
52			Coast redwood	Remove	Impact and mitigate w/ replacement trees				Plant 3 24" box redwoods	Plant 3 24" box redwoods
53	7375		Cork oak	Remove	Impact and mitigate w/ replacement trees					
54	7323		King palm	Impact 25% or less	No	Use gravity wall to protect in place or adjust grading	Trim 25%	Impact 25%		
55	7322		Mexican fan palm	Remove	Possible					
56	7322		Brazilian pepper	Remove	Remove w/ no mitigation					
57		X	Coast live oak	Remove					Plant 10 coast live oak saplings	
58	7114		Coast live oak	Impact 25% or less	No	Use gravity wall to protect in place or adjust grading	Trim 25%	Impact 25%		
59		X	Coast live oak	Relocate		Relocate to southwest corner of property			Relocate	
None	7461		Coast live oak		Impact and mitigate w/ replacement trees					Plant 10 coast live oak saplings
None	7460		Monterey pine							
None	7464		Roxburg pine							



MITIGATION PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY
	PLA RAC	Platanus racemosa / California Sycamore	1 gal	10
	QUE AGF	Quercus agrifolia / Coast Live Oak	1 gal	90
	QUE EXT	Existing Quercus agrifolia / Existing Coast Live Oak		
	SEQ SEM	Sequoia sempervirens / California Redwood	24" box	3

0 16 32 48 feet

SCALE: 1/16" = 1'-0"

NORTH

Date: 03.02.2017
JOB # 4444

L.A. GROUP
Design Works
Landscape Architecture
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L.A. Group Design Works, Inc.

Tree Mitigation Plan
GREEN HERON SPRING
CARPINTERIA

Landscape Architecture

7.0 RECOMMENDATIONS

It is possible that a perched water table persists on site and may be the cause of rot in the coast live oaks and decline in overall health. However, it is also possible that the recent drought has reduced the water availability and is the cause for the stress and decline. If the water table remains high (which will be evident during construction) then more California sycamore are recommenced as replacement trees than coast live oaks. The sycamores should be placed where the water availability is highest and the coast live oaks should be placed away from the water.

Trees in fair condition may potentially benefit from minor pruning and a proper watering and/or nutrient enrichment program but if a perched water table is causing rot, the treatment may not be effective.

- All trees retained on site and within 20 feet of construction activities should have protective 6-foot chain link fencing around them to protect the critical root zone (CRZ). The CRZ is defined as the area of soil around a tree trunk where roots are located that provide stability and uptake of water and minerals required for tree survival by the ISA's Best Management Practices – Managing Trees During Construction handbook. The CRZ protection fencing should be five feet from the dripline or fifteen feet from the tree trunk, whichever is greater.
- All work conducted within the CRZ fencing should be done so under the direction of an ISA certified arborist. Impacts to protected trees should be documented on a weekly basis or more frequently as needed.
- Gravity walls should be established around trees as outlined in Table 3 for long-term tree protection.
- Eucalyptus trees should be removed except those that are biologically valuable (as discussed above) and with good form and structure. The certified arborist should direct which trees are to be removed or pruned.
- The oaks and sycamores that will be impacted should be trimmed by an ISA certified tree trimmer with coast live oak experience. Trimming should be done in accordance with the impacts described in Table 3. Other specimen trees retained on site should be pruned to prevent impacts and to improve their structure as necessary. Limbs should be raised where they will conflict with construction equipment and buildings.
- Eucalyptus removal must be performed without damage to oaks to be preserved. Damage should be mitigated with planting of oak saplings at a rate of ten to one.
- Any roots encountered within the critical root zone should be cleanly cut with a sharp cutting tool such as a lopping shear or hand saw and not ripped by equipment.
- Oaks that may be impacted from construction may become more susceptible to insect problems and should be assessed and dealt with accordingly. Trunk sprays with very low concentration of a permethrin based pesticide that help resist oak bark beetle attacks, may need to be applied in the spring and late summer if trees become stressed.
- As recommended by the City of Carpinteria Environmental Review Committee, the Homeowners Association's CC&Rs should include a provision prohibiting the use of rodenticides containing anticoagulant compounds, and shall be enforced and maintained by the Homeowners' Association.
- Any landscape planting within the critical root zone of oaks should be compatible.
- Prior to construction, a meeting should be held with the project owner, contractor and certified arborist to discuss tree protection and scheduling of activities adjacent to trees.

8.0 CONCLUSION

Fifty nine (59) trees specimen trees were observed and inventoried on site. The proposed project will remove eleven (11) specimen trees and will impact 25 specimen trees. The impacts will be limited so that the trees will survive and are protected during construction. Additional recommendations are provided to mitigate for impacts during construction.

Twenty (20) of the 59 were not addressed in the 2005 report. Of the 25 trees that would be impacted (but not removed) by the proposed project, nine (9) were not addressed in the 2005 report. Table 4 provides a summary of the trees that are proposed for removal and mitigation, data from the 2005 report is included for reference.

Table 4 – Summary/Comparison of Trees, Removals and Replacement Plantings

	Number of Native Specimen Trees Recorded	**Number of Trees Proposed for Removal and/or for Replacement Planting**
2016		
Coast live oak	51	9
California sycamore	3	1
Coast redwood	2	1
Total	**59**	**11**
2005		
Coast live oak	31	15
California sycamore	3	0
Coast redwood	2	1
Total	**36**	**16**

*The 2005 report did not specifically identify specimen trees. This number is based on the discussion and mitigation recommended in the text of the report.

Replacement plantings will occur at a 10:1 ratio as approved by the Ellinwood Overlay District. Eucalyptus trees will be removed as recommended in the 2005 report. Replacement planting for non-natives was not recommended in the 2005 report, nor is it recommended here. Those eucalyptus that are determined to be healthy by the certified arborist and are not within the project footprint could stay. The two (2) eucalyptus that are biologically valuable due to providing wildlife (hawk) habitat will be retained on site along with the two (2) sycamore trees that have overlapping canopies.

9.0 REFERENCES

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Rincon Consultants. 2016a. *Biological Resource Assessment for Green Heron Springs Development.*

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Appendix A

2005 Tree Assessment and Protection Plan for Green Heron Spring

TREE ASSESSMENT AND PROTECTION PLAN

For

GREEN HERON SPRING LLC
1300 Cravens Lane
Carpinteria, CA 93013

Prepared for:

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Carpinteria, CA 93013

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Prepared by:

Bill Spiewak
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3517 San Jose Lane
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November 8, 2005

Summary

Green Heron Spring is a proposed development of twenty-seven residential units at 1300 Cravens Lane in Carpinteria. The property was formerly an avocado orchard that drowned in 1979. Since its decline, an abundance of trees emerged from volunteer seedlings and small-containerized planted trees. Over the past twenty-five years, the trees grew at an accelerated rate, most likely due moisture and porous, fertile soil. Among over one hundred fifty trees are the Santa Barbara natives including thirty-two oaks, three sycamores and two redwoods (California native) and the non-native myoporum and eucalyptus trees. These non-natives line the east, west and southern property lines.

Although significant in size, most of the eucalyptus are in very poor structural condition and should be removed. These trees grew very tall and had broken or were topped and weakened. Many of these eucalyptus trees also inhibit oak growth due to limited light or broken limbs resting in the oak canopies. The myoporum hedge is completely overgrown and requires size reduction in width and height.

The development will require the removal of five smaller oaks (#7134, 7195, 7197, 7373 & 7424 although #7134 & 7424 may be relocated). Nine native trees may be impacted due to widening of Cravens Lane with an adjacent sidewalk and a new driveway on the western and northern side of the property (#7357, 7364, 7465, 7366, 7371, 7372, 7374, 7457, 7458 & 7461). Utility tree trimmers have previously impacted the later two oaks. Impacts to trees can be reduced if the driveway is narrowed and the sidewalk becomes a natural path or alternative material without any required grading or compaction (although the fire department has a minimum width specification). In order to accommodate a triple unit structure at the northwest corner of the property, one redwood will need to be removed.

My conclusions/recommendations on pages four and five addresses general specifics regarding trees and the project. A tree inventory is a more specific accounting of each tree and begins on page six. For tree locations, refer to numbers on the site plan that correspond with the tree inventory.

Overview

I was contacted by Scot Ellinwood in February 2005 to observe the parameters of the proposed project, Green Heron Spring, and assess potential impacts to the trees. After addressing impacts to trees he made some adjustments and had me re-access the project, thus the current report. Green Heron Spring is located at 1300 Cravens Lane in Carpinteria and includes 27 residential units, a playground and the associated infrastructure.

The site was once an avocado orchard until about 1979 when a perched water table drowned all but two small avocado trees. Since that time, thirty-two California Live Oaks *(Quercus agrifolia)* sprouted and developed into trees of respectable size. Around the time of the avocado damage, Scott Ellinwood purchased and installed other trees of several different species. The current condition of the trees is the result of twenty-five years of growth with minimal maintenance.

A line of *Eucalyptus rudis* was planted along the east property line and portions of the south and west. A myoporum hedge was also established along the south property line with occasional plants scattered along the other property lines. Within the groups of trees, a collection of miscellaneous non-natives have grown, most of which will be removed. Other local and California native trees within the site are three California sycamores *(Platanus racemosa)* and two Coastal Redwoods *(Sequoia sempervirens).*

Assignment

I have been assigned to assess potential impacts to the thirty-two oaks within the project area and provide opinions and recommendations. I have also been asked to make a general assessment of the perimeter trees and comment on their status, including the sycamores and redwoods.

Use of This Report

This report should be used:

- By planners to assess the impact of the project on the trees
- By the property owner to protect and improve trees of value and remove those that are hazardous or not beneficial to the quality of the property.

Scope & Limitations

The project is based on the conceptual plan designed by Scott Ellinwood that also includes a tree inventory (provided by the surveyor). I have specifically accounted for the oak trees, two redwoods and three sycamores. The eucalyptus and myoporum along the east, west and south property lines have been referred to in general terms due to the ambiguous plotting on the plan and their lack of significance to the project. My assessment has been partially influenced by the rapid twenty-five year growth rate.

Observations

Listed below are my observations from four visits to the property. The tree inventory at the end of this report identifies my findings and recommendations relative to the oaks, sycamores and redwoods.

1. There are thirty-two oaks on the property. Three are close to the main house and will be protected for the project (one to the east and two to the southwest). One is at the south side of the pond and is in fair condition. The others are adjacent to the property lines or existing driveway.
2. The oak trees to the east and south are mostly in poor condition due to conflicts with adjacent eucalyptus and myoporum that have inhibited or damaged oak canopy growth due to limited light or broken limbs.
3. The oaks to the west are mostly in better condition except where tops were harshly cut from utility line clearing contractors to ensure clearance from the high voltage wires (see item #8 below).
4. Five oaks are proposed to be removed for the project although many others do not offer long-term benefits due to their structural conditions. These are identified in the inventory. The trees identified for removal are #7134, 7195, 7197, 7373 & 7424. (#7134 & 7424 are proposed to be relocated).
5. Approximately ninety percent of the eucalyptus trees are in very poor condition from wind damage or previous topping cuts. There are a handful of trees that have faired well through the twenty-five years that need pruning.
6. The myoporum have been allowed to grow into a dense spreading canopy that extends beyond a reasonable width for a hedge.
7. To the northwest, one redwood will need to be removed for the project. The remaining tree's roots are beneath an existing house. It is the intent to preserve this tree for the project.
8. Also at the northwest corner of the property are several oaks and a sycamore with root systems beneath a compacted gravel driveway. The project calls for abandonment of this driveway and installation of a new road. This may impact the root zones of three trees (#7457, 7458, 7461) although the utility tree trimmer has significantly damaged the crown of two of these trees. The telephone pole connected to high voltage wires above the trees, will also be abandoned for the project.
9. At the west side of the project, a new driveway and a sidewalk along Cravens Lane will be installed. This will encroach into the critical root zones of seven trees (#7357, 7364, 7365, 7366, 7371, 7372 & 7374).

Discussion

The rapid growth rate of the trees on this site is due to the fertile soil and high water table. The porosity of soil encourages deeper rooting rather than a shallow spreading root system as in a heavier dense soil. Due to these site conditions, trees near proposed structures and roads (within the critical root zone) should be less impacted by minor encroachment into their root zones than construction in a heavy clay soil. However, the proximity of the new driveway to the critical root zone of several trees is extensive and significant damage may not be preventable.

Project monitoring and direction by the project arborist during excavation within the critical root zones of trees can reduce impacts by directing actions based on observations at the time of digging, such as whether to cut a root or bore beneath it. After a root is cleanly cut and the soil remains moist, new absorption roots (efficient in absorbing water and minerals) generally sprout from woody roots behind the pruning cut. The arborist can also assess a situation to determine if the tree is hazardous from loss of roots. I am mostly concerned in areas where the old and new driveways must be repaired, replaced or newly installed within the critical root zone of oaks. Impacts to trees can be reduced from narrower driveway widths, however the fire department has minimum specifications.

Oak trees in fair to good condition that are potentially impacted (where work occurs within their critical root zones), should be mitigated by planting saplings at the required rate of ten to one. Newly planted clusters of young oaks will offer an opportunity for rapid growth of a woodland/habitat setting and provide long-term improvement to the area rather than the existing oaks that are in poor condition.

Conclusion/Recommendations

1. Five oaks (#7134, 7195, 7197, 7373 & 7424) and one redwood (#7449) will need to be removed for the project. The oak trees should be mitigated with the planting of fifty oak saplings and three

24" box redwoods (or other as determined by the city/county). Although two oaks may be relocated, the damage to their root systems is extensive and mitigation is reasonable.

2. Renovation of the main existing driveway along the upper portion of the property, installation of a new driveway at the western portion of the property and the widening of Cravens Lane with sidewalk are the key areas of my concern. This may impact eleven trees (#7357, 7364, 7365, 7366, 7371, 7372, 7374, 7375, 7457, 7458 & 7461) and will require mitigation with eighty saplings for eight impacted native, healthy trees. Trees in poor condition due to utility pruning have not been attached to mitigation measures (#7458 & 7461). The cork oak (#7475) is not a native and does not need to be mitigated.
3. Impacts to the seven of these trees above may be reduced if the western driveway width is reduced to twelve feet and the improved sidewalk along Cravens Lane is eliminated or created with a natural chip path or alternative that does not require grading and compaction.
4. Three raised decks at the rear of three units (near the southeastern section of the project) can avoid root damage by use of piers and above grade beams. These decks are adjacent to trees #7142, 7144 and 7148 & 7149.
5. Eucalyptus trees should be removed except the few with good form and structure. The project arborist should direct which trees are to be removed or pruned.
6. Myoporum should be cut back into a narrow hedge to encourage dense side growth and improve the screening to the south.
7. The remaining oaks and sycamores should be pruned to improve their structure as necessary. Limbs should be raised where they will conflict with construction equipment and buildings. Several of the thinner trees do not need any work.
8. Eucalyptus removal must be performed without damage to oaks to be preserved. Damage should be mitigated with planting of oak saplings at a rate of ten to one.
9. Oaks, a redwood and sycamores should be protected with fencing at the edge of their critical root zone to establish a tree protection zone that is void of activities. See the site plan.
10. If work is to be done within the critical root zone, fences should be erected at the edge of the work site and the project arborist should monitor activities. This is especially important when work is being done on oaks referred to in items #2 and #4 above. See the site plan.
11. Any roots encountered within the critical root zone should be cleanly cut with a sharp cutting tool such as a lopping shear or hand saw and not ripped by equipment.
12. Oaks that may be impacted from construction may become more susceptible to insect problems and should be assessed and dealt with accordingly. Trunk sprays with very low concentration of a *permethrin* based pesticide that help resist oak bark beetle attacks, may need to be applied in the spring and late summer if trees become stressed. Otherwise killed trees from insect damage should also be mitigated as above.
13. Any landscape planting within the critical root zone of oaks should be compatible.
14. Prior to construction, a meeting should be held with the project owner, contractor and project arborist to discuss tree protection and scheduling of activities adjacent to trees.

Please contact me with any questions.

Prepared by: _____

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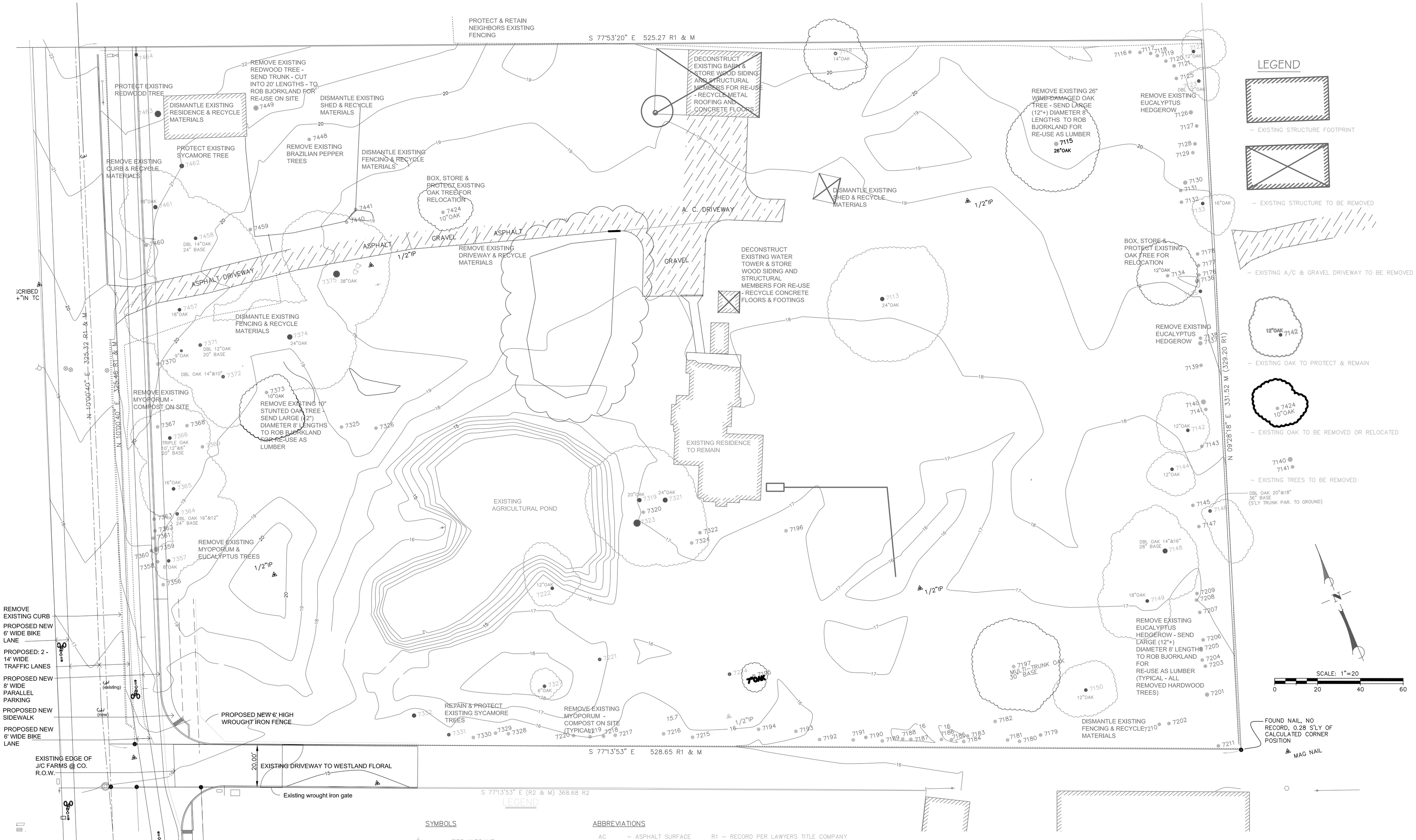
#	Tree	DBH	Condition Rating	Comment
7113	oak	26"	4	Some dead wood but good condition. This tree has been pruned by the homeowner in the past as the focal point for the northeast side of the existing residence. **The project will partially encroach into the CRZ at the north side by the road and at the southwest side by parking, but both without impact. Grading for the building envelope to the east should be limited to the structure's footprint to avoid impact. The adjoining patio could be placed on pier footings where it enters the CRZ. Fence tree for project as per plan.**
7114	oak	14"	4	Also a nice tree. The lowest limb on south side is co-dominant and could be removed. **There is minor encroachment from the building into the CRZ on the south side that will not cause an impact. The adjoining patio could be placed on pier footings where it enters the CRZ. Fence tree for project as per plan.**
7115	oak	26"	3	The bulges in the trunk indicate some internal damage, however the tree appears to be in fair to good condition. **There will be minor but insignificant encroachment into the CRZ on the south and west sides. The tree should be fenced as per the plan including during playground development (if hardscape will be part of the playground or if trucks/heavy equipment are involved). Use oak compatible plants beneath the CRZ of the oak in the playground.**
7116	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7117	eucalyptus			
7118	eucalyptus			
7119	eucalyptus			
7120	eucalyptus			
7121	eucalyptus			
7122	oak	13"	3	Both trees have been impacted by adjacent and overhanging eucalyptus trees. Large diameter oak limbs enter into the neighbor's property (nursey) and have been poorly stub cut. **Fence from project after removing eucalyptus. Avoid damaging when removing eucalyptus. In order to preserve, prune deadwood and attempt to prune to improve structure.**
7123	oak	12"/12"	2	
7124	no tree			
7125	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations.		
7126	eucalyptus			
7127	eucalyptus			
7128	eucalyptus			
7129	eucalyptus			
7130	eucalyptus			
7131	eucalyptus			
7132	eucalyptus			
7133	oak	14"	2	This tree has been impacted by adjacent and overhanging eucalyptus trees. Large diameter oak limbs enter into the neighbor's property (nursey) and have been poorly stub cut. **In order to preserve, prune deadwood and attempt to prune to improve structure. Fence from project (although out of area) and avoid damaging when removing eucalyptus (remove eucs prior to fencing).**
7134	oak	14"	2	**Poor structure due to overhanging eucalyptus. Remove for project. Not worth relocating. MITIGATE WITH 10 SAPLINGS IF TREE REMOVED.**
7135	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7136	eucalyptus			
7137	eucalyptus			
7138	eucalyptus			
7139	eucalyptus			
7140	eucalyptus			
7141	eucalyptus			
7142	oak	13"	3	Overhanging eucalyptus limb restricts upper growth of oak canopy. Remove eucalyptus and crown clean oak. **A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ.**
7143	eucalyptus	see eucalyptus recommendations		
7144	oak	13"	2	Vines are entangled in the canopy and oak growth is limited. **Could remove for project. Not a very nice tree. A wooden deck will be built within the CRZ of this tree. If tree is to remain, use pier footing, above grade beams and fence. Monitor activities within CRZ.**

7145	eucalyptus	see eucalyptus recommendations		
7146	oak	36"	2	Tree had split and one trunk has rooted on the ground. The neighbor had stub cut limbs that overhang the fence. **Remove surrounding brush and junk trees. Prune oak in attempt to improve structure and fence for project.**
7147	eucalyptus	see eucalyptus recommendations		
7148	oak	16"/16"	3	Canopy is nice but tree has poor structure due to co-dominant stem. Likely to split in future. The eastern trunk should be removed to reduce risk. **The project encroaches into the west side of the CRZ. Follow tree protection guidelines regarding root pruning. A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ. MITIGATE POTENTIAL IMPACTS WITH 10 SAPLINGS.**
7149	oak	18"	3	Tree leans, but has a nice canopy. **The project encroaches into the west side of the CRZ. Follow tree protection guidelines regarding root pruning. A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ. MITIGATE POTENTIAL IMPACTS WITH 10 SAPLINGS.**
7150	oak	12"	4	Nice young tree. **Protect with fencing.**
7176	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7177	eucalyptus			
7178	eucalyptus			
7179	myoporum	Side trim and reduce height into tall hedge.See myoporum recommendations		
7180	myoporum			
7181	myoporum			
7182	myoporum			
7183	myoporum			
7184	myoporum			
7185	myoporum			
7186	myoporum			
7187	myoporum			
7188	myoporum			
7189	myoporum			
7190	myoporum			
7191	myoporum			
7192	myoporum			
7193	myoporum			
7194	myoporum			
7195	oak	9"	3	**Tree will be removed for the project. It can be relocated but a replacment tree or MITIGATION WITH 10 SAPLINGS MAY BE A BETTER LONG TERM OPTION.**
7196	eugenia			
7197	oak	multi	3	Multiple stems will result in a weaker branch structure as the tree gets older. Also the canopy is thin for a tree with so many stems. Note the sycamore borer damage in the trunk. **Tree will be removed for the project. MITIGATE WITH 10 SAPLINGS.**
7201	eucalyptus	see eucalyptus recommendations		
7202	myoporum	see myoporum recommendations		
7203	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7204	eucalyptus			
7205	eucalyptus			
7206	eucalyptus			
7207	eucalyptus			
7208	eucalyptus			
7209	eucalyptus			
7210	myoporum	Side trim and reduce height, see myoporum recommendations		
7211	myoporum			
7215	myoporum			
7216	myoporum			
7217	myoporum			
7218	myoporum			
7219	myoporum			

7220	myoporum			
7221	myoporum			
7222	oak	14"	2	Not a great tree at edge of pond, lanky structure with small leaves and trunk wounds. Trunk bends and long term health is questionable. **FENCE ON SOUTH SIDE 12' FROM THE TRUNK TO PROTECT FROM ACTIVITIES**
7223	no tree			
7224	myoporum			Overgrown shrub that screens existing residence from south side of property. Could be reduced into hedge form.
7319	oak	24"	3	Tight area with adjacent palms and myoporum. **Near the existing residence and not impacted by the project. But fence to keep construction activities away.**
7320	myoporum			See myoporum recommendations.
7321	oak	28"	3	Tight area with adjacent palms and myoporum. **Near the existing residence and not impacted by the project. But fence to keep construction activities away.**
7322	fan palm			Tall palm among oaks that could be removed. Contributes to the farm house affect but otherwise not much benefit.
7323	king palm			Tall skinny king palm without much benefit.
7324	myoporum	see myoporum recommendations		
7325	avocado			Two of the original avocados but both are in poor condition. Remove for project.
7326	avocado			
7327	oak	6"	4	**Outside of construction area but protect (including adjacent saplings) with fencing.**
7328	myoporum	see myoporum recommendations		
7329	myoporum			
7330	myoporum			
7331	myoporum			
7332	sycamore	24"	2	Fair condition due to significant lean. One stem overhangs neighbor and should be removed. **Prune tree and monitor lean, may need to be removed completely. Reduce understory myoproum and protect sycamore with fencing.**
7333	eucalyptus	see eucalyptus recommendations		
7334	eucalyptus			
7335	eucalyptus			
7336	sycamore	17"	4	Good condition. Reduce understory myoporum and shrubs. Prune sycamore to remove deadwood. **Protect with fencing.**
7337	myoporum	see myoporum recommendations		
7338	eucalyptus	see eucalyptus recommendations		
7339	myoporum	see myoporum recommendations		
7340	pittosporum	12"	3	remove for project or cut with hedge
7341	myoporum	see myoporum recommendations		
7342	eucalyptus	see eucalyptus recommendations		
7343	eucalyptus			
7344	myoporum	see myoporum recommendations		
7345	eucalyptus	see eucalyptus recommendations		
7346	eucalyptus			
7347	myoporum	see myoporum recommendations		
7348	eucalyptus	see eucalyptus recommendations		
7350	myoporum	see myoporum recommendations		
7351	eucalyptus	see eucalyptus recommendations		
7352	eucalyptus			
7353	eucalyptus			
7354	myoporum	see myoporum recommendations		
7355	myoporum	see myoporum recommendations		

7356	eucalyptus	see eucalyptus recommendations		
7357	oak	8"	3	**Fair condition but close to proposed road expansion on west side and driveway on northeast side. Fence but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS. The project arborist should monitor activities in this area.**
7358	eucalyptus	see eucalyptus recommendations		
7359	eucalyptus			
7360	eucalyptus			
7361	eucalyptus			
7362	eucalyptus			
7363	eucalyptus			
7364	oak	11"/17"	4	**This tree is in good condition. The eastern driveway and western sidewalk expansion into the CRZ will severely encroach into the CRZ. Fence as large a tree protection as possible but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS. Prune lowest limbs on eastern side of canopy to avoid conflicts. The project arborist should monitor activities in this area.**
7365	oak	17"	3	**Tree is in fair condition. The eastern driveway and western sidewalk expansion into the CRZ will moderately encroach into the CRZ. Fence as large a tree protection as possible but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS.**
7366	oak	22"	3	**Tree is in fair condition. The eastern driveway and western sidewalk expansion into the CRZ will moderately encroach into the CRZ. Fence as large a tree protection as possible but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS.**
7367	myoporum	see myoporum recommendations		
7368	avocado	8"	2	remove for project
7369	avocado	8"	2	
7370	myoporum	see myoporum recommendations		
7370a	oak	10"	3	**No impact but fence with other oaks.**
7371	oak	14"/15"	4	**Both trees are in good condition. The road will encroach into the eastern side of the CRZ. The project arborist should monitor grading in this area and MITIGATE BY PLANTING 20 SAPLINGS. #7372 will incur greater impact than #7371. Driveway is at minimum width as per fire department.**
7372	oak	12"/14"	4	
7373	oak	12"	3	**Poor structure no top, remove for project and MITIGATE BY PLANTING SAPLINGS. This tree was sacrificed in order to move the driveway away from other oaks in much better condition.**
7374	oak	26"	4	**The road will encroach into the western side of the CRZ. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS. Driveway is at minimum width as per fire department.**
7375	cork oak	35"	3	**This tree has been repeatedly topped by the utility for many years. The existing road covers the north side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS. Consider reducing the width of the driveway.**
7424	oak	12"	4	**Remove for project. MITIGATE BY PLANTING SAPLINGS.**
7440	brazillian pepper	22"	3	remove for project
7441	eugenia	13"	3	remove for project
7448	brazillian pepper	18"	3	remove for project
7449	redwood	30"	4	**Significant tree, remove for project. Tree is in the building. MITIGATE WITH THREE 24" BOXED TREES OR OTHER AS DETERMINED BY CITY/COUNTY.**
7457	oak	18"	3	**The existing road covers the north side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS.**
7458	oak	28"	2	**Very poor condition. This tree has been repeatedly topped by the utility for many years. The existing road covers the south side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS.**
7459	pittosporum	12"	3	remove for project
7460	Monterey pine	20"	1	Very poor, insect damaged and dying, under high voltage, remove for project.

7461	oak	20"	3	**This tree was brutally cut by the utility contractor on its south side. The old exisiting driveway will be abandoned. The project arborist should monitor demolition and grading in this area.**
7462	sycamore	24"	4	**The existing compacted driveway covers the root system but will be abandoned for the project. The new building encroaches into the CRZ similarly to the old structure. The project arborist should monitor demolition and grading in this area.**
7463	redwood	34"	4	**The existing structure is covering the eastern side of the root zone. Demolition should be done with care. The new building will relieve some of the covering. The project arborist should monitor demolition and grading in this area.**
7464	Roxburg pine	13"	2	Poor condition, remove or retain and prune.



LEGEND

- EXISTING STRUCTURE FOOTPRINT
- EXISTING STRUCTURE TO BE REMOVED
- EXISTING A/C & GRAVEL DRIVEWAY TO BE REMOVED
- EXISTING OAK TO PROTECT & REMAIN
- EXISTING OAK TO BE REMOVED OR RELOCATED
- EXISTING TREES TO BE REMOVED

SYMBOLS

- FIRE HYDRANT
- HORIZONTAL & VERTICAL CONTROL
- MANHOLE
- 256.5 – SPOT ELEVATION (AT DECIMAL POINT)
- VALVE
- FOUND SURVEY MONUMENT AS NOTED

ABBREVIATIONS

AC – ASPHALT SURFACE
BLDG – BUILDING
CLF – CHAIN LINK FENCE
EP – EDGE OF PAVEMENT
EUC – EUCALYPTUS
FL – FLOWLINE
HB – HOSEBIB
PB – PULL BOX
PITT – PITTUSPORUM
PP – POWER POLE
SMH – SEWER MANHOLE
TC – TOP OF CURB
WM – WATER METER
WV – WATER VALVE

R1 – RECORD PER LAWYERS TITLE COMPANY PRELIMINARY TITLE REPORT NO. 3022257 DATED OCTOBER 15, 2002

R2 – RECORD PER BK 157 PG 45 OF MAPS

EXHIBIT 'A'

DETAIL OF CRAVENS LANE WIDENING: TRANSITION AT DRIVEWAY TO J/C FARMS (WESTLAND FLORAL) WITH **NO** ADDITIONAL R.O.W.

SITE SURVEY AND DECONSTRUCTION PLAN

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REFERENCES:
DRAWING FILE: DWG
DATA FILE: DATA
PROJECT FILE: PROJECT
VIEW NAME: VIEW
XREF NAME(S): XREF
DATE: DATE1

BENCHMARK: BENCH1
BENCH2
BENCH3
BENCH4
BENCH5
DATUM:
DATUM1
DATUM2

CLIENT
COMPANY
ADDRESS
CITY
TEL
ATTN

NO.	DATE	REVISIONS	APPD.

Penfield & Smith
ENGINEERS • SURVEYORS
PS_STREET
PS_PHONE
PS_MAIL
PS_CITY
PS_STATE
PS_ZIP

DRAWN CAD CHECKED
SURVEYOR DATE: DATE
PROJECT SURVEYOR
P.L.S. LSNO (EXP. EXP_DATE)

CITY–COUNTY
FIELD PARTY: PARTY
DATE OF SURVEY: SURVEY–DATE

SCOTT ELLINWOOD & ASSOCIATES
INCORPORATED
RESOURCE CONSCIOUS ARCHITECTURE & PLANNING
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Greenheron Spring
an environmentally responsible residential development
1300 - 1326 CRAVENS LANE, CARPINTERIA CALIFORNIA A.P.№: 004-013-026

SITE TOPOGRAPHIC SURVEY
& Deconstruction Plan

2

#	Tree	DBH	Condition Rating	Comment
7113	oak	26"	4	Some dead wood but good condition. This tree has been pruned by the homeowner in the past as the focal point for the northeast side of the existing residence. **The project will partially encroach into the CRZ at the north side by the road and at the southwest side by parking, but both without impact. Grading for the building envelope to the east should be limited to the structure's footprint to avoid impact. The adjoining patio could be placed on pier footings where it enters the CRZ. Fence tree for project as per plan.**
7114	oak	14"	4	Also a nice tree. The lowest limb on south side is co-dominant and could be removed. **There is minor encroachment from the building into the CRZ on the south side that will not cause an impact. The adjoining patio could be placed on pier footings where it enters the CRZ. Fence tree for project as per plan.**
7115	oak	26"	3	The bulges in the trunk indicate some internal damage, however the tree appears to be in fair to good condition. **There will be minor but insignificant encroachment into the CRZ on the south and west sides. The tree should be fenced as per the plan including during playground development (if hardscape will be part of the playground or if trucks/heavy equipment are involved). Use oak compatible plants beneath the CRZ of the oak in the playground.**
7116	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7117	eucalyptus			
7118	eucalyptus			
7119	eucalyptus			
7120	eucalyptus			
7121	eucalyptus			
7122	oak	13"	3	Both trees have been impacted by adjacent and overhanging eucalyptus trees. Large diameter oak limbs enter into the neighbor's property (nursey) and have been poorly stub cut. **Fence from project after removing eucalyptus. Avoid damaging when removing eucalyptus. In order to preserve, prune deadwood and attempt to prune to improve structure.**
7123	oak	12"/12"	2	
7124	no tree			
7125	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations.		
7126	eucalyptus			
7127	eucalyptus			
7128	eucalyptus			
7129	eucalyptus			
7130	eucalyptus			
7131	eucalyptus			
7132	eucalyptus			
7133	oak	14"	2	This tree has been impacted by adjacent and overhanging eucalyptus trees. Large diameter oak limbs enter into the neighbor's property (nursey) and have been poorly stub cut. **In order to preserve, prune deadwood and attempt to prune to improve structure. Fence from project (although out of area) and avoid damaging when removing eucalyptus (remove eucs prior to fencing).**
7134	oak	14"	2	**Poor structure due to overhanging eucalyptus. Remove for project. Not worth relocating. MITIGATE WITH 10 SAPLINGS IF TREE REMOVED.**
7135	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7136	eucalyptus			
7137	eucalyptus			
7138	eucalyptus			
7139	eucalyptus			
7140	eucalyptus			
7141	eucalyptus			
7142	oak	13"	3	Overhanging eucalyptus limb restricts upper growth of oak canopy. Remove eucalyptus and crown clean oak. **A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ.**
7143	eucalyptus	see eucalyptus recommendations		
7144	oak	13"	2	Vines are entangled in the canopy and oak growth is limited. **Could remove for project. Not a very nice tree. A wooden deck will be built within the CRZ of this tree. If tree is to remain, use pier footing, above grade beams and fence. Monitor activities within CRZ.**

7145	eucalyptus	see eucalyptus recommendations		
7146	oak	36"	2	Tree had split and one trunk has rooted on the ground. The neighbor had stub cut limbs that overhang the fence. **Remove surrounding brush and junk trees. Prune oak in attempt to improve structure and fence for project.**
7147	eucalyptus	see eucalyptus recommendations		
7148	oak	16"/16"	3	Canopy is nice but tree has poor structure due to co-dominant stem. Likely to split in future. The eastern trunk should be removed to reduce risk. **The project encroaches into the west side of the CRZ. Follow tree protection guidelines regarding root pruning. A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ. MITIGATE POTENTIAL IMPACTS WITH 10 SAPLINGS.**
7149	oak	18"	3	Tree leans, but has a nice canopy. **The project encroaches into the west side of the CRZ. Follow tree protection guidelines regarding root pruning. A wooden deck will be built within the CRZ of this tree. Use pier footing, above grade beams and fence. Monitor activities within CRZ. MITIGATE POTENTIAL IMPACTS WITH 10 SAPLINGS.**
7150	oak	12"	4	Nice young tree. **Protect with fencing.**
7176	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7177	eucalyptus			
7178	eucalyptus			
7179	myoporum	Side trim and reduce height into tall hedge.See myoporum recommendations		
7180	myoporum			
7181	myoporum			
7182	myoporum			
7183	myoporum			
7184	myoporum			
7185	myoporum			
7186	myoporum			
7187	myoporum			
7188	myoporum			
7189	myoporum			
7190	myoporum			
7191	myoporum			
7192	myoporum			
7193	myoporum			
7194	myoporum			
7195	oak	9"	3	**Tree will be removed for the project. It can be relocated but a replacment tree or MITIGATION WITH 10 SAPLINGS MAY BE A BETTER LONG TERM OPTION.**
7196	eugenia			
7197	oak	multi	3	Multiple stems will result in a weaker branch structure as the tree gets older. Also the canopy is thin for a tree with so many stems. Note the sycamore borer damage in the trunk. **Tree will be removed for the project. MITIGATE WITH 10 SAPLINGS.**
7201	eucalyptus	see eucalyptus recommendations		
7202	myoporum	see myoporum recommendations		
7203	eucalyptus	Most of these trees are in very poor condition and should be removed. See eucalyptus recommendations		
7204	eucalyptus			
7205	eucalyptus			
7206	eucalyptus			
7207	eucalyptus			
7208	eucalyptus			
7209	eucalyptus			
7210	myoporum	Side trim and reduce height, see myoporum recommendations		
7211	myoporum			
7215	myoporum			
7216	myoporum			
7217	myoporum			
7218	myoporum			
7219	myoporum			

7220	myoporum			
7221	myoporum			
7222	oak	14"	2	Not a great tree at edge of pond, lanky structure with small leaves and trunk wounds. Trunk bends and long term health is questionable. **FENCE ON SOUTH SIDE 12' FROM THE TRUNK TO PROTECT FROM ACTIVITIES**
7223	no tree			
7224	myoporum			Overgrown shrub that screens existing residence from south side of property. Could be reduced into hedge form.
7319	oak	24"	3	Tight area with adjacent palms and myoporum. **Near the existing residence and not impacted by the project. But fence to keep construction activities away.**
7320	myoporum			See myoporum recommendations.
7321	oak	28"	3	Tight area with adjacent palms and myoporum. **Near the existing residence and not impacted by the project. But fence to keep construction activities away.**
7322	fan palm			Tall palm among oaks that could be removed. Contributes to the farm house affect but otherwise not much benefit.
7323	king palm			Tall skinny king palm without much benefit.
7324	myoporum	see myoporum recommendations		
7325	avocado			Two of the original avocados but both are in poor condition. Remove for project.
7326	avocado			
7327	oak	6"	4	**Outside of construction area but protect (including adjacent saplings) with fencing.**
7328	myoporum	see myoporum recommendations		
7329	myoporum			
7330	myoporum			
7331	myoporum			
7332	sycamore	24"	2	Fair condition due to significant lean. One stem overhangs neighbor and should be removed. **Prune tree and monitor lean, may need to be removed completely. Reduce understory myoproum and protect sycamore with fencing.**
7333	eucalyptus	see eucalyptus recommendations		
7334	eucalyptus			
7335	eucalyptus			
7336	sycamore	17"	4	Good condition. Reduce understory myoporum and shrubs. Prune sycamore to remove deadwood. **Protect with fencing.**
7337	myoporum	see myoporum recommendations		
7338	eucalyptus	see eucalyptus recommendations		
7339	myoporum	see myoporum recommendations		
7340	pittosporum	12"	3	remove for project or cut with hedge
7341	myoporum	see myoporum recommendations		
7342	eucalyptus	see eucalyptus recommendations		
7343	eucalyptus			
7344	myoporum	see myoporum recommendations		
7345	eucalyptus	see eucalyptus recommendations		
7346	eucalyptus			
7347	myoporum	see myoporum recommendations		
7348	eucalyptus	see eucalyptus recommendations		
7350	myoporum	see myoporum recommendations		
7351	eucalyptus	see eucalyptus recommendations		
7352	eucalyptus			
7353	eucalyptus			
7354	myoporum	see myoporum recommendations		
7355	myoporum	see myoporum recommendations		

7356	eucalyptus	see eucalyptus recommendations		
7357	oak	8"	3	**Fair condition but close to proposed road expansion on west side and driveway on northeast side. Fence but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS. The project arborist should monitor activities in this area.**
7358	eucalyptus	see eucalyptus recommendations		
7359	eucalyptus			
7360	eucalyptus			
7361	eucalyptus			
7362	eucalyptus			
7363	eucalyptus			
7364	oak	11"/17"	4	**This tree is in good condition. The eastern driveway and western sidewalk expansion into the CRZ will severely encroach into the CRZ. Fence as large a tree protection as possible but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS. Prune lowest limbs on eastern side of canopy to avoid conflicts. The project arborist should monitor activities in this area.**
7365	oak	17"	3	**Tree is in fair condition. The eastern driveway and western sidewalk expansion into the CRZ will moderately encroach into the CRZ. Fence as large a tree protection as possible but MITIGATE POTENTIAL IMPACTS BY PLANTING SAPLINGS.**
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7367	myoporum	see myoporum recommendations		
7368	avocado	8"	2	remove for project
7369	avocado	8"	2	
7370	myoporum	see myoporum recommendations		
7370a	oak	10"	3	**No impact but fence with other oaks.**
7371	oak	14"/15"	4	**Both trees are in good condition. The road will encroach into the eastern side of the CRZ. The project arborist should monitor grading in this area and MITIGATE BY PLANTING 20 SAPLINGS. #7372 will incur greater impact than #7371. Driveway is at minimum width as per fire department.**
7372	oak	12"/14"	4	
7373	oak	12"	3	**Poor structure no top, remove for project and MITIGATE BY PLANTING SAPLINGS. This tree was sacrificed in order to move the driveway away from other oaks in much better condition.**
7374	oak	26"	4	**The road will encroach into the western side of the CRZ. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS. Driveway is at minimum width as per fire department.**
7375	cork oak	35"	3	**This tree has been repeatedly topped by the utility for many years. The existing road covers the north side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS. Consider reducing the width of the driveway.**
7424	oak	12"	4	**Remove for project. MITIGATE BY PLANTING SAPLINGS.**
7440	brazillian pepper	22"	3	remove for project
7441	eugenia	13"	3	remove for project
7448	brazillian pepper	18"	3	remove for project
7449	redwood	30"	4	**Significant tree, remove for project. Tree is in the building. MITIGATE WITH THREE 24" BOXED TREES OR OTHER AS DETERMINED BY CITY/COUNTY.**
7457	oak	18"	3	**The existing road covers the north side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS.**
7458	oak	28"	2	**Very poor condition. This tree has been repeatedly topped by the utility for many years. The existing road covers the south side of the root zone. An improved road will impact roots below this old road during preparation. The project arborist should monitor grading in this area and MITIGATE BY PLANTING SAPLINGS.**
7459	pittosporum	12"	3	remove for project
7460	Monterey pine	20"	1	Very poor, insect damaged and dying, under high voltage, remove for project.

7461	oak	20"	3	**This tree was brutally cut by the utility contractor on its south side. The old exisiting driveway will be abandoned. The project arborist should monitor demolition and grading in this area.**
7462	sycamore	24"	4	**The existing compacted driveway covers the root system but will be abandoned for the project. The new building encroaches into the CRZ similarly to the old structure. The project arborist should monitor demolition and grading in this area.**
7463	redwood	34"	4	**The existing structure is covering the eastern side of the root zone. Demolition should be done with care. The new building will relieve some of the covering. The project arborist should monitor demolition and grading in this area.**
7464	Roxburg pine	13"	2	Poor condition, remove or retain and prune.

Appendix D

WHEMP

Green Heron Spring, LLC

Green Heron Spring Development Project

Wetland Habitat Enhancement and Monitoring Plan

rincon

August 2017

Environmental Scientists Planners Engineers

Wetland Habitat Enhancement and Monitoring Plan

Green Heron Spring Development Project
Carpinteria, California

DRAFT

Prepared for:

Green Heron Spring, LLC
23622 Calabasas Road, Suite 220
Calabasas, CA 93101

Prepared by:

Rincon Consultants, Inc.
209 East Victoria Street
Santa Barbara, California 93101

August 2017

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1.0 INTRODUCTION

Rincon Consultants, Inc. has prepared this Wetland Habitat Enhancement and Monitoring Plan (WHEMP) for Green Heron Spring's proposed Green Heron Spring Development Project (Assessor's Parcel No. 004-013-026) (project) located in the City of Carpinteria (City), Santa Barbara County, California. The WHEMP was developed to update the project's Draft Conceptual Wetlands Mitigation, Habitat Enhancement, and Monitoring Plan (Rindlaub 2005) based on updated design plans and the requirements of the Ellinwood Parcel Overlay District. This WHEMP describes the site conditions, wetland habitat enhancement implementation plan, maintenance activities, monitoring methods, success criteria, and contingency actions to guide a successful onsite wetland enhancement program.

1.1 PROJECT LOCATION

The project is located at 1300 and 1326 Cravens Lane in the City of Carpinteria, Santa Barbara County, California. The regional location is depicted in Figure 1, while Figure 2 depicts the project location in its neighborhood context. The project site is bordered to the west by Cravens Lane and residential housing, to the south by an unnamed road and residential housing, to the east by a County of Santa Barbara Flood Control District channel and access road, and plant nursery, and to the north by a County of Santa Barbara Flood Control District siltation basin. The project site is zoned as Planned Unit Development District (PUD) Residential and was historically used as an avocado orchard. The project site is depicted in Section 19, Township 4 North, and Range 25 West of the U.S. Geological Survey (USGS) *Carpinteria*, *California* 7.5-minute topographic quadrangle (Figure 3).

1.2 ENVIRONMENTAL SETTING

The project site was historically utilized as an avocado orchard and has been subject to extensive modifications in the past. The project site contains several structures such as residences, sheds, and a barn. The project site also contains numerous native and non-native plant species and a man-made agricultural pond that was created near the southern boundary of the project site to regulate the high water table that flooded the orchard.

The current observed project site conditions are consistent with project site conditions as described in the City of Carpinteria Green Heron Spring Condominium Project Final Mitigated Negative Declaration (FMND) prepared for the project site (November 13, 2007).

1.3 PROJECT DESCRIPTION

The project involves the proposed construction of townhomes, flats, and single family homes for a total of 31-units on an existing 3.87 acre lot. The project would include the dismantling of an existing residence, barn and storage shed, remodeling of an existing residence, and construction of 30 new residential units and 74 parking spaces. The project also includes a common open space with a community orchard, garden, village green, and enhancement of an existing man-made agricultural pond.

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Figure 1 – Regional Location



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BRAFig 1 Regional Location20170106

Figure 2 – Project Location



Figure 3 – Project Location on USGS Topographic Map



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BRAFig 3 Project Location Topo20170106

The project site currently contains two residences with a detached two-car garage, three storage sheds, a barn, a water tower, and 59 trees. Tree species onsite include coast live oak (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), cork oak (*Quercus suber*), king palm (*Archontophoenix cunninghamiana*), Mexican fan palm (*Washingtonia robusta*), Brazilian pepper (*Schinus terebinthifolius*), coast redwood (*Sequoia sempervirens*), and eucalyptus trees (*Eucalyptus rudis*). A total of 13 trees are proposed for removal, including nine coast live oaks, one coast redwood, one Mexican fan palm, and one California sycamore. One coast live oak tree is proposed for relocation. However, no trees will be removed within 35 feet of the existing pond.

The existing residence would retain the same basic structure and footprint, but would have the siding and roof replaced and a three-car garage added. The barn would be demolished, but the materials would be salvaged and used on-site, wherever possible.

The existing pond would be dredged and desilted, and the existing vegetation would be removed. The banks of the pond will be recontoured to reduce the slope from approximately 1:2 to 1:4, which will facilitate access for habitat enhancement implementation and maintenance. The pond will continue to serve as an onsite retention basin for storm water runoff. The proposed drainage system and restoration area around the pond will minimize onsite erosion and provide bio-filtration of runoff to reduce pollutants and sedimentation, thereby improving water quality and habitat value of the pond. All areas surrounding the pond that will require wetland vegetation removal are proposed to be replanted with native species. The wetland enhancement area will be bounded by both a six foot tall tubular steel fence and a five foot tall welded wire fence designed to be permeable to small mammals and birds, but preclude access by cats and dogs.

Following construction, there would be 16 buildings on the site, comprised of 14 new residential buildings, the remodeled existing residence, and one new pavilion. The new residences would be two stories tall, approximately 24 feet 5 inches to 29 feet 6 inches tall. The new residences would be located along the northern and eastern boundaries of the property, and continue towards the center of the property around the pond. The buildings would be accessed from a private road that would start approximately two thirds of the way up the site boundary on Cravens Lane. The road would then head east as a two lane road before becoming a one lane road and continuing around the pavilion and Village Green. An off-shoot of the road would continue towards the south to provide emergency access to the site from an existing driveway along the southern boundary of the site.

1.4 PROJECT HISTORY

A similar project was previously reviewed and approved for the project site in 2007. This project also consisted of a residential development on the site, with the same number of residential units, and improvements to the pond. A total of 11 structures were proposed, equaling 61,990 square feet of floor area. Construction of the project was anticipated to require 1,270 cubic yards (cy) of cut and 3,200 cy of fill, requiring 1,930 cy of imported soil. Implementation of this proposal would have required the removal of five oak trees, relocation of two oak trees, and the potential for 11 additional oak trees to be impacted by encroachment. An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared for that project. This IS/MND found potentially significant effects that required mitigation for biological resources.

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1.5 EXISTING CONDITIONS

Rincon Senior Biologist Robin Murray conducted a reconnaissance-level field survey on December 19, 2016, to assess the habitat suitability for potential special status species, map the existing vegetation, map any sensitive biological resources currently present onsite, note the presence of potential jurisdictional waters or wetlands, document any wildlife connectivity/movement features, assess the general health of the trees, and record all incidental observations of plant and wildlife species. The conditions of the agricultural pond were also observed.

The pond is dominated by arroyo willow (*Salix lasiolepis*) in the tree layer. The slopes of the pond are steep (2:1 slope in some areas) and support numerous invasive species such as periwinkle, cape ivy and English ivy. Cattails (*Typha* sp.) fill the bottom of the pond with nut sedge (*Cyperus eragrostis*) present at the perimeter. Duckweed (*Lemna* sp.) was also observed within the limited amount of open water that was present. At the time of the survey, the pond contained approximately three inches of standing water. No fish or amphibian species were observed.

1.6 REGULATORY BACKGROUND

Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies with the land use control and planning authority of local jurisdictions. The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the state under CEQA and has direct jurisdiction under the California Fish and Game Code (CFGC). The United States Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the U.S., under Section 404 of the federal Clean Water Act (CWA). Under Section 401 of the CWA, every applicant for a federal permit or license for activities that may result in a discharge to a water body requires state Water Quality Certification (WQC) from the Regional Water Quality Control Board (RWQCB) ensuring that the proposed activity will comply with state water quality standards. The *City of Carpinteria General Plan / Local Coastal Land Use Plan and Environmental Impact Report* (April 2003) Open Space, Recreation, and Conservation Element also applies to the project. The project site is subject to the requirements of the Carpinteria Municipal Code Chapter 14.43, Ellinwood Parcel (APN 004-013-026) Overlay District. The Overlay District provides specific development standards that all new development on the subject parcel shall be required to comply with, including the preparation of a WHEMP.

CDFW issued a comment letter on January 26, 2007 for the Draft MND prepared for the previous project at the Green Heron Spring property. Within the letter, CDFW recommended mitigation for oak tree removal and for nesting birds. No additional special-status species or special status species mitigation was stated in the letter; consequently, CDFW did not require permits for the project.

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1.7 RESPONSIBLE PARTIES

The Applicant, Green Heron Spring, LLC will be responsible for all costs associated with the implementation, monitoring, maintenance, and protection of the enhanced wetland habitat. Initial funding will come from the project developer. The implementation of this WHEMP will be ensured through a performance security. Funding following sale of the residences will be supplied by the common interest development (Homeowners Association) via a condition in the CC&Rs. The long term maintenance requirements to meet and maintain the functions and values set forth in Section 3.2.4 of this WHEMP for the life of the project.

The Applicant will work with an outside contractor to complete the grading, desilting, and vegetation removal. A qualified landscaping contractor will install and maintain the native landscaping, which will be overseen by a qualified restoration biologist.

2.0 WETLAND HABITAT ENHANCEMENT PROGRAM

2.1 HABITAT ENHANCEMENT GOALS

Following desilting and recontouring of the pond, habitat enhancement goals include:

1. Enhance a total of 11,324 sq. ft. (0.26 acre) by establishing native species on the upper (upland) pond banks and beyond the pond perimeter to enlarge the area managed for native birds.
2. Replace disturbed palustrine emergent wetland vegetation.
3. Improve habitat functions and values by introducing native trees, shrubs, and herbs to increase habitat complexity and the variety of avian food available.

The existing ruderal vegetation that characterizes the upland area will be replaced by native species within the pond perimeter. The transitional area will shift from native species to merge with the landscaping for the residential project.

The habitat enhancement will be particularly beneficial for native bird species. The enhanced area will have higher habitat value, and will provide desirable habitat to resident and visiting species. In the past, the pond was used by other types of wildlife, including mosquito fish and chorus frogs. However, these species were not observed during recent surveys, likely due to the complete drying of the pond during the summer. After habitat enhancement, the pond is likely to support chorus frogs, which are capable of reintroduction. The enhanced pond will be unlikely to support additional amphibian species such as California red-legged frog (*Rana draytonii*) due to the pond's small size and isolation from suitable habitat.

3.0 HABITAT ENHANCEMENT PLAN

All habitat enhancement will be implemented on the subject property. The overall enhancement area will encompass 0.396 acre, including 0.136 acre of wetland and 0.26 acre of upland habitat (see Landscape Plan). The area of the wetland will not change significantly, although gentler slope of the banks and introduction of additional wetland species may expand the area of the

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banks occupied by palustrine emergent species. However, increasing the depth in the center of the pond may reduce the area colonized by cattails.

Recontouring of the pond banks will increase the upland area by 2,642 square feet. Weedy, non-native plant species will be replaced by natives throughout that area (5,766 square feet [0.13 acre]) to the degree feasible, as Bermuda grass (*Cynodon dactylon*) is present and functions to stabilize the soil).

The transitional zone, which will extend 35 feet beyond the top of bank, will consist entirely of native plants. Landscaping of private yards for residential units located within 35 feet of the pond will be limited to appropriate native plants consistent with the goals and objectives of this plan. Wildlife-permeable fencing, such as a six foot tall tubular steel fence and a five foot tall welded wire fence will be installed around the pond perimeter.

3.1 SITE PREPARATION

The wetland habitat enhancement will be coordinated with the construction of the planned residential development. Where feasible, temporary protective fencing will be placed at the dripline of tree canopies to avoid inadvertent impacts from construction activities. Fencing will remain in place until all construction activities are complete. The pond banks will be recontoured during the grading phase of construction. If standing water is present at the time, the pond will be dewatered prior to earth work. After final recontouring of the pond banks, the uppermost 12 inches of soil will be decompacted. The area within the recontoured pond banks will be treated with a series of grow-kill cycles to decrease the prevalence of weed seeds in the seed bank and reduce the intensity of future weed management efforts.

3.2 SITE REVEGETATION

Landscape plans for the site, including the enhanced wetland, have been developed by L.A. Group Design Works, LLC. The landscape plans conform to the requirements set forth in this WHEMP, including the requirement that all plant species within the pond and its transitional zone (designated as 35 feet upland from the top of bank) are native in origin. A list of these species is provided in Table 1 below.

Table 1. Plant Species within Pond and Transitional Zone

Scientific Name	Common Name
Calamagrostis nutkaensis	Pacific reed grass
Carex pansa	Sanddune sedge
Carex spissa	San diego sedge
Ceanothus griseus horizontalis	California lilac
Ceanothus x “Concha”	California lilac
Cercis occidentalis	Western redbud
Elymus condensatus	Wild rye
Epilobium canum	California fuchsia
Erigeron glaucus	Wayne Roderick daisy
Galvezia speciosa	Bush snapdragon

Heuchera "Lillian's pink"	Lillian's pink alumroot
Iris PCH	PCH Iris
Juncus patens	California gray rush
Lavatera assurgentiflora	Mallow
Mahonia aquifolium	Oregon grape
Mimulus cardinalis	Yellow scarlet monkey flower
Muhlenbergia rigens	Deer grass
Platanus racemosa	California sycamore
Quercus agrifolia	Coast live oak
Ribes viburnifolium	Evergreen currant
Rosa californica	California wild rose

3.2.1 Habitat Types

The banks of the wetland will be planted with a range of native wetland and upland plant species, which will be situated along the elevation gradient according to their wetland indicator status. Obligate wetland species will be placed at the elevation of the average water level, and will be succeeded at higher elevations by facultative species, followed by upland species. As a result, there will be a wetland zone, an upland zone (within the pond banks) and a transitional zone. Beyond the top of banks, the transitional zone will be composed of native species from the local upland coastal scrub and woodland habitats. Habitat enhancement will include establishment of upland shrubs, trees and herbs.

3.2.2 Container Plants

All container plants will be grown from local stock to the specified size by a native plant nursery. Plant root balls must fill the container without being pot-bound. Plants must be free from pests and disease.

Plants shall be installed in holes dug approximately twice the size of the root ball. The holes will be filled with water and allowed to percolate prior to plant installation. For gallon plants, approximately one liter of soil amendment shall be mixed with the backfill before the backfill is replaced around the plant in the hole. Care should be taken during installation to ensure the soil level of the installed plant matches the soil level at the stem. All container plants must be watered immediately following installation.

Plants installed on sloped ground shall be surrounded with a berm to catch runoff. All plants shall be provided with a layer of mulch that extends twice the radius of the root ball but that does not touch the plant stem.

3.2.3 Irrigation System

Container plants will be irrigated with a drip system that will be installed within 24 hours of plant installation. This irrigation system will remain in place until final success criteria have been met. Drip emitters will be placed adjacent to, but not touching, the stem of each plant.

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The irrigation system will be designed to supply the pond with supplemental water if water levels drop more than six inches below the historically determined average water level. This water will be supplied independently of the drip irrigation system, so that if the pond water level is deficient but plants do not require supplemental water, they can be independently controlled. Additional details are provided in Section 4.3.

3.2.4 Target Functions and Values

The target function of the wetland habitat enhancement is creation of suitable habitat for native birds, as the isolation of the site makes colonization by amphibians, reptiles, and most mammals unlikely. Planting a variety of native trees, shrubs, and herbaceous plants will add complexity to the vegetation structure, which will increase the diversity of microhabitats available to wildlife. The plant palette for the pond area will include species that produce many seeds suitable for birds, as well as species that produce fleshy fruits.

The habitat enhancement goals of the proposed project include:

- Increase the variety of feeding, roosting, and nesting habitats by developing the complexity of the vegetation structure
- Increase the variety of food sources available to birds
- Prolong the duration of food availability for birds and insects
- Creation of vegetation communities that are self-sustainable

4.0 MAINTENANCE ACTIVITIES

Maintenance activities will occur frequently enough to prevent invasive plant seed set and to identify any problems in the re-establishment of native plants. Supplemental water will be provided for new plantings to enhance survival and establishment.

Water will be tapered off starting the third year following planting with fewer applications of a greater volume to encourage deep root development for upland species and lower pond bank wetland plants that are deeply rooted. For example, the initial watering schedule should be twice weekly. By the second dry season, the target frequency should be once every two weeks to once per month. However, the watering frequency will be determined by the restoration biologist based on the results of regular monitoring events.

Drip lines will be inspected at each maintenance visit while the water is turned on to ensure that emitters are not clogged and have not shifted so far that the target plant no longer receives water.

Weedy or ruderal species that sprout within the wetland habitat enhancement area will be controlled primarily by hand weeding. Weeding will be undertaken throughout the area, not just around individual plants. Weeding will occur at least once per month during the first three years following planting. Weeds must be removed before they set seeds. Selective application of an approved herbicide (if necessary, and as approved by the restoration biologist) would be limited to the transitional zone outside the top of banks of the pond. Herbicide would only be used to control infestations that cannot be feasibly controlled by hand weeding, and where adverse effects to native plants can be avoided. If herbicides are needed, only those which are approved

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for aquatic use shall be used. No herbicides shall be used on native vegetation. Herbicide shall not be applied if there has been a rain event within 24 hours and foliage is still wet, if rain is forecasted to occur within 48 hours, or if winds are in excess of five miles per hour.

4.2 MAINTENANCE SCHEDULE

Maintenance visits to check on irrigation systems and to remove weeds will occur at least once every month for the first three years following planting. Weeding shall continue thereafter as needed to control weeds prior to seed set, and to maintain plantings in a healthy, growing condition, as determined by the restoration biologist.

4.3 POND WATER LEVEL

The water level of the pond will not be allowed to drop more than six inches below the elevation of the historically determined average water level (defined as the elevation where the surface water area equals 4,004 square feet), to ensure that the hydrological regime will be maintained as necessary to support the restored diversity of self-sufficient species in both the wetland and upland areas. This critical elevation will be marked with a permanent rod for ease of reference.

The desilting of the pond is likely to restore the previous hydrologic regime. However, if the water level of the pond is determined to be deficient during monitoring visits, supplemental water will be supplied by the irrigation system until the specified water level is met. Supplemental water for the purpose of maintaining the hydrologic regime will not be supplied if the water level meets or exceeds six inches below the average water level.

5.0 MONITORING PROGRAM

Regular monitoring will compare growth patterns, survival rates, species richness, and structural diversity with established success criteria to ensure that each milestone is met to reach the ultimate goal of enhancing the wetland habitat and transitional zone. All monitoring shall be overseen and/or conducted by the restoration biologist.

5.1 PERFORMANCE STANDARDS AND SUCCESS CRITERIA

Success criteria will include:

- No weeds rated as moderate or high invasivity by Cal-IPC, with the exception of Bermuda grass
- Absolute cover within the pond banks averaging 75% or greater
- Enhanced habitat supports wildlife use of the area

5.2 MONITORING METHODS

5.2.1 Immediately Following Initial Planting

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Permanent photographic stations will be installed to track the progress of the site over time. These photographic stations will be placed in a variety of locations so that all areas of the wetland enhancement will be tracked. The numbers of container plants by species will be verified.

5.2.2 Regular Monitoring Events

Monitoring will be conducted using quantitative and qualitative methods. Percent cover of native plant species as well as invasive weeds within the habitat enhancement area will be measured using one-meter square quadrats. A minimum of three quadrats each will be used for each zone of the habitat enhancement area: wetland zone, upland zone, and transitional zone. In addition to these measurements, the following data will be recorded:

- Loss of plants to transplant shock will be evaluated during the first quarterly monitoring event by tallying numbers of dead plants by species.
- Condition of container plants (qualitative: good, poor, dead) will be evaluated during the summer quarterly monitoring event to determine the number of replacements, and to note which species are apparently best adapted to the site.
- Observations of evidence of the site's ability to support wildlife species will be collected.
- Installation of any replacement plants will be verified.
- Qualitative evaluations of the plant conditions will be collected annually following the first rainy season after the plants have been in the ground for a full year. Recommendations for adjustments, if any, to the planting palette will be made based on performance and in consultation with the landscape contractor.
- Watering schedule modifications will be considered based on site conditions and in consultation with the landscape contractor and Applicant.
- Progress toward achievement of performance criteria will be evaluated, and recommendations will be provided as needed to support success of the habitat enhancement.

5.3 MONITORING SCHEDULE

5.3.1 Year 1

- Verify numbers, by species, of plants installed and work with landscape architect or landscape contractor to map actual installation. Photographs will be taken at each photographic station.
- Monitoring visits every 6 weeks for the first year to check on weed control, watering regime, and condition of plantings.
- Determine number of replacements (if any) likely to be needed. Make recommendations for species of replacements based on on-site performance.
- Verify planting of replacements (if any).

5.3.2 Years 2 through 5

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- Quarterly monitoring visits to evaluate weed populations, watering regime, and to provide adaptive management (qualitative evaluations).
- In addition to qualitative evaluations, quantitative data (percent cover) will be collected during the spring quarterly monitoring visit. Photographs will be taken at each photographic station.
- Verify installation of replacements (if any).
- Determine progress toward achievement of performance criteria.

The mitigation program shall be completed when the overall goals of this WHEMP, as stated in Section 3.2.4, above, have been achieved.

5.4 CONTINGENCY MEASURES

Adjustments to the final plant palette may be advisable following the first two years if it becomes apparent that some species are better adapted to the site conditions than others. Substitutions within categories will be allowed, e.g., a shrub for a shrub or a wetland perennial for a wetland perennial.

Contingency measures may be implemented if the overall performance of the mitigation plantings fails to achieve the quantitative performance criteria within five years. In the event that the performance criteria are not met five years after plant installation, the restoration biologist will consult with the Applicant and the landscape architect to determine the cause and to develop recommendations for further treatment.

Treatments may include installation of additional plants, increased supplemental watering, exchange of species within the same class (e.g., native shrub for native shrub). The recommendations for supplemental treatments shall be presented to the City of Carpinteria with a proposed schedule for implementation.

The restoration biologist shall inspect the mitigation area, and compare its condition with previous biological evaluations conducted prior to implementation of the proposed project. If, in the restoration biologist's opinion, the overall goals of habitat improvement have been met, then the project shall be considered a conditional success, and a final success with implementation of any necessary supplemental treatments.

6.0 REPORTING PROGRAM

6.1 MONITORING MEMORANDA

The qualified biologist (or an approved representative) shall prepare and provide a memorandum to the Responsible Party and the City of Carpinteria Community Development Department within one week following each visit. The memoranda shall include date, time, and weather conditions; a discussion of general site conditions; a list of all plants and wildlife encountered; and recommendations for maintenance as necessary to facilitate progress towards

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habitat enhancement success. Photos taken during monitoring visits shall be included with each memorandum, but only as necessary to assist in the recognition of problem plants or areas.

6.2 MAINTENANCE MEMORANDA

The landscape contractor shall prepare a brief memorandum following each maintenance event describing activities conducted in relation to the recommendations for maintenance as described above. The memoranda shall include the date and time and all activities conducted during the maintenance event, and submitted to the qualified biologist within one week following each visit. The memorandum may be composed in the form of an email.

6.3 ANNUAL REPORTS

Annual monitoring reports will be prepared by, or with oversight from, the restoration biologist. Annual monitoring reports shall document the results of each year's assessments and shall be submitted to the Applicant and the City of Carpinteria within three months of the annual milestone. Annual reports will include an evaluation of the progress of the habitat enhancement effort in relation to the success criteria discussed above. Annual reports will, at minimum, include the following:

- Location and directions to the restoration area
- Date planting was fully implemented, and dates of previous maintenance/monitoring events
- Monitoring methodology, schedule of work performed, and exotic plant control efforts
- Summary of remedial actions
- List of approved success criteria
- Table of results comparing monitoring visits against performance criteria for target dates
- Photographic record of the site during the annual monitoring visit
- Summary of field data acquired to determine compliance with success criteria
- Discussion of the results, an overview of the habitat enhancement effort, summary of significant events that may affect restoration success, and pertinent recommendations to meet success criteria

7.0 COMPLETION OF MITIGATION NOTIFICATION

7.1 NOTIFICATION OF COMPLETION

A final report will be submitted to the Applicant, summarizing mitigation success no later than two weeks of the completion of the habitat enhancement and monitoring process. The Applicant or the Applicant's agent shall notify the City of Carpinteria and the Coastal Commission, as applicable. If the report indicates that the habitat enhancement project has, in part, or in whole, been unsuccessful, based on the performance standards specified in the restoration plan, the applicant(s) shall submit within 90 days a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved success criteria.

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7.2 AGENCY CONFIRMATION

As the pond is subject to RWQCB jurisdiction, a representative from the RWQCB shall be invited to inspect the site when construction is completed and irrigation systems have been installed. The representative shall document compliance with water quality issues by letter to the applicant.

A final site inspection will be conducted with the Applicant, the City of Carpinteria, and any other parties deemed necessary to determine completion of habitat enhancement at the site.

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8.0 REFERENCES

City of Carpinteria. 2007. Green Heron Spring Condominium Project Final Mitigated Negative Declaration (FMND) prepared for the project site.

City of Carpinteria. 2009. Local Coastal Program Amendment MAJ-2-07 (Green Heron Spring/Ellinwood Parcel) for Public Hearing and Commission Action at the February 4-6, 2009 Commission Meeting in Huntington Beach

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Rincon Consultants, Inc. 2016. Tree Assessment and Protection Plan, Green Heron Spring Development Project. Carpinteria, Santa Barbara County, California. Prepared for Green Heron Spring, LLC.

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Appendix E

California Red Legged Frog Survey

Rincon Consultants, Inc.
180 North Ashwood Street
Ventura, California 93003

805 644 4455 OFFICE AND FAX

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www.rinconconsultants.com

July 24, 2017
Project No: 16-02960

Scott Dinovitz, Managing Member
Green Heron Spring, LLC
23622 Calabasas Road, Suite 220
Calabasas, CA, 93101
Via Nancy Johns' email: wildflowerdevelopment@yahoo.com

Subject: **Nighttime Eye-Shine Survey for the Green Heron Spring Condominium Project, City of Carpinteria, Santa Barbara County, California**

Dear Mr. Dinovitz,

Rincon Consultants, Inc. (Rincon) has prepared the following letter to document the methodology and summary of findings for a nighttime eye-shine survey of the Green Heron Spring Condominium Project (project), Carpinteria, Santa Barbara County, California. The purpose of the survey was to inspect a man-made agricultural pond near the southern boundary of the project site for amphibians, specifically the potential presence of the federal-listed California red-legged frog (*Rana draytonii*; CRLF). Amphibians are typically more active at night, and as a result eye-shine surveys are a standard method used to detect presence. This survey incorporates methods of the U.S. Fish and Wildlife Service (USFWS) approved protocol to detect CRLF; however, the full suite of surveys outlined in the USFWS *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005) (protocol) were not completed. This survey was completed as a pre-activity survey to document existing conditions and the results of this survey may be used to assist in determining if amphibians are utilizing the pond currently, as well as identify which species are present.

The pond within the project site has been previously assessed for the potential to support multiple special-status species. Previous assessments include the following: USFWS protocol level CRLF surveys conducted by Carpinteria City Biologist Vince Semonsen (2005), a sensitive amphibian and reptile evaluation prepared by Wildlife Biologist Paul W. Collins (June 30, 2005), and a reconnaissance survey for fairy shrimp habitat prepared by Senior Biologist Jeffrey Trow of Foothill Associates (January 9, 2006). In addition, Rincon Senior Biologist Robin Murray conducted a reconnaissance-level field survey on December 19, 2016, to assess the habitat suitability for potentially occurring special-status species. According to the previous survey results, the pond does not support, and is not expected to support, any rare or special- status species. This survey was completed as part of a reconnaissance-level survey to detect presence of amphibians within the project site. This survey is not part of a USFWS protocol survey effort.

Project Location

The Green Heron Spring Condominium Project (project) is located at 1300 and 1326 Cravens Lane in the City of Carpinteria, Santa Barbara County, California (Figure 1). The project site is bordered to the west by Cravens Lane and residential housing, to the south by an unnamed road and residential housing, to the east by a County of Santa Barbara Flood Control District channel and access road, and plant nursery, and to the north by a County of Santa Barbara Flood Control District siltation basin (Figure 2). The project site is zoned as Planned Unit Development District (PUD) Residential and was historically used as an avocado orchard. The project site is depicted in Section 19, Township 4 North, and Range 25 West of the U.S. Geological Survey (USGS) Carpinteria, California 7.5-minute topographic quadrangle.

Figure 1 Project Location



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Project Location

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Figure 2 Site Map



Methodology

The survey effort included a desktop review followed by a nighttime field survey completed by Rincon Senior Biologist Thea Benson. The desktop review included a query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) for sighting records within the vicinity, a review of previous biological survey reports conducted within the area, and a review of aerial imagery.

The eye-shine survey was completed was completed on July 13, 2017, utilizing the methodologies outlined in the USFWS-approved protocol. The complete suite of surveys outlined in USFWS protocol, which are required to definitively determine presence or absence of CRLF, were not completed. This survey was completed during the typical non-breeding season for CRLF (between July 1 and September 30). Weather conditions during the survey effort were within the USFWS Revised Guidance methodologies, with no wind, no precipitation, good visibility, and fair temperatures (approximately 65 degrees Fahrenheit). Eye-shine surveys utilized a Maglite ML300L LED 3-Cell (625 Lumens) flashlight and Nikon 8x42 Monarch S binoculars.

The survey included inspection of the small pond located on the property, for a total of two surveys completed in the same night. The biologist walked around the perimeter of the pond in areas that were easily accessible. The total survey area was scanned with a Maglite and binoculars to detect eye-shine. During this visit, the pond was inspected to assess water conditions and presence of any signs of amphibians (i.e., larvae, metamorphs, egg masses, and adult frogs). No dip-net surveys or other aquatic surveys were incorporated in this survey effort.

The first survey of the pond was completed between 2000 and 2130 during sunset. The pond and the upland perimeter of the pond were inspected for any amphibians that may occur in the upland areas. Following this site visit and immediately after sunset, two nearby areas holding water (Figure 2) outside the project site that were identified during the aerial imagery review were also visited and inspected for eye-shine from a distance due to accessibility (i.e., the ponds were located behind locked gates). A second visit to the pond was completed between 2130 and 2230 during nighttime hours. This survey again included walking around the perimeter of the pond utilizing a Maglight flashlight to inspect the project site for eye-shine.

Summary of Findings

According to the previous survey results, the pond does not support, and is not expected to support, any rare or special- status species. In addition, no CNDDB occurrences of CRLF have been documented within the project site, and no CRLF have been previously identified within the project site. During this field visit on July 13, 2017, no CRLF were observed in the project site.

The slopes of the pond are steep (2:1 slope in some areas) and cattails (*Typha* sp.) fill the bottom of the pond with nut sedge (*Cyperus eragrostis*) at the perimeter of the pond, and a thick top layer of duckweed (*Lemna* sp.) was observed within the limited amount of open water. During the survey, the pond contained water, approximately six inches deep (Figure 3). The water was dark and muddy, with very low visibility.

No amphibians were observed in the pond or along the pond margin during the first sunset visit conducted at 2000 or during the later survey completed at 2130. No signs of amphibians (i.e., egg masses, tadpoles, or adults) were identified within the survey area during the survey effort. Treefrogs were heard in the adjacent property to the north while conducting the adjacent area survey at sunset around the project site pond. Treefrogs were also heard in the surface water observed during the brief

visit to the adjacent properties that were identified during the aerial review. Previous surveys in 2005, 2006, or 2016 documented treefrogs (*Pseudacris* sp.) within the pond; however, no treefrogs were observed in the pond during this survey effort on July 13, 2017.

Striped skunk (*Memphitis memphitis*) was observed within the project site walking around the pond perimeter during the survey effort. Small mammals, such as skunks, may predate on amphibians. Previous surveys in 2005 and 2006, that incorporated dip-net surveys of the pond documented the presence of mosquitofish (*Gambusia affinis*) and koi carp (*Cyprinus carpio*), which are also known to feed on amphibians and their larvae.

Figure 3 Pond Photograph



Discussion

The nighttime eye-shine survey did not detect any sign of amphibians within the project site. Although treefrogs have been previously documented in the pond, the current conditions of the site may be less suitable to amphibians. The pond may not currently contain suitable habitat conditions to support amphibians. The large amount of vegetation and duckweed in the pond could be depriving the water in the pond of oxygen and reducing water quality. Although no dip-net surveys were completed during this survey effort, mosquitofish and koi carp may be present in the pond, based on previous surveys completed of the pond. These species may be considered predators of amphibians as they feed on amphibian eggs and larvae. Additionally, striped skunk was observed walking around the pond margin, which may also feed on small amphibians. Predation may be a factor in the why no amphibians were identified during the field survey on July 13, 2017. Based on the results of the eye-shine survey and the existing conditions of the pond, CRLF is not expected to occur within the pond or adjacent habitat, and no additional surveys or mitigation are recommended at this time. However, additional surveys may be warranted in the event project activities are initiated during the typical CRLF breeding season (between January 1 and June 30), or if conditions on the site change prior to project activities.

Thank you for the opportunity to assist you on this project. If you have any questions regarding our analysis or would like to discuss the findings, please call (805) 644-4455.

Sincerely,
Rincon Consultants, Inc.

Thea Benson
Senior Biologist/Project Manager

Attachments: Completed Field Survey Form, CRLF Resume for Thea Benson

Field Survey Form

Date: July 13, 2017

Project Number: 16-02960

Project Name: Green Heron Springs CRLF eye shine

Location: Carpinteria, CA 1300 Cravens Lane

Observers: Thea Benson

TIME	
Start:	8:10 9:30 pm
End:	8:45 ~~9:30~~ 10:30 pm
Total Time:	

Temperature: Start: 65°F End: "

% Cloud Cover: Start: FOGGY End: "

Wind: Start: 0 End: 0

Notes:

- FOG overhead, however clear conditions at ground level - no visual impairment
-
- Conducted site visit at 8:10 pm to see site at dusk and visually inspect pond and pond margin for active frogs.
  - → NO frogs observed or heard.
  - → Striped skunk walking around pond margin
- Drove near adjacent agricultural pond, and heard many tree frogs. This location was not visually inspected (behind locked gate). - NE of project site
- Drainage/ag pond along the main street, to the south of project site was then visually inspected, eyeshined, and observed with binoculars. Many tree frogs were located here.

Notes:

- returned back to project site when fully dark ~9:30 pm. The site was walked around the pond margin with flashlight and binoculars. NO FROGS heard or observed. Tree frogs were ~~seen~~ heard in adjacent pond to NE, but NONE @ this project location.

NO bullfrogs heard or observed @ any location.

Additional Notes:

CRLF Detected? Yes___ No X

If Yes, Number of Individuals Detected:_____

Bullfrogs Detected? Yes___ No X

If Yes, Number of Individuals Detected:_____

Thea Benson

SENIOR BIOLOGIST / PROJECT MANAGER

Thea Benson is a Senior Biologist/Project Manager with Rincon Consultants. Thea has more than 15 years of biological field experience working with sensitive species, including willow flycatcher, burrowing owl, spotted owl, northern goshawk, Pacific fisher, American martin, yellow-billed cuckoo, California red-legged frog, California tiger salamander, and least Bell's vireo. Her experience with wildlife spans from biological resource surveys, habitat restoration projects, trapping and banding/tagging wildlife, aquatic dip net and seining, radio telemetry, track plate and camera station monitoring, blood sampling, field anesthesia, necropsies, as well as insect collection and identification.

EDUCATION

B.Sc., Wildlife Management and Conservation
Humboldt State University, 2004

AFFILIATIONS

Audubon's Society California, Kern River Preserve. Member

The Wildlife Society, Western Section. Member

The Wildlife Society, Central Coast Chapter. Member

The Wildlife Society, San Joaquin Valley Chapter. Member

EXPERIENCE

Rincon Consultants, Inc. , Senior Biologist (November 2016–present)

Benson Biological, Sole Proprietor (2015-2016)

Padre Associates, Inc., Senior Biologist (2007-2015)

California Conservation Corps – Los Padres, Project Resource Specialist (2005-2006)

Endangered Species Recovery Program, Assistant Biologist (2004-2005)

U.S. Forest Service, Biological Research Technician (1997-2005, seasonal)

South Sierra Research Station, Biological Research Technician (1995, 1996, 2001, seasonal)

PERMITS

- California Department of Fish and Wildlife Resident Sport Fishing License (for fish and amphibian handling)
- US Fish and Wildlife Service Recovery Permit 10(A)(1)(a) (Presence/Absence Surveys for Willow Flycatcher)
- California Department of Fish and Wildlife Scientific Collecting Permit

AQUATIC AND AMPHIBIAN TRAINING

- Biology and Conservation of California Tiger Salamander Workshop, Alameda County Resource Conservation District, Livermore, California, 2015
- Introduction to the California and Oregon Large Branchiopods, Christopher Rogers, San Luis Obispo, California, 2010
- California Red-Legged Frog Natural History, Identification, and Handling Training Workshop, Jeff Alverez Consulting, San Luis Obispo, California, 2010
- California Red-Legged Frog Biology and Conservation Workshop, Alameda County Resource Conservation District, Livermore, California, 2009
- Jurisdictional Delineation of Waters of the U.S., Including Wetlands on the California Coast, Elkhorn Slough Coastal Training Program, Moss Landing, California, 2008

PROJECT BIOLOGICAL OPINIONS

The following provides a list of US Fish and Wildlife Service (USFWS) Biological Opinions (BO) in which Ms. Benson has been federally approved to survey, handle, and relocate CRLF.

Guadalupe Dunes Restoration Project Biological Opinion (BO # 1-8-03-F/C)
Ms. Benson has the necessary training and expertise to conduct monitoring activities described in this biological opinion, and is hereby authorized to independently survey for CRLF. Ms. Benson may capture, handle, and relocate CRLF independently under the terms and conditions of the Guadalupe Oil Field Remediation and Restoration Project Biological and Conference Opinion.

Jonata Park Road Bridges over Zaca Creek, Santa Barbara County, California (BO# 1-8-01-F-53)
Ms. Benson is authorized to monitor activities, independently survey for CRLF, and capture and relocate frogs within the Jonata Park Road Bridge Replacement Project.

San Simeon Creek Road Bridges Replacement Project Biological Opinion (BO# 1-8-06-F-39)
Ms. Benson is authorized to monitor activities, independently survey for CRLF, and capture and relocate frogs within the San Simeon Creek Road Bridge Replacement Project, located in San Simeon, San Luis Obispo County, California.

Casmalia Mineral Fee Soil excavation Project Biological Opinion (BO# 8-8-10-F-17)
Ms. Benson is authorized to monitor activities, independently survey for CRLF, and capture and relocate frogs within the Casmalia Mineral Fee Project located in Casmalia, Santa Barbara, California

Biological Opinion for Casmalia Mineral Fee Soil Excavation Project, Santa Barbara County, California (BO# 8-8-14-F-7)
Ms. Benson is authorized to monitor activities, independently survey for CRLF, and capture and relocate frogs within the Casmalia Mineral Fee Project located in Casmalia, Santa Barbara, California

CALIFORNIA RED-LEGGED FROG PROJECTS

The following provides representative project experience relevant to CRLF surveying, monitoring, capturing, relocating, and reporting. It should be noted that all project experience described below has been conducted to USFWS protocol and under guidance by the USFWS, as necessary.

USFWS protocol CRLF surveys, Ventura County, CA 2016
Complete USFWS protocol surveys for CRLF were completed in Rose Valley area, near Ojai. No CRLF were identified during surveys. Survey report was submitted and approved by the USFWS.

Eye-shine surveys, pre-activity surveys, relocation activities, construction monitoring of Casmalia Bridge Relocation Project, Casmalia, Santa Barbara County, California. 2014
Relocations of adult frogs during the dewatering of a tributary to Shuman Creek near the town of Casmalia, Santa Barbara County, Ca. Ms. Benson was authorized to survey, handle, and relocate CRLF under BO# 8-8-10-F-17. Monitoring, pre-activity surveys, and eye-shine surveys were also completed as part of this project. CRLF were captured and relocated.

EYE-SHINE SURVEY AT AIR PARK DRIVE, SAN LUIS OBISPO COUNTY, CA. 2015
A pre-activity eye-shine survey was completed per protocol, prior to planned project activities. One adult was identified during the first survey in the lagoon off air park drive in San Luis Obispo County, CRLF report submitted to USFWS.

CALIFORNIA RED-LEGGED FROG PROJECTS, CONT'D

Protocol-level surveys at San Luis Obispo Remediation Project, San Luis Obispo County, CA. 2014
Protocol-level surveys were completed to the fullest extent. No CRLF identified. All surveys per protocol completed and results submitted to the USFWS.

Eye-shine surveys, pre-activity surveys, relocation activities, construction monitoring of Casmalia Bridge Relocation Project, Casmalia, Santa Barbara County, California. 2013
Relocations of adult frogs during the dewatering of a tributary to Shuman Creek near the town of Casmalia, Santa Barbara County, Ca. Ms. Benson was authorized to survey, handle, and relocate CRLF under BO# 8-8-14-F-7. Monitoring, pre-activity surveys, and eye-shine surveys were also completed as part of this project. No CRLF were identified or collected.

Protocol-level CRLF surveys, San Luis Obispo Tank Farm Remediation Project. 2014/2015
Ms. Benson completed protocol-level surveys of all potential habitats within the former San Luis Obispo Tank Farm Project Site and along the San Luis Obispo Creek. No CRLF were identified. All results were submitted to the USFWS.

Protocol-level surveys, pre-activity surveys, relocation activities, Guadalupe Dunes Restoration Project, Guadalupe, Santa Barbara County, CA. 2010-2014
Ms. Benson assists in quarterly eye-shine surveys throughout all available habitats within the Chevron Guadalupe Dunes Restoration Project Site. Eye-shine surveys always result in presence of CRLF. Pre-activity surveys are conducted regularly at the Project Site by Ms. Benson and relocation of CRLF is common. Activities authorized under BO# 1-8-03-F/C-57.

Protocol-level surveys near Del Mar Park in Morro Bay, San Luis Obispo County, CA. 2014
Protocol-level surveys were completed. Eye-shine surveys completed during second visit during breeding season observed one adult CRLF. Surveys were stopped. Results submitted to the USFWS.

Pre-activity eye-shine surveys, identification, capture and relocation activities, daily pre-activity surveys, San Simeon Bridge Replacement Project, San Simeon, San Luis Obispo County, CA. 2011
Ms. Benson assisted in pre-activity eye-shine surveys prior to project activities, including stream diversion and dewatering, along San Simeon Creek. CRLFs were identified during eye-shine activities and identified during dewatering of the creek. Sub-adult CRLFs were capture and relocated. Daily pre-activity surveys were also completed by Ms. Benson to clear the work area. All CRLFs were documented and reported to the USFWS under BO# 1-8-06-F-39.

Pre-Activity Surveys, Estero Source Removal Project, Morro Bay, Ca. 2010
Pre-activity surveys and eye-shine surveys and project monitoring of all activities. Surveys focused on Toro Creek immediately adjacent to project activities and isolated wetland areas. Sub-adult CRLFs identified and not relocated.

Protocol-level surveys, Battles Gas Plant Remediation Project, Santa Maria, Santa Barbara County, CA 2010
Ms. Benson completed protocol-level surveys until one adult CRLF was observed. All results were submitted to the USFWS.

Biological Inventory Survey, Point Arguello Pipeline Decommissioning Project, Hollister Ranch, CA. 2010
Ms. Benson completed a biological inventory along the Chevron Decommissioned Point Arguello Pipeline. A sub-adult CRLF was observed in Alegria Creek near the outlet into the Pacific Ocean. All results submitted to the USFWS.

Protocol-level CRLF survey, Wastewater Facility Expansion Project, Nipomo, San Luis Obispo County, Ca. 2009/2010
Ms. Benson completed a protocol-level survey of all potential habitats within the Wastewater Treatment Expansion Project areas for the Nipomo Community Services District. This survey consisted of day and night surveys, documenting all wildlife and mapping all potential CRLF habitat. No CRLFs were observed; however, several western spadefoot were identified. All results were submitted to the USFWS.

CALIFORNIA RED-LEGGED FROG PROJECTS, CONT'D

Protocol-level CRLF surveys, San Luis Obispo Tank Farm Remediation Project, San Luis Obispo. 2008
Ms. Benson completed protocol-level surveys of all potential habitats within the former San Luis Obispo Tank Farm Project Site and along the San Luis Obispo Creek. No CRLF were identified. All results were submitted to the USFWS.

CRLF Habitat Assessment, Negranti Rock Quarry Expansion Project, Cayucos, San Luis Obispo County, CA. 2008
Ms. Benson completed a habitat assessment of the Negranti Rock Quarry Expansion Project in Cayucos, Ca. This assessment included a day and night survey of the project area documenting all wildlife and mapping all potential CRLF habitat. Results were submitted to the USFWS.

Pre-activity CRLF survey, Ventura River Bank Protection Upgrade Project, Casitas Springs, Ventura County, Ca. 2007
Ms. Benson completed a day and night survey for CRLF and other sensitive reptiles and amphibians immediately prior to project activities for a Bank Protection Upgrade Project for the Ventura County Watershed Protection District. No CRLFs were observed. Results were submitted to the USFWS.

Pre-activity CRLF survey, Matilija Creek Vegetation Removal Project, Ventura County, Ca. 2007
Ms. Benson completed a day and night survey for CRLF and other sensitive reptiles and amphibians immediately prior to vegetation removal activities along Matilija Creek for Ventura County Watershed Protection District – Matilija Creek Hydrography Station Project. No CRLFs were observed. Results were submitted to the USFWS.

Appendix F

Historic Resources Report and Phase 1 Archaeological Resources Survey

HISTORIC RESOURCES REPORT
1300 CRAVENS LANE
CARPINTERIA, CA

13 October 2005

Prepared for:

Scott Ellinwood & Associates
1300 Cravens Lane, Suite 100
Carpinteria, CA 93013

Prepared by:

SAN BUENAVENTURA RESEARCH ASSOCIATES
HISTORIC · RESOURCES · CONSULTING
1328 WOODLAND DRIVE ■ SANTA PAULA CA 93060

1. Introduction

This report was prepared for the purpose of assisting the City of Carpinteria in their compliance with the California Environmental Quality Act (CEQA) as it relates to historic resources, in connection with the construction of a 34 unit condominium townhouse project on a 3.87 acre parcel located at 1300 Cravens Lane in Carpinteria. The property presently contains two residences, a barn, water tower and an outbuilding. One residence and the water tower are proposed to be retained and the second residence, barn and outbuilding demolished in connection with the proposed project. [Figure 1]

This report assesses the historical and architectural significance of potentially significant historic properties in accordance with the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR) Criteria for Evaluation, and City of Carpinteria criteria. A determination will be made as to whether adverse environmental impacts on historic resources, as defined by CEQA and the CEQA Guidelines, may occur as a consequence of the proposed project, and the recommend the adoption of mitigation measures, as appropriate.

This report was prepared by San Buenaventura Research Associates of Santa Paula, California, Judy Triem, Historian; and Mitch Stone, Preservation Planner, for Scott Ellinwood & Associates of Carpinteria, and is based on a field investigation and research conducted in September and October, 2005. The conclusions contained herein represent the professional opinions of San Buenaventura Research Associates, and are based on the factual data available at the time of its preparation, the application of the appropriate local, state and federal regulations, and best professional practices.

2. Administrative Setting

The California Environmental Quality Act (CEQA) requires evaluation of project impacts on historic resources, including properties "listed in, or determined eligible for listing in, the California Register of Historical Resources [or] included in a local register of historical resources." A resource is eligible for listing on the California Register of Historical Resources if it meets any of the criteria for listing, which are:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

By definition, the California Register of Historical Resources also includes all "properties formally determined eligible for, or listed in, the National Register of Historic Places," and certain specified State Historical Landmarks. The majority of "formal determinations" of NRHP eligibility occur when properties are evaluated by the State Office of Historic Preservation in connection with federal environmental review procedures (Section 106 of the National Historic Preservation Act of 1966). Formal determinations of eligibility also occur when properties are nominated to the NRHP, but are not listed due to owner objection.

The criteria for determining eligibility for listing on the National Register of Historic Places (NRHP) have been developed by the National Park Service. Properties may qualify for NRHP listing if they:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

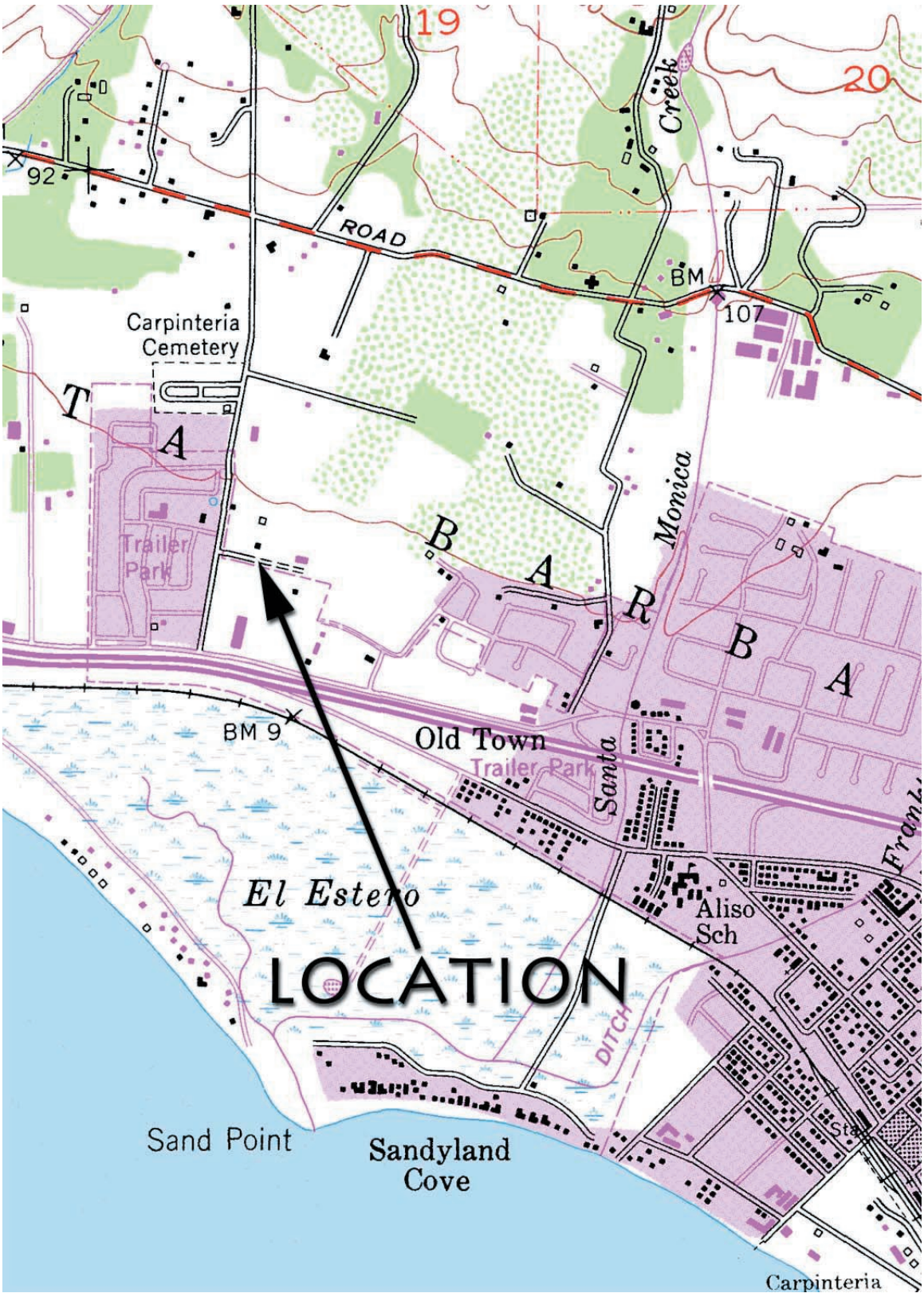

Figure 1. SITE LOCATION
Source: USGS 7.5' Quadrangle, Carpinteria, 1952 revised 1988.

B. are associated with the lives of persons significant in our past; or
C. embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. have yielded, or may be likely to yield, information important in prehistory or history.

According to the National Register of Historic Places guidelines, the "essential physical features" of a property must be present for it to convey its significance. Further, in order to qualify for the NRHP, a resource must retain its integrity, or "the ability of a property to convey its significance."

The seven aspects of integrity are: Location (the place where the historic property was constructed or the place where the historic event occurred); Design (the combination of elements that create the form, plan, space, structure, and style of a property); Setting (the physical environment of a historic property); Materials (the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property); Workmanship (the physical evidence of the crafts of a particular culture or people during any given period of history or prehistory); Feeling (a property's expression of the aesthetic or historic sense of a particular period of time), and; Association (the direct link between an important historic event or person and a historic property).

The relevant aspects of integrity depend upon the National Register criteria applied to a property. For example, a property nominated under Criterion A (events), would be likely to convey its significance primarily through integrity of location, setting and association. A property nominated solely under Criterion C (design) would usually rely primarily upon integrity of design, materials and workmanship. The California Register procedures include similar language with regard to integrity.

The minimum age criterion for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) is 50 years. Properties less than 50 years old may be eligible for listing on the NRHP if they can be regarded as "exceptional," as defined by the NRHP procedures, or in terms of the CRHR, "if it can be demonstrated that sufficient time has passed to understand its historical importance" (Chapter 11, Title 14, §4842(d)(2))

Historic resources as defined by CEQA also includes properties listed in "local registers" of historic properties. A "local register of historic resources" is broadly defined in §5020.1 (k) of the Public Resources Code, as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution." Local registers of historic properties come essentially in two forms: (1) surveys of historic resources conducted by a local agency in accordance with Office of Historic Preservation procedures and standards, adopted by the local agency and maintained as current, and (2) landmarks designated under local ordinances or resolutions. These properties are "presumed to be historically or culturally significant... unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant." (Public Resources Code §§ 5024.1, 21804.1, 15064.5)

Carpinteria City Code

12.20.020 Temporary designation of landmarks by committee--Public hearing and confirmation dates.

The Santa Barbara County advisory landmark committee, heretofore established by order of the board of supervisors of Santa Barbara County, is authorized and directed to receive and act upon applications to investigate

and designate places, sites, buildings, structures, works of art and other objects within the city as having historic, esthetic or other special character or interest and being worthy of consideration for protection, enhancement or perpetuation as such. Such designation shall remain and be in effect for a period of ninety days only and thereafter shall be of no force and effect, unless prior to the expiration of such period of ninety days, the city council shall have set a date for public hearing, advertised the same as provided in Section 6061 of the California Government Code at least ten days prior to the date set forth such public hearing, and either at such public hearing or after such public hearing, and within the ninety-day period shall have confirmed the action of the Santa Barbara County advisory landmark committee.

12.20.030 Designation of landmarks--Criteria for determination.

In designating any place, site, building, structure, work of art or other object as being of historical, esthetic of other special character or interest and worthy of protection under this chapter, the Santa Barbara County advisory landmark committee and the city council shall be subject to the following express standards:

A. The landmark designated shall have historical, esthetic or special character or interest for the general public and not be limited in interest to a special group of persons.
B. The designation of such landmark shall not require the expenditure of an unreasonable amount of money to carry out the purposes of this chapter.
C. The designation of such landmark shall not infringe upon the right of a private owner thereof to make any and all reasonable uses of such landmark which are not in conflict with the purposes of this chapter.

Santa Barbara County Landmark Criteria

The criteria for evaluating the significance of these buildings are found in the "County of Santa Barbara Resource Management Department Cultural Resource Guidelines Historic Resources Element" (rev. 1993). To be considered significant a resource must possess integrity of location, design, workmanship, materials, and/or setting, and be at least 50 years old or if not, be unique and in possession of extraordinary elements of integrity, design, construction or association.

In addition the resource must demonstrate one or more of the following:

1. Is associated with an event, movement, organization, or person that/who has made an important contribution to the community, state or nation;
2. Was designed or built by an architect, engineer, builder, artist, or other designer who has made an important contribution to the community, state, or nation;
3. Is associated with a particular architectural style or building important to the community, state, or nation;
4. Embodies elements demonstrating (a) outstanding attention to design, detail, or craftsmanship, or (b) outstanding use of a particular structural material, surface material, or method of construction or technology;
5. Is associated with a traditional way of life important to an ethnic, national, racial, or social group, or to the community at large;
6. Illustrates broad patterns of cultural, social, political, economic, or industrial history;
7. Is a feature or a cluster of features which conveys a sense of time and place that is important to the community, state, or nation;

8. Is able to yield information important to the community or is relevant to scholarly studies in the humanities and social sciences.

To evaluate a resource, each of the above elements is assessed and given a significance ranking, from 1 through 3 and E, corresponding to the terms low (1), good (2), high (3), and exceptional (E). Each element is ranked separately. The overall level or threshold of significance is determined by the average of its individual rankings.

The resultant level of significance is used to determine what treatment a resource should be given within the planning process. An exceptional rating in any element indicates that the resource should receive special consideration, usually preservation, in the planning process. A good or high rating indicates that the resource is significant, and should be recognized, but not necessarily through preservation. A low rating indicates that the resource is not considered significant for planning purposes.

3. Impact Thresholds and Mitigation

According to PRC §21084.1, "a project that may cause a substantial change in the significance of an historical resource is a project that may have a significant effect on the environment." The Public Resources Code broadly defines a threshold for determining if the impacts of a project on an historic property will be significant and adverse. By definition, a substantial adverse change means, "demolition, destruction, relocation, or alterations," such that the significance of an historical resource would be impaired (PRC §5020.1(6)). For purposes of NRHP eligibility, reductions in a resource's integrity (the ability of the property to convey its significance) should be regarded as potentially adverse impacts.

Further, according to the CEQA Guidelines, "an historical resource is materially impaired when a project... [d]emolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources [or] that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant."

The lead agency is responsible for the identification of "potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource." The specified methodology for determining if impacts are mitigated to less than significant levels are the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995), publications of the National Park Service. (PRC §15064.5(b)(3-4))

4. Historical Setting

General Historical Context

Carpinteria, the name given the area by Spanish soldiers during the Portola Expedition of 1769, means in Spanish "carpenter shop," and the area was so named for the local Chumash, who were building canoes at the time of the expedition's arrival. During the Mission era (1789 to 1832) the area became part of the Pueblo

lands of Santa Barbara and were associated with the Santa Barbara Mission. The missionaries raised crops in the Carpinteria Valley.

After statehood in 1850, Americans and Europeans began to emigrate to the Carpinteria Valley. Among the first to begin experimentation with fruit-raising on a large scale were Russel Heath and Albert Packard, both of whom settled in the area in 1858. By 1860, Heath had planted 10,000 grape vines and an almond nursery on his ranch. By 1869, 1,214 acres in the Carpinteria Valley were under cultivation. Farms ranged from twelve to 150 acres of fruit and walnuts trees with twenty-two of the thirty principal land owners owning fifty acres or less.

During the 1870s and 1880s many new immigrants settled in the Carpinteria area after hearing of its fertile soil and mild climate. In addition to the fruit and nut crops, the new crop of lima beans was added. Prior to the arrival of the Southern Pacific Railroad in 1887, farmers shipped their products from the Carpinteria wharf, owned by F. and J.M. Smith. Adjacent to the 800 foot wharf were several warehouses for storage. About 3,000 tons of beans, corn, nuts and fruits were shipped annually. By 1880 lima beans had become a choice cash crop among the Carpinteria growers, accounting for half of the 3,000 tons shipped.

Carpinteria remained a small village with a post office, established in 1868, a general store and blacksmith shop. The First Baptist Church was built in 1873. With the arrival of the Southern Pacific in 1887, a new town site was laid out adjacent to the railroad, about one mile east of the older village. A new hotel and several warehouses were eventually built adjacent to the railroad tracks. In 1910, lima beans and English walnuts were the principal agricultural products of the Carpinteria Valley, followed closely by lemons.

Site-Specific Context

James Henry Morris was born 26 September 1845 in Fort Niagara, New York. In 1870 he married Florence J. Williams, who was born in Carlisle, Pennsylvania in 1848. By 1871 they were living in Litchfield, Meeker County, Minnesota, where the first of their seven children, Martha (Mattie) Florence Morris, was born in 1871. At least five more children were born in Minnesota: Louise Jane (1875), James Caldwell (1880) Richard Woods (1883), Charles Thompson (1883) and Harbon W. (1885). The couple had one additional child, name not presently known. Charles, and possibly the unnamed child, died at an early age.

The Morris family apparently moved from Minnesota to California during or shortly before 1899, with four of their children, the adult daughters Mattie and Louise, and the teenaged sons Richard and Harbon. They purchased a 6.896 acre parcel on Cravens Lane from William and Jessie B. Alexander on November 16, 1899. The deed records Florence Morris as the buyer. The parcel, which appears to have been subdivided by the meets-and-bounds method at the time of purchase, was a portion of a larger parcel of roughly 33 acres previously owned by Martin Mithran.

It is unknown if the parcel was vacant at the time of purchase, but when the Federal Census was conducted in June 1900, it appears the family was living on the property, suggesting that a house had been constructed by that time. The USGS survey of 1901 indicates a building on the property located near what is now called Cravens Lane. No building currently exists at this location.

Cravens Lane was not a public road at the time the Morris family purchased the property and apparently did not become a public right-of-way for at least ten years thereafter. The deed for the property included an access easement across the property to the east, which was to be relinquished when the parcel obtained direct

access to a public road. It is unknown when this occurred. The first definitive reference to Cravens Lane as a public street was found on a 1935 map of the city.

After their relocation to California, Martha Morris became a schoolteacher at the Casitas School in Carpinteria. She married Edward Cole Durfee in 1907. They apparently had no children. She died locally in 1958. Louise Jane Morris, also a schoolteacher, married George Dickson Montfort in Carpinteria in 1902. The couple evidently relocated to Bellingham, Washington shortly thereafter.

James Caldwell Morris apparently moved to Seattle, Washington before the family relocated to California, where he married Mabel Wood Worth in 1920. He died in Oregon in 1957.

Richard Woods Morris married Ida Parker in Pasadena in 1905. They had two children, John Parker Morris (1906) and Robert James Morris (1909). He remarried in 1914, apparently after the death of his first wife, to Mary Smith Cheely, and after her death, for a third time in 1956, to Esther Margaret Donovan. He worked in Carpinteria as a blacksmith and constable. Richard Morris died in Carpinteria in 1966.

Harbon Morris married Elizabeth Cornilia Ogan, a piano teacher, in 1908. They had two daughters, Marion (1912) and Frances (unknown). Harbon Morris eventually took over the family lemon ranch on Cravens Lane, probably after the death of his mother in March, 1923. His father, James Henry Morris, died in December, 1906. Marion Morris married Curtis Linkey and relocated to northern California. She died in San Mateo in 1978. Frances Morris married Edgar William Morris, Jr., a building contractor.

The existing residence and outbuildings on the property are thought to have been constructed circa 1904. Although this date could not be verified by documentary evidence, it is plausible given the data found in the 1901 USGS survey and the architectural style of the residence. It also seems unlikely that the residence would have been constructed after the death of James Morris in 1906, particularly as it is probable that Florence Morris continued to live in the family home until her death in 1923. After 1908, Harbon Morris, along with his wife and family, is said to have lived on an adjacent property. He moved to the family residence after the death of his mother, where he lived until his death in 1949. After the death of Harbon Morris, the property was split into two parcels. At some point thereafter, probably circa 1952-53, the parcel including the residence and outbuildings was sold to the Fred Risdon family. By that time, the property now consisted of 3.87 acres. Elizabeth Morris died in Santa Barbara in 1970.

The small residence located near the northwestern corner of the property, near Cravens Lane, was originally constructed circa 1905 as an employee's residence on the Frank Stewart ranch, located on the west side of Cravens Lane. The building was relocated to the corner of Cramer Road and Via Real by Caltrans during the construction of State Route 101. The building was purchased by Fred Risdon in 1953 and moved a second time to its current location.

5. Potential Historic Resources

Main Residence (1300 Cravens Lane)

The main residence on the property is one and two stories in height and features a complex plan and a combination of hip and shed roofs with moderately deep eaves. The originally open eaves are now covered by a verge board. The building is clad in wood shingles. Windows are predominantly wood casements flanked by decorative shutters. The two story western elevation features an offset French entry door flanked by multi-paned sidelights set above a low stoop. The eastern elevation consists of a central two-story mass flanked by

one story wings to the east and west. The residence was built circa 1904. The eastern wing was added during the 1970s and the western wing, including the kitchen, substantially altered during the same time period. The window shutters were probably added during the 1950s. The main entry to the residence, which was originally oriented towards the east, has been covered by the added eastern wing. [Photos 1, 2]

Overall, the original architectural design of the house is Shingle Style, as it was processed through the American Arts and Crafts movement. This style is characterized by boxy volumes, shingle cladding and informal plans. Building surfaces of Shingle style buildings were also often embellished with neoclassical architectural references. In California, particularly in the San Francisco area after 1900, the style transitioned into a distinct regional form associated with the styles which are often grouped together as the First Bay Tradition. This particular building appears to be drawn generally from these architectural influences as they were present during the period of its construction, although in a modest way which has subsequently been reduced due to alterations.

A small, rectangular one story wood frame accessory building is located to the north of the main residence. It was originally sided in board and batten, but is presently clad in shingles. To the north of the accessory building is a two story water tower. This structure originally featured open trusses supporting a wooden water tank on a platform above. The water tank has been removed and replaced with a solar collector array, and the trusses clad in wood siding. Both of these features were probably constructed circa 1904. [Photo 3]

Barn

Located near the northern property line, this gabled Western style barn features a rectangular plan, overhead track doors opening to the south and a large hayloft above. It is clad in wide plank siding with vertical battens. It appears to be unaltered, but is substantially overgrown and and in somewhat deteriorated condition. The barn was probably constructed circa 1904.

Second Residence (1326 Cravens Lane)

This small residence features a rectangular plan and a truncated pyramidal roof with shallow, open eaves. An inset porch is located at the southwestern corner of the building. The windows are an assortment of wood casement and aluminum sliders. The residence is currently clad in shingle siding but was originally another material, probably wood lap. Based on visual evidence, this building appears to have been constructed circa 1905. It was originally located on the west side of Cravens Lane, moved elsewhere from that property at an unknown date, and subsequently moved to its present location. This building is significantly altered. [Photo 5]

6. Eligibility of Historic Resources

National and California Registers: Significance, Eligibility and Integrity

This property is not associated with an event which has made a significant contribution to the history of Carpinteria (Criterion A/1) nor does it appear to be associated with a significant individual in the history of the community, state or nation (Criterion B/2).

This property does not embody the distinctive characteristics of a type, period or method of construction. It is a modest example of an architectural style commonly employed during the period 1900-15. It does not represent the work of a master, nor does it possess high artistic value (Criterion C/3.) The building was probably designed by a builder, not an architect.

Integrity Discussion

The integrity of **location** is intact for the main residence and outbuildings because they have not been moved. The integrity of location for the second residence is somewhat diminished because it was moved, although to a site nearby its original location. The integrity of **design** for the main residence is significantly diminished due to a number of additions and alterations made to the building within the last 30 years.

The **setting** is somewhat diminished due to the extensive new construction which has occurred within the immediate vicinity of the property during the last 20-30 years. To the extent that the buildings are altered, their integrity of **materials** and **workmanship** is also reduced. The integrity of **feeling** and **association** are only partially intact, as the property is no longer utilized for agriculture.

On a whole, this property appears to lack the integrity required to be eligible for listing on the NRHP or CRHR.

Conclusion

This property does not appear to be eligible for either the NRHP or CRHR.

Local Significance and Eligibility

The following is a discussion of the property as it relates to the criteria established by the County of Santa Barbara for evaluating potential County Landmarks.

Integrity Discussion

Location. Integrity of location is intact (the property has not been moved).

Design and materials. Integrity of design only partially intact.

Setting. The property's integrity of setting is somewhat diminished.

Workmanship. To the extent that the property's design integrity remains intact, the property's integrity of workmanship exists.

Integrity Ranking: 2 (good in at least one category)

Age Discussion

The residence was constructed circa 1904.

Ranking: 3 (100 years old or older)

Criterion 1. Association. Although it is generally associated with the development of the Carpinteria area, this property does not appear to be associated with this theme in any notably significant manner. The property owners, the Morris family, do not appear at this time to be individuals of historical significance.

Ranking: 1 (resource has a distant relationship to an event or individual)

Criterion 2. Designer.

Ranking: 1 (the designer is unknown)

Criterion 3 Architectural Style or Building Type. The residence is a modest example of a Shingle style residence.

Ranking: 2 (retains few but sufficient attributes associated with its style or type)

Criterion 4. Construction Materials.

Ranking: 1 (common method)

Criterion 5. Traditional Lifeways

Ranking: N/A

Criterion 6. Association with Broad Themes or Local, State, or National History. See Criteria 1 above.

Ranking: 1 (distant relationship)

Criterion 7. Conveys Important Sense of Time and Place.

Ranking: N/A

Criterion 8. Ability to Yield Important Information

Ranking: N/A

Summary

The property at 1300 Cravens Lane received the highest possible ranking score (E) in no categories, a (3) in one category, a (2) in two categories a (1) in four categories. The low ranking scores suggests that the property does not meet the criteria for landmark eligibility for the County of Santa Barbara.

7. Project Impacts

Because the subject property does not appear to qualify for listing on the NRHP, CRHR or local landmark listing, the proposed project does not represent an adverse impact on historic resources.

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USGS, 15' Santa Barbara quadrangle, 1901.

Photographs:

Historic photographs of 1300 Cravens Lane property, circa 1952-70, courtesy of Jack Risdon.



PHOTO 1. 1300 Cravens Lane, main residence, western elevation. (9 Sept 2005)



PHOTO 2. 1300 Cravens Lane, main residence, eastern elevation. (9 Sept 2005)



PHOTO 3. 1300 Cravens Lane, main residence, water tower and accessory building, viewed from north. (9 Sept 2005)



PHOTO 4. Barn, viewed from southwest. (9 Sept 2005).



PHOTO 5. 1326 Cravens Lane, southern and western elevations. (9 Sept 2005).



PHOTO 6. Main residence, viewed from southwest (circa 1952, courtesy Jack Risdon).

Archaeological Resource Study

Confidential and on file with
the City of Carpinteria
Community Development Department

Appendix G

Geotechnical Reports

GEOTECHNICAL ENGINEERING REPORT
FOR
1300 CRAVENS LANE
PROPOSED RESIDENTIAL DEVELOPMENT
CARPINTERIA, CALIFORNIA

VT-23345-01
MARCH 17, 2005

PREPARED FOR
SCOTT ELLINWOOD

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VT-23345-01
05-3-8

Scott Ellinwood
1300 Cravens Lane
Carpinteria, California 93013

Project: 1300 Cravens Lane
Proposed Residential Development
Carpinteria, California

As authorized, we have performed a geotechnical study for the proposed residential development to be located at 1300 Cravens Lane in Carpinteria, California. The accompanying Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, as well as our conclusions and recommendations pertaining to geotechnical aspects of project design.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

EARTH SYSTEMS SOUTHERN CALIFORNIA

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STATE OF CALIFORNIA

Copies: 6 - Ellinwood
1 - VTA File

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INTRODUCTION

A. Project Description

This report presents results of a Geotechnical Engineering study performed for the proposed residential development second to be located at 1300 Cravens Lane in Carpinteria, California. The development will include additions to an existing single family residence, a new single family residence, and 34 townhomes. It is assumed herein that the proposed construction will be one- to two-story wood frame structures with slab-on-grade floors. Structural considerations for building column loads of up to 20 kips with maximum wall loads of 2 kips per lineal foot were used as a basis for the recommendations of this report. If actual loads vary significantly from these assumed loads, Earth Systems Southern California should be notified since reevaluation of the recommendations contained in this report may be required.

B. Purpose and Scope of Work

The purpose of the geotechnical study that led to this report was to evaluate the soil conditions of the site with respect to the proposed construction. These conditions include surface and subsurface soil types, expansion potential, settlement potential, bearing capacity, the presence or absence of subsurface water, and liquefaction potential. The scope of our work included:

1. Reconnaissance of the site.
2. Drilling/hand augering, sampling and logging of six borings and performing one cone penetrometer test (CPT) to study soil and groundwater conditions.
3. Laboratory testing of soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
4. Analyzing of the geotechnical data obtained.
5. Consulting with owner representatives.
6. Preparing this report.

Contained in this report are:

1. Descriptions and results of field and laboratory tests that were performed.
2. Discussions pertaining to the local soil and groundwater conditions.
3. Conclusions and recommendations pertaining to site grading and structural design.

C. Site Setting

The site of the proposed improvements is located at 1300 Cravens Lane in Carpinteria, California (see Vicinity Map in Appendix A). The site is currently occupied by two existing single-family residences and barn. One of the existing residences and the barn will be demolished prior to the new construction. The site is approximately 4 acres in area and is relatively flat. The site is bounded by Cravens Lane to the west, an existing residential development to the south, and vacant land to the north and east. There is a man-made pond located on the west side of the property. Numerous trees and annual grasses cover the site.

GEOLOGIC HAZARDS

Geologic hazards that are common to the Southern California area include fault rupture, seismic shaking, liquefaction, landslides, and rockfalls. Below, we will address each of these hazards as they relate to the subject site.

Fault Rupture

The parcel does not lie within a State of California designated fault hazard zone. Therefore, the potential for fault rupture hazard on the subject site is considered low.

Seismic Shaking

It is the standard of practice when evaluating seismicity to consider the design basis (10% probability of exceedance in 50 years) accelerations. The California Division of Mines and Geology, in concert with the U.S. Geological Survey and the scientific community, has prepared a statewide probabilistic seismic hazard assessment (CDMG, Seismic Shaking Map Sheets, Map Sheet 48, 1999). The focus of the assessment was to generate a seismic hazard map showing zones of estimated peak ground accelerations at a hazard level of 10% probability of exceedance in 50 years. The site location plots between 0.60 g to 0.70 g acceleration potential. A contour map of the estimated magnitude of earthquake that causes the dominant hazard for peak ground acceleration at 10% probability of exceedance in 50 years with alluvial site conditions was also prepared as part of the statewide seismic hazard assessment survey. The site location plots within a zone of magnitude 6.5 to 7.0. The structures should be designed for the 2001 California Building Code (CBC) Zone 4 requirements; however, the project Structural Engineer should be made aware of the design basis acceleration.

For the project site the 2001 California Building Code Seismic Design Parameters are:

Seismic Zone - Figure 16-2	4
Seismic Zone Factor Z - Table 16A-I	0.40
Soil Profile Type - Table 16A-J	S_D
Seismic Coefficient C_a - Table 16A-Q	$0.44N_a$
Seismic Coefficient C_V - Table 16A-R	$0.64N_v$
Near Source Factor N_a -Table 16A-S	1.3
Near Source Factor N_V -Table 16A-T	1.6
Seismic Source Type - Table 16A-U	B

These values area based on a distance of less than 2 kilometers from the Red Mountain fault as determined from the 1997 Uniform Building Code (UBC) Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.

Liquefaction

A major cause of damage during earthquakes is a significant reduction of soil strength or stiffness, generally referred to as liquefaction. Liquefaction can cause translational instability, bearing failure, settlement, ground loss, and other related phenomena. Translational instabilities can be slope failures or lateral spreading. Bearing failure can occur when soil strength loss is near a foundation. Settlement can occur when bearing failure is precluded, but volumetric compression occurs. Ground loss results from sand boils and is usually very localized. Liquefaction is typically a design problem only if it occurs in the upper 50 feet of the subsurface soils. However, on sloping ground or when foundations reach beyond that depth, liquefaction should be considered to a greater depth.

The soils most susceptible to liquefaction are sandy soils and silty soils of low plasticity. Cohesive soils with fines content greater than 30% are generally not susceptible to liquefaction if their fines classify as clays, or they have a plasticity index greater than 30. Generally, if a soil has a clay content greater than 15%, or the water content is less than 0.9 times the liquid limit, liquefaction can be a ruled out. However, cohesive soils, if sensitive, can lose significant strength even if they cannot liquefy, and there may be a need to address this problem. Although widely believed to be non-liquefiable, gravelly soils can be susceptible to liquefaction if internal drainage is impeded. In order for liquefaction to occur, a potentially liquefiable soil must be

saturated and subjected to rapid cyclic loading that is sufficiently intense to overcome a soil's internal resistance to liquefaction.

At this site, the groundwater was located about 3 to 7 feet below the ground surface during the field study. Sandy and silty soils are present based on the subsurface study. The site is also located in a seismically active area. Therefore, an analytical evaluation of liquefaction potential is necessary.

For the purposes of the liquefaction analyses performed as part of this report, the selected seismic factors include were a peak ground acceleration of 0.7 g and an earthquake magnitude of 7.0.

The CPT data were used to evaluate liquefaction potential.

Clayey soils with more than 15% clay sized particles are not susceptible to liquefaction. Therefore, it is important to identify those soil layers that have more than 15% clay sized particles. For the analyses herein, the clay content was selected based on either the soils boring information or the interpreted CPT soil behavior type, with more credence given to the size analyses from the borings.

The data were analyzed using a spread sheet format (developed internally at ESSC based on NCEER 1997, Robertson and Wride). The data used was as discussed above. The results of the analyses for the CPT-1 location are included in Appendix C.

The analysis of the CPT data indicates that all soil layers had factors of safety that exceeded 1.3, except for a number of zones (varying in thickness from a few inches to about 2 feet thick, and having a total liquefiable thickness of about 10 feet) encountered in the CPT No. 1 location. Zones with factors of safety less than 1.3 are considered potentially liquefiable.

The volumetric strain for the potentially liquefiable zones was estimated within the computer program using a chart derived by Tokimatsu and Seed (1987). For the zones encountered in CPT No.1, the total estimated liquefaction induced settlement is about 2 inches. In accordance with SP117, differential settlement is estimated to be about one-half the total settlement, or about 1 inch.

According to a chart derived by Ishihara (1985), no "ground" damage would be expected related to the zones encountered in CPT. Examples of ground damage are sand boils and ground cracks. Although the analysis predicts that there will be no ground damage, there is a potential for differential settlement suggested by the findings.

Landslides and Rockfall

There are no identified landslides or rockfalls either on or trending into the site, therefore, hazards associated with this phenomena should be considered low.

SOIL CONDITIONS

Evaluation of the subsurface indicates that soils at the proposed building areas are generally alluvial deposits consisting of interbedded clays, silts and sands. Two of the borings encountered approximately 3 feet of disturbed soils (either uncertified fill or previously agricultural disturbance) consisting of silty sand to sandy silt. Soils encountered at approximate bearing depths are characterized by low to moderate in-place densities. Testing indicates that anticipated bearing soils lie in the "low" expansion range of Table 18-I-B of the 2001 California Building Code. Groundwater was encountered at 3 to 7 feet below the existing ground surface. It appears that soils can be cut by normal heavy grading equipment, although free flowing water and soil with above optimum moisture content will be encountered (see Site Grading/Development section of this report for de-watering recommendations).

Samples for near-surface soils were tested for pH, resistivity, soluble sulfates and soluble chlorides. Testing indicates that anticipated bearing soils lie within the "negligible" sulfate exposure range in Table 19-A-4 of the 2001 California Building Code. Hence, special concrete designs do not appear necessary to combat sulfate attack. A soil resistivity measurement indicates that the soil is "moderately corrosive" to ferrous metals. The test results should be provided to the project designers for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils.

CONCLUSIONS AND RECOMMENDATIONS

The site is suitable for the proposed development from a Geotechnical Engineering standpoint provided that the recommendations contained in this report are successfully implemented into the project.

A. Grading

1. General Grading

a. Grading at a minimum should conform to Chapter 33 of the 2001 California Building Code.

b. The existing ground surface should be initially prepared for grading by removing all vegetation, debris piles, large roots, any other organics, and any noncomplying fill. All organics and vegetation should be removed from the site to preclude their incorporation in site fills. Voids created by removing such material should be properly backfilled and compacted. No compacted fill should be placed unless a representative of the Geotechnical Engineer has observed the underlying soil.

c. Fill and backfill placed at near optimum moisture in layers with loose thickness not greater than 8 inches should be compacted to a minimum of 90% of the maximum dry density obtainable by the ASTM D 1557 test method unless otherwise recommended or specified. Random compaction tests by Earth Systems Southern California can assist the Grading Contractor in evaluating whether the Grading Contractor is meeting compaction requirements. Compaction tests pertain only to a specific location, however, and do not guaranty that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve uniform compaction in accordance with the requirements of this report and the grading ordinance.

d. Shrinkage of soils affected by compaction should be about 20%.

e. Import soils used to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

f. Roof draining systems should be designed so that water is not discharged into bearing soils or near the structure. Final site grade could be such that all water is diverted away from the structure, and is not allowed to pond. In landscape areas adjacent to the building we recommend a minimum gradient of 2% toward either hardscapes or drain inlets.

g. Earth Systems Southern California should be retained to provide Geotechnical Engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations. This will allow for timely design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

h. Plans and specifications should be provided to Earth Systems Southern California prior to grading. Plans should include the grading plans, foundation plans, and foundation details. Earth Systems Southern California will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.

2. Site Grading/Development

a. Prior to grading, the site should be dewatered to a depth about 2 feet below the lowest elevation of the grading. Dewatering at adjacent sites has involved subdrains placed at depths of 6 to 8 feet deep. This should be performed by a contractor experienced in dewatering. After construction is complete (at a minimum foundations, interior slabs, utilities and exterior hardscape should be completed), the dewatering can be discontinued and water levels can rise to their equilibrium.

b. Overexcavation and recompaction of soils in all of the proposed structure areas will be necessary because of soft and variable density soils at bearing depth. The structure footprints to a distance of 5 feet beyond their building footprints (including any exterior columns) should be overexcavated to the deeper depth of either: 1) one foot below the bottom of the foundation, 2) through the disturbed soils (about 3 feet), or 3) 3 feet below existing grade. If the resulting surface is pumping or otherwise unstable, then stabilization of the excavation bottom will be required prior to placing fill. This can be accomplished by either: 1)

drying the soils, 2) working thin lifts of 1-1/2 inch (minimum size) float rock into the excavation bottom until stabilization is achieved, 3) lime or cement treatment of the soils, or 4) use of geotextiles in combination with rock.

c. Areas outside of the buildings to receive fill, or paving should be overexcavated through any disturbed soils and then the exposed surface should be scarified to a depth of 1 foot, moisture conditioned, and recompacted.

d. On-site soils may be used for fill once they are cleaned of all organic material, rock, debris and irreducible material larger than 8 inches. Alternately, import soils meeting the criteria previously discussed can be used.

3. Utility Trenches

a. The provisions of this report relating to minimum compaction standards should govern utility trench backfill. In general, on-site service lines may be backfilled with native soils compacted to 90% of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.

b. Jetting of native soils is not recommended.

B. Structural Design

1. Post-Tensioned Foundations into Recompacted Fill

a. Post-tensioned slabs should be used to support the structures. The following design criteria should be incorporated into the design by the Project Structural Engineer. The foundations should be supported by compacted structural fill. We recommend that a post-tensioned slab be designed for soils in the "low" expansion range and to accommodate the estimated potential differential liquefaction settlement of about 1 inch.

b. If the PTI method is used to design the foundation, then design parameters should include:

Thornthwaite Moisture Index:	-20
Edge Moist. Var. Dist. (e_m)	
Ctr. Lift Condition	6 feet
Edge Lift Condition	3 feet
Est. Diff. Swell (y_m)	
Ctr. Lift Condition	3.4 inches
Edge Lift Condition	0.38 inches
Differential Settlement	1.25 inches

c. A bearing value of 1,000 psf may be used for slabs situated on four inches of sand over compacted subgrade soils. A bearing capacity of 1,000 psf may be used for 18 inch deep footings. This bearing value utilizes a factor of three and should not be increased because of shallow groundwater.
d. To minimize moisture variations near the edges of the slabs, we recommend that the perimeter beams be bottomed no less than 18 inches below lowest adjacent grade.
e. Slab areas should be underlaid with a minimum of 4 inches of sand. A vapor retarder should be placed on the subgrade (i.e. at the base of the sand layer) to reduce upward moisture transmission from the subgrade soils to the slab. The sand above the vapor retarder should be lightly moistened just prior to placing concrete.
f. Slab subgrade soils should be premoistened to 3% over the optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening should be confirmed by testing.
g. An equivalent "waffle" slab is an acceptable alternative foundation system.

2. Exterior Slabs-on-Grade
   a. It is recommended that perimeter slabs (walks, patios, etc.) be designed relatively independent of footing stems (i.e., free floating) so foundation adjustment will be less likely to cause cracking.
   b. The slab designs should be provided by the project Structural Engineer.
   c. Slabs should be underlain with a minimum of 4 inches of sand.
   d. Slabs should at a minimum be reinforced at mid-slab with No. 3 bars on 24-inch centers, each way.

3. Frictional and Lateral Coefficients
   a. Resistance to lateral loading may be provided by friction acting on the base of foundations. A coefficient of friction of 0.6 may be applied to dead load forces. This value does not include a factor of safety.
   b. Passive resistance acting on the sides of foundation stems equal to 370 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a factor of safety.

c. A minimum factor of safety of 1.5 should be incorporated into designs for sliding or overturning.
d. Passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

4. Settlement Considerations
   a. Maximum expected settlement of about 1/2-inch is anticipated for foundations and floor slabs designed as recommended and subjected to static loading. Differential settlement between adjacent load bearing members could be about half this amount.
   b. A potential settlement of 2 inches could be associated with liquefaction. Differential settlement could be about one-half the total liquefaction related settlement, or about 1 inch.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by Earth Systems Southern California during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

1. Review of the building and grading plans during the design phase of the project.
2. Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
3. Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analysis and recommendations submitted in this report are based in part upon the data obtained from the borings drilled on the site. The nature and extent of variations beyond and between the borings may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water,

groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring log regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of our client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they be due to natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structures and other improvements are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems Southern California strives to provide our services in accordance with the generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of Scott Ellinwood and any authorized agents.

It is recommended that Earth Systems Southern California be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems Southern California is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation of our recommendations.

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APPENDIX A

Field Study
Vicinity Map
Site Plan
Boring Logs
CPT Data and Interpretations
Symbols Commonly Used on Boring Logs
Unified Soil Classification

FIELD STUDY

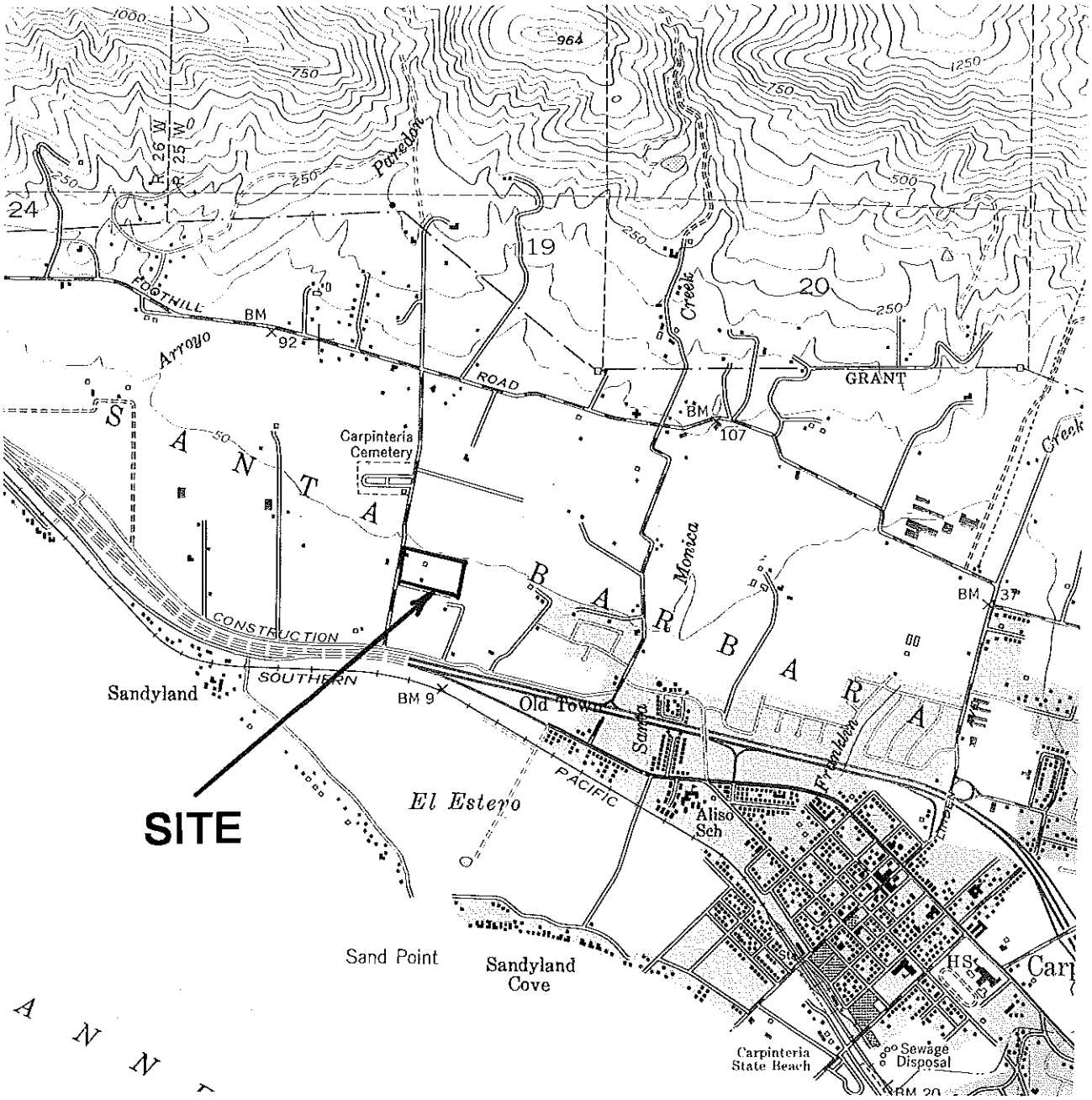
A. On January 18, 2005, six borings were hand augered to depths ranging between 3.5 feet to 7 feet below the existing ground surface. On January 19, 2005, one boring was drilled with a subcontracted Mobil Drill B-61 drilling rig to a depth of 51.5 feet below the existing ground surface. The borings were performed to observe the soil profile and to obtain samples for laboratory analysis. The approximate locations of the borings were determined in the field by pacing and sighting, and are shown on the Site Plan in this appendix.

B. Samples were obtained within the test borings with a Modified California (M.C.) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586), and with a Standard Penetration Test (SPT) sampler (ASTM D 1586). The M.C. sampler has a 3.00-inch outside diameter and a 2.37-inch inside diameter. The SPT sampler has a 2.00-inch outside diameter and a 1.37-inch inside diameter with liners, but was used without liners (1.63-inch inside diameter). The samples within the drilled boring were obtained by driving the sampler with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. The hammer used to obtain the samples within the drilled boring was an above ground automatic trip hammer. The samples within the hand augered borings were obtained by driving the sampler with a lightweight slide hammer.

C. Bulk samples of the soils encountered were gathered from the auger cuttings.

D. The final log of the borings represents our interpretation of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface study. The final logs are included in this Appendix.

E. On February 8, 2005, one cone penetrometer test (CPT) was performed to a depth of 47.1 feet below the existing ground surface. The CPT met with refusal on dense soils or bedrock. The CPT exploration was conducted by hydraulically advancing an instrument Hogentogler 10 cm^2 conical probe into the ground at a rate of 2 cm per second using a 23-ton truck as a reaction mass. An electronic data acquisition system recorded a near-continuous log of the resistance of the soil against the cone tip (Q_c) and soil friction against the cone sleeve (f_s) as the probe was advanced. Resistance readings were recorded for every 5.08 cm (2 inches) of depth. Empirical relationships (Robertson and Campanella, 1989) were applied to the data to give a near-continuous profile of soil stratigraphy. Interpretation of CPT data provides correlations for SPT blow count, internal friction angle, undrained strength (S_u) of clays, and soil behavior type. A log of the CPT sounding is included in this Appendix.



SCALE: 1"=2,000'

NORTH

*Taken from U.S.G.S. 7.5' Carpinteria Quadrangle, 1952 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA

1731-A Walter Street, Ventura, California 93003
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VICINITY MAP

1300 Cravens Lane
Carpinteria, California

VT-23345-01

Mar-05

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 19, 2005
DRILL RIG: Mobile B-80
DRILLING METHOD: 6" Hollow Stem Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						GM			**SURFACE:** About 4 to 6 inches of base.
			■	2/2/3		CL	94.3	24.3	**ALLUVIUM:** Fine to medium sandy silty CLAY, trace fine gravel, moist, very loose, dark brown to dark reddish brown. ▼
			■	2/1/2		CL	86.3	32.8	**ALLUVIUM:** Fine sandy silty CLAY, low plasticity, wet, soft, dark reddish brown.
5		■		2/1/2		CL SC	--	--	Same as above to clayey fine to coarse SAND, low plasticity, wet, soft, dark reddish brown. HYDRO: 16.2% clay, 26.7% silt, 56.3% sand, 0.8% gravel.
10		■		3/3/4		CL	--	--	**ALLUVIUM:** Fine to medium sandy silty CLAY, low to medium plasticity, wet, medium stiff, moderate to dark reddish brown. HYDRO: 20.8% clay, 34.1% silt, 44.8% sand, 0.3% gravel.
15		■		5/9/14		CL SC	--	--	Same as above to slightly clayey silty fine to coarse SAND, wet, medium dense, moderate reddish brown. HYDRO: 15.0% clay, 26.2% silt, 58.3% sand, 0.5% gravel.
20		■		10/11/13		SM	--	--	**ALLUVIUM:** Silty fine SAND, wet, medium dense, light reddish brown with some dark gray staining. HYDRO: 6.2% clay, 35.2% silt, 57.4% sand, 1.2% gravel.
25		■		11/22/26		SW	--	--	**ALLUVIUM:** Slighlty silty fine to medium SAND, trace fine gravel, moderately graded, wet, dense, light reddish brown. HYDRO: 2.6% clay, 17.0% silt, 75.7% sand, 4.7% gravel.
30		■		5/10/16		SM	--	--	**ALLUVIUM:** Silty fine SAND, trace clay, wet, medium dense, light reddish brown. HYDRO: 2.9% clay, 10.4% silt, 85.6% sand, 1.1% gravel.
35		■		7/11/21		SM	--	--	**ALLUVIUM:** Silty fine SAND, some clay, wet, hard, light reddish brown to light brown. HYDRO: 15.2% clay, 29.9% silt, 54.7% sand, 0.2% gravel.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

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BORING NO: 1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 19, 2005
DRILL RIG: Mobile B-80
DRILLING METHOD: 6" Hollow Stem Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
40				7/14/22		SM	--	--	**ALLUVIUM:** Clayey silty fine to medium SAND, wet, hard, moderate brown. HYDRO: 15.9% clay, 34.5% silt, 49.3% sand, 0.3% gravel.
45				8/12/19		SM	--	--	Same as above. HYDRO: 15.8% clay, 35.2% silt, 48.2% sand, 0.8% gravel.
50				7/12/18		ML SM	--	--	ALLUVIUM: Fine to medium sandy SILT with layers of silty fine sand, wet, medium dense to very stiff, light reddish brown to moderate brown. HYDRO: 12.4% clay, 39.9% silt, 46.2% sand, 1.5% gravel.
55									Final Depth: 51.5 feet Groundwater was encountered at 3.0 feet.
60									
65									
70									
75									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

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PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 2
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			SM	107.3	17.3	**ALLUVIUM:** Clayey silty fine to medium SAND, trace rootlets, moist, loose to medium dense, dark brown.
			■			SM	91.7	23.0	**ALLUVIUM:** Slightly clayey silty fine to medium SAND, wet, medium stiff, dark brown to dark reddish brown.
5									Final Depth: 3.5 feet Groundwater was encountered at 3.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 3
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0	X		■			ML	107.3	16.3	**ARTIFICIAL FILL:** Clayey fine to medium sandy SILT, trace fine gravel, very moist, medium stiff to stiff, moderate brown to dark brown.
	X		■			SM	106.7	14.5	**ALLUVIUM:** Silty fine to medium SAND, very moist, loose, moderate to dark brown.
5			■			SM	101.1	19.9	**ALLUVIUM:** Silty fine to coarse SAND, trace fine gravel and clay, very moist, loose, dark brown to dark reddish brown. ▼
10									Final Depth: 7.5 feet Groundwater was encountered at 7.0 feet.
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 4
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: **4"** Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6" N)	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			ML	102.7	20.4	**ALLUVIUM:** Fine to medium sandy clayey SILT, low plasticity, trace roots up to 1/2 inch in diameter, very moist, medium stiff to stiff, dark brown with some dark reddish brown.
			■			SM	89.3	27.2	**ALLUVIUM:** Silty fine SAND, some clay, wet, loose, dark reddish brown.
5									Final Depth: 3.5 feet Groundwater was encountered at 3.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 5
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			ML	102.1	18.1	**ALLUVIUM:** Clayey fine to medium sandy SILT, very moist, medium stiff, dark brown to dark reddish brown.
			■			CL	87.4	26.7	**ALLUVIUM:** Fine sandy CLAY, low plasticity, some silt, very moist, soft, dark reddish brown. ▼
5									Final Depth: 5.0 feet Groundwater was encountered at 4.5 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 6
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			SM	117.7	13.5	**DISTURBED SOIL:** Silty fine to coarse SAND, trace charcoal and clay, moist, medium dense dark brown.
			■			ML	91.7	26.3	**ALLUVIUM:** Fine to coarse sandy SILT, trace clay, wet, loose to medium dense, moderate to light reddish brown. ▼
5									Final Depth: 5.0 feet Groundwater was encountered at 4.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 7
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0	X		■			ML	--	--	**ALLUVIUM:** Fine sandy clayey SILT, trace rootlets, low plasticity, moist, soft to medium stiff, dark brown.
	X		■			ML SM	--	--	**ALLUVIUM:** Fine sandy clayey SILT to silty clayey fine SAND, very moist to wet, soft to loose, dark reddish brown.
5									Final Depth: 4.0 feet Groundwater was encountered at 3.5 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: 1300 Cravens Lane Project No: VT-23345-01 Date: 02/08/05

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 3.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Claan Sand Qc1n	Claan Sand $N_{1(60)}$	Claan Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	95.66	0.26	Sand	SP	dense	120	5.0	19	0.015	0.015	0.26	0.50	1.70	153.7	1.43	153.7	33	31	95	37		
0.30	1.0	36.63	0.99	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	12	0.045	0.045	0.99	0.64	1.70	58.9	2.09	84.7	21	17	55	33		
0.46	1.5	15.05	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	0.075	0.075	2.54	0.80	1.70	24.2	2.64		8				0.88	59.9
0.61	2.0	8.18	2.71	Silty Clay to Clay	CL	firm	120	1.5	5	0.105	0.105	2.74	0.87	1.70	13.1	2.88		5				0.47	23.1
0.76	2.5	6.11	2.10	Silty Clay to Clay	CL	firm	120	1.5	4	0.135	0.135	2.14	0.89	1.70	9.8	2.92		4				0.35	13.3
0.91	3.0	4.29	1.64	Sensitive fine grained	ML	soft	120	2.0	2	0.165	0.165	1.71	0.91	1.70	6.9	3.01		2				0.24	7.5
1.07	3.5	9.14	0.56	Sensitive fine grained	ML	loose	120	2.0	5	0.195	0.179	0.57	0.76	1.70	14.7	2.50	40.8	8	8	-3	29		
1.22	4.0	6.47	0.99	Sensitive fine grained	ML	firm	120	2.0	3	0.225	0.194	1.03	0.83	1.70	10.4	2.74		3				0.37	9.7
1.37	4.5	4.02	1.80	Sensitive fine grained	ML	soft	120	2.0	2	0.255	0.208	1.92	0.93	1.70	6.5	3.06		2				0.22	5.4
1.52	5.0	3.90	2.31	Clay	CL/CH	soft	120	1.0	4	0.285	0.223	2.50	0.95	1.70	6.3	3.12		4				0.22	4.9
1.68	5.5	3.85	1.99	Sensitive fine grained	ML	soft	120	2.0	2	0.315	0.237	2.17	0.94	1.70	6.2	3.10		2				0.21	4.5
1.83	6.0	10.02	0.95	Clayey Silt to Silty Clay	ML/CL	loose	120	2.0	5	0.345	0.251	0.98	0.78	1.70	16.1	2.57	50.4	9	10	1	29		
1.98	6.5	18.19	0.60	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	6	0.375	0.266	0.61	0.68	1.70	29.2	2.24	52.0	10	10	26	30		
2.13	7.0	13.70	0.76	Sandy Silt to Clayey Silt	ML	loose	120	2.5	5	0.405	0.280	0.78	0.73	1.70	22.0	2.40	51.0	9	10	14	30		
2.29	7.5	7.38	1.14	Sensitive fine grained	ML	firm	120	2.0	4	0.435	0.295	1.21	0.83	1.70	11.9	2.73		4				0.42	7.1
2.44	8.0	8.80	0.76	Sensitive fine grained	ML	loose	120	2.0	4	0.465	0.309	0.81	0.79	1.70	14.1	2.58	45.2	7	9	-4	29		
2.59	8.5	4.17	1.85	Sensitive fine grained	ML	soft	120	2.0	2	0.495	0.323	2.10	0.94	1.70	6.7	3.06		2				0.23	3.4
2.74	9.0	4.25	1.34	Sensitive fine grained	ML	soft	120	2.0	2	0.525	0.338	1.52	0.91	1.70	6.8	2.99		2				0.23	3.3
2.90	9.5	5.92	1.44	Sensitive fine grained	ML	firm	120	2.0	3	0.555	0.352	1.59	0.88	1.70	9.5	2.87		3				0.33	4.6
3.05	10.0	9.76	1.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	0.585	0.367	1.79	0.83	1.70	15.7	2.71		5				0.55	7.5
3.20	10.5	10.07	3.08	Silty Clay to Clay	CL	stiff	120	1.5	7	0.615	0.381	3.28	0.87	1.70	16.2	2.85		7				0.57	7.4
3.35	11.0	12.56	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.645	0.395	2.55	0.82	1.70	20.2	2.71		6				0.72	9.0
3.51	11.5	18.84	0.76	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	8	0.675	0.410	0.79	0.69	1.70	30.3	2.28	57.1	12	11	27	31		
3.66	12.0	18.15	1.10	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	7	0.705	0.424	1.14	0.72	1.70	29.2	2.38	64.9	11	13	26	30		
3.81	12.5	12.34	2.95	Silty Clay to Clay	CL	stiff	120	1.5	8	0.735	0.439	3.13	0.84	1.70	19.8	2.77		8				0.70	7.9
3.96	13.0	14.20	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	0.765	0.453	3.00	0.82	1.70	22.8	2.71		7				0.81	8.9
4.11	13.5	15.66	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	0.795	0.467	2.96	0.81	1.70	25.2	2.67		8				0.89	9.5
4.27	14.0	12.88	2.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.825	0.482	3.14	0.84	1.70	20.7	2.75		6				0.73	7.5
4.42	14.5	13.82	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	0.855	0.496	2.39	0.81	1.70	22.2	2.66		7				0.78	7.8
4.57	15.0	18.91	1.94	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	8	0.885	0.511	2.04	0.76	1.70	30.4	2.51	85.3	11	17	27	30		
4.72	15.5	21.86	2.43	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	11	0.915	0.525	2.53	0.77	1.70	35.1	2.52	100.5	15	20	33	32		
4.88	16.0	23.73	2.99	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	12	0.945	0.539	3.11	0.78	1.69	37.8	2.55	115.2	16	23	36	32		
5.03	16.5	30.46	2.13	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	12	0.975	0.554	2.20	0.73	1.60	46.1	2.39	104.4	16	21	45	32		
5.18	17.0	40.87	2.12	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	16	1.005	0.568	2.18	0.70	1.55	59.7	2.30	116.7	22	23	55	34		
5.33	17.5	38.28	2.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.035	0.583	2.17	0.71	1.53	55.2	2.33	112.2	20	22	52	33		
5.49	18.0	15.30	3.24	Silty Clay to Clay	CL	stiff	120	1.5	10	1.065	0.597	3.48	0.84	1.61	23.3	2.74		10				0.86	7.2
5.64	18.5	16.65	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.095	0.611	2.83	0.81	1.56	24.6	2.67		8				0.94	7.6
5.79	19.0	53.12	2.55	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.125	0.626	2.61	0.70	1.44	72.4	2.30	140.1	27	28	63	35		
5.94	19.5	132.69	0.91	Sand	SP	dense	120	5.0	27	1.155	0.640	0.92	0.53	1.30	163.5	1.73	172.5	33	34	97	37		
6.10	20.0	126.38	1.69	Sand to Silty Sand	SP/SM	dense	120	4.0	32	1.185	0.655	1.71	0.59	1.33	158.4	1.93	193.0	39	39	96	38		
6.25	20.5	91.87	2.47	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	31	1.215	0.669	2.51	0.65	1.35	117.1	2.14	179.7	37	36	83	38		
6.40	21.0	53.44	3.72	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	27	1.245	0.683	3.81	0.74	1.38	69.7	2.43	169.1	32	34	62	37		
6.55	21.5	52.56	3.28	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.275	0.698	3.36	0.73	1.35	67.3	2.40	154.9	25	31	60	35		
6.71	22.0	26.86	2.89	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	13	1.305	0.712	3.03	0.76	1.36	34.6	2.57	109.7	16	22	33	32		
6.86	22.5	28.98	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.335	0.727	3.61	0.79	1.35	36.9	2.60		14				1.66	11.4
7.01	23.0	26.90	3.26	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.365	0.741	3.44	0.80	1.33	33.8	2.62		13				1.54	10.3
7.16	23.5	28.30	2.61	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	11	1.395	0.755	2.74	0.77	1.30	34.7	2.54	104.2	13	21	33	31		
7.32	24.0	42.08	2.46	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.425	0.770	2.55	0.73	1.26	50.2	2.40	116.7	19	23	48	33		
7.47	24.5	44.82	2.05	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	1.455	0.784	2.12	0.71	1.24	52.4	2.34	108.4	20	22	50	33		
7.62	25.0	46.26	2.87	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	1.485	0.799	2.97	0.74	1.23	53.8	2.43	130.5	21	26	51	33		
7.77	25.5	32.93	5.13	Clay	CL/CH	very stiff	120	1.0	33	1.515	0.813	5.37	0.82	1.24	38.7	2.71		33				1.89	11.6
7.92	26.0	41.44	4.30	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	21	1.545	0.827	4.47	0.79	1.21	47.5	2.59	155.4	23	31	46	34		
8.08	26.5	86.79	3.04	Sandy Silt to Clayey Silt	ML	dense	120	2.5	35	1.575	0.842	3.10	0.69	1.17	96.0	2.27	177.5	38	35	75	38		
8.23	27.0	49.27	5.12	Clay	CL/CH	hard	120	1.0	49	1.605	0.856	5.29	0.79	1.18	55.0	2.60		49				2.85	16.7
8.38	27.5	26.69	4.53	Silty Clay to Clay	CL	very stiff	120	1.5	18	1.635	0.871	4.83	0.84	1.18	29.7	2.76		18				1.52	8.6
8.53	28.0	32.24	3.85	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.665	0.885	4.06	0.81	1.15	35.2	2.65		16				1.84	10.4
8.69	28.5	33.63	2.71	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	13	1.695	0.899	2.86	0.77	1.13	36.0	2.54	108.0	14	22	34	31		
8.84	29.0	55.02	2.68	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.725	0.914	2.97	0.73	1.11	57.9	2.40	135.0	23	27	54	34		
8.99	29.5	56.59	3.03	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.755	0.928	3.12	0.73	1.10	58.9	2.41	139.7	23	28	55	34		
9.14	30.0	54.12	3.96	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	27	1.785	0.943	4.09	0.76	1.09	55.9	2.51	158.9	28	32	53	35		
9.30	30.5	76.48	3.09	Sandy Silt to Clayey Silt	ML	dense	120	2.5	31	1.815	0.957	3.16	0.71	1.07	77.6	2.34	160.6	31	32	66	36		
9.45	31.0	153.37	1.11	Sand to Silty Sand	SP/SM	dense	120	4.0	38	1.845	0.971	1.12	0.55	1.05	152.0	1.81	169.2	39	34	94	38		
9.60	31.5	112.14	2.25	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	37	1.875	0.986	2.28	0.65	1.05	111.0	2.13	167.0	38	33	81	38		
9.75	32.0	156.29	0.54	Sand	SP	dense	120	5.0	31	1.905	1.000	0.54	0.50	1.03	151.9	1.60	151.9	31	30	94	36		
9.91	32.5	171.00	0.95	Sand	SP	dense	120	5.0	34	1.935	1.015	0.96	0.53	1.02	165.3	1.74	175.6	34	35	98	37		
10.06	33.0	125.11	1.42	Sand to Silty Sand	SP/SM	dense	120	4.0	31	1.965	1.029	1.44	0.60	1.02	120.2	1.96	150.1	31	30	84	36		
10.21	33.5	45.55	4.06	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	1.995	1.043	4.25	0.79	1.01	43.5	2.60		23				2.62	12.5
10.36	34.0	26.58	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.025	1.058	3.31	0.82	1.00	25.1	2.70		13				1.50	7.0
10.52	34.5	27.26	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.055	1.072	3.42	0.82	0.99	25.5	2.71		14				1.54	7.1
10.67	35.0	26.01	3.25	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.085	1.087	3.54	0.83	0.98	24.0	2.74		13				1.47	6.6
10.82	35.5	43.56	3.41	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	22	2.115	1.101	3.58	0.78	0.97	39.9	2.58	127.2	21	25	39	33		
10.97	36.0	43.37	4.47	Silty Clay to Clay	CL	hard	120	1.5	29	2.145	1.115	4.70	0.81	0.96	39.3	2.66		29				2.49	11.1

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: 1300 Cravens Lane Project No: VT-23345-01 Date: 02/08/05

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **3.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
11.13	36.5	136.80	1.68	Sand to Silty Send	SP/SM	dense	120	4.0	34	2.175	1.130	1.71	0.61	0.96	124.2	2.00	161.7	32	32	86	37		
11.28	37.0	100.49	2.28	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	33	2.205	1.144	2.33	0.67	0.95	90.1	2.19	149.1	31	30	73	36		
11.43	37.5	36.53	4.23	Silty Clay to Clay	CL	hard	120	1.5	24	2.235	1.159	4.50	0.83	0.93	32.0	2.71		24				2.08	8.9
11.58	38.0	37.71	3.95	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.265	1.173	4.20	0.82	0.92	32.8	2.69		19				2.15	9.1
11.73	38.5	55.38	3.45	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	2.295	1.187	3.60	0.77	0.92	47.9	2.52	138.0	25	28	46	35		
11.89	39.0	45.70	4.92	Silty Clay to Cley	CL	hard	120	1.5	30	2.325	1.202	5.18	0.82	0.90	38.9	2.70		30				2.62	10.8
12.04	39.5	87.27	1.73	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	29	2.355	1.216	1.78	0.66	0.91	75.2	2.17	119.8	26	24	65	35		
12.19	40.0	48.77	3.40	Cleyey Silt to Silty Clay	ML/CL	medium dense	120	2.0	24	2.385	1.231	3.58	0.78	0.89	41.0	2.57	128.5	22	26	40	34		
12.34	40.5	50.43	3.74	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	25	2.415	1.245	3.93	0.79	0.88	41.9	2.59	136.9	23	27	41	34		
12.50	41.0	55.61	4.14	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	2.445	1.259	4.33	0.79	0.87	45.8	2.59	150.2	25	30	44	35		
12.65	41.5	60.11	3.91	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	30	2.475	1.274	4.07	0.78	0.87	49.2	2.55	149.7	27	30	47	35		
12.80	42.0	58.45	5.39	Clay	CL/CH	hard	120	1.0	58	2.505	1.288	5.63	0.81	0.85	47.1	2.67		58				3.36	13.0
12.95	42.5	41.56	4.42	Silty Clay to Clay	CL	hard	120	1.5	28	2.535	1.303	4.71	0.83	0.84	33.1	2.72		28				2.37	9.0
13.11	43.0	67.70	3.74	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	34	2.565	1.317	3.89	0.76	0.85	54.2	2.51	152.2	29	30	51	36		
13.26	43.5	116.39	3.67	Sandy Silt to Clayey Silt	ML	dense	120	2.5	47	2.595	1.331	3.76	0.71	0.85	93.4	2.34	194.3	40	39	74	39		
13.41	44.0	141.31	3.18	Sandy Silt to Clayey Silt	ML	dense	120	2.5	57	2.625	1.346	3.24	0.68	0.85	113.4	2.24	199.4	49	40	82	40		
13.56	44.5	88.10	4.05	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	44	2.655	1.360	4.17	0.75	0.83	69.0	2.46	177.4	38	35	61	38		
13.72	45.0	78.52	2.92	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	31	2.685	1.375	3.02	0.73	0.83	61.3	2.39	139.8	27	28	57	35		
13.87	45.5	83.47	3.50	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.715	1.389	3.62	0.74	0.82	64.5	2.43	158.3	28	32	59	36		
14.02	46.0	65.34	4.68	Silty Clay to Clay	CL	hard	120	1.5	44	2.745	1.403	4.88	0.79	0.80	49.4	2.61		44				3.76	13.4
14.17	46.5	86.33	3.71	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	35	2.775	1.418	3.84	0.74	0.80	65.6	2.45	164.9	29	33	59	36		
14.33	47.0	284.44	2.58	Silty Sand to Sandy Silt	SM/ML	very dense	120	3.0	95	2.805	1.432	2.61	0.60	0.83	223.9	1.98	286.3	79	57	100	45		

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				S P	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SAND WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				S C	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT **LESS** THAN 50		M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				C L	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				O L	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT **GREATER** THAN 50		M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				O H	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				P T	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

Earth Systems So. Calif.

1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

Unified Soil Classification System (USCS)



Modified California Split Barrel Sampler



Modified California Split Barrel Sampler - No Recovery



Standard Penetration Test (SPT) Sampler



Standard Penetration Test (SPT) Sampler - No Recovery



Perched Water Level



Water Level First Encountered



Water Level After Drilling



Pocket Penetrometer (tsf)



Vane Shear (ksf)

1. The approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between statigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.

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Symbols Commonly Used on Boring Logs

APPENDIX B

Laboratory Testing
Tabulated Test Results
Individual Test Results
Soil Chemistry Results

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of proposed structure. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ moisture content and unit dry weight for the ring samples were determined in general accordance with ASTM D 2937.

C. The relative strength characteristics of the soils were determined from the results of direct shear tests on remolded and undisturbed samples. Shear specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 0.5 to 2.0 kips per square foot in general accordance with ASTM D 3080.

D. An expansion index test was performed on the bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144 pounds per square foot at moisture content of near 50% saturation. The sample was then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator.

F. A maximum density test was performed to estimate the moisture-density relationship of typical soil materials. The test was performed in accordance with ASTM designation D 1557.

G. The gradation characteristics of selected samples were made by hydrometer (in accordance with ASTM D 422) and sieve analysis procedures. The samples were soaked in water until individual soil particles were separated and then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve and then mechanically sieved.

H. Concrete and metal corrosion potential of the near surface soil was determined by measuring pH, resistivity, and soluble sulfate and soluble chloride contents. The test was performed Capco Analytical.

I. A resistance ("R") value test was conducted on a bulk sample secured during the field study. The test was performed in accordance with California Method 301. Three specimens at different moisture contents were tested for each sample, and the R-Values at 300 psi exudation pressure were determined from the plotted results.

TABULATED TEST RESULTS

REMOLDED SAMPLES

TEST PIT AND DEPTH	B-1 @ 0-5'	B-3 @ 0-5'	B-7 @ 0-5'
SOIL TYPE	SM	--	--
MAXIMUM DENSITY (pcf)	130 132*	--	121
OPTIMUM MOISTURE (%)	8.5 8.5*	--	10.5
COHESION (psf)	300	--	240
ANGLE OF INTERNAL FRICTION	31	--	29
EXPANSION INDEX	9	--	29
GRAIN SIZE DISTRIBUTION (%)			
GRAVEL	15.6	--	--
SAND	59.6	--	--
SILT	14.1	--	--
CLAY	10.7	--	--
CHLORIDE (mg/Kg)	42	--	--
pH (S.U.)	7.5	--	--
RESISTIVITY (ohms-cm)	3,660	--	--
SULFATE (mg/Kg)	88	--	--
R-VALUE	--	9	--

* - CORRETCED FOR OVERSIZE (ASTM D4718)

RELATIVELY UNDISTURBED SAMPLE

BORING AND DEPTH	B-1 @ 3'
SOIL TYPE	SC
IN-PLACE DENSITY (pcf)	87.3
IN-PLACE MOISTURE (%)	32.8
PEAK COHESION (psf)	210
PEAK ANGLE OF INTERNAL FRICTION	28

TABULATED TEST RESULTS
(Continued)

GRAIN SIZE DISTRIBUTION (%)

BORING AND DEPTH	1 @ 5'	1 @ 10'	1 @15'	1 @ 20'	1@ 25'	1 @ 30'
GRAVEL	0.8	0.3	0.5	1.2	4.7	1.1
SAND	56.3	44.8	58.3	57.4	75.7	85.6
SILT	26.7	34.1	26.2	35.2	17.0	10.4
CLAY	16.2	20.8	15.0	6.2	2.6	2.9

BORING AND DEPTH	1 @ 35'	1 @ 40'	1 @45'	1 @ 50'
GRAVEL	0.2	0.3	0.8	1.5
SAND	54.7	49.3	48.2	46.2
SILT	29.9	34.5	35.2	39.9
CLAY	15.2	15.9	15.8	12.4

VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

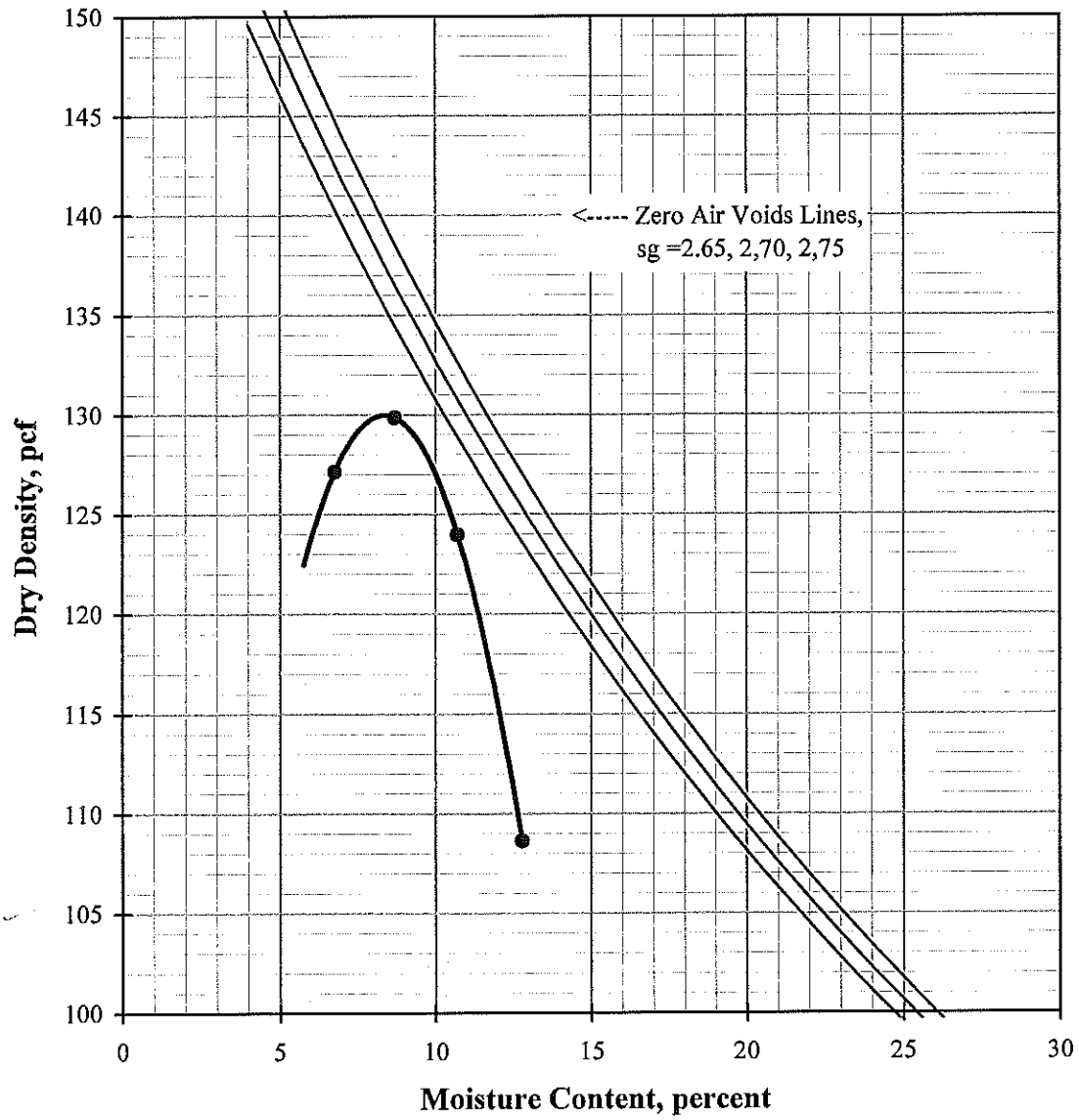
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 1 @ 0 - 5
Location:
Description: Clayey Silty Sand

Procedure Used: B
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: **130 pcf**
Optimum Moisture: **8.5%**

Sieve Size	% Retained
3/4"	0.0
3/8"	6.5
#4	0.0



VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

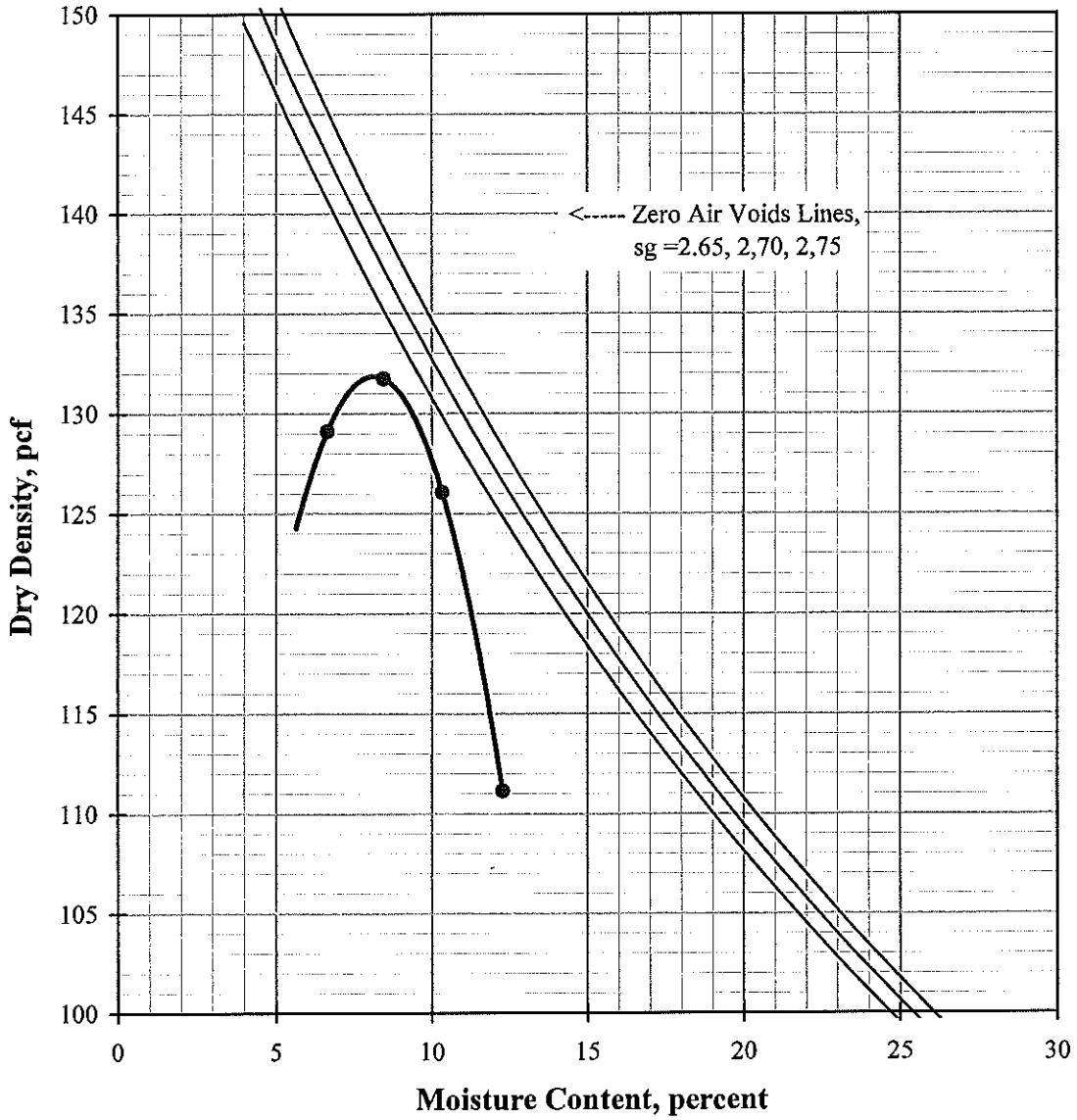
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 1 @ 0 - 5
Location:
Description: Clayey Silty Sand

Procedure Used: B
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: **132 pcf**
Optimum Moisture: **8.5%**
Corrected for Oversize (ASTM D4718)

Sieve Size	% Retained
3/4"	0.0
3/8"	6.5
#4	0.0



VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

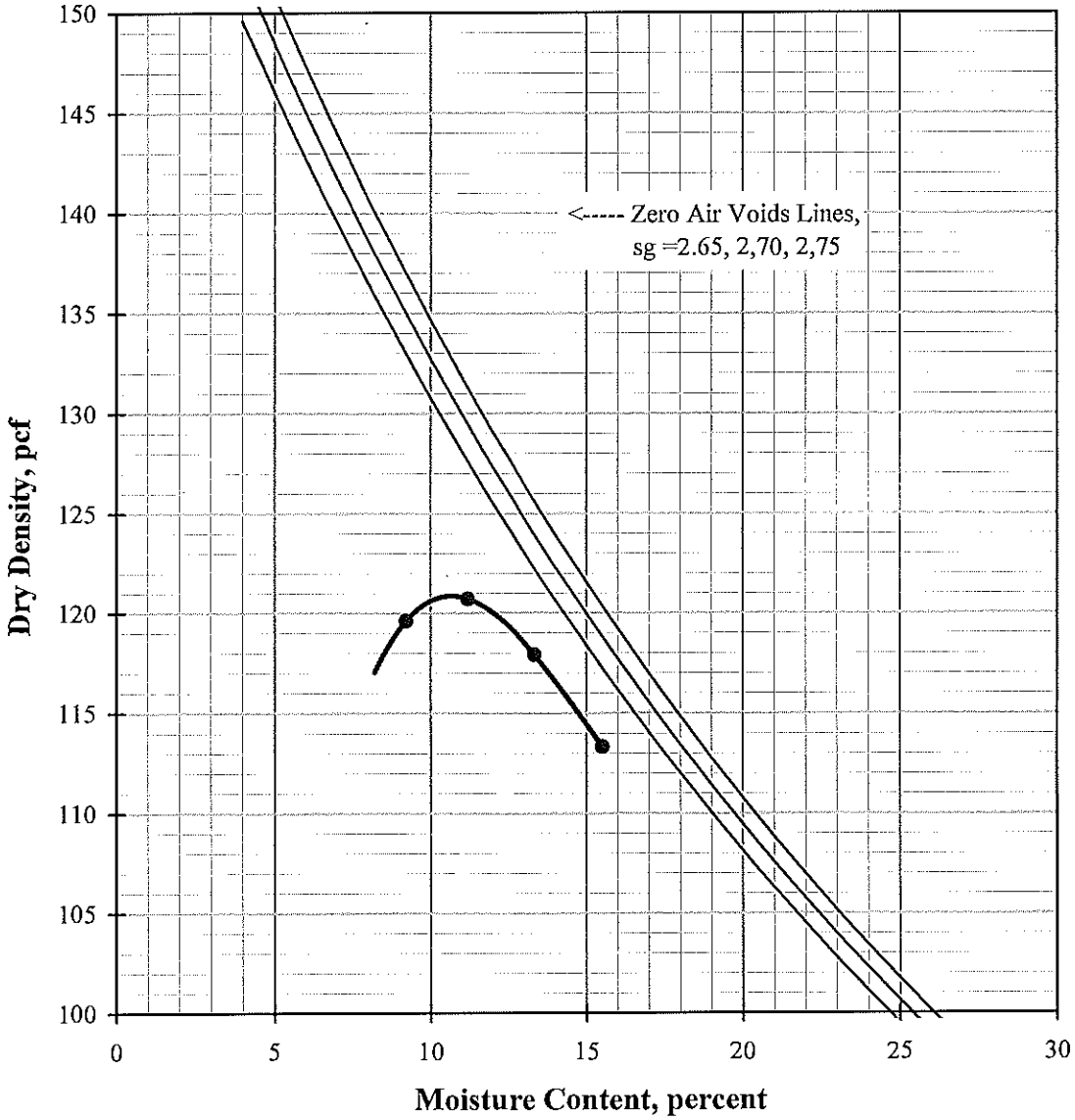
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 7 @ 0 - 5
Location:
Description: Clayey Sandy Silt

Procedure Used: A
Prep. Method: Moist
Rammer Type: Automatic

Maximum Density: **121 pcf**
Optimum Moisture: **10.5%**

Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	0.0

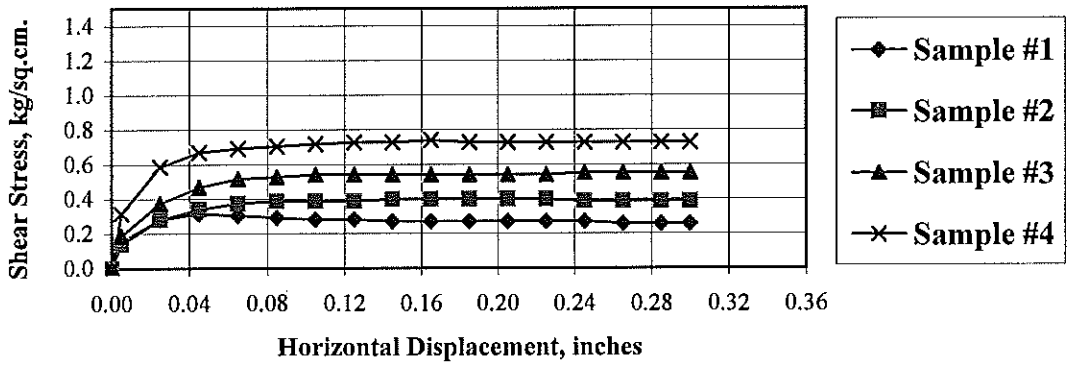


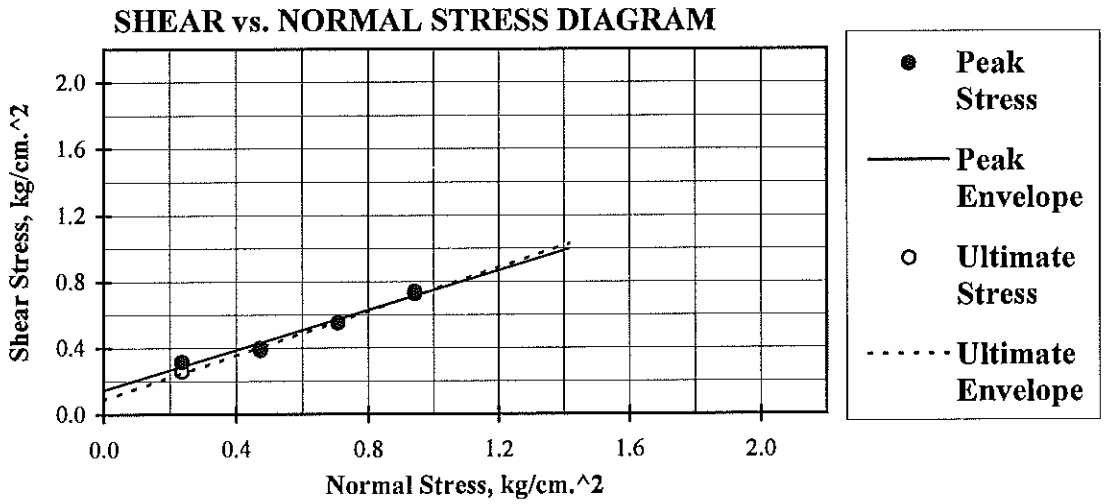
DIRECT SHEAR

1300 Cravens Lane
B 1 @ 0 - 5
Clayey Silty Sand
Remolded, ran at .024 in/min

Initial Dry Density: 116.0 pcf
Initial Mosture Content: 9.0 %
Peak Friction Angle (Ø): 31°
Cohesion (c): 0.147 kg/cm^2 (300 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	116.0	116.0	116.0	116.0	116.0
Moisture Content, %	9.0	9.0	9.0	9.0	9.0
Saturation, %	55	55	55	55	55
At Test					
Moisture Content, %	14.9	14.9	15.1	15.1	15.0
Saturation, %	91	91	92	92	92
Normal Stress, kg/cm^2	0.24	0.47	0.71	0.94	
Peak Stress, kg/cm^2	0.32	0.40	0.55	0.74	
Ultimate Stress, kg/cm^2	0.26	0.39	0.55	0.73	



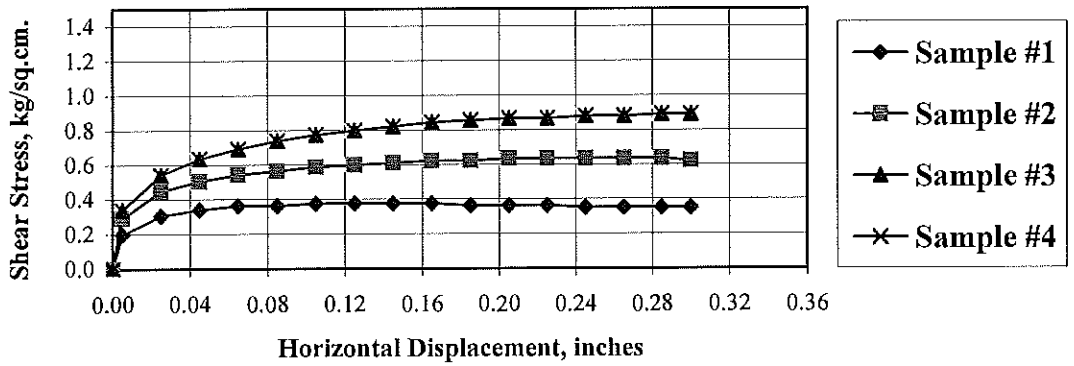


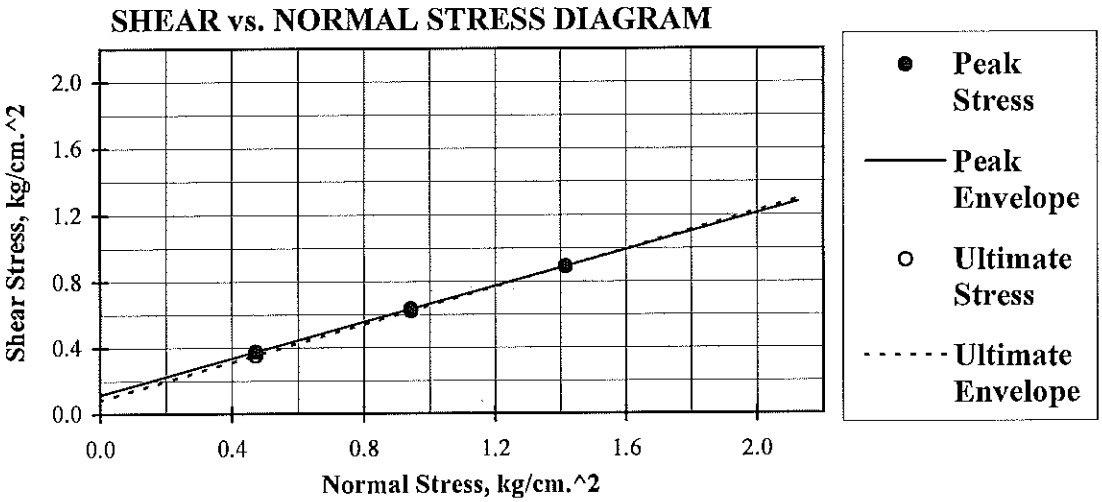
DIRECT SHEAR

1300 Cravens Lane
B 7 @ 0 - 5
Clayey Sandy Silt
Remolded, ran at .0277 in/min

Initial Dry Density: 107.9 pcf
Initial Mosture Content: 10.4 %
Peak Friction Angle (Ø): 29°
Cohesion (c): 0.117 kg/cm^2 (240 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	107.9	107.9	107.9	107.9	107.9
Moisture Content, %	10.4	10.4	10.4	10.4	10.4
Saturation, %	51	51	51	51	51
At Test					
Moisture Content, %	19.2	19.7	19.6	19.6	19.5
Saturation, %	94	97	96	96	96
Normal Stress, kg/cm^2	0.47	0.94	1.42	1.42	
Peak Stress, kg/cm^2	0.38	0.63	0.89	0.89	
Ultimate Stress, kg/cm^2	0.35	0.62	0.89	0.89	



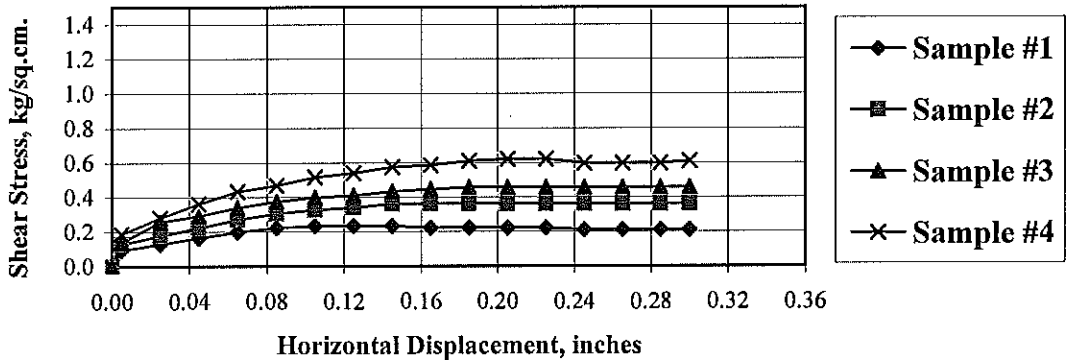


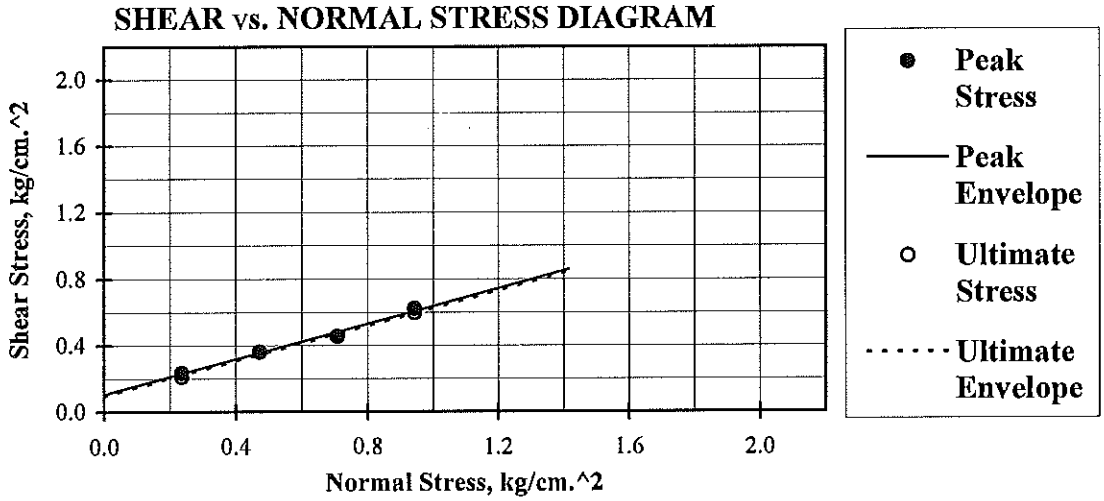
DIRECT SHEAR

1300 Cravens Lane
B 1 @ 3
Fine Sandy Silty Clay
Undisturbed, ran at .0171 in/min

Initial Dry Density: 87.3 pcf
Initial Mosture Content: 32.8 %
Peak Friction Angle (Ø): 28°
Cohesion (c): 0.105 kg/cm^2 (210 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	88.3	87.3	85.6	88.1	87.3
Moisture Content, %	32.8	32.8	32.8	32.8	32.8
Saturation, %	99	96	93	98	97
At Test					
Moisture Content, %	32.4	30.8	32.2	32.6	32.0
Saturation, %	98	91	91	98	94
Normal Stress, kg/cm^2	0.24	0.47	0.71	0.94	
Peak Stress, kg/cm^2	0.23	0.36	0.46	0.62	
Ultimate Stress, kg/cm^2	0.21	0.36	0.46	0.60	



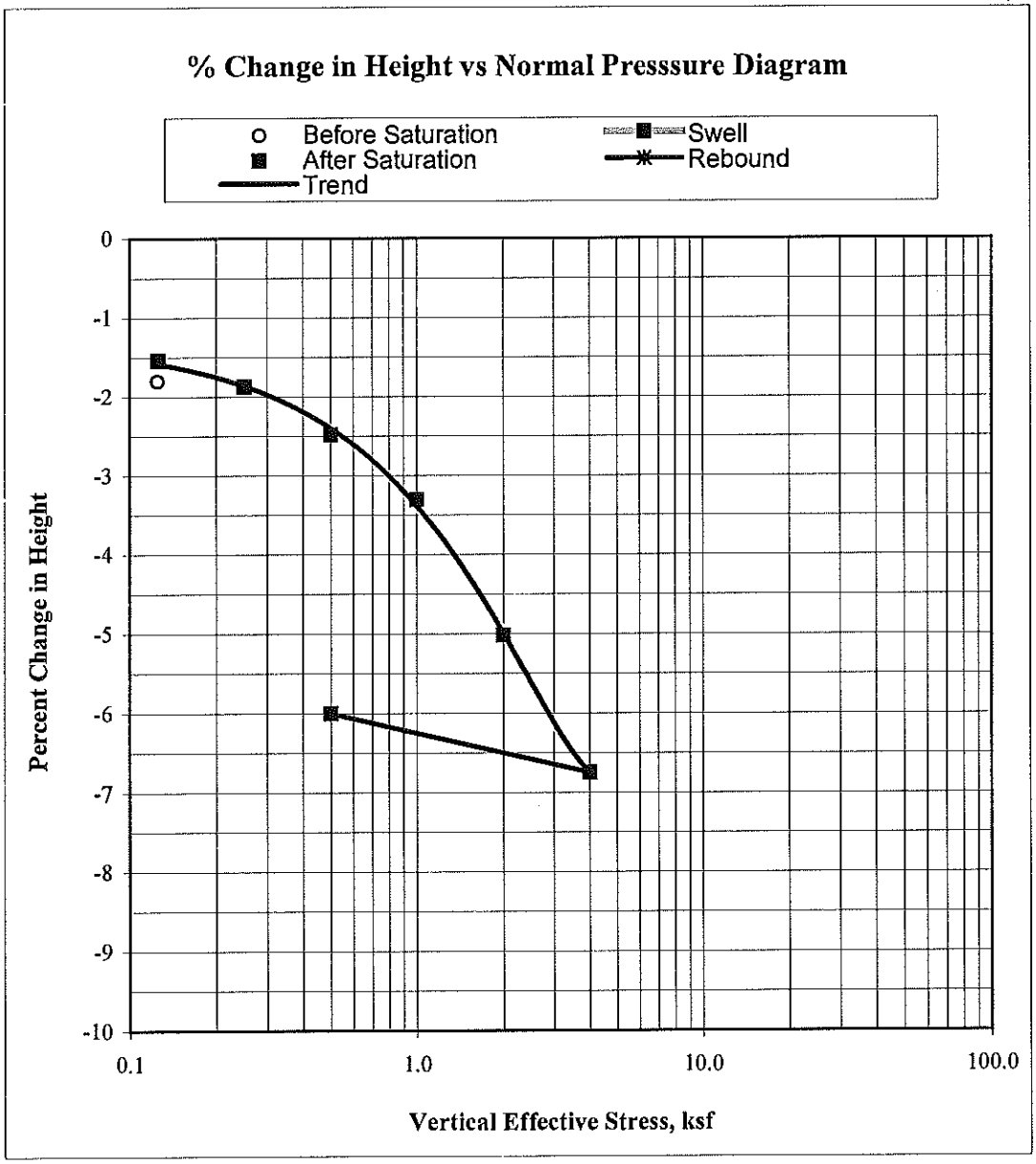


CONSOLIDATION TEST

ASTM D 2435-90

1300 Cravens Lane
2 @ 3
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 103.6 pcf
Initial Moisture, %: 23.0%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.609

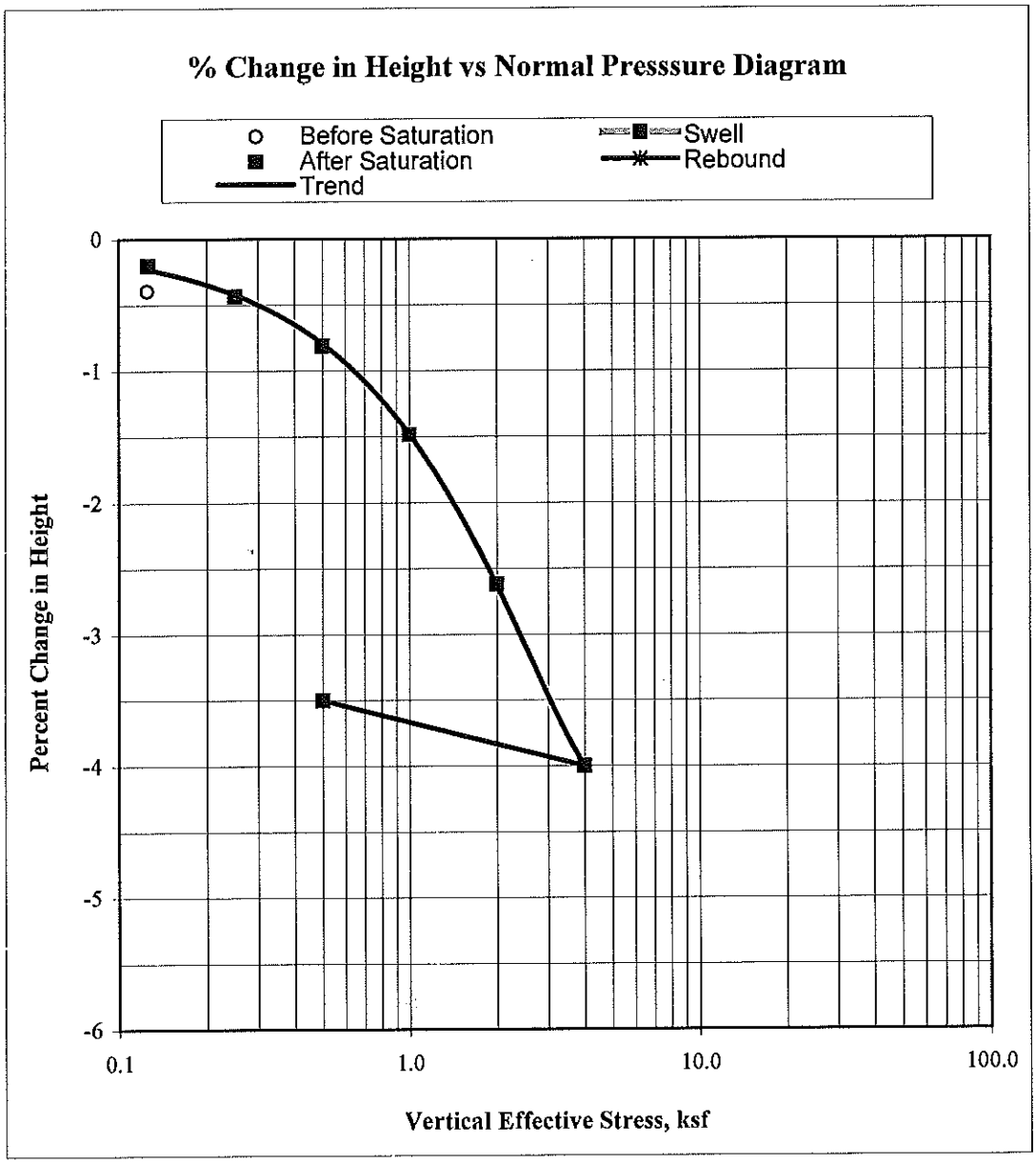


CONSOLIDATION TEST

ASTM D 2435-90

1300 Cravens Lane
3 @ 5
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 102.4 pcf
Initial Moisture, %: 19.9%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.628

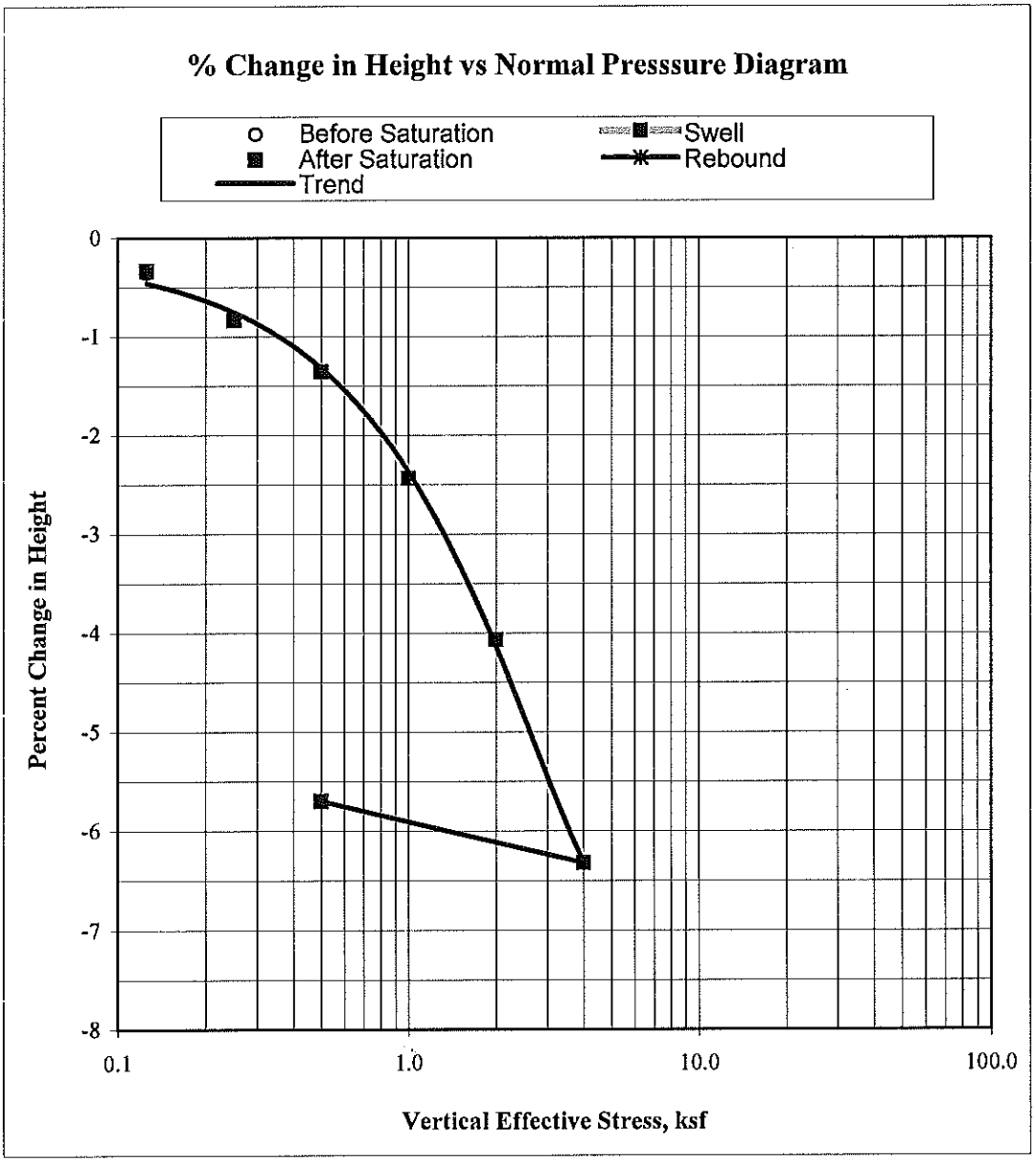


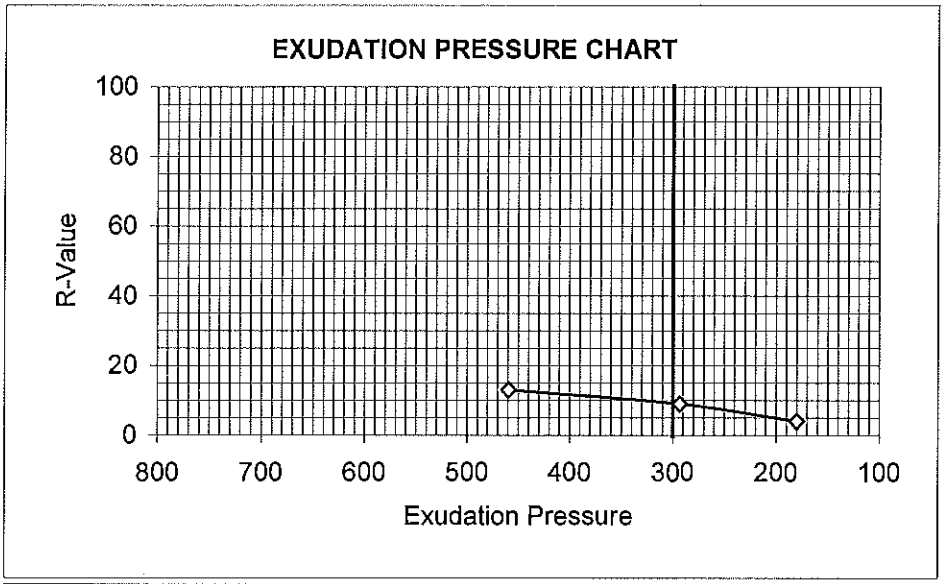
CONSOLIDATION TEST

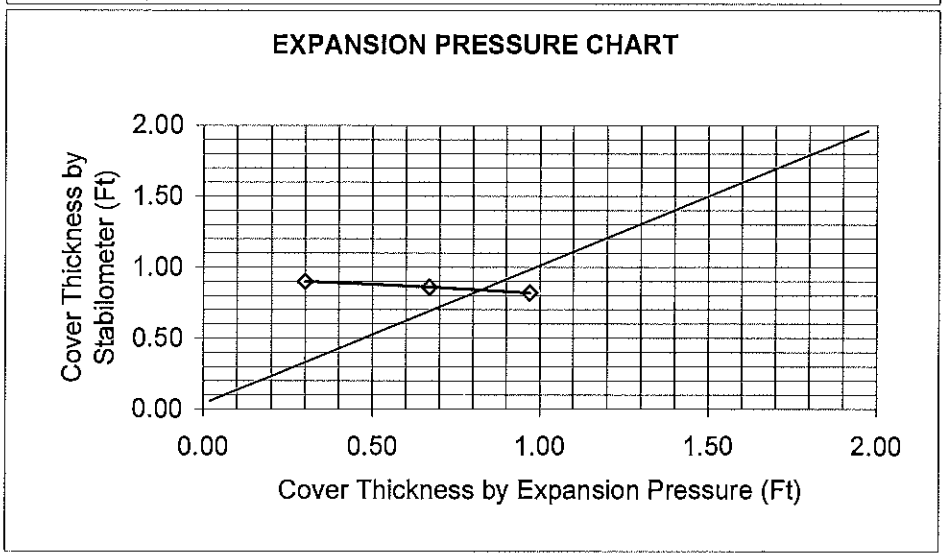
ASTM D 2435-90

1300 Cravens Lane
4 @ 3
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 93.0 pcf
Initial Moisture, %: 27.2%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.793







JOB NAME: 1300 Cravens
SAMPLE I. D.: Boring 3@0-5'
SOIL DESCRIPTION: Fine Sandy Clay with Silt (CL)

SPECIMEN NUMBER	A	B	C
EXUDATION PRESSURE	459	293	180
RESISTANCE VALUE	13	9	4
EXPANSION DIAL(0.0001")	29	20	9
EXPANSION PRESSURE (PSF)	125.6	86.6	39.0
% MOISTURE AT TEST	13.7	15.0	16.4
DRY DENSITY AT TEST	115.6	113.5	113.3

R-VALUE @ 300 PSI EXUDATION	**9**
R-VALUE by Expansion Pressure*	**13**

**Based on a Traffic Index of 5.0 and a Gravel Factor of 1.70*

Capco Analytical Services INC. (CAS)
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Earth Systems
Sample ID: B 1 @ 0-5
Date Received: 01/24/05
Date Sampled: 01/24/05

Sample Matrix: Soil
CAS LAB NO: 05015701

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	METHOD	ANALYZED
*Chloride	42	mg/Kg	1	10	300.0M	01/28/05
pH	7.5	S.U.	1	---	9045	01/28/05
*Resistivity	3660	ohms-cm	1	3	CA test 424	01/28/05
*Sulfate	88	mg/Kg	1	10	300.0M	01/28/05

*Sample was analyzed on a 1:3 soil/water extract. Results were reported based on the original soil sample weight.
PQL: Practical Quantitation Limit
BQL: Below Practical Quantitation Limit

Principal Analyst

APPENDIX C

Liquefaction Analysis

CPT-LIQUEFY.XLS - A SPREADSHEET FOR EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL USING CPT DATA

Developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Project: Cravens Lane
Job No: VT-23345-01
Date: 3/7/2005
Sounding: CPT-1
Plot: 1

Methods: Liquefaction Analysis using 1998 NCEER workshop methods (Robertson & Wride)
Post-liquefaction Settlement Analysis from Tokimatsu & Seed (1987)
Dry Sand Settlement by Pradel, ASCE Journal of G&GE, Vol 124, No. 4

Total Liquefied Thickness (feet)
9.8

EARTHQUAKE INFORMATION:

Magnitude:	7	7.5
PGA, g:	0.70	0.59
MSF:	1.19	
GWT, feet:	3.0	
Design GWT, feet:	3.0	

Induced CSR (M=7.5): = 0.65*PGA*(po/p'o)*rd/MSF
Clean Sand Qc1n = C_Q*K_C*K_H*Qc
SF = $CRR_{7.5}$*Kσ/CSR
Use Tokimatsu & Seed (0) or Ishihara &Yoshmine (1): 0
Unit Weight of unsaturated soils: 100 pcf
Unit Weight of saturated soils: 120 pcf
Limiting Ic for liquefiable soils: 2.55
Limiting Ic for K_H: 2.0
Required SF: 1.50
Min SF of Liquefiable Layers: 0.14
Avg SF of Liquefiable Layers: 0.03

Probab	Total Induced Subsidence (inches)
Avg	
7%	
Max	
100%	1.9

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Overide	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	*Volumetric Strain (%)*
0.16	6.96	0.10	1.48	120	0.010	1.000	1.48	0.85	1.70	11.17	2.79		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
0.33	107.91	0.15	0.14	120	0.020	1.000	0.14	0.50	1.70	173.36	1.28		1	100	1.00	0.20	1.52	263.3	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.49	99.68	0.28	0.28	120	0.030	1.000	0.28	0.50	1.70	160.12	1.43		1	96	1.00	0.20	1.52	243.2	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.66	79.40	0.30	0.38	120	0.039	1.000	0.38	0.50	1.70	127.52	1.58		1	87	1.00	0.20	1.52	193.7	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.82	49.48	0.32	0.65	120	0.049	1.000	0.66	0.57	1.70	79.43	1.88		1	67	1.17	0.20	1.52	141.3	1.00	0.343	0.343	0.381	Non-Liq.	Non-Liq.	0.00
0.98	34.22	0.32	0.92	120	0.059	1.000	0.93	0.64	1.70	54.69	2.10		1	52	1.45		1.00	79.7	1.00	0.127	0.127	0.381	Non-Liq.	Non-Liq.	0.00
1.15	26.19	0.37	1.40	120	0.069	0.999	1.40	0.70	1.70	41.97	2.30		1	41	1.94		1.00	81.5	1.00	0.130	0.130	0.381	Non-Liq.	Non-Liq.	0.00
1.31	26.19	0.37	1.40	120	0.079	0.999	1.40	0.70	1.70	41.96	2.30		1	41	1.94		1.00	81.5	1.00	0.130	0.130	0.381	Non-Liq.	Non-Liq.	0.00
1.48	19.45	0.39	1.98	120	0.089	0.999	1.99	0.76	1.70	31.11	2.49		1	28	2.73		1.00	85.0	1.00	0.137	0.137	0.381	Non-Liq.	Non-Liq.	0.00
1.64	14.03	0.39	2.79	120	0.098	0.998	2.81	0.82	1.70	22.39	2.70		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
1.80	11.66	0.33	2.80	120	0.108	0.998	2.82	0.84	1.70	18.56	2.76		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
1.97	7.90	0.24	3.08	120	0.118	0.998	3.12	0.89	1.70	12.50	2.93		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
2.13	7.01	0.17	2.35	120	0.128	0.997	2.40	0.88	1.70	11.06	2.91		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.30	6.38	0.13	2.10	120	0.138	0.997	2.15	0.88	1.70	10.03	2.92		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.46	6.60	0.13	1.91	120	0.148	0.996	1.95	0.87	1.70	10.37	2.88		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.62	5.35	0.12	2.28	120	0.157	0.996	2.35	0.91	1.70	8.34	3.00		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.79	4.21	0.10	2.42	120	0.167	0.996	2.52	0.94	1.70	6.50	3.11		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.95	4.28	0.06	1.38	120	0.177	0.995	1.44	0.90	1.70	6.59	2.99		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
3.12	4.38	0.05	1.12	120	0.186	0.995	1.17	0.89	1.70	6.74	2.94		0						1.00			0.382	Non-Liq.	Non-Liq.	0.00
3.28	5.58	0.05	0.93	120	0.191	0.994	0.96	0.85	1.70	8.66	2.80		0						1.00			0.392	Non-Liq.	Non-Liq.	0.00
3.44	9.81	0.04	0.41	120	0.195	0.994	0.42	0.74	1.70	15.45	2.43		1	0	1.00		1.00	15.4	1.00	0.063	0.063	0.401	0.16	100%	5.21
3.61	12.02	0.04	0.34	120	0.200	0.994	0.35	0.70	1.70	18.99	2.32		1	8	1.00		1.00	19.0	1.00	0.066	0.066	0.410	0.16	100%	4.64
3.77	6.58	0.05	0.56	120	0.205	0.993	0.57	0.77	1.70	13.46	2.54	1	0		2.96		1.00		1.00			0.419	Non-Liq.	Non-Liq.	0.00
3.94	6.07	0.06	1.00	120	0.210	0.993	1.04	0.84	1.70	9.42	2.79		0						1.00			0.427	Non-Liq.	Non-Liq.	0.00
4.10	4.77	0.07	1.40	120	0.214	0.993	1.47	0.89	1.70	7.32	2.95		0						1.00			0.435	Non-Liq.	Non-Liq.	0.00
4.27	4.29	0.06	1.42	120	0.219	0.992	1.50	0.91	1.70	6.54	3.00		0						1.00			0.442	Non-Liq.	Non-Liq.	0.00
4.43	3.99	0.07	1.73	120	0.224	0.992	1.83	0.93	1.70	6.05	3.07		0						1.00			0.449	Non-Liq.	Non-Liq.	0.00
4.59	3.78	0.09	2.25	120	0.228	0.991	2.39	0.95	1.70	5.71	3.15		0						1.00			0.456	Non-Liq.	Non-Liq.	0.00
4.76	3.88	0.09	2.37	120	0.233	0.991	2.52	0.95	1.70	5.86	3.15		0						1.00			0.463	Non-Liq.	Non-Liq.	0.00
4.92	3.70	0.09	2.38	120	0.238	0.991	2.54	0.96	1.70	5.56	3.17		0						1.00			0.469	Non-Liq.	Non-Liq.	0.00
5.09	4.11	0.09	2.19	120	0.243	0.990	2.33	0.94	1.70	6.21	3.11		0						1.00			0.475	Non-Liq.	Non-Liq.	0.00
5.25	4.11	0.07	1.70	120	0.247	0.990	1.81	0.93	1.70	6.21	3.06		0						1.00			0.481	Non-Liq.	Non-Liq.	0.00
5.41	3.47	0.07	2.05	120	0.252	0.989	2.21	0.96	1.70	5.17	3.17		0						1.00			0.486	Non-Liq.	Non-Liq.	0.00
5.58	3.62	0.09	2.43	120	0.257	0.989	2.62	0.96	1.70	5.40	3.19		0						1.00			0.492	Non-Liq.	Non-Liq.	0.00
5.74	4.20	0.08	1.79	120	0.262	0.989	1.90	0.93	1.70	6.33	3.06		0						1.00			0.497	Non-Liq.	Non-Liq.	0.00
5.91	9.35	0.06	0.68	120	0.266	0.988	0.70	0.77	1.70	14.60	2.54	1	0		2.98		1.00		1.00			0.502	Non-Liq.	Non-Liq.	0.00
6.07	11.79	0.12	1.03	120	0.271	0.988	1.06	0.77	1.70	18.51	2.53	1	0		2.93		1.00		1.00			0.507	Non-Liq.	Non-Liq.	0.00
6.23	8.93	0.10	1.12	120	0.276	0.988	1.16	0.81	1.70	13.91	2.66		0						1.00			0.511	Non-Liq.	Non-Liq.	0.00
6.40	7.25	0.09	1.28	120	0.280	0.987	1.33	0.84	1.70	11.20	2.77		0						1.00			0.516	Non-Liq.	Non-Liq.	0.00
6.56	22.46	0.06	0.26	120	0.285	0.987	0.28	0.62	1.70	35.66	2.03		1	34	1.00		1.00	35.7	1.00	0.080	0.080	0.520	0.15	100%	3.09
6.73	24.84	0.06	0.24	120	0.290	0.986	0.24	0.60	1.70	39.45	1.97		1	38	1.00	0.05	1.71	67.5	1.00	0.109	0.109	0.524	0.21	99%	2.07
6.89	19.25	0.08	0.43	120	0.295	0.986	0.43	0.66	1.70	30.46	2.16		1	27	1.00		1.00	30.5	1.00	0.075	0.075	0.528	0.14	100%	3.52
7.05	13.46	0.10	0.77	120	0.299	0.986	0.79	0.73	1.70	21.15	2.42		1	12	2.39		1.00	50.5	1.00	0.092	0.092	0.532	0.17	100%	2.52
7.22	8.38	0.09	1.09	120	0.304	0.985	1.13	0.81	1.70	12.98	2.68		0						1.00			0.535	Non-Liq.	Non-Liq.	0.00
7.38	5.39	0.06	1.19	120	0.309	0.985	1.26	0.87	1.70	8.16	2.88		0						1.00			0.539	Non-Liq.	Non-Liq.	0.00
7.55	5.20	0.08	1.58	120	0.313	0.985	1.68	0.89	1.70	7.85	2.95		0						1.00			0.542	Non-Liq.	Non-Liq.	0.00
7.71	5.20	0.08	1.58	120	0.318	0.984	1.68	0.89	1.70	7.84	2.95		0						1.00			0.546	Non-Liq.	Non-Liq.	0.00
7.87	11.54	0.08	0.65	120	0.323	0.984	0.67	0.74	1.70	18.02	2.45		1	6	2.52		1.00	45.4	1.00	0.088	0.088	0.549	0.16	100%	2.68
8.04	12.97	0.08	0.63	120	0.328	0.984	0.65	0.73	1.70	20.31	2.40		1	11	2.30		1.00	46.6	1.00	0.089	0.089	0.552	0.16	100%	2.65
8.20	7.86	0.04	0.55	120	0.332	0.983	0.57	0.76	1.70	12.10	2.58		0						1.00			0.555	Non-Liq.	Non-Liq.	0.00
8.37	5.58	0.06	1.11	120	0.337	0.983	1.18	0.86	1.70	8.42	2.85		0						1.00			0.558	Non-Liq.	Non-Liq.	0.00
8.53	4.24	0.07	1.75	120	0.342	0.982	1.90	0.93	1.70	6.26	3.06		0						1.00			0.561	Non-Liq.	Non-Liq.	0.00
8.69	4.20	0.08	1.90	120	0.347	0.982	2.08	0.93	1.70	6.19	3.09		0						1.00			0.564	Non-Liq.	Non-Liq.	0.00
8.86	4.08	0.08	1.91	120	0.351	0.982	2.09	0.94	1.70	5.99	3.10		0						1.00			0.567	Non-Liq.	Non-Liq.	0.00
9.02	4.18	0.06	1.44	120	0.356	0.981	1.57	0.92	1.70	6.14	3.03		0						1.00			0.569	Non-Liq.	Non-Liq.	0.00
9.19	4.21	0.05	1.28	120	0.361	0.981	1.40	0.91	1.70	6.19	3.01		0						1.00			0.572	Non-Liq.	Non-Liq.	0.00
9.35	4.35	0.06	1.29	120	0.365	0.981	1.41	0.91	1.70	6.40	2.99		0						1.00			0.574	Non-Liq.	Non-Liq.	0.00
9.51	4.88	0.06	1.23	120	0.370	0.980	1.33	0.89	1.70	7.25	2.94		0						1.00			0.577	Non-Liq.	Non-Liq.	0.00
9.68	5.38	0.09	1.58	120	0.375	0.980	1.70	0.89	1.70	8.04	2.95		0						1.00			0.579	Non-Liq.	Non-Liq.	0.00
9.84	7.50	0.11	1.51	120	0.380	0.980	1.59	0.85	1.70	11.44	2.80		0						1.00			0.581	Non-Liq.	Non-Liq.	0.00
10.01	9.30	0.12	1.29	120	0.384	0.979	1.35	0.81	1.70	14.33	2.66		0						1.00			0.584	Non-Liq.	Non-Liq.	0.00
10.17	9.70	0.15	1.59	120	0.389	0.979	1.65	0.82	1.70	14.96	2.71		0						1.00			0.586	Non-Liq.	Non-Liq.	0.00
10.33	10.29	0.22	2.17	120	0.394	0.979	2.25	0.84	1.70	15.90	2.76		0						1.00			0.588	Non-Liq.	Non-Liq.	0.00
10.50	10.55	0.28	2.62	120	0.399	0.978	2.72	0.85	1.70	16.31	2.80		0						1.00			0.590	Non-Liq.	Non-Liq.	0.00
10.66	10.35	0.28	2.66	120	0.403	0.978	2.76	0.85	1.70	15.98	2.81		0						1.00			0.592	Non-Liq.	Non-Liq.	0.00
10.83	9.30	0.37	3.96	120	0.408	0.978	4.14	0.89	1.70	14.29	2.96		0						1.00			0.594	Non-Liq.	Non-Liq.	0.00
10.99	9.17	0.33	3.59	120	0.413	0.977	3.76	0.89	1.70	14.07	2.93		0						1.00			0.596	Non-Liq.	Non-Liq.	0.00
11.15	9.87	0.27	2.75	120	0.417	0.977	2.87	0.86	1.70	15.19	2.84		0						1.00			0.598	Non-Liq.	Non-Liq.	0.00
11.32	18.64	0.17	0.92	120	0.422	0.977	0.94	0.71	1.70	29.27	2.33		1	26	2.05		1.00	60.1	1.00	0.100	0.100	0.599	0.17	100%	2.26
11.48	27.21	0.13	0.49	120	0.427	0.976	0.50	0.62	1.70	43.04	2.05		1	42	1.38		1.00	59.2	1.00	0.099	0.099	0.601	0.17	100%	2.29
11.65	17.97	0.10	0.55	120	0.432	0.976	0.56	0.68	1.70	28.18	2.24		1	24	1.77		1.00	49.9	1.00	0.092	0.092	0.603	0.15	100%	2.55
11.81	11.33	0.14	1.24	120	0.436	0.975	1.29	0.79	1.70	17.50	2.59		0						1.00			0.604	Non-Liq.	Non-Liq.	0.00
11.98	21.58	0.22	1.02	120	0.441	0.975	1.04	0.70	1.70	33.97	2.30		1	32	1.95		1.00	66.2	1.00	0.107	0.107	0.606	0.18	100%	2.11
12.14	20.22	0.14	0.70	120	0.446	0.975	0.72	0.68	1.70	31.77	2.24		1	29	1.78		1.00	56.5	1.00	0.097	0.097	0.608	0.16	100%	2.36

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_o	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_c	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
12.30	12.66	0.20	1.57	120	0.450	0.974	1.63	0.79	1.70	19.62	2.61		0						1.00			0.609	Non-Liq.	Non-Liq.	0.00
12.47	12.16	0.31	2.51	120	0.455	0.974	2.61	0.83	1.70	18.81	2.74		0						1.00			0.611	Non-Liq.	Non-Liq.	0.00
12.63	11.68	0.37	3.13	120	0.460	0.974	3.26	0.85	1.70	18.03	2.81		0						1.00			0.612	Non-Liq.	Non-Liq.	0.00
12.80	13.18	0.42	3.19	120	0.465	0.973	3.31	0.84	1.70	20.43	2.77		0						1.00			0.614	Non-Liq.	Non-Liq.	0.00
12.96	13.31	0.40	3.03	120	0.469	0.973	3.14	0.83	1.70	20.63	2.76		0						1.00			0.615	Non-Liq.	Non-Liq.	0.00
13.12	14.41	0.40	2.78	120	0.474	0.973	2.98	0.82	1.70	22.39	2.70		0						1.00			0.616	Non-Liq.	Non-Liq.	0.00
13.29	14.89	0.40	2.69	120	0.479	0.972	2.78	0.81	1.70	23.16	2.68		0						1.00			0.618	Non-Liq.	Non-Liq.	0.00
13.45	15.90	0.43	2.70	120	0.484	0.972	2.79	0.81	1.70	24.77	2.66		0						1.00			0.619	Non-Liq.	Non-Liq.	0.00
13.62	15.90	0.46	2.89	120	0.488	0.972	2.98	0.81	1.70	24.76	2.68		0						1.00			0.620	Non-Liq.	Non-Liq.	0.00
13.78	15.19	0.43	2.82	120	0.493	0.971	2.91	0.81	1.70	23.62	2.69		0						1.00			0.621	Non-Liq.	Non-Liq.	0.00
13.94	13.68	0.39	2.85	120	0.498	0.971	2.96	0.83	1.70	21.18	2.73		0						1.00			0.623	Non-Liq.	Non-Liq.	0.00
14.11	12.46	0.38	3.07	120	0.502	0.971	3.19	0.84	1.70	19.21	2.78		0						1.00			0.624	Non-Liq.	Non-Liq.	0.00
14.27	12.49	0.36	2.89	120	0.507	0.970	3.01	0.84	1.70	19.25	2.77		0						1.00			0.625	Non-Liq.	Non-Liq.	0.00
14.44	11.96	0.32	2.63	120	0.512	0.970	2.75	0.84	1.70	18.39	2.76		0						1.00			0.626	Non-Liq.	Non-Liq.	0.00
14.60	12.45	0.28	2.26	120	0.517	0.970	2.35	0.82	1.70	19.17	2.71		0						1.00			0.627	Non-Liq.	Non-Liq.	0.00
14.76	17.04	0.31	1.84	120	0.521	0.969	1.89	0.77	1.70	26.54	2.54	1	0		2.95		1.00		1.00			0.628	Non-Liq.	Non-Liq.	0.00
14.93	17.72	0.33	1.87	120	0.526	0.969	1.93	0.77	1.70	27.63	2.53		1	23	2.91		1.00	80.3	1.00	0.128	0.128	0.629	0.20	99%	1.83
15.09	18.67	0.36	1.91	120	0.531	0.969	1.96	0.76	1.69	29.00	2.51		1	25	2.84		1.00	82.3	1.00	0.132	0.132	0.630	0.21	99%	1.79
15.26	20.33	0.42	2.05	120	0.536	0.968	2.11	0.76	1.68	31.38	2.51		1	29	2.80		1.00	87.7	1.00	0.143	0.143	0.631	0.23	99%	1.70
15.42	21.88	0.50	2.27	120	0.540	0.968	2.32	0.76	1.67	33.63	2.51		1	32	2.81		1.00	94.6	1.00	0.159	0.159	0.632	0.25	99%	1.59
15.58	22.02	0.47	2.14	120	0.545	0.967	2.19	0.76	1.65	33.52	2.49		1	31	2.74		1.00	91.7	1.00	0.152	0.152	0.633	0.24	99%	1.64
15.75	21.69	0.62	2.87	120	0.550	0.967	2.95	0.78	1.67	33.33	2.58		0						1.00			0.634	Non-Liq.	Non-Liq.	0.00
15.91	23.58	0.65	2.77	120	0.554	0.967	2.84	0.77	1.65	35.82	2.54	1	0		3.00		1.00		1.00			0.635	Non-Liq.	Non-Liq.	0.00
16.08	24.63	0.76	3.08	120	0.559	0.966	3.15	0.78	1.64	37.32	2.56		0						1.00			0.636	Non-Liq.	Non-Liq.	0.00
16.24	22.99	0.73	3.18	120	0.564	0.966	3.26	0.79	1.64	34.76	2.59		0						1.00			0.637	Non-Liq.	Non-Liq.	0.00
16.40	23.70	0.69	2.92	120	0.569	0.966	2.99	0.78	1.62	35.41	2.56		0						1.00			0.638	Non-Liq.	Non-Liq.	0.00
16.57	26.49	0.69	2.61	120	0.573	0.965	2.67	0.76	1.59	38.96	2.50	1	0		2.76		1.00		1.00			0.638	Non-Liq.	Non-Liq.	0.00
16.73	32.45	0.79	2.45	120	0.578	0.965	2.49	0.73	1.56	46.93	2.42		1	45	2.39		1.00	112.1	1.00	0.211	0.211	0.639	0.33	97%	1.34
16.90	32.45	0.43	1.33	120	0.583	0.965	1.35	0.69	1.51	45.35	2.26		1	44	1.83		1.00	83.0	1.00	0.133	0.133	0.640	0.21	99%	1.78
17.06	24.63	0.58	2.36	120	0.587	0.964	2.42	0.76	1.56	35.50	2.50		1	34	2.78		1.00	98.6	1.00	0.169	0.169	0.641	0.26	99%	1.53
17.22	33.34	0.83	2.49	120	0.592	0.964	2.53	0.73	1.53	47.39	2.42		1	46	2.40		1.00	113.5	1.00	0.216	0.216	0.642	0.34	97%	1.32
17.39	64.63	0.98	1.52	120	0.597	0.963	1.54	0.63	1.44	86.88	2.08		1	71	1.42		1.00	123.2	1.00	0.254	0.254	0.642	0.40	96%	1.20
17.55	59.06	0.65	1.11	120	0.602	0.963	1.12	0.61	1.41	78.18	2.02		1	67	1.33		1.00	104.1	1.00	0.185	0.185	0.643	0.29	98%	1.45
17.72	33.75	0.78	2.32	120	0.606	0.963	2.36	0.73	1.50	47.00	2.40		1	45	2.32		1.00	109.1	1.00	0.201	0.201	0.644	0.31	98%	1.38
17.88	22.04	0.64	2.90	120	0.611	0.962	2.98	0.79	1.54	31.23	2.60		0						1.00			0.644	Non-Liq.	Non-Liq.	0.00
18.04	16.14	0.56	3.48	120	0.616	0.962	3.61	0.84	1.57	23.06	2.76		0						1.00			0.645	Non-Liq.	Non-Liq.	0.00
18.21	15.69	0.46	2.94	120	0.621	0.962	3.06	0.83	1.55	22.12	2.72		0						1.00			0.646	Non-Liq.	Non-Liq.	0.00
18.37	14.07	0.46	3.30	120	0.625	0.961	3.45	0.85	1.56	19.83	2.79		0						1.00			0.646	Non-Liq.	Non-Liq.	0.00
18.54	13.63	0.42	3.10	120	0.630	0.961	3.25	0.85	1.55	19.05	2.79		0						1.00			0.647	Non-Liq.	Non-Liq.	0.00
18.70	14.60	0.43	2.97	120	0.635	0.960	3.11	0.84	1.53	20.23	2.76		0						1.00			0.648	Non-Liq.	Non-Liq.	0.00
18.86	21.73	0.40	1.85	120	0.639	0.960	1.91	0.76	1.47	29.22	2.50	1	0		2.79		1.00		1.00			0.648	Non-Liq.	Non-Liq.	0.00
19.03	26.72	0.88	3.29	120	0.644	0.960	3.37	0.78	1.48	36.37	2.59		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
19.19	33.85	1.10	3.25	120	0.649	0.959	3.31	0.76	1.45	45.54	2.51	1	0		2.83		1.00		1.00			0.649	Non-Liq.	Non-Liq.	0.00
19.36	98.78	1.11	1.12	120	0.654	0.959	1.13	0.57	1.32	122.14	1.88		1	85	1.17	0.30	1.41	201.0	1.00	Infin.	0.000	0.650	Non-Liq.	Non-Liq.	0.00
19.52	120.23	0.97	0.80	120	0.658	0.958	0.81	0.53	1.28	145.05	1.73		1	92	1.06	0.30	1.41	215.5	1.00	Infin.	0.000	0.650	Non-Liq.	Non-Liq.	0.00
19.69	133.42	1.14	0.85	120	0.663	0.958	0.86	0.52	1.28	160.10	1.71		1	98	1.05	0.30	1.41	235.6	1.00	Infin.	0.000	0.651	Non-Liq.	Non-Liq.	0.00
19.85	144.43	1.55	1.07	120	0.668	0.957	1.08	0.53	1.28	173.77	1.76		1	100	1.08	0.30	1.41	262.9	1.00	Infin.	0.000	0.651	Non-Liq.	Non-Liq.	0.00
20.01	142.58	1.99	1.40	120	0.673	0.957	1.40	0.56	1.29	172.86	1.84		1	100	1.14	0.30	1.41	276.7	1.00	Infin.	0.000	0.652	Non-Liq.	Non-Liq.	0.00
20.18	129.50	2.20	1.69	120	0.677	0.957	1.70	0.59	1.30	158.19	1.93		1	96	1.22	0.30	1.41	271.0	1.00	Infin.	0.000	0.652	Non-Liq.	Non-Liq.	0.00
20.34	107.07	2.13	1.99	120	0.682	0.956	2.00	0.62	1.31	131.92	2.03		1	88	1.35		1.00	177.7	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
20.51	97.01	2.05	2.12	120	0.687	0.956	2.13	0.63	1.31	119.87	2.08		1	84	1.42		1.00	170.3	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
20.67	97.53	2.45	2.52	120	0.691	0.955	2.53	0.65	1.32	120.63	2.14		1	85	1.52		1.00	183.9	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
20.83	81.08	2.26	2.79	120	0.696	0.955	2.81	0.67	1.33	100.76	2.22		1	77	1.72		1.00	173.5	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
21.00	60.64	2.05	3.38	120	0.701	0.954	3.42	0.72	1.34	76.14	2.37		1	66	2.18		1.00	166.0	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
21.16	49.07	1.98	4.03	120	0.706	0.954	4.09	0.75	1.36	62.02	2.48		1	57	2.69		1.00	166.7	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
21.33	50.61	1.90	3.76	120	0.710	0.954	3.81	0.74	1.35	63.44	2.45		1	58	2.55		1.00	161.7	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
21.49	62.53	1.90	3.04	120	0.715	0.953	3.08	0.71	1.32	77.07	2.33		1	66	2.05		1.00	157.7	1.00	0.445	0.445	0.656	0.68	78%	0.61
21.65	58.56	1.78	3.03	120	0.720	0.953	3.07	0.71	1.32	71.94	2.35		1	63	2.11		1.00	152.1	1.00	0.407	0.407	0.656	0.62	83%	0.74
21.82	36.58	1.38	3.77	120	0.725	0.952	3.85	0.78	1.34	45.45	2.56		0						1.00			0.656	Non-Liq.	Non-Liq.	0.00
21.98	28.62	0.77	2.70	120	0.729	0.952	2.77	0.77	1.33	35.12	2.54	1	0		3.00		1.00		1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.15	26.53	0.72	2.70	120	0.734	0.951	2.78	0.78	1.33	32.42	2.57		0						1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.31	25.43	0.83	3.26	120	0.739	0.951	3.35	0.80	1.33	31.10	2.64		0						1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.47	26.16	0.91	3.46	120	0.743	0.950	3.56	0.80	1.33	31.88	2.65		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.64	30.61	1.02	3.32	120	0.748	0.950	3.40	0.78	1.31	37.03	2.59		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.80	30.18	1.07	3.54	120	0.753	0.949	3.63	0.79	1.31	36.40	2.61		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.97	28.20	1.02	3.61	120	0.758	0.949	3.71	0.80	1.31	33.88	2.64		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
23.13	27.51	0.85	3.10	120	0.762	0.948	3.19	0.79	1.30	32.75	2.61		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.29	24.99	0.77	3.07	120	0.767	0.948	3.17	0.80	1.29	29.61	2.64		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.46	25.73	0.71	2.77	120	0.772	0.947	2.86	0.79	1.28	30.25	2.60		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.62	29.80	0.65	2.17	120	0.776	0.947	2.23	0.75	1.26	34.64	2.49	1	0		2.70		1.00		1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.79	29.36	0.85	2.88	120	0.781	0.946	2.96	0.78	1.27	34.21	2.57		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.95	37.27	0.96	2.58	120	0.786	0.946	2.63	0.75	1.25	43.05	2.46		1	42	2.58		1.00	111.2	1.00	0.208	0.208	0.660	0.32	98%	1.36
24.11	46.24	1.11	2.39	120	0.791	0.945	2.43	0.72	1.23	52.98	2.37		1	50	2.20		1.00	116.7	1.00	0.228	0.228	0.660	0.35	97%	1.29
24.28	42.73	1.03	2.42	120	0.795	0.945	2.47	0.73	1.23	48.80	2.40		1	47	2.32		1.00	113.4	1.00	0.215	0.215	0.660	0.33	98%	1.33
24.44	37.52	0.95	2.53	120	0.800	0.944	2.59	0.75	1.23	42.75	2.46		1	42	2.57		1.00	110.0	1.00	0.204	0.204	0.660	0.31	98%	1.37
24.61	45.83	0.88	1.91	120	0.805	0.943	1.94	0.70	1.21	51.58	2.32		1	49	2.00		1.00	103.2	1.00	0.182	0.182	0.660	0.28	99%	1.47
24.77	51.12	0.88	1.71	120	0.810	0.943	1.74	0.68	1.20	57.10	2.25		1	54	1.80		1.00	102.9	1.00	0.181	0.181	0.660	0.27	99%	1.47
24.93	53.94	1.06	1.97	120	0.814	0.942	2.00	0.69	1.20	60.16	2.27		1	56	1.87		1.00	112.3	1.00	0.212	0.212	0.660	0.32	98%	1.34
25.10	49.53	1.50	3.04	120	0.819	0.942	3.09	0.74	1.21	55.60	2.43		1	52	2.43		1.00	135.3	1.00	0.310	0.310	0.661	0.47	92%	1.07
25.26	35.30	1.28	3.62	120	0.824	0.941	3.71	0.78	1.22	39.66	2.59		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.43	26.51	1.68	6.34	120	0.828	0.941	6.55	0.86	1.23	29.98	2.85		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.59	24.40	1.45	5.92	120	0.833	0.940	6.13	0.87	1.23	27.39	2.86		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.75	47.88	1.49	3.11	120	0.838	0.939	3.17	0.74	1.19	52.88	2.45	1	0		2.54		1.00		1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.92	37.68	1.54	4.08	120	0.843	0.939	4.18	0.79	1.20	41.69	2.61		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
26.08	36.10	1.60	4.44	120	0.847	0.938	4.55	0.80	1.20	39.82	2.65		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
26.25	50.55	2.21	4.38	120	0.852	0.938	4.45	0.77	1.18	55.51	2.54		1	52	3.00		1.00	166.4	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.41	80.55	2.53	3.14	120	0.857	0.937	3.18	0.70	1.16	87.29	2.30		1	71	1.96		1.00	170.9	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.57	90.72	2.74	3.01	120	0.862	0.936	3.04	0.68	1.15	97.77	2.26		1	76	1.82		1.00	177.6	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.74	89.35	2.74	3.06	120	0.866	0.936	3.09	0.69	1.15	95.97	2.27		1	75	1.85		1.00	177.3	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00

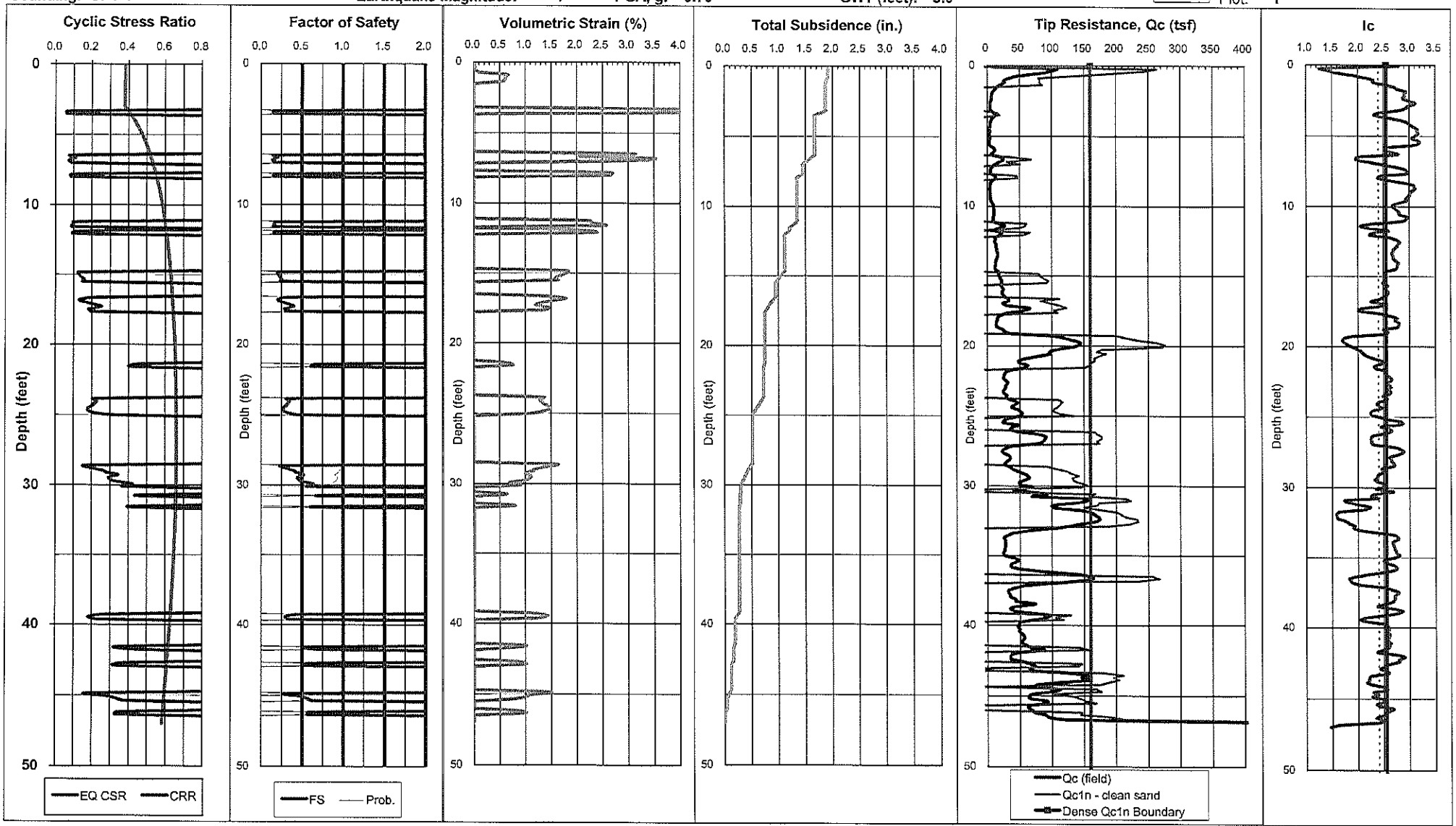
Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
26.90	86.54	2.55	2.94	120	0.871	0.935	2.97	0.69	1.14	92.56	2.26		1	74	1.84		1.00	170.3	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
27.07	79.33	2.65	3.34	120	0.876	0.934	3.38	0.71	1.14	84.77	2.33		1	70	2.05		1.00	174.0	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
27.23	39.88	2.36	5.91	120	0.880	0.934	6.04	0.82	1.16	42.88	2.72		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.40	28.61	1.75	6.10	120	0.885	0.933	6.30	0.86	1.17	30.54	2.83		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.56	23.08	1.31	5.69	120	0.890	0.932	5.92	0.87	1.16	24.39	2.88		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.72	24.96	1.12	4.49	120	0.895	0.932	4.65	0.84	1.15	26.21	2.79		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.89	32.03	1.10	3.42	120	0.899	0.931	3.52	0.80	1.14	33.49	2.63		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
28.05	34.51	1.34	3.87	120	0.904	0.930	3.98	0.80	1.13	36.02	2.64		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
28.22	33.49	1.32	3.94	120	0.909	0.929	4.05	0.81	1.13	34.81	2.66		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.38	28.71	1.07	3.72	120	0.913	0.929	3.85	0.82	1.13	29.62	2.69		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.54	27.19	0.95	3.50	120	0.918	0.928	3.63	0.82	1.12	27.88	2.70		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.71	34.59	0.73	2.10	120	0.923	0.927	2.16	0.75	1.11	35.25	2.47		1	34	2.63		1.00	92.8	1.00	0.154	0.154	0.660	0.23	99%	1.62
28.87	39.11	0.99	2.53	120	0.928	0.926	2.59	0.75	1.10	39.84	2.48		1	39	2.68		1.00	106.9	1.00	0.194	0.194	0.660	0.29	98%	1.41
29.04	46.86	1.37	2.92	120	0.932	0.926	2.98	0.75	1.10	47.71	2.47		1	46	2.60		1.00	124.0	1.00	0.257	0.257	0.660	0.39	96%	1.20
29.20	56.00	1.55	2.76	120	0.937	0.925	2.81	0.73	1.09	56.84	2.39		1	53	2.28		1.00	129.8	1.00	0.283	0.283	0.660	0.43	94%	1.13
29.36	62.19	1.84	2.97	120	0.942	0.924	3.01	0.72	1.09	62.97	2.38		1	58	2.24		1.00	141.2	1.00	0.342	0.342	0.659	0.52	90%	1.01
29.53	63.84	1.65	2.58	120	0.947	0.923	2.62	0.71	1.08	64.32	2.33		1	59	2.06		1.00	132.6	1.00	0.297	0.297	0.659	0.45	93%	1.10
29.69	56.78	1.65	2.91	120	0.951	0.923	2.96	0.73	1.08	57.03	2.41		1	54	2.34		1.00	133.7	1.00	0.302	0.302	0.659	0.46	93%	1.09
29.86	49.14	1.76	3.59	120	0.956	0.922	3.66	0.76	1.08	49.21	2.52		1	47	2.86		1.00	140.8	1.00	0.340	0.340	0.659	0.52	90%	1.01
30.02	53.00	2.11	3.98	120	0.961	0.921	4.05	0.77	1.08	52.96	2.53		1	50	2.91		1.00	154.3	1.00	0.422	0.422	0.659	0.64	81%	0.69
30.18	68.93	2.01	2.92	120	0.965	0.920	2.96	0.71	1.07	68.57	2.35		1	61	2.13		1.00	145.8	1.00	0.368	0.368	0.658	0.56	87%	0.90
30.35	40.42	2.01	4.97	120	0.970	0.919	5.10	0.81	1.07	40.01	2.68		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
30.51	65.53	2.04	3.12	120	0.975	0.918	3.16	0.72	1.06	64.74	2.39	1	0		2.27		1.00		1.00			0.658	Non-Liq.	Non-Liq.	0.00
30.68	92.66	2.67	2.88	120	0.980	0.918	2.91	0.69	1.05	91.36	2.26		1	73	1.83		1.00	167.3	1.00	Infin.	0.000	0.658	Non-Liq.	Non-Liq.	0.00
30.84	71.26	2.33	3.27	120	0.984	0.917	3.32	0.72	1.05	69.98	2.38		1	62	2.24		1.00	156.6	1.00	0.437	0.437	0.657	0.66	79%	0.64
31.00	157.85	1.47	0.93	120	0.989	0.916	0.94	0.53	1.04	153.69	1.75		1	95	1.07	0.40	1.31	215.8	1.00	Infin.	0.000	0.657	Non-Liq.	Non-Liq.	0.00
31.17	153.77	1.88	1.22	120	0.994	0.915	1.23	0.56	1.04	149.56	1.84		1	94	1.14	0.40	1.31	222.9	1.00	Infin.	0.000	0.657	Non-Liq.	Non-Liq.	0.00
31.33	131.67	2.57	1.95	120	0.999	0.914	1.97	0.62	1.04	128.01	2.04		1	87	1.35		1.00	173.0	1.00	Infin.	0.000	0.656	Non-Liq.	Non-Liq.	0.00
31.50	100.31	2.79	2.78	120	1.003	0.913	2.81	0.68	1.04	97.30	2.23		1	76	1.75		1.00	170.1	1.00	Infin.	0.000	0.656	Non-Liq.	Non-Liq.	0.00
31.66	104.45	2.09	2.00	120	1.008	0.912	2.02	0.64	1.03	100.86	2.12		1	77	1.48		1.00	149.8	1.00	0.392	0.392	0.656	0.60	84%	0.80
31.82	140.71	0.77	0.54	120	1.013	0.911	0.55	0.50	1.02	134.97	1.65		1	89	1.00	0.40	1.31	176.9	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
31.99	161.86	0.84	0.52	120	1.017	0.910	0.52	0.50	1.02	155.03	1.59		1	95	1.00	0.40	1.31	202.9	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
32.15	166.31	0.92	0.55	120	1.022	0.909	0.56	0.50	1.02	158.94	1.59		1	96	1.00	0.40	1.31	208.0	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
32.32	172.10	1.06	0.61	120	1.027	0.908	0.62	0.50	1.02	164.13	1.61		1	97	1.00	0.40	1.31	214.8	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.48	173.83	1.77	1.02	120	1.032	0.907	1.02	0.53	1.01	165.55	1.75		1	98	1.07	0.40	1.31	232.7	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.64	167.08	2.05	1.23	120	1.036	0.906	1.24	0.56	1.01	158.76	1.83		1	96	1.13	0.40	1.31	233.9	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.81	146.17	2.24	1.53	120	1.041	0.905	1.54	0.59	1.01	138.48	1.94		1	90	1.22	0.40	1.31	221.9	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
32.97	128.27	1.62	1.26	120	1.046	0.904	1.27	0.58	1.01	121.07	1.92		1	85	1.21	0.40	1.31	191.1	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
33.14	100.88	1.48	1.46	120	1.050	0.903	1.48	0.62	1.00	94.77	2.04	1	0		1.36		1.00		1.00			0.652	Non-Liq.	Non-Liq.	0.00
33.30	64.24	1.72	2.68	120	1.055	0.902	2.73	0.72	1.00	59.83	2.37	1	0		2.19		1.00		1.00			0.652	Non-Liq.	Non-Liq.	0.00
33.46	40.85	2.01	4.91	120	1.060	0.901	5.04	0.82	1.00	37.55	2.70		0						1.00			0.651	Non-Liq.	Non-Liq.	0.00
33.63	31.56	1.45	4.60	120	1.065	0.900	4.76	0.84	0.99	28.67	2.77		0						1.00			0.651	Non-Liq.	Non-Liq.	0.00
33.79	25.54	0.91	3.55	120	1.069	0.899	3.70	0.84	0.99	22.92	2.77		0						1.00			0.650	Non-Liq.	Non-Liq.	0.00
33.96	27.01	0.74	2.75	120	1.074	0.898	2.87	0.81	0.99	24.22	2.68		0						1.00			0.650	Non-Liq.	Non-Liq.	0.00
34.12	27.20	0.78	2.86	120	1.079	0.897	2.98	0.81	0.98	24.30	2.69		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
34.28	27.52	0.84	3.04	120	1.084	0.896	3.17	0.82	0.98	24.50	2.70		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
34.45	27.45	0.86	3.13	120	1.088	0.895	3.25	0.82	0.98	24.35	2.71		0						0.99			0.648	Non-Liq.	Non-Liq.	0.00
34.61	26.81	0.89	3.31	120	1.093	0.894	3.45	0.83	0.97	23.66	2.74		0						0.99			0.648	Non-Liq.	Non-Liq.	0.00
34.78	26.05	0.86	3.31	120	1.098	0.893	3.45	0.83	0.97	22.87	2.75		0						0.99			0.647	Non-Liq.	Non-Liq.	0.00
34.94	24.71	0.91	3.67	120	1.102	0.892	3.84	0.85	0.97	21.55	2.80		0						0.99			0.647	Non-Liq.	Non-Liq.	0.00
35.10	27.26	0.76	2.79	120	1.107	0.890	2.91	0.81	0.96	23.82	2.69		0						0.99			0.646	Non-Liq.	Non-Liq.	0.00
35.27	41.68	1.07	2.57	120	1.112	0.889	2.64	0.76	0.96	36.92	2.51	1	0		2.84		1.00		0.99			0.646	Non-Liq.	Non-Liq.	0.00
35.43	47.95	1.60	3.34	120	1.117	0.888	3.42	0.77	0.96	42.46	2.54	1	0		3.00		1.00		0.99			0.645	Non-Liq.	Non-Liq.	0.00
35.60	41.05	1.77	4.31	120	1.121	0.887	4.43	0.81	0.95	36.00	2.67		0						0.99			0.644	Non-Liq.	Non-Liq.	0.00
35.76	35.96	1.65	4.60	120	1.126	0.886	4.75	0.83	0.95	31.26	2.74		0						0.99			0.644	Non-Liq.	Non-Liq.	0.00
35.93	37.95	1.77	4.65	120	1.131	0.885	4.80	0.83	0.95	32.94	2.72		0						0.99			0.643	Non-Liq.	Non-Liq.	0.00
36.09	56.20	2.33	4.15	120	1.136	0.883	4.23	0.78	0.95	49.26	2.56		0						0.99			0.643	Non-Liq.	Non-Liq.	0.00
36.25	89.59	2.34	2.61	120	1.140	0.882	2.65	0.69	0.95	79.39	2.27	1	0		1.86		1.00		0.99			0.642	Non-Liq.	Non-Liq.	0.00
36.42	134.53	2.28	1.70	120	1.145	0.881	1.71	0.61	0.95	120.13	2.01	1	0		1.31		1.00		0.98			0.641	Non-Liq.	Non-Liq.	0.00
36.58	159.37	1.86	1.16	120	1.150	0.880	1.17	0.56	0.95	142.74	1.84		1	92	1.14	0.15	1.58	256.7	0.97	Infin.	0.000	0.641	Non-Liq.	Non-Liq.	0.00
36.75	163.70	2.07	1.26	120	1.154	0.878	1.27	0.57	0.95	146.24	1.86		1	93	1.15	0.15	1.58	266.3	0.97	Infin.	0.000	0.640	Non-Liq.	Non-Liq.	0.00
36.91	140.69	1.78	1.26	120	1.159	0.877	1.27	0.58	0.95	125.08	1.91		1	86	1.20	0.15	1.58	236.4	0.96	Infin.	0.000	0.639	Non-Liq.	Non-Liq.	0.00
37.07	101.89	1.73	1.69	120	1.164	0.876	1.71	0.64	0.94	89.58	2.10	1	0		1.46		1.00		0.98			0.639	Non-Liq.	Non-Liq.	0.00
37.24	58.88	2.29	3.89	120	1.169	0.875	3.97	0.77	0.93	50.53	2.54	1	0		2.95		1.00		0.98			0.638	Non-Liq.	Non-Liq.	0.00
37.40	43.65	1.86	4.26	120	1.173	0.873	4.38	0.81	0.92	36.93	2.66		0						0.98			0.637	Non-Liq.	Non-Liq.	0.00
37.57	33.28	1.55	4.67	120	1.178	0.872	4.84	0.84	0.91	27.72	2.78		0						0.98			0.637	Non-Liq.	Non-Liq.	0.00
37.73	32.65	1.23	3.75	120	1.183	0.871	3.90	0.83	0.91	27.13	2.73		0						0.98			0.636	Non-Liq.	Non-Liq.	0.00
37.89	34.50	1.31	3.79	120	1.187	0.869	3.92	0.82	0.91	28.64	2.71		0						0.98			0.635	Non-Liq.	Non-Liq.	0.00
38.06	35.39	1.34	3.80	120	1.192	0.868	3.93	0.82	0.91	29.31	2.70		0						0.98			0.634	Non-Liq.	Non-Liq.	0.00
38.22	43.23	1.84	4.25	120	1.197	0.867	4.37	0.81	0.91	35.96	2.67		0						0.98			0.634	Non-Liq.	Non-Liq.	0.00
38.39	44.57	1.34	3.01	120	1.202	0.865	3.09	0.77	0.91	37.14	2.56		0						0.97			0.633	Non-Liq.	Non-Liq.	0.00
38.55	73.63	2.16	2.93	120	1.206	0.864	2.98	0.72	0.91	62.26	2.38	1	0		2.24		1.00		0.97			0.632	Non-Liq.	Non-Liq.	0.00
38.71	47.93	2.12	4.42	120	1.211	0.863	4.54	0.80	0.90	39.61	2.65		0						0.97			0.631	Non-Liq.	Non-Liq.	0.00
38.88	35.49	2.15	6.07	120	1.216	0.861	6.26	0.86	0.89	28.73	2.85		0						0.97			0.630	Non-Liq.	Non-Liq.	0.00
39.04	39.64	2.08	5.25	120	1.221	0.860	5.42	0.84	0.89	32.21	2.77		0						0.97			0.630	Non-Liq.	Non-Liq.	0.00
39.21	61.96	2.13	3.44	120	1.225	0.859	3.51	0.76	0.90	51.38	2.49	1	0		2.73		1.00		0.97			0.629	Non-Liq.	Non-Liq.	0.00
39.37	95.96	1.82	1.89	120	1.230	0.857	1.92	0.66	0.91	81.09	2.17		1	68	1.59		1.00	128.9	0.96	0.279	0.267	0.628	0.43	94%	1.14
39.53	91.50	1.09	1.19	120	1.235	0.856	1.21	0.62	0.91	77.49	2.05		1	66	1.37		1.00	106.1	0.95	0.191	0.182	0.627	0.29	98%	1.42
39.70	74.36	1.56	2.10	120	1.239	0.854	2.13	0.69	0.90	61.93	2.28		1	57	1.90		1.00	117.6	0.95	0.231	0.220	0.626	0.35	97%	1.27
39.86	50.54	1.61	3.19	120	1.244	0.853	3.27	0.77	0.88	41.13	2.54	1	0		2.98		1.00		0.97			0.625	Non-Liq.	Non-Liq.	0.00
40.03	48.77	1.72	3.52	120	1.249	0.852	3.61	0.78	0.88	39.45	2.58		0						0.97			0.625	Non-Liq.	Non-Liq.	0.00
40.19	46.99	1.65	3.50	120	1.254	0.850	3.60	0.79	0.88	37.83	2.60		0						0.97			0.624	Non-Liq.	Non-Liq.	0.00
40.35	49.92	1.76	3.53	120	1.258	0.849	3.62	0.78	0.87	40.16	2.58		0						0.97			0.623	Non-Liq.	Non-Liq.	0.00
40.52	48.83	1.82	3.73	120	1.263	0.847	3.83	0.79	0.87	39.09	2.60		0						0.97			0.622	Non-Liq.	Non-Liq.	0.00
40.68	52.53	2.09	3.98	120	1.268	0.846	4.08	0.79	0.87	42.01	2.60		0						0.96			0.621	Non-Liq.	Non-Liq.	0.00
40.85	55.97	2.23	3.99	120	1.273	0.844	4.08	0.78	0.87	44.75	2.58		0						0.96			0.620	Non-Liq.	Non-Liq.	0.00
41.01	56.80	2.27	4.00	120	1.277	0.843	4.09	0.78	0.86	45.30	2.58		0						0.96			0.619	Non-Liq.	Non-Liq.	0.00
41.17	54.06	2.40	4.43	120	1.282	0.841	4.54	0.80	0.86	42.81	2.63		0						0.96			0.618	Non-Liq.	Non-Liq.	0.00
41.34	54.19	2.17	4.00	120	1.287	0.840	4.10	0.79	0.86	42.87	2.60		0						0.96			0.617	Non-Liq.	Non-Liq.	0.00

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
41.50	59.22	2.52	4.26	120	1.291	0.838	4.35	0.78	0.86	46.83	2.59		0						0.96			0.617	Non-Liq.	Non-Liq.	0.00
41.67	66.93	2.32	3.46	120	1.296	0.837	3.53	0.75	0.86	53.24	2.48		1	51	2.68		1.00	142.9	0.94	0.352	0.331	0.616	0.54	89%	1.00
41.83	87.71	2.91	3.32	120	1.301	0.835	3.37	0.72	0.86	70.33	2.38		1	62	2.25		1.00	158.3	0.94	0.449	0.422	0.615	0.69	78%	0.59
41.99	50.04	2.92	5.84	120	1.306	0.834	5.99	0.83	0.84	38.67	2.74		0						0.96			0.614	Non-Liq.	Non-Liq.	0.00
42.16	37.61	2.64	7.02	120	1.310	0.832	7.27	0.88	0.83	28.44	2.90		0						0.96			0.613	Non-Liq.	Non-Liq.	0.00
42.32	35.33	1.62	4.57	120	1.315	0.831	4.75	0.84	0.83	26.76	2.79		0						0.96			0.612	Non-Liq.	Non-Liq.	0.00
42.49	36.29	1.72	4.75	120	1.320	0.829	4.92	0.85	0.83	27.42	2.79		0						0.96			0.611	Non-Liq.	Non-Liq.	0.00
42.65	53.06	2.09	3.94	120	1.325	0.827	4.04	0.79	0.84	40.95	2.61		0						0.96			0.610	Non-Liq.	Non-Liq.	0.00
42.81	64.47	2.44	3.78	120	1.329	0.826	3.86	0.77	0.84	50.10	2.53		1	48	2.92		1.00	146.3	0.96	0.371	0.355	0.609	0.58	86%	0.87
42.98	74.15	2.36	3.18	120	1.334	0.824	3.24	0.74	0.84	58.02	2.43		1	54	2.44		1.00	141.5	0.93	0.344	0.321	0.608	0.53	89%	1.00
43.14	64.48	2.76	4.28	120	1.339	0.823	4.37	0.78	0.83	49.68	2.57		0						0.95			0.607	Non-Liq.	Non-Liq.	0.00
43.31	69.37	3.26	4.70	120	1.343	0.821	4.79	0.78	0.83	53.35	2.58		0						0.95			0.606	Non-Liq.	Non-Liq.	0.00
43.47	124.82	3.84	3.08	120	1.348	0.820	3.11	0.69	0.85	98.82	2.26		1	76	1.83		1.00	180.8	0.91	Infin.	0.000	0.605	Non-Liq.	Non-Liq.	0.00
43.64	154.98	5.03	3.24	120	1.353	0.818	3.27	0.67	0.85	123.06	2.22		1	85	1.71		1.00	210.3	0.91	Infin.	0.000	0.604	Non-Liq.	Non-Liq.	0.00
43.80	145.87	4.41	3.02	120	1.358	0.816	3.05	0.67	0.85	115.55	2.21		1	83	1.69		1.00	195.5	0.91	Infin.	0.000	0.603	Non-Liq.	Non-Liq.	0.00
43.96	156.99	4.71	2.96	120	1.362	0.815	2.99	0.66	0.85	126.03	2.18		1	86	1.62		1.00	203.9	0.90	Infin.	0.000	0.602	Non-Liq.	Non-Liq.	0.00
44.13	119.06	4.23	3.56	120	1.367	0.813	3.60	0.71	0.83	92.84	2.33		1	74	2.04		1.00	188.9	0.90	Infin.	0.000	0.601	Non-Liq.	Non-Liq.	0.00
44.29	78.09	3.53	4.52	120	1.372	0.811	4.60	0.77	0.82	59.40	2.53		1	55	2.95		1.00	175.1	0.93	Infin.	0.000	0.600	Non-Liq.	Non-Liq.	0.00
44.46	73.96	3.34	4.52	120	1.376	0.810	4.61	0.77	0.82	55.97	2.55		0						0.95			0.599	Non-Liq.	Non-Liq.	0.00
44.62	112.26	3.48	3.10	120	1.381	0.808	3.14	0.70	0.83	87.01	2.30		1	71	1.95		1.00	169.5	0.90	Infin.	0.000	0.598	Non-Liq.	Non-Liq.	0.00
44.78	101.30	3.73	3.68	120	1.386	0.807	3.73	0.72	0.82	77.65	2.39		1	66	2.27		1.00	176.2	0.92	Infin.	0.000	0.597	Non-Liq.	Non-Liq.	0.00
44.95	71.08	1.28	1.80	120	1.391	0.805	1.83	0.69	0.83	54.51	2.28		1	52	1.89		1.00	103.0	0.92	0.182	0.167	0.596	0.28	99%	1.46
45.11	63.17	2.07	3.27	120	1.395	0.803	3.35	0.76	0.81	47.33	2.50		1	46	2.78		1.00	131.7	0.95	0.293	0.277	0.594	0.47	93%	1.10
45.28	66.87	2.44	3.64	120	1.400	0.802	3.72	0.76	0.81	49.96	2.52		1	48	2.87		1.00	143.1	0.95	0.353	0.334	0.593	0.56	87%	1.00
45.44	92.51	2.85	3.09	120	1.405	0.800	3.13	0.72	0.82	70.28	2.36		1	62	2.16		1.00	152.1	0.92	0.407	0.374	0.592	0.63	82%	0.73
45.60	91.02	3.44	3.78	120	1.410	0.798	3.84	0.74	0.81	68.53	2.43		1	61	2.46		1.00	168.5	0.92	Infin.	0.000	0.591	Non-Liq.	Non-Liq.	0.00
45.77	63.49	3.46	5.45	120	1.414	0.797	5.58	0.81	0.79	46.40	2.67		0						0.94			0.590	Non-Liq.	Non-Liq.	0.00
45.93	63.07	2.97	4.71	120	1.419	0.795	4.82	0.80	0.79	46.14	2.62		0						0.94			0.589	Non-Liq.	Non-Liq.	0.00
46.10	69.47	2.68	3.86	120	1.424	0.793	3.94	0.77	0.80	51.22	2.53	1	0		2.92		1.00		0.94			0.588	Non-Liq.	Non-Liq.	0.00
46.26	73.30	2.62	3.57	120	1.428	0.792	3.64	0.75	0.80	54.17	2.49		1	51	2.71		1.00	146.6	0.91	0.373	0.341	0.587	0.58	86%	0.86
46.42	90.67	2.64	2.91	120	1.433	0.790	2.95	0.71	0.81	67.91	2.35		1	61	2.13		1.00	144.9	0.91	0.363	0.331	0.586	0.57	87%	1.00
46.59	95.03	4.43	4.66	120	1.438	0.788	4.73	0.76	0.79	70.13	2.50		1	62	2.75		1.00	192.7	0.91	Infin.	0.000	0.585	Non-Liq.	Non-Liq.	0.00
46.75	122.38	5.48	4.48	120	1.443	0.787	4.53	0.73	0.80	91.13	2.41		1	73	2.35		1.00	214.0	0.88	Infin.	0.000	0.584	Non-Liq.	Non-Liq.	0.00
46.92	404.73	5.48	1.35	120	1.447	0.785	1.36	0.51	0.85	325.35	1.66		1	100	1.01	0.10	1.64	539.7	0.88	Infin.	0.000	0.582	Non-Liq.	Non-Liq.	0.00
47.08	548.71	5.48	1.00	120	1.452	0.783	1.00	0.50	0.85	441.53	1.47		1	100	1.00	0.10	1.64	726.0	0.88	Infin.	0.000	0.581	Non-Liq.	Non-Liq.	0.00
47.24	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.41	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.57	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.74	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.90	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.06	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.23	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.39	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.56	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.72	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.88	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.05	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.21	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.38	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.54	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.70	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.87	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.03	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.20	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.36	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.52	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.69	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.85	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.02	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.18	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.35	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.51	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.67	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.84	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.00	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.17	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.33	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.49	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.66	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.82	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.99	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.15	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.31	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.48	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.64	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.81	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.97	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.13	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.30	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.46	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.63	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.79	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.95	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.12	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.28	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.45	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.61	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.77	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.94	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Cravens Lane Project No: VT-23345-01

Sounding: CPT-1 Earthquake Magnitude: 7 PGA, g: 0.70 GWT (feet): 3.0 Plot: 1



Total Thickness of Liquefiable Layers: 9.8 feet

Estimated Total Ground Subsidence (Settlement): 1.9 inches



LEGEND

SYMBOLS

- FIRE HYDRANT
- HORIZONTAL & VERTICAL CONTROL
- MANHOLE
- 256.5 – SPOT ELEVATION (AT DECIMAL POINT)
- VALVE
- FOUND SURVEY MONUMENT AS NOTED
- 7424 10"OAK – EXISTING TREE CANOPY (DRIP LINE)
- STRUCTURE FOOTPRINT
- EXISTING STRUCTURE FOOTPRINT

35 NEW UNITS:
20 - 3 Bdrm T.H.
14 - 1 Bdrm Flats
1 - New S.F.R.
1 - Existing R.
36 - TOTAL UNITS

SCALE: 1"=20
0 20 40 60

PROPOSED SITE PLAN
Green Heron Spring
an environmentally responsible residential development
1300-1326 CRAVENS LANE CARPINTERIA, CALIFORNIA

EARTH SYSTEMS SOUTHERN CALIFORNIA
1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

1300 CRAVENS LANE
SITE PLAN
AND
BORING LOCATIONS
JAN. OF 2005 VT-23345-01

SCOTT ELLINWOOD & ASSOCIATES
INCORPORATED
RESOURCE CONSCIOUS ARCHITECTURE & PLANNING
1300 CRAVENS LANE SUITE 100 CARPINTERIA CALIFORNIA 93013
(805) 684-0993 fax: (805) 684-0834
e-mail: SEFAIA@aol.com

UPDATE OF

GEOTECHNICAL ENGINEERING REPORTS

FOR

1300 CRAVENS LANE

CARPINTERIA, CALIFORNIA

VT-23345-03

JLUY 10, 2017

PREPARED FOR

CRAVENS LANE LLC

BY

EARTH SYSTEMS

SOUTHERN CALIFORNIA

1731-A WALTER STREET

VENTURA, CALIFORNIA

Earth Systems
Southern California

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July 7, 2017

Project No.: VT-23345-03
Report No.: 17-7-16

Nancy Johns
Cravens Lane LLC
23622 Calabasas Road, Suite 220
Calabasas, CA 91302

Project: 1300 Cravens Lane
Carpinteria, California
Subject: Update of Geotechnical Engineering Reports
References:
1. Earth Systems Southern California, 2005, Geotechnical Engineering Report, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 05-3-8, March 17
2. Earth Systems Southern California, 2006, Section for Permeable Surface for Drive Lanes & Parking Areas, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 06-2-17, February 2
3. Earth Systems Southern California, 2016, Update of Geotechnical Engineering Reports, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 06-2-17, November 7

Introduction

Earth Systems Southern California (Earth Systems) has been asked to prepare an Update of Geotechnical Engineering Reports and to perform infiltration testing for a proposed residential development to be located at 1300 Cravens Lane in Carpinteria, California. The development will include about 13 residential buildings, surface parking/drive lanes, and site walls. It is our understanding infiltration of storm water will occur though permeable paving and relatively shallow bioswales/basins.

Earth Systems prepared the referenced Geotechnical Engineering Report in February 2005 and the referenced letter “Section for Permeable Surface for Drive Lanes & Parking Areas” in February 2006. The referenced reports are attached to this report.

On July 7, 2017, a representative of this office visited the project site to observe and compare the site's current conditions to those noted in the referenced Earth Systems reports. The site conditions appear to be essentially the same now as then.

Infiltration Testing

Previous borings drilled onsite by Earth Systems (see Reference 1) encountered groundwater at about 3 feet below existing grade.

On October 20, 2016, four test holes (IT-1 through IT-4) were hand excavated to a depth of about 2 feet below the existing grade to allow installation of plastic casing for infiltration testing (see attached Site Plan for boring locations). All test holes were bottomed into native alluvium.

After excavations were completed, 2-inch diameter slotted PVC casings were lowered into each of the test holes. The annuli between the casings and test hole walls were then filled with pea gravel. The holes were then pre-saturated by adding water to each hole. The infiltration tests were run according to a procedure consistent with the referenced Native Soil Assessment for Small Infiltration-Based Stormwater Control Measures (Earth Systems Pacific, December 2013). The procedure used, falling-head borehole infiltration test, is typically accepted by the County of Santa Barbara. Tests were performed at about 2 feet below existing grade. About 1 to 2 feet of water was added to the bottom of each of the holes to start the tests and the drop in the water surface monitored by taking periodic measurements. Readings were taken at about 1-minute intervals, and after each of these intervals, water was added to return the water level to its original refill depth above the hole bottom for the next test interval. Test results are attached and indicate that relatively steady infiltration rates were obtained.

The following table summarizes our infiltration test rates.

Boring	Boring Depth (feet)	Infiltration Rate (in./hr.)*
IT-1	2.0	4.7
IT-2	2.0	3.9
IT-3	2.0	0.5
IT-4	1.9	12.8

*The test rates were determined by averaging the last three readings.

There are many factors that influence the infiltration rate. Clear water was used in our tests, whereas oil residue, silt, organic matter, and other deleterious material will likely be contained in the stormwater. Variations in soil conditions beyond the borings will likely affect infiltration characteristics. The designer of the proposed vertical chambers for the project should consider these factors in their design, as well as apply a factor-of-safety to the infiltration rate to account for future disposal bed siltation.

Revised Seismic Design Values

Although the site is not within a State-designated "fault rupture hazard zone", it is located in an active seismic region where large numbers of earthquakes are recorded each year. Historically, major earthquakes felt in the vicinity of the subject site have originated from faults near or outside the site area. These include the December 21, 1812 "Santa Barbara Region" earthquake, that was

presumably centered in the Santa Barbara Channel, the 1857 Fort Tejon earthquake, the 1872 Owens Valley earthquake, and the 1952 Arvin-Tehachapi earthquake. The June 25, 1925 Santa Barbara earthquake had an estimated magnitude of 6.8 and is not considered a "major" earthquake. However, it did cause widespread damage around Santa Barbara because of poor construction techniques.

It is assumed that the 2016 CBC and ASCE 7-10 guidelines will apply for the seismic design parameters. The 2016 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. The seismic design parameters presented herein were determined by the U.S. Seismic Design Maps "risk-targeted" calculator on the USGS website for the jobsite coordinates (Latitude 34.409° North and Longitude 119.538° West). The calculator adjusts for Soil Site Class D, and for Occupancy (Risk) Category II.

The calculated 2016 California Building Code (CBC) and ASCE 7-10 seismic parameters typically used for structural design are included in Appendix C and summarized in the table below.

Summary of Seismic Parameters – 2016 CBC

Site Class (Table 20.3-1 of ASCE 7-10 with 2013 update)	D
Maximum Considered Earthquake (MCE) Ground Motion	
Spectral Response Acceleration, Short Period – S_s	2.786 g
Spectral Response Acceleration at 1 sec. – S_1	0.986 g
Site Coefficient – F_a	1.00
Site Coefficient – F_v	1.50
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	2.786 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	1.479 g
Design Earthquake Ground Motion	
Short Period Spectral Response – S_{DS}	1.857 g
One Second Spectral Response – S_{D1}	0.986 g
Reference: USGS, 2015, Latitude: 34.409 N degrees Longitude: 119.538 W degrees	

The values presented in the table above are appropriate for a 2% probability of exceedance in 50 years. A listing of the calculated 2016 CBC and ASCE 7-10 seismic parameters is attached. The site peak ground acceleration (PGA) per Section 1803.5.12 of the 2016 CBC and Section 11.8.3 of ASCE 7-10 is 1.093 g. The PGA_M is also 1.092 g.

The Fault Parameters table in Appendix C lists the significant "active" and "potentially active" faults within a 63-mile (100-kilometer) radius of the subject site. The distance between the site and the

nearest portion of each fault is shown, as well as the respective estimated maximum earthquake magnitudes, and the deterministic mean site peak ground accelerations.

Revised Liquefaction Analysis and Dry Sand Settlement

A major cause of damage during earthquakes is a significant reduction of soil strength or stiffness in sandy soils, generally referred to as liquefaction. A related phenomenon, referred to as cyclic softening, can occur in clayey soils. Liquefaction and cyclic softening can cause translational instability, bearing failure, settlement, ground loss, and other related phenomena. Translational instabilities can be slope failures or lateral spreading. Bearing failure can occur when soil strength loss or softening is near a foundation. Settlement can occur when bearing failure is precluded, but volumetric compression occurs. Ground loss results from sand boils and is usually very localized. Liquefaction and cyclic softening are typically a design problem only if they occur in the upper 50 feet of the subsurface soils. However, on sloping ground or when foundations reach beyond that depth, liquefaction should be considered to a greater depth. There are a number of conditions that need to be satisfied for liquefaction or cyclic softening to occur. Of primary importance is that groundwater, perched or otherwise, usually must be within the upper 50 feet of soils. Another type of ground damage caused by earth quakes is settlement in non-saturated (dry) sands. This occurs when ground motion causes the soil particles to reorient into a denser configuration.

Earth Systems performed a liquefaction settlement analyses in Reference 1. The 2016 California Building Code requires higher ground accelerations to be used in these analyses than were required by the 2001 California Building Code in effect in 2005.

Liquefaction and dry sand seismic induced settlement potential have been re-analyzed using the new peak ground acceleration of PGA_M=1.093 g. The results of the new analyses are significantly different than the previous analyses (Earth Systems, 2005). At the approximate location of previous exploration points CPT-1/Boring 1 (both taken to about 50 feet below the ground surface), the previous analyses predicted about 2 inches of liquefaction-induced settlement potential. The current analyses predict about 3.9 inches of liquefaction-induced settlement potential. Seismically induced settlement of dry sands potential is considered low because the upper near-surface soils will be recompacted and the groundwater level is close to the ground surface.

Anticipated differential seismic induced settlement potential could be half of the total settlement, or about 1.9 inches. This amount of differential settlement could occur between two typically spaced columns, or over a distance of 30 to 40 feet. This is equivalent to an angular rotation of about 0.005, a level at which structural damage will be sustained.

Revised Grading Recommendations

Grading at a minimum should conform to Appendix J of the 2016 California Building Code. The grading recommendations set forth in the Geotechnical Engineering Report (Reference 1) will apply to the proposed construction. This previous discussion includes dewatering during reconstruction

which we still think is necessary. Compaction tests should be performed in 12 to 18 inch vertical intervals within the recompacted fill.

Surface draining systems should be designed so that water is not discharged into bearing soils or near the structure. Final site grade could be such that all water is diverted away from the building toward either hardscapes or drain inlets, and is not allowed to pond. In landscape areas adjacent to the building, the 2016 California Building Code (Section 1804.4) requires a minimum gradient of 5% away from the edge of the building foundation for a minimum distance of 10 feet.

Revised Foundation Design Parameters

The amount of predicted seismic induced settlement is anticipated to be more than a typical structure can tolerate. Methods to mitigate settlement include foundation systems strong enough to endure the anticipated movement, foundations that support the structure below the potentially settling soils, or ground modification to reduce the anticipated settlement potential.

The previously recommended post tension can be considered, if the structural engineer can design the foundation for the anticipated 3.9 inches of total liquefaction settlement and 1.9 inches of potential differential settlement over a distance of about 30 to 40 feet.

It is our understanding that no retaining walls greater than 6 feet in height will be constructed. Seismic increment of earth pressure does not need to be considered for retaining walls that are retaining 6 feet or less measured from the finish grade to top of fill behind the wall.

Revised Post-Tensioned Slab Foundations

When lightly loaded foundations are constructed on expansive soils, the California Building Code requires that they be designed to either penetrate the expansive soils and be designed to resist uplift forces, or by the WRI/CRSI Design of Slab-on-Ground Foundations, or by the PTI Standard Requirements for the Design of Shallow Post-Tensioned Concrete Foundations on Expansive Soil. This report provides data to use the PTI procedure according to the 3rd Edition.

The soils parameters required include the soil moisture content, Atterberg limits, fines fraction, clay fraction, and as a check, expansion index. For the project site, these parameters are:

Parameter	Result
Expansion Index	29

Additional considerations for the PTI method are:

Parameter	Value
Thornthwaite Moisture Index	-20
Soil Suction (pF)	4.0
Depth to Constant Suction (feet)	9

Using these data and the soil data, the PTI design method yielded the following design parameters that can be used with other data to design a post-tensioned slab-on-ground for the proposed residential structures.

Parameter	Center Lift	Edge Lift
e_m	5.3 feet	2.5 feet
y_m	0.13 inches	0.41 inches

Post-tension slabs must also be designed for the estimated total and differential seismic induced settlements of 3.9inches and 1.9 inches, respectively.

Perimeter footings should be a minimum of 15 inches deep and interior foundations a minimum of 12 inches deep for one-story construction. For two-story construction, perimeter and interior foundations should be a minimum of 18 inches deep. For three-story construction, perimeter and interior foundations should be a minimum 24 inches deep. Slabs and foundations can be designed for an allowable bearing value of 1,000 psf.

Exterior isolated footings should be tied to the main foundations with tie beams in two directions. The beams should be a minimum of 12 inches below lowest adjacent grade.

Subgrade soils should be pre-moistened to a minimum of optimum moisture to a depth of 12 inches. After pre-moistening is approved, the subgrade should be covered with a vapor retarder in areas where floor wetness would be undesirable. The vapor retarder should in turn be covered with a minimum of 2 inches of clean sand. (The total thickness of sand recommended under post-tensioned slabs is 2 inches.) The sand should be lightly moistened before pouring concrete.

A member of Earth Systems should check footing excavations prior to placing reinforcing to confirm bearing conditions. Slab subgrade premoistening should be confirmed by testing before placing the plastic vapor retarder

Permeable Pavement/Paver Design

Two R-value measurements were determined for the near-surface site subgrade soils and the results were R=9 and R=12. Using a typical residential neighborhood traffic index of 5.5 and the more conservative R-value of 9, paver sections for the interior access roads/parking should have 3 inches (minimum thickness) of pavers over 12.5 inches of aggregate base. The above paving section has been designed for the type of traffic indicated using a procedure outlined by the Interlocking Concrete Pavement Institute. If the pavers are placed before construction on the project is complete, construction loads should be taken into account. Subgrade should be compacted to a minimum of 95% of maximum density to a depth of 12 inches. The subgrade should be firm and unyielding when proof rolled with a loaded water truck or similar load. Aggregate base should be compacted to a minimum of 95% maximum density and should be firm and unyielding prior to placing pavement.

Conclusions

Based on our observations and review of the referenced reports, we conclude that the referenced information along with the additional revised information included in this update letter are appropriate for the proposed construction. The update will remain valid for one year from the date of this letter.

Prior to construction we request the opportunity to review the grading and foundation plans to verify that our recommendations are properly incorporated and make any additional recommendations that might be needed.

Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

EARTH SYSTEMS SOUTHERN CALIFORNIA

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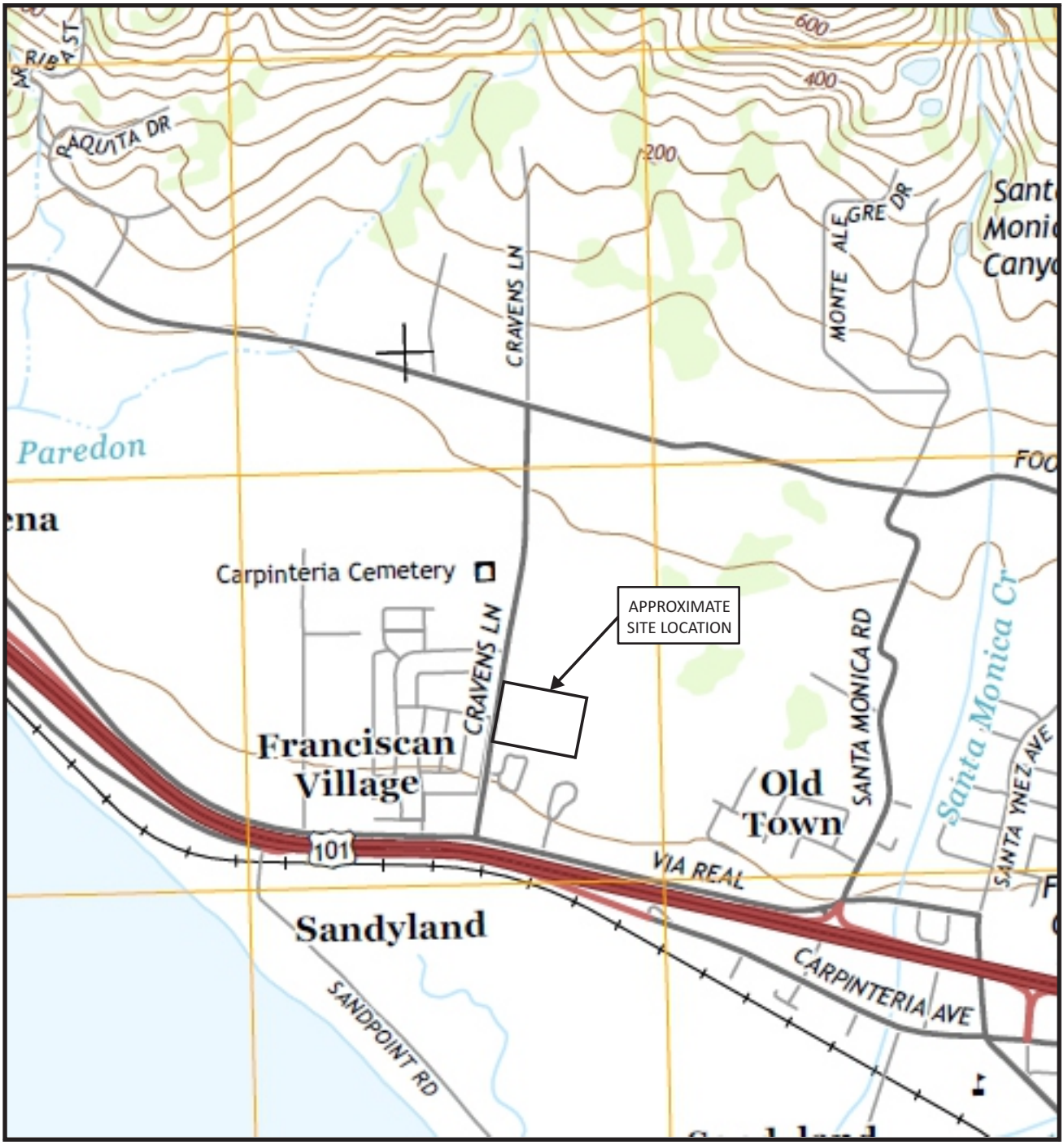
7/10/17

REGISTERED PROFESSIONAL ENGINEER
RICHARD MICHAEL BEARD
GE 128
Exp. 12-31-17
GEOTECHNICAL
STATE OF CALIFORNIA

Attached: Vicinity Map
Revised Site Plan
Log of Boring IT-1 through IT-4
Infiltration Test Results
R-Value Test Results
Table 1 Fault Parameters
2016 California Building Code (CBC)(ASCE 7-10) Seismic Design Parameters
USGS Design Maps
CPT Interpretations and Revised Liquefaction Analyses
Table 18-I-D
Referenced Geotechnical Engineering Report (March 17, 2005)

Copies: 1 - Nancy Johns (3 copies US Mail, 1 copy email)
1 - Scott Dinovitz (1 copy email)
1 - Project File



*Taken from USGS Topo Map, Carpinteria Quadrangle, 2015.

Approximate Scale: 1" = 2,000'

0 2,000' 4,000'

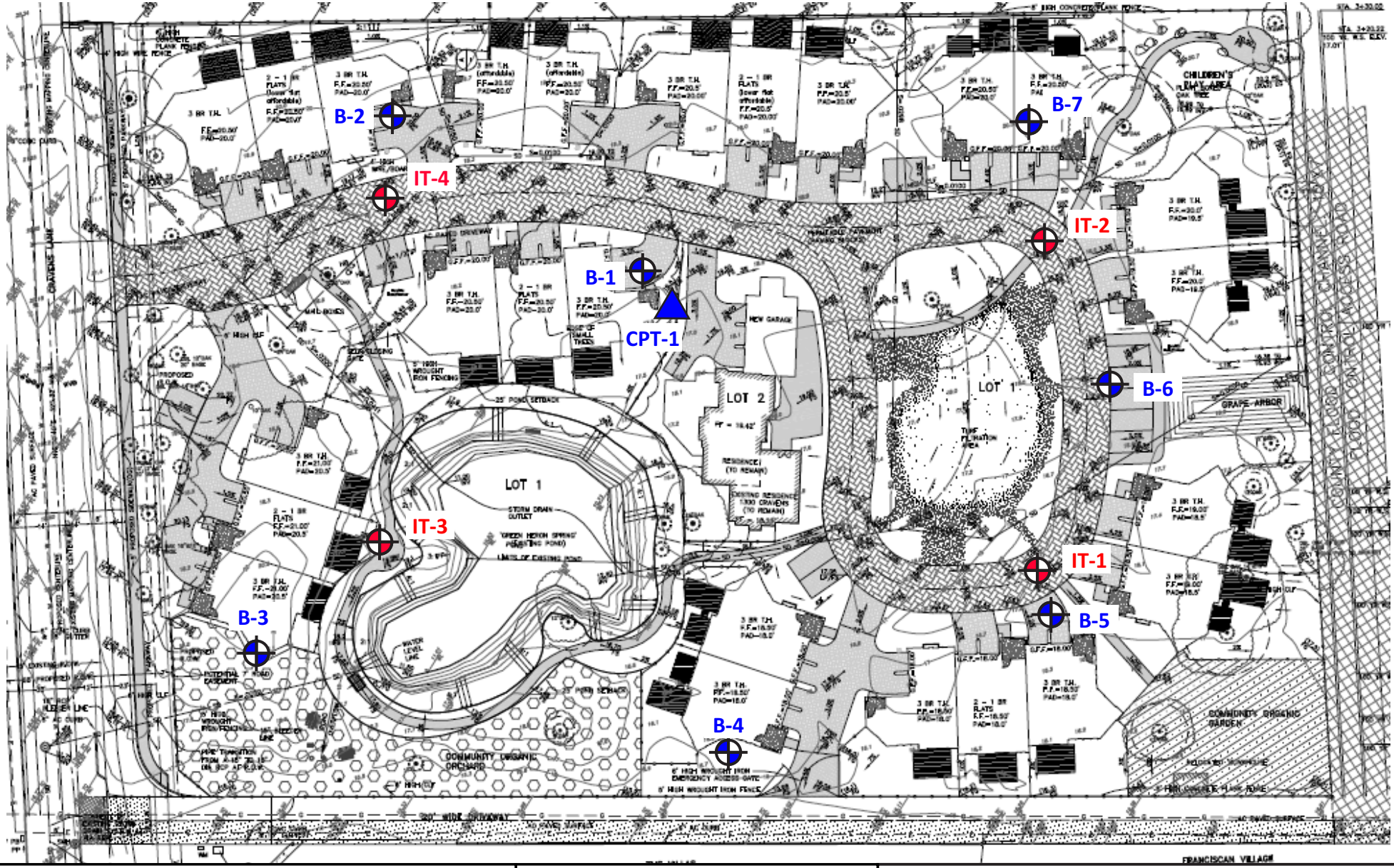
N

VICINITY MAP

1300 Cravens Lane
Carpinteria, California

Earth Systems
Southern California

July 2017	VT-23345-03



IT-4 : Approximate Location of Infiltration Test (2016)

B-7 : Approximate Location of Boring (2005)

CPT-1 : Approximate Location of Cone Penetration Test (2005)

Approximate Scale: 1" = 60'

0 60' 120'

N

SITE PLAN

1300 Cravens Lane
Carpinteria, California

Earth Systems
Southern California

July 2017 | VT-23345-03

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: IT-1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-03
BORING LOCATION: Per Plan

DRILLING DATE: October 20, 2016
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown sandy silt; stiff; dry.
						SM			**ALLUVIUM:** Medium brown silty sand; fine grained; medium dense; damp.
									Total Depth: 2.0 feet. No Groundwater Encountered. Installed 2.0 feet of 2.0 inch slotted PVC pipe and gravel pack.
5									
10									
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: IT-2
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-03
BORING LOCATION: Per Plan

DRILLING DATE: October 20, 2016
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown sandy silt; stiff; dry.
						SM			**ALLUVIUM:** Medium brown silty sand; fine grained; medium dense; damp.
									Total Depth: 2.0 feet. No Groundwater Encountered. Installed 2.0 feet of 2.0 inch slotted PVC pipe and gravel pack.
5									
10									
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: IT-3
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-03
BORING LOCATION: Per Plan

DRILLING DATE: October 20, 2016
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown sandy silt; stiff; dry.
						SM			**ALLUVIUM:** Medium brown silty sand; fine grained; medium dense; damp.
									Total Depth: 2.0 feet. No Groundwater Encountered. Installed 2.0 feet of 2.0 inch slotted PVC pipe and gravel pack.
5									
10									
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: IT-4
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-03
BORING LOCATION: Per Plan

DRILLING DATE: October 20, 2016
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown sandy silt; stiff; dry.
						SM			**ALLUVIUM:** Medium brown silty sand; fine to medium grained; scattered gravels; medium dense; damp.
									Total Depth: 2.0 feet. No Groundwater Encountered. Installed 2.0 feet of 2.0 inch slotted PVC pipe and gravel pack.
5									
10									
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Infiltration Testing

Test Through Zone at Bottom of Infiltration Device

Infiltration Testing Field Data

Date: 10/21/2016

Project Location:	1300 Cravens Lane	Job Number:	VT-23345-03
Earth Description:	See Log	Tested By:	SC
Field Test in Boring	IT-1	Start Time:	12:11PM
Boring Diameter (inches):	4	Total Pipe Length (feet):	2
Boring Depth (feet):	2	Pipe Stick-Up (inches):	0

Time of Day, t (hh:mm)	Delta Time, Δt (min.)	Delta Time, Δt (hr.)	Top of Pipe to Water, (ft.)	Water Depth, d (in.)	Water Depth, d (ft.)	Drop in Water Height, Δd (in.)	Drop in Water Height, Δd (ft.)	Perc Rate, (in/hr)	Corr. Factor, RF	Infilt. Rate (in/hr)
12:11		-	0.60	16.8	1.40					
12:16	5.0	0.08	1.10	10.8	0.90	6.00	0.50	72.00	7.90	9.11
12:16			1.10	10.8	0.90					
12:21	5.0	0.08	1.32	8.2	0.68	2.64	0.22	31.68	5.74	5.52
12:21			1.32	8.2	0.68					
12:26	5.0	0.08	1.50	6.0	0.50	2.16	0.18	25.92	4.54	5.71
12:26			1.50	6.0	0.50					
12:31	5.0	0.08	1.62	4.6	0.38	1.44	0.12	17.28	3.64	4.75
12:31			1.62	4.6	0.38					
12:36	5.0	0.08	1.73	3.2	0.27	1.32	0.11	15.84	2.95	5.37
12:36			1.73	3.2	0.27					
12:41	5.0	0.08	1.80	2.4	0.20	0.84	0.07	10.08	2.41	4.18
12:41			1.80	2.4	0.20					
12:46	5.0	0.08	1.85	1.8	0.15	0.60	0.05	7.20	2.05	3.51
12:46			1.85	1.8	0.15					
12:51	5.0	0.08	1.91	1.1	0.09	0.72	0.06	8.64	1.72	5.02
12:51			1.91	1.1	0.09					
12:56	5.0	0.08	1.96	0.5	0.04	0.60	0.05	7.20	1.39	5.18
12:56			0.60	16.8	1.40					
13:01	5.0	0.08	0.95	12.6	1.05	4.20	0.35	50.40	8.35	6.04
13:01			0.95	12.6	1.05					
13:06	5.0	0.08	1.25	9.0	0.75	3.60	0.30	43.20	6.40	6.75
13:06			1.25	9.0	0.75					
13:11	5.0	0.08	1.41	7.1	0.59	1.92	0.16	23.04	5.02	4.59
13:11			1.41	7.1	0.59					
13:16	5.0	0.08	1.53	5.6	0.47	1.44	0.12	17.28	4.18	4.13
13:16			1.53	5.6	0.47					
13:21	5.0	0.08	1.65	4.2	0.35	1.44	0.12	17.28	3.46	4.99
13:21			1.65	4.2	0.35					
13:26	5.0	0.08	1.71	3.5	0.29	0.72	0.06	8.64	2.92	2.96
13:26			1.71	3.5	0.29					
13:31	5.0	0.08	1.77	2.8	0.23	0.72	0.06	8.64	2.56	3.38
13:31			1.77	2.8	0.23					
13:36	5.0	0.08	1.83	2.0	0.17	0.72	0.06	8.64	2.20	3.93
13:36			1.83	2.0	0.17					
13:41	5.0	0.08	1.88	1.4	0.12	0.60	0.05	7.20	1.87	3.85
13:41			1.88	1.4	0.12					
13:46	5.0	0.08	1.92	1.0	0.08	0.48	0.04	5.76	1.60	3.60
13:46			1.92	1.0	0.08					
13:51	5.0	0.08	1.96	0.5	0.04	0.48	0.04	5.76	1.36	4.24

13:53			0.60	16.8	1.40					
13:58	5.0	0.08	0.96	12.5	1.04	4.32	0.36	51.84	8.32	6.23
13:58			0.96	12.5	1.04					
14:03	5.0	0.08	1.20	9.6	0.80	2.88	0.24	34.56	6.52	5.30
14:03			1.20	9.6	0.80					
14:08	5.0	0.08	1.37	7.6	0.63	2.04	0.17	24.48	5.29	4.63
14:08			1.37	7.6	0.63					
14:13	5.0	0.08	1.50	6.0	0.50	1.56	0.13	18.72	4.39	4.26

Infiltration Testing

Test Through Zone at Bottom of Infiltration Device

Infiltration Testing Field Data

Date: 10/21/2016

Project Location:	1300 Cravens Lane	Job Number:	VT-23345-03
Earth Description:	See Log	Tested By:	SC
Field Test in Boring	IT-2	Start Time:	11:00AM
Boring Diameter (inches):	4	Total Pipe Length (feet):	2
Boring Depth (feet):	2	Pipe Stick-Up (inches):	0

Time of Day, t (hh:mm)	Delta Time, Δt (min.)	Delta Time, Δt (hr.)	Top of Pipe to Water, (ft.)	Water Depth, d (in.)	Water Depth, d (ft.)	Drop in Water Height, Δd (in.)	Drop in Water Height, Δd (ft.)	Perc Rate, (in/hr)	Corr. Factor, RF	Infilt. Rate (in/hr)
11:00		-	0.60	16.8	1.40					
11:02	2.0	0.03	0.83	14.0	1.17	2.76	0.23	82.80	8.71	9.51
11:02			0.83	14.0	1.17					
11:04	2.0	0.03	0.98	12.2	1.02	1.80	0.15	54.00	7.57	7.13
11:04			0.98	12.2	1.02					
11:06	2.0	0.03	1.08	11.0	0.92	1.20	0.10	36.00	6.82	5.28
11:06			1.08	11.0	0.92					
11:08	2.0	0.03	1.16	10.1	0.84	0.96	0.08	28.80	6.28	4.59
11:08			1.16	10.1	0.84					
11:10	2.0	0.03	1.24	9.1	0.76	0.96	0.08	28.80	5.80	4.97
11:10			1.24	9.1	0.76					
11:14	4.0	0.07	1.36	7.7	0.64	1.44	0.12	21.60	5.20	4.15
11:14			1.36	7.7	0.64					
11:18	4.0	0.07	1.47	6.4	0.53	1.32	0.11	19.80	4.51	4.39
11:18			1.47	6.4	0.53					
11:22	4.0	0.07	1.55	5.4	0.45	0.96	0.08	14.40	3.94	3.65
11:22			1.55	5.4	0.45					
11:26	4.0	0.07	1.64	4.3	0.36	1.08	0.09	16.20	3.43	4.72
11:26			1.64	4.3	0.36					
11:30	4.0	0.07	1.70	3.6	0.30	0.72	0.06	10.80	2.98	3.62
11:30			1.70	3.6	0.30					
11:34	4.0	0.07	1.76	2.9	0.24	0.72	0.06	10.80	2.62	4.12
11:34			1.76	2.9	0.24					
11:38	4.0	0.07	1.80	2.4	0.20	0.48	0.04	7.20	2.32	3.10
11:38			1.80	2.4	0.20					
11:42	4.0	0.07	1.85	1.8	0.15	0.60	0.05	9.00	2.05	4.39
11:42			1.85	1.8	0.15					
11:47	5.0	0.08	1.90	1.2	0.10	0.60	0.05	7.20	1.75	4.11
11:47			1.90	1.2	0.10					
11:52	5.0	0.08	1.94	0.7	0.06	0.48	0.04	5.76	1.48	3.89
11:52			1.94	0.7	0.06					
11:57	5.0	0.08	1.98	0.2	0.02	0.48	0.04	5.76	1.24	4.65
11:58			0.60	16.8	1.40					
12:03	5.0	0.08	0.85	13.8	1.15	3.00	0.25	36.00	8.65	4.16
12:03			0.85	13.8	1.15					
12:08	5.0	0.08	1.03	11.6	0.97	2.16	0.18	25.92	7.36	3.52
12:08			1.03	11.6	0.97					
12:13	5.0	0.08	1.20	9.6	0.80	2.04	0.17	24.48	6.31	3.88
12:13			1.20	9.6	0.80					
12:18	5.0	0.08	1.32	8.2	0.68	1.44	0.12	17.28	5.44	3.18

12:18			1.32	8.2	0.68					
12:23	5.0	0.08	1.42	7.0	0.58	1.20	0.10	14.40	4.78	3.01
12:23			1.42	7.0	0.58					
12:28	5.0	0.08	1.51	5.9	0.49	1.08	0.09	12.96	4.21	3.08
12:28			1.51	5.9	0.49					
12:33	5.0	0.08	1.60	4.8	0.40	1.08	0.09	12.96	3.67	3.53
12:33			1.60	4.8	0.40					
12:38	5.0	0.08	1.68	3.8	0.32	0.96	0.08	11.52	3.16	3.65
12:38			1.68	3.8	0.32					
12:43	5.0	0.08	1.72	3.4	0.28	0.47	0.04	5.62	2.80	2.01
12:43			1.72	3.4	0.28					
12:48	5.0	0.08	1.78	2.6	0.22	0.72	0.06	8.64	2.50	3.46
12:48			1.78	2.6	0.22					
12:53	5.0	0.08	1.84	1.9	0.16	0.72	0.06	8.64	2.14	4.04
12:53			1.84	1.9	0.16					
12:58	5.0	0.08	1.88	1.4	0.12	0.48	0.04	5.76	1.84	3.13
12:58			1.88	1.4	0.12					
13:03	5.0	0.08	1.91	1.1	0.09	0.36	0.03	4.32	1.63	2.65
13:03			1.91	1.1	0.09					
13:08	5.0	0.08	1.95	0.6	0.05	0.48	0.04	5.76	1.42	4.06
13:08			1.95	0.6	0.05					
13:13	5.0	0.08	1.99	0.1	0.01	0.48	0.04	5.76	1.18	4.88

Infiltration Testing

Test Through Zone at Bottom of Infiltration Device

Infiltration Testing Field Data

Date: 10/21/2016

Project Location:	1300 Cravens Lane	Job Number:	VT-23345-03
Earth Description:	See Log	Tested By:	SC
Field Test in Boring	IT-3	Start Time:	9:33 AM
Boring Diameter (inches):	4	Total Pipe Length (feet):	2.5
Boring Depth (feet):	2	Pipe Stick-Up (inches):	0.5

Time of Day, t (hh:mm)	Delta Time, Δt (min.)	Delta Time, Δt (hr.)	Top of Pipe to Water, (ft.)	Water Depth, d (in.)	Water Depth, d (ft.)	Drop in Water Height, Δd (in.)	Drop in Water Height, Δd (ft.)	Perc Rate, (in/hr)	Corr. Factor, RF	Infilt. Rate (in/hr)
9:33		-	0.90	19.2	1.60					
9:35	2.0	0.03	1.00	18.0	1.50	1.20	0.10	36.00	10.30	3.50
9:35			1.00	18.0	1.50					
9:40	5.0	0.08	1.17	16.0	1.33	2.04	0.17	24.48	9.49	2.58
9:50			1.17	16.0	1.33					
9:55	5.0	0.08	1.43	12.8	1.07	3.12	0.26	37.44	8.20	4.57
9:55			1.43	12.8	1.07					
10:05	10.0	0.17	1.55	11.4	0.95	1.44	0.12	8.64	7.06	1.22
10:05			1.55	11.4	0.95					
10:15	10.0	0.17	1.66	10.1	0.84	1.32	0.11	7.92	6.37	1.24
10:15			1.66	10.1	0.84					
10:25	10.0	0.17	1.75	9.0	0.75	1.08	0.09	6.48	5.77	1.12
10:25			1.75	9.0	0.75					
10:35	10.0	0.17	1.81	8.3	0.69	0.72	0.06	4.32	5.32	0.81
10:35			1.81	8.3	0.69					
10:45	10.0	0.17	1.87	7.6	0.63	0.72	0.06	4.32	4.96	0.87
10:45			1.87	7.6	0.63					
10:55	10.0	0.17	1.93	6.8	0.57	0.72	0.06	4.32	4.60	0.94
10:55			1.93	6.8	0.57					
11:05	10.0	0.17	1.97	6.4	0.53	0.48	0.04	2.88	4.30	0.67
11:05			1.97	6.4	0.53					
11:15	10.0	0.17	2.01	5.9	0.49	0.48	0.04	2.88	4.06	0.71
11:15			2.01	5.9	0.49					
11:25	10.0	0.17	2.06	5.3	0.44	0.60	0.05	3.60	3.79	0.95
11:25			2.06	5.3	0.44					
11:35	10.0	0.17	2.08	5.0	0.42	0.24	0.02	1.44	3.58	0.40
11:35			2.08	5.0	0.42					
11:45	10.0	0.17	2.10	4.8	0.40	0.24	0.02	1.44	3.46	0.42
11:45			2.10	4.8	0.40					
11:55	10.0	0.17	2.13	4.4	0.37	0.36	0.03	2.16	3.31	0.65
11:55			2.13	4.4	0.37					
12:05	10.0	0.17	2.16	4.1	0.34	0.36	0.03	2.16	3.13	0.69
12:05			2.16	4.1	0.34					
12:35	30.0	0.50	2.22	3.4	0.28	0.72	0.06	1.44	2.86	0.50
12:35			2.22	3.4	0.28					
13:05	30.0	0.50	2.28	2.6	0.22	0.72	0.06	1.44	2.50	0.58
13:05			2.28	2.6	0.22					
13:35	30.0	0.50	2.32	2.2	0.18	0.48	0.04	0.96	2.20	0.44

Infiltration Testing

Test Through Zone at Bottom of Infiltration Device

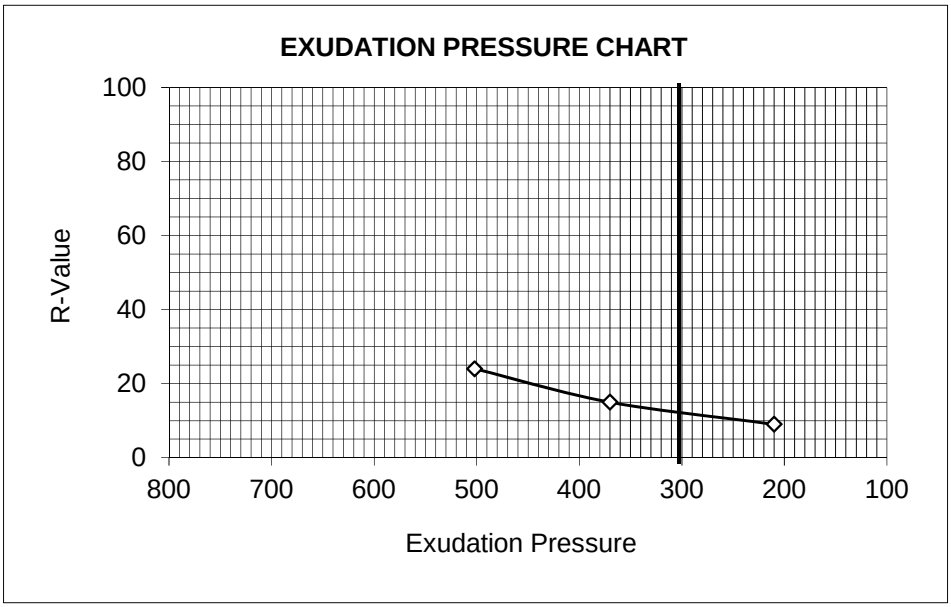
Infiltration Testing Field Data

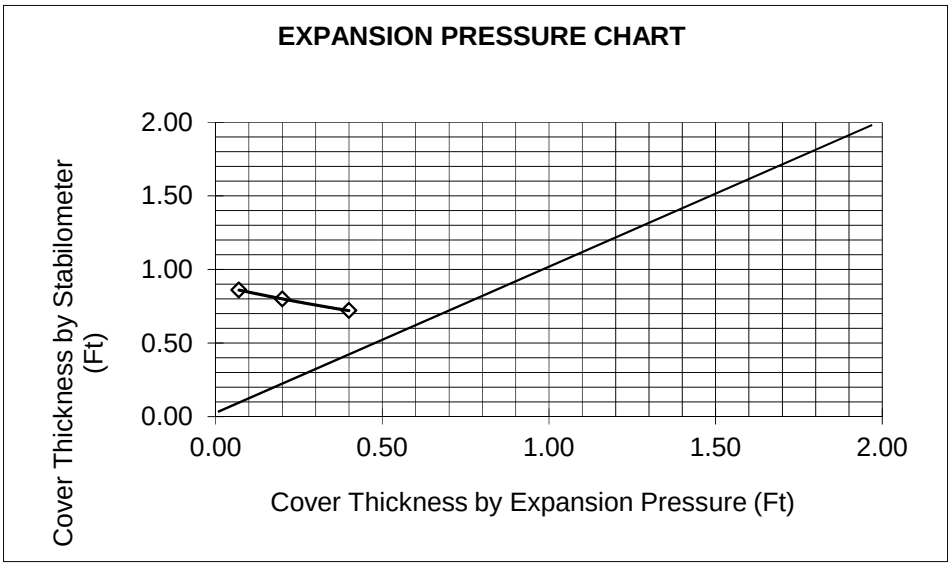
Date: 10/21/2016

Project Location:	1300 Cravens Lane	Job Number:	VT-23345-03
Earth Description:	See Log	Tested By:	SC
Field Test in Boring	IT-4	Start Time:	9:42 AM
Boring Diameter (inches):	4	Total Pipe Length (feet):	1.9
Boring Depth (feet):	1.9	Pipe Stick-Up (inches):	0

Time of Day, t (hh:mm)	Delta Time, Δt (min.)	Delta Time, Δt (hr.)	Top of Pipe to Water, (ft.)	Water Depth, d (in.)	Water Depth, d (ft.)	Drop in Water Height, Δd (in.)	Drop in Water Height, Δd (ft.)	Perc Rate, (in/hr)	Corr. Factor, RF	Infilt. Rate (in/hr)
9:42		-	0.60	15.6	1.30					
9:44	2.0	0.03	1.19	8.5	0.71	7.08	0.59	212.40	7.03	30.21
9:44			1.19	8.5	0.71					
9:46	2.0	0.03	1.42	5.8	0.48	2.76	0.23	82.80	4.57	18.12
9:46			1.42	5.8	0.48					
9:48	2.0	0.03	1.56	4.1	0.34	1.68	0.14	50.40	3.46	14.57
9:48			1.56	4.1	0.34					
9:50	2.0	0.03	1.65	3.0	0.25	1.08	0.09	32.40	2.77	11.70
9:50			1.65	3.0	0.25					
9:52	2.0	0.03	1.75	1.8	0.15	1.20	0.10	36.00	2.20	16.36
9:52			1.75	1.8	0.15					
9:54	2.0	0.03	1.81	1.1	0.09	0.72	0.06	21.60	1.72	12.56
9:54			1.81	1.1	0.09					
9:56	2.0	0.03	1.87	0.4	0.03	0.72	0.06	21.60	1.36	15.88
10:02			0.60	15.6	1.30					
10:04	2.0	0.03	1.01	10.7	0.89	4.92	0.41	147.60	7.57	19.50
10:04			1.01	10.7	0.89					
10:06	2.0	0.03	1.30	7.2	0.60	3.48	0.29	104.40	5.47	19.09
10:06			1.30	7.2	0.60					
10:08	2.0	0.03	1.43	5.6	0.47	1.56	0.13	46.80	4.21	11.12
10:08			1.43	5.6	0.47					
10:10	2.0	0.03	1.55	4.2	0.35	1.44	0.12	43.20	3.46	12.49
10:10			1.55	4.2	0.35					
10:12	2.0	0.03	1.65	3.0	0.25	1.20	0.10	36.00	2.80	12.86
10:12			1.65	3.0	0.25					
10:14	2.0	0.03	1.71	2.3	0.19	0.72	0.06	21.60	2.32	9.31
10:14			1.71	2.3	0.19					
10:16	2.0	0.03	1.79	1.3	0.11	0.96	0.08	28.80	1.90	15.16
10:16			1.79	1.3	0.11					
10:18	2.0	0.03	1.84	0.7	0.06	0.60	0.05	18.00	1.51	11.92
10:18			1.84	0.7	0.06					
10:20	2.0	0.03	1.88	0.2	0.02	0.48	0.04	14.40	1.24	11.61
10:24			0.60	15.6	1.30					
10:26	2.0	0.03	0.93	11.6	0.97	3.96	0.33	118.80	7.81	15.21
10:26			0.93	11.6	0.97					
10:28	2.0	0.03	1.18	8.6	0.72	3.00	0.25	90.00	6.07	14.83
10:28			1.18	8.6	0.72					
10:30	2.0	0.03	1.34	6.7	0.56	1.92	0.16	57.60	4.84	11.90
10:30			1.34	6.7	0.56					
10:32	2.0	0.03	1.47	5.2	0.43	1.56	0.13	46.80	3.97	11.79

10:32			1.47	5.2	0.43					
10:34	2.0	0.03	1.55	4.2	0.35	0.96	0.08	28.80	3.34	8.62
10:34			1.55	4.2	0.35					
10:36	2.0	0.03	1.63	3.2	0.27	0.96	0.08	28.80	2.86	10.07
10:36			1.63	3.2	0.27					
10:38	2.0	0.03	1.71	2.3	0.19	0.96	0.08	28.80	2.38	12.10
10:38			1.71	2.3	0.19					
10:40	2.0	0.03	1.78	1.4	0.12	0.84	0.07	25.20	1.93	13.06
10:40			1.78	1.4	0.12					
10:42	2.0	0.03	1.83	0.8	0.07	0.58	0.05	17.28	1.56	11.05
10:42			1.83	0.8	0.07					
10:44	2.0	0.03	1.88	0.2	0.02	0.60	0.05	18.00	1.27	14.17





JOB NAME: 1300 Cravens Lane
SAMPLE I. D.: IT 1@0-2'
SOIL DESCRIPTION: Silty Clay with Fine Sand (CL)

SPECIMEN NUMBER	A	B	C
EXUDATION PRESSURE	502	370	210
RESISTANCE VALUE	24	15	9
EXPANSION DIAL(0.0001")	12	6	2
EXPANSION PRESSURE (PSF)	52.0	26.0	8.7
% MOISTURE AT TEST	13.8	14.7	16.2
DRY DENSITY AT TEST	113.5	107.3	104.9

R-VALUE @ 300 PSI EXUDATION	**12**
R-VALUE by Expansion Pressure*	**100**

**Based on a Traffic Index of 5.0 and a Gravel Factor of 1.70*

Table 1
Fault Parameters

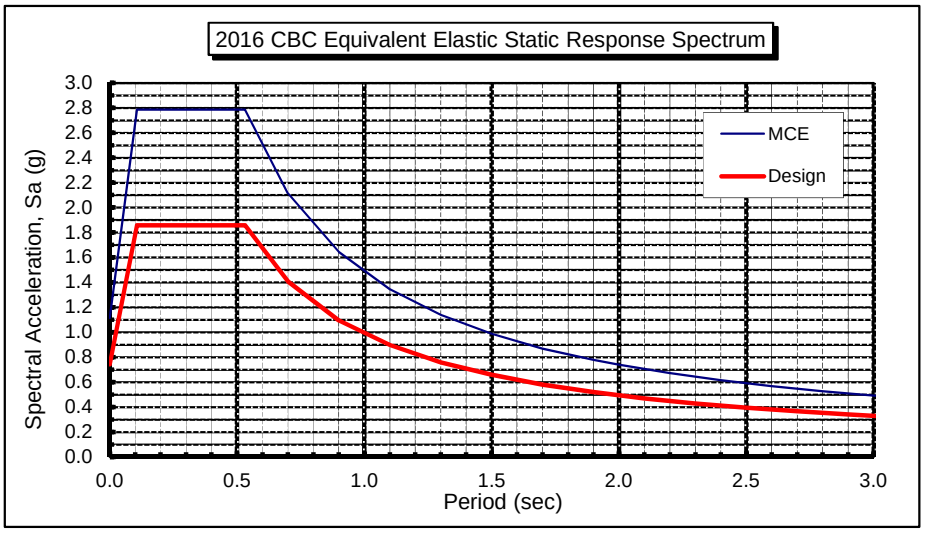
Fault Section Name	Distance (miles)	Distance (km)	Avg Dip Angle (deg.)	Avg Dip Direction (deg.)	Avg Rake (deg.)	Trace Length (km)	Fault Type	**Mean Mag**	Mean Return Interval (years)	Slip Rate (mm/yr)
Mission Ridge-Arroyo Parida-Santa Ana	1.7	2.8	70	176	90	69	B	**6.8**		0.4
Red Mountain	3.6	5.7	56	2	90	101	B	**7.4**		2
Santa Ynez (East)	5.5	8.8	70	172	0	68	B	**7.2**		2
Ventura-Pitas Point	7.5	12.1	64	353	60	44	B	**6.9**		1
North Channel	7.6	12.2	26	10	90	51	B	**6.7**		1
Santa Ynez (West)	8.3	13.4	70	182	0	63	B	**6.9**		2
Pitas Point (Upper)	8.6	13.8	42	15	90	35	B	**6.8**		1
Oak Ridge (Offshore)	10.6	17.1	32	180	90	38	B	**6.9**		3
Oak Ridge (Offshore), west extension	13.4	21.5	67	195	na	28	B'	**6.1**		
Sisar	14.2	22.9	29	168	na	20	B'	**7.0**		
Pitas Point (Lower)-Montalvo	16.8	27.0	16	359	90	30	B	**7.3**		2.5
Channel Islands Western Deep Ramp	17.4	28.0	21	204	90	62	B'	**7.3**		
Big Pine (West)	18.0	29.0	50	2	na	18	B'	**6.5**		
Pitas Point (Lower, West)	18.1	29.2	13	3	90	35	B	**7.2**		2.5
Nacimiento	18.3	29.4	66	40	na	113	B'	**7.1**		
Pine Mtn	18.8	30.2	45	5	na	62	B'	**7.3**		
Big Pine (Central)	20.7	33.3	76	167	na	23	B'	**6.3**		
San Cayetano	21.8	35.1	42	3	90	42	B	**7.2**		6
Oak Ridge (Onshore)	22.0	35.4	65	159	90	49	B	**7.2**		4
Malibu Coast (Extension), alt 1	27.0	43.4	74	4	30	35	B'	**6.5**		
Malibu Coast (Extension), alt 2	27.0	43.4	74	4	30	35	B'	**6.9**		
Simi-Santa Rosa	28.3	45.5	60	346	30	39	B	**6.8**		1
Big Pine (East)	29.0	46.7	73	338	na	23	B'	**6.6**		
Santa Cruz Island	29.1	46.9	90	188	30	69	B	**7.1**		1
Channel Islands Thrust	29.2	46.9	20	354	90	59	B	**7.3**		1.5
Santa Cruz Catalina Ridge	29.4	47.3	90	38	na	137	B'	**7.3**		
South Cuyama	31.5	50.6	33	210	na	48	B'	**6.8**		
Los Alamos-West Baseline	33.7	54.2	30	211	90	28	B	**6.8**		0.7
Santa Rosa Island	34.6	55.6	90	1	30	58	B	**6.8**		1
San Andreas (Big Bend)	36.4	58.6	90	198	180	50	A	**7.8**	108	34
Anacapa-Dume, alt 1	37.0	59.5	45	354	60	51	B	**7.2**		3
Anacapa-Dume, alt 2	37.0	59.5	41	352	60	65	B	**7.2**		3
Morales (East)	37.0	59.6	32	14	na	18	B'	**6.6**		
San Andreas (Carrizo) rev	37.8	60.8	90	224	180	59	A	**7.8**	106	34
Pleito	39.3	63.2	46	181	90	44	B	**7.1**		2
Morales (West)	40.4	65.1	32	49	na	28	B'	**6.8**		
Malibu Coast, alt 1	42.7	68.7	75	3	30	38	B	**6.6**		0.3
Malibu Coast, alt 2	42.7	68.7	74	3	30	38	B	**6.9**		0.3
Shelf (Projection)	42.7	68.7	17	21	na	70	B'	**7.8**		
San Gabriel	43.2	69.5	61	39	180	71	B	**7.3**		1

Reference: USGS OFR 2007-1437 (CGS SP 203) Based on Site Coordinates of 34.4087 Latitude, -119.5384 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2007-1437). Mean magntude is average of Ellworths-B and Hanks & Bakun moment area relationship.

2016 California Building Code (CBC) (ASCE 7-10) Seismic Design Parameters

			CBC Reference	ASCE 7-10 Reference
Seismic Design Category		**E**	Table 1613.5.6	Table 11.6-2
Site Class		**D**	Table 1613.5.2	Table 20.3-1
Latitude:		34.409 N		
Longitude:		-119.538 W		
Maximum Considered Earthquake (MCE) Ground Motion				
Short Period Spectral Reponse	S_S	**2.786 g**	Figure 1613.5	Figure 22-3
1 second Spectral Response	S_1	**0.986 g**	Figure 1613.5	Figure 22.4
Site Coefficient	F_a	1.00	Table 1613.5.3(1)	Table 11.4-1
Site Coefficient	F_v	1.50	Table 1613.5.3(2)	Table 11-4.2
	S_{MS}	2.786 g	$= F_a*S_S$	
	S_{M1}	1.479 g	$= F_v*S_1$	
Design Earthquake Ground Motion				
Short Period Spectral Reponse	S_{DS}	**1.857 g**	$= 2/3*S_{MS}$	
1 second Spectral Response	S_{D1}	**0.986 g**	$= 2/3*S_{M1}$	
	To	0.11 sec	$= 0.2*S_{D1}/S_{DS}$	
	Ts	0.53 sec	$= S_{D1}/S_{DS}$	
Seismic Importance Factor	I	1.00	Table 1604.5	Table 11.5-1
	F_{PGA}	1.00		



Period T (sec)	Design Sa (g)
0.00	0.743
0.05	1.268
0.11	1.857
0.53	1.857
0.70	1.409
0.90	1.096
1.10	0.896
1.30	0.758
1.50	0.657
1.70	0.580
1.90	0.519
2.10	0.470
2.30	0.429
2.50	0.394
2.70	0.365
2.90	0.340

USGS Design Maps Summary Report

User–Specified Input

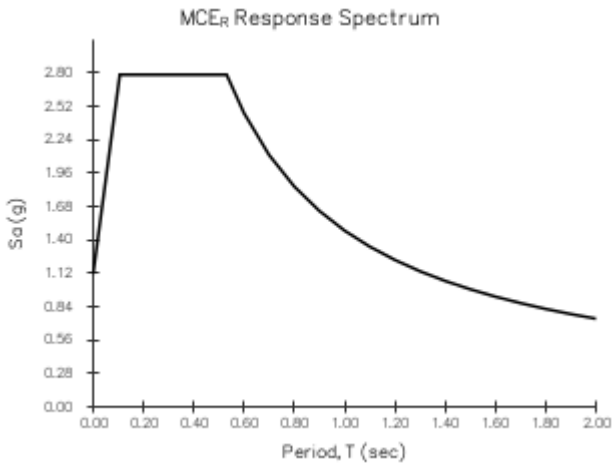
Report Title	1300 Cravens Lane Fri July 7, 2017 15:33:35 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.4087°N, 119.5384°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

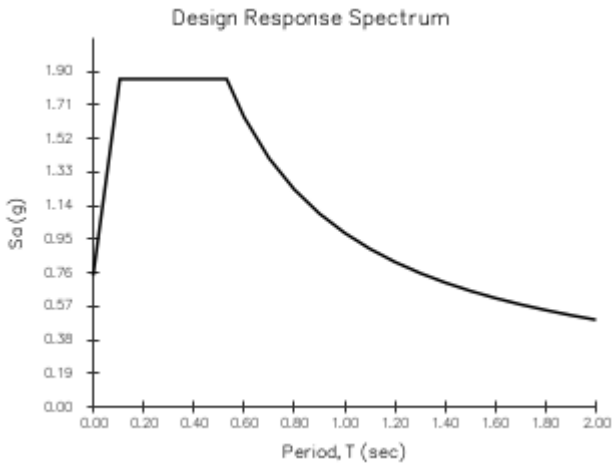


USGS–Provided Output

S_S =	2.786 g	S_{MS} =	2.786 g	S_{DS} =	1.858 g
S_1 =	0.986 g	S_{M1} =	1.478 g	S_{D1} =	0.986 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.4087°N, 119.5384°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1]	S_S = 2.786 g
From Figure 22-2 [2]	S_1 = 0.986 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\overline{v}_s$	$\overline{N}$ or $\overline{N}_{ch}$	$\overline{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\overline{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_s = 2.786 g, F_a = 1.000

Table 11.4–2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1–s Period				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.986 g, F_v = 1.500

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 2.786 = 2.786$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.500 \times 0.986 = 1.478$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

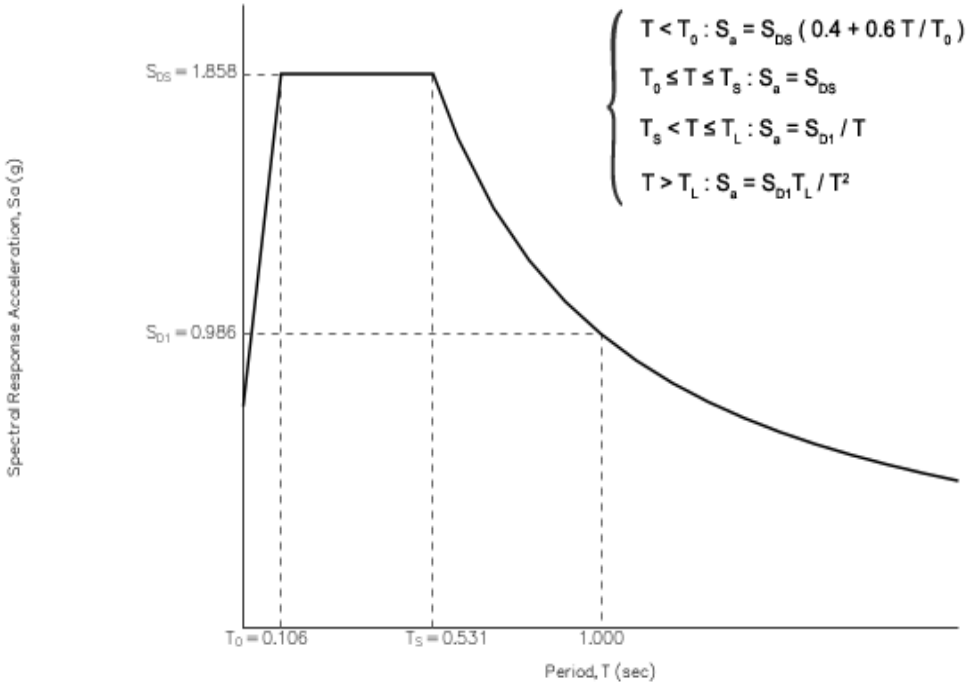
Equation (11.4–3): $S_{DS} = ⅔ S_{MS} = ⅔ \times 2.786 = 1.858$ g

Equation (11.4–4): $S_{D1} = ⅔ S_{M1} = ⅔ \times 1.478 = 0.986$ g

Section 11.4.5 — Design Response Spectrum

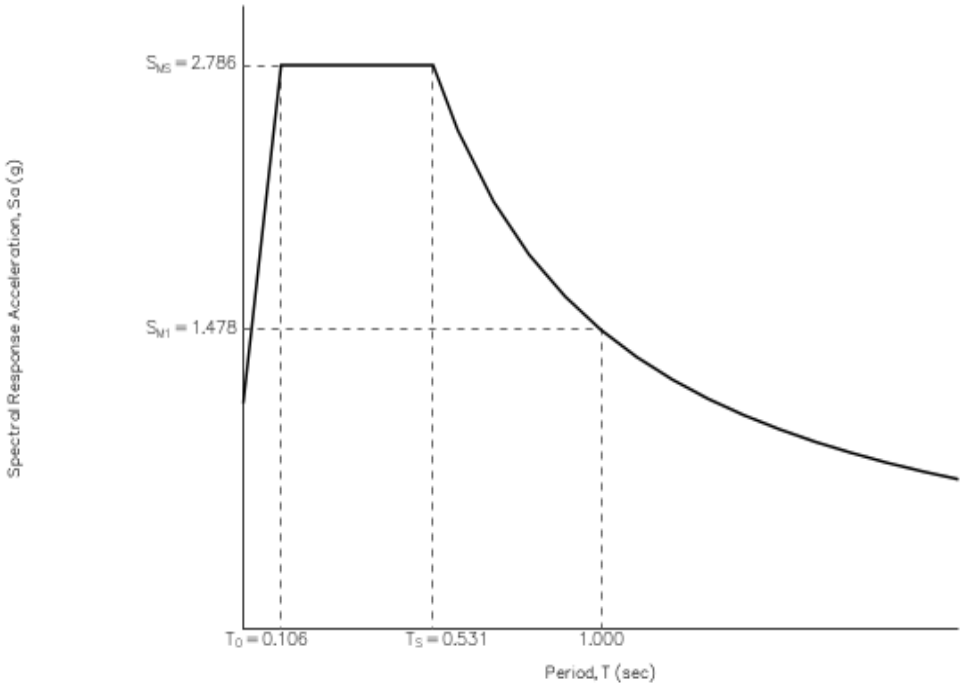
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 1.092

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 1.092 = 1.092$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 1.092 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.900

From Figure 22-18 [6] C_{R1} = 0.902

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.858 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.986 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

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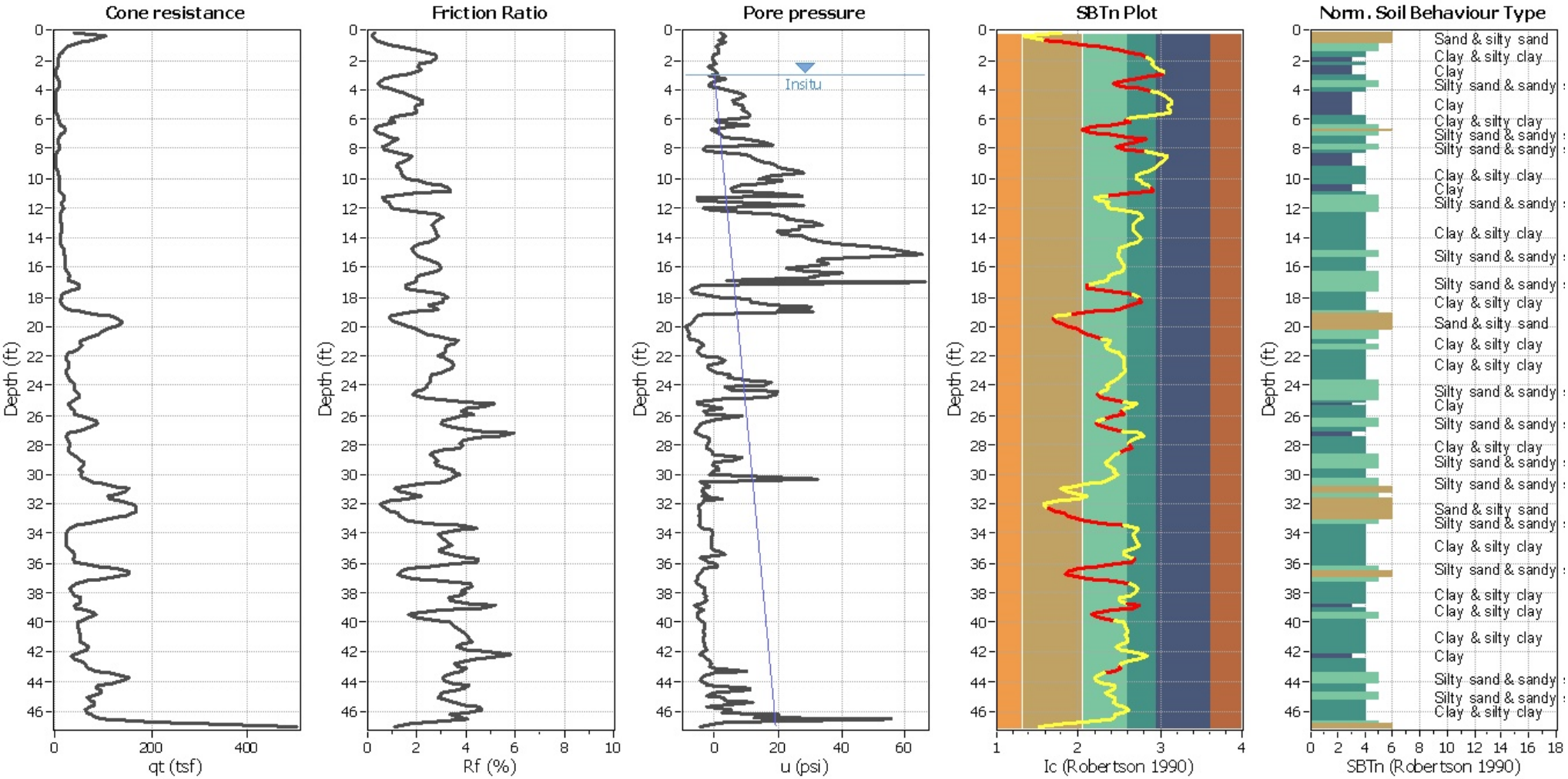
Project: **VT-23345-01 1300 Cravens Lane**
Location: **Carpinteria Area, Santa Barbara County, California**

CPT: CPT-1
Total depth: 47.05 ft



Analysis method:	NCEER (1998)	G.W.T. (in-situ):	3.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	3.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.80	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.09	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

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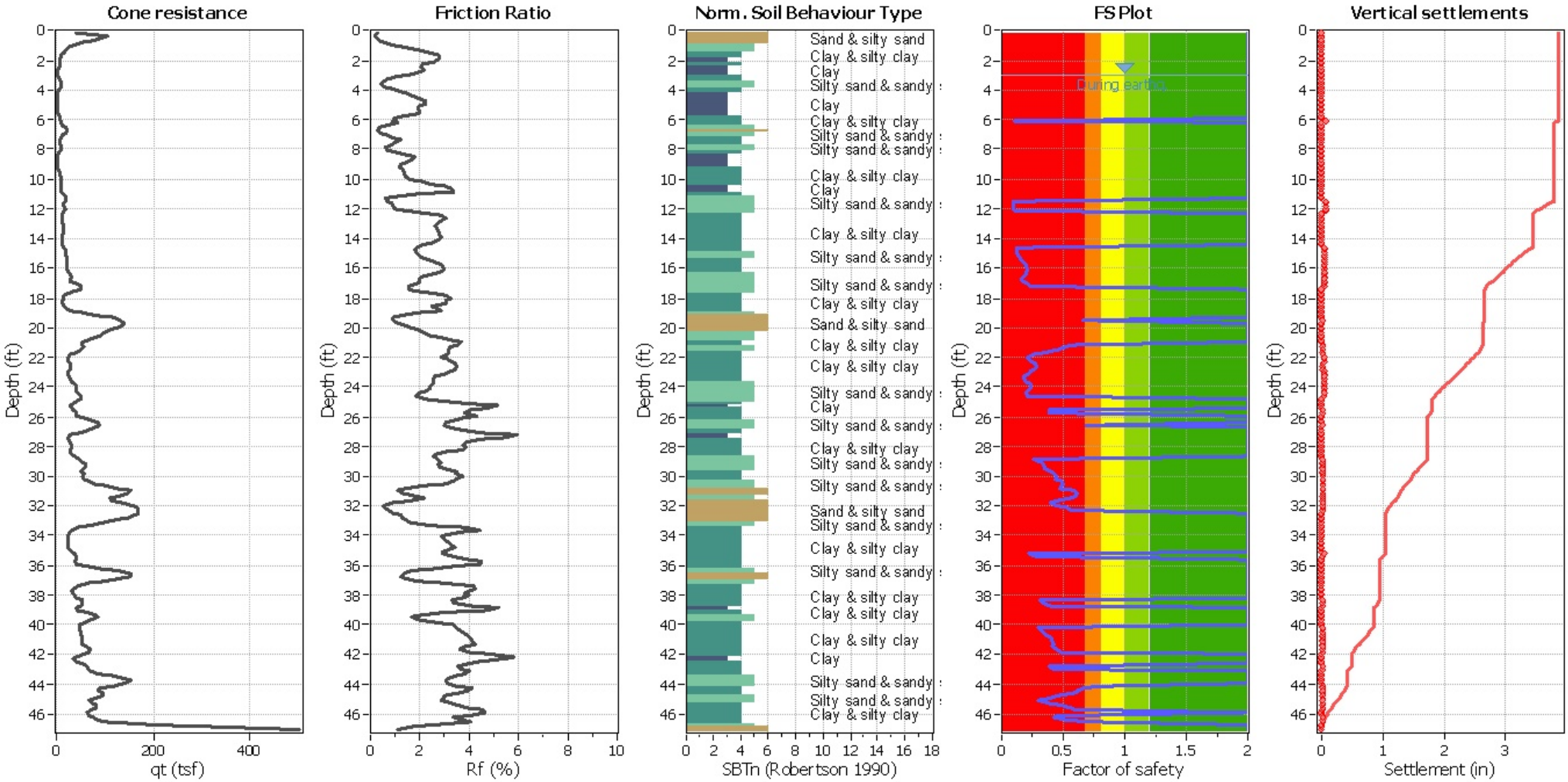

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	3.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	3.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.80	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.09	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

:: Post-earthquake settlement of dry sands ::

Depth (ft)	Ic	Kc	Qc1n	Qc1n,cs	N1,60 (blows)	Vs (ft/s)	Gmax (tsf)	CSR	Shear, γ (%)	Svol,15 (%)	Nc	ev (%)	Settle. (in)
0.16	1.79	1.00	65.28	65.28	13	437.1	308	0.55	0.002	0.00	9.34	0.00	0.000
0.33	1.33	1.00	169.01	169.01	28	525.8	470	0.55	0.003	0.00	9.34	0.00	0.000
0.49	1.43	1.00	153.71	153.71	26	532.3	489	0.55	0.005	0.00	9.34	0.00	0.000
0.66	1.60	1.00	122.40	122.40	22	532.0	492	0.55	0.007	0.01	9.34	0.00	0.000
0.82	1.82	1.12	87.32	97.66	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.98	2.07	1.40	58.80	82.60	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.15	2.28	1.89	42.69	80.50	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.31	2.48	2.65	31.86	84.38	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.48	2.64	3.56	24.06	85.71	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.64	2.76	4.43	18.77	83.07	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.80	2.83	5.06	15.46	78.18	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.97	2.88	5.54	12.96	71.77	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.13	2.92	5.89	11.22	66.09	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.29	2.90	5.71	10.49	59.97	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.46	2.93	6.01	9.59	57.61	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.62	2.99	6.62	8.41	55.74	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.79	3.04	7.15	7.18	51.37	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000
2.95	3.02	6.95	6.64	46.15	0	0.0	0	0.55	0.000	0.00	0.00	0.00	0.000

Total estimated settlement: 0.00

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
3.12	42.19	2.00	0.00	1.00	0.00	3.28	40.13	2.00	0.00	1.00	0.00
3.44	38.85	2.00	0.00	1.00	0.00	3.61	38.47	2.00	0.00	1.00	0.00
3.77	40.32	2.00	0.00	1.00	0.00	3.93	43.22	2.00	0.00	1.00	0.00
4.10	44.61	2.00	0.00	1.00	0.00	4.26	45.19	2.00	0.00	1.00	0.00
4.43	46.41	2.00	0.00	1.00	0.00	4.59	48.49	2.00	0.00	1.00	0.00
4.75	49.62	2.00	0.00	1.00	0.00	4.92	50.05	2.00	0.00	1.00	0.00
5.08	48.68	2.00	0.00	1.00	0.00	5.25	47.46	2.00	0.00	1.00	0.00
5.41	47.18	2.00	0.00	1.00	0.00	5.57	47.55	2.00	0.00	1.00	0.00
5.74	47.47	2.00	0.00	1.00	0.00	5.90	48.91	2.00	0.00	1.00	0.00
6.07	49.94	0.12	4.13	1.00	0.08	6.23	52.14	2.00	0.00	1.00	0.00
6.39	47.19	2.00	0.00	1.00	0.00	6.56	28.81	2.00	0.00	1.00	0.00
6.72	35.15	2.00	0.00	1.00	0.00	6.88	30.28	2.00	0.00	1.00	0.00
7.05	48.46	2.00	0.00	1.00	0.00	7.21	48.54	2.00	0.00	1.00	0.00
7.38	48.08	2.00	0.00	1.00	0.00	7.54	46.46	2.00	0.00	1.00	0.00
7.71	46.80	2.00	0.00	1.00	0.00	7.87	43.83	2.00	0.00	1.00	0.00
8.03	43.40	2.00	0.00	1.00	0.00	8.20	43.70	2.00	0.00	1.00	0.00
8.36	46.67	2.00	0.00	1.00	0.00	8.53	47.63	2.00	0.00	1.00	0.00
8.69	46.63	2.00	0.00	1.00	0.00	8.85	44.69	2.00	0.00	1.00	0.00
9.02	42.96	2.00	0.00	1.00	0.00	9.18	43.02	2.00	0.00	1.00	0.00
9.34	45.57	2.00	0.00	1.00	0.00	9.51	49.68	2.00	0.00	1.00	0.00
9.67	53.22	2.00	0.00	1.00	0.00	9.84	56.81	2.00	0.00	1.00	0.00
10.00	62.50	2.00	0.00	1.00	0.00	10.16	70.12	2.00	0.00	1.00	0.00
10.33	75.55	2.00	0.00	1.00	0.00	10.49	81.94	2.00	0.00	1.00	0.00
10.66	84.31	2.00	0.00	1.00	0.00	10.82	84.20	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
10.98	74.02	2.00	0.00	1.00	0.00	11.15	62.87	2.00	0.00	1.00	0.00
11.31	55.85	2.00	0.00	1.00	0.00	11.47	53.76	0.09	3.89	1.00	0.08
11.64	57.71	0.10	3.67	1.00	0.07	11.80	59.69	0.10	3.57	1.00	0.07
11.97	62.28	0.10	3.45	1.00	0.07	12.13	67.12	0.11	3.24	1.00	0.06
12.29	78.67	2.00	0.00	1.00	0.00	12.46	87.38	2.00	0.00	1.00	0.00
12.62	90.77	2.00	0.00	1.00	0.00	12.79	91.39	2.00	0.00	1.00	0.00
12.95	90.22	2.00	0.00	1.00	0.00	13.12	90.59	2.00	0.00	1.00	0.00
13.28	92.38	2.00	0.00	1.00	0.00	13.44	93.32	2.00	0.00	1.00	0.00
13.61	92.45	2.00	0.00	1.00	0.00	13.77	90.44	2.00	0.00	1.00	0.00
13.93	88.54	2.00	0.00	1.00	0.00	14.10	86.03	2.00	0.00	1.00	0.00
14.26	82.00	2.00	0.00	1.00	0.00	14.43	78.96	2.00	0.00	1.00	0.00
14.59	78.39	0.12	2.85	1.00	0.06	14.75	80.13	0.12	2.80	1.00	0.06
14.92	83.40	0.13	2.71	1.00	0.05	15.08	88.49	0.14	2.58	1.00	0.05
15.25	91.87	0.14	2.50	1.00	0.05	15.41	98.35	0.16	2.37	1.00	0.05
15.57	102.95	0.17	2.28	1.00	0.04	15.74	110.96	0.20	2.15	1.00	0.04
15.90	113.82	0.21	2.10	1.00	0.04	16.07	114.90	0.21	2.09	1.00	0.04
16.23	112.61	0.20	2.12	1.00	0.04	16.39	112.70	0.20	2.12	1.00	0.04
16.56	104.69	0.18	2.25	1.00	0.04	16.72	101.90	0.17	2.30	1.00	0.05
16.89	102.79	0.17	2.28	1.00	0.04	17.05	116.05	0.21	2.07	1.00	0.04
17.21	121.39	0.23	1.99	1.00	0.04	17.38	120.42	2.00	0.00	1.00	0.00
17.54	108.38	2.00	0.00	1.00	0.00	17.70	109.49	2.00	0.00	1.00	0.00
17.87	103.67	2.00	0.00	1.00	0.00	18.03	99.79	2.00	0.00	1.00	0.00
18.20	95.60	2.00	0.00	1.00	0.00	18.36	94.85	2.00	0.00	1.00	0.00
18.52	90.81	2.00	0.00	1.00	0.00	18.69	103.03	2.00	0.00	1.00	0.00
18.85	118.40	2.00	0.00	1.00	0.00	19.02	132.87	2.00	0.00	1.00	0.00
19.18	148.49	2.00	0.00	1.00	0.00	19.34	172.40	2.00	0.00	1.00	0.00
19.51	188.25	0.66	1.00	1.00	0.02	19.67	205.50	2.00	0.00	1.00	0.00
19.84	215.40	2.00	0.00	1.00	0.00	20.00	211.70	2.00	0.00	1.00	0.00
20.16	201.68	2.00	0.00	1.00	0.00	20.33	198.47	2.00	0.00	1.00	0.00
20.49	196.03	2.00	0.00	1.00	0.00	20.66	192.76	2.00	0.00	1.00	0.00
20.82	185.45	2.00	0.00	1.00	0.00	20.98	181.98	2.00	0.00	1.00	0.00
21.15	178.33	0.57	1.31	1.00	0.03	21.31	172.85	0.53	1.49	1.00	0.03
21.48	164.23	0.47	1.56	1.00	0.03	21.64	146.05	0.35	1.71	1.00	0.03
21.80	127.81	0.26	1.91	1.00	0.04	21.97	115.68	0.21	2.07	1.00	0.04
22.13	119.76	0.23	2.02	1.00	0.04	22.30	126.32	0.25	1.93	1.00	0.04
22.46	130.85	0.27	1.87	1.00	0.04	22.62	132.76	0.28	1.85	1.00	0.04
22.79	129.27	0.27	1.89	1.00	0.04	22.95	122.66	0.24	1.98	1.00	0.04
23.11	114.89	0.21	2.09	1.00	0.04	23.28	108.30	0.19	2.19	1.00	0.04
23.44	109.16	0.19	2.17	1.00	0.04	23.61	112.94	0.20	2.11	1.00	0.04
23.77	120.85	0.23	2.00	1.00	0.04	23.93	123.00	0.24	1.97	1.00	0.04
24.10	122.51	0.24	1.98	1.00	0.04	24.26	117.33	0.22	2.05	1.00	0.04
24.43	113.11	0.20	2.11	1.00	0.04	24.59	114.73	0.21	2.09	1.00	0.04
24.75	126.32	2.00	0.00	1.00	0.00	24.92	134.96	2.00	0.00	1.00	0.00
25.08	152.19	2.00	0.00	1.00	0.00	25.25	157.65	2.00	0.00	1.00	0.00
25.41	157.85	2.00	0.00	1.00	0.00	25.57	151.55	0.38	1.66	1.00	0.03
25.74	151.59	0.39	1.66	1.00	0.03	25.90	164.29	2.00	0.00	1.00	0.00
26.07	173.04	2.00	0.00	1.00	0.00	26.23	184.31	2.00	0.00	1.00	0.00
26.39	189.88	2.00	0.00	1.00	0.00	26.56	189.55	0.68	0.99	1.00	0.02

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.72	187.84	2.00	0.00	1.00	0.00	26.89	184.51	2.00	0.00	1.00	0.00
27.05	180.31	2.00	0.00	1.00	0.00	27.21	170.39	2.00	0.00	1.00	0.00
27.38	150.07	2.00	0.00	1.00	0.00	27.54	135.16	2.00	0.00	1.00	0.00
27.70	132.45	2.00	0.00	1.00	0.00	27.87	134.31	2.00	0.00	1.00	0.00
28.03	134.26	2.00	0.00	1.00	0.00	28.20	127.63	2.00	0.00	1.00	0.00
28.36	114.04	2.00	0.00	1.00	0.00	28.52	110.05	2.00	0.00	1.00	0.00
28.69	115.64	2.00	0.00	1.00	0.00	28.85	128.44	0.27	1.90	1.00	0.04
29.02	140.54	0.33	1.77	1.00	0.03	29.18	143.49	0.34	1.74	1.00	0.03
29.34	144.75	0.35	1.73	1.00	0.03	29.51	144.14	0.35	1.73	1.00	0.03
29.67	152.37	0.40	1.65	1.00	0.03	29.84	156.19	0.42	1.62	1.00	0.03
30.00	160.76	0.45	1.58	1.00	0.03	30.16	157.70	0.43	1.61	1.00	0.03
30.33	164.57	0.48	1.55	1.00	0.03	30.49	166.76	0.50	1.54	1.00	0.03
30.66	166.00	0.49	1.54	1.00	0.03	30.82	164.18	0.48	1.56	1.00	0.03
30.98	177.51	0.59	1.32	1.00	0.03	31.15	179.66	0.61	1.30	1.00	0.03
31.31	178.76	0.60	1.31	1.00	0.03	31.48	173.56	0.56	1.36	1.00	0.03
31.64	157.20	0.43	1.61	1.00	0.03	31.80	152.57	0.40	1.65	1.00	0.03
31.97	159.62	0.45	1.59	1.00	0.03	32.13	169.95	0.53	1.51	1.00	0.03
32.30	173.29	0.56	1.37	1.00	0.03	32.46	183.06	2.00	0.00	1.00	0.00
32.62	185.60	2.00	0.00	1.00	0.00	32.79	174.43	2.00	0.00	1.00	0.00
32.95	156.43	2.00	0.00	1.00	0.00	33.12	138.13	2.00	0.00	1.00	0.00
33.28	137.29	2.00	0.00	1.00	0.00	33.44	142.94	2.00	0.00	1.00	0.00
33.61	135.88	2.00	0.00	1.00	0.00	33.77	115.02	2.00	0.00	1.00	0.00
33.93	101.78	2.00	0.00	1.00	0.00	34.10	99.78	2.00	0.00	1.00	0.00
34.26	102.00	2.00	0.00	1.00	0.00	34.43	104.18	2.00	0.00	1.00	0.00
34.59	104.76	2.00	0.00	1.00	0.00	34.75	106.04	2.00	0.00	1.00	0.00
34.92	103.16	2.00	0.00	1.00	0.00	35.08	104.77	2.00	0.00	1.00	0.00
35.25	114.27	0.22	2.09	1.00	0.04	35.41	129.26	0.28	1.89	1.00	0.04
35.57	139.13	2.00	0.00	1.00	0.00	35.74	143.05	2.00	0.00	1.00	0.00
35.90	148.79	2.00	0.00	1.00	0.00	36.07	151.12	2.00	0.00	1.00	0.00
36.23	154.19	2.00	0.00	1.00	0.00	36.39	159.75	2.00	0.00	1.00	0.00
36.56	170.59	2.00	0.00	1.00	0.00	36.72	168.07	2.00	0.00	1.00	0.00
36.88	155.53	2.00	0.00	1.00	0.00	37.05	141.93	2.00	0.00	1.00	0.00
37.21	140.27	2.00	0.00	1.00	0.00	37.38	144.72	2.00	0.00	1.00	0.00
37.54	132.43	2.00	0.00	1.00	0.00	37.70	124.74	2.00	0.00	1.00	0.00
37.87	120.76	2.00	0.00	1.00	0.00	38.03	128.85	2.00	0.00	1.00	0.00
38.20	127.71	2.00	0.00	1.00	0.00	38.36	134.78	0.32	1.83	1.00	0.04
38.52	137.99	0.33	1.79	1.00	0.04	38.69	149.79	0.41	1.68	1.00	0.03
38.85	153.16	2.00	0.00	1.00	0.00	39.02	151.06	2.00	0.00	1.00	0.00
39.18	139.82	2.00	0.00	1.00	0.00	39.34	126.91	2.00	0.00	1.00	0.00
39.51	121.08	2.00	0.00	1.00	0.00	39.67	116.21	2.00	0.00	1.00	0.00
39.84	125.52	2.00	0.00	1.00	0.00	40.00	129.13	2.00	0.00	1.00	0.00
40.16	131.14	0.30	1.87	1.00	0.04	40.33	132.40	0.31	1.86	1.00	0.04
40.49	137.62	0.34	1.80	1.00	0.04	40.66	142.95	0.37	1.74	1.00	0.03
40.82	147.60	0.39	1.70	1.00	0.03	40.98	151.03	0.42	1.67	1.00	0.03
41.15	150.17	0.41	1.67	1.00	0.03	41.31	152.70	0.43	1.65	1.00	0.03
41.48	150.08	0.41	1.67	1.00	0.03	41.64	155.54	0.45	1.63	1.00	0.03
41.80	160.59	0.49	1.58	1.00	0.03	41.97	167.03	2.00	0.00	1.00	0.00
42.13	157.60	2.00	0.00	1.00	0.00	42.30	143.88	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
42.46	134.80	2.00	0.00	1.00	0.00	42.62	141.89	2.00	0.00	1.00	0.00
42.79	145.64	0.39	1.72	1.00	0.03	42.95	152.16	0.43	1.66	1.00	0.03
43.12	160.68	2.00	0.00	1.00	0.00	43.28	172.32	2.00	0.00	1.00	0.00
43.44	190.46	2.00	0.00	1.00	0.00	43.61	201.17	2.00	0.00	1.00	0.00
43.77	208.98	2.00	0.00	1.00	0.00	43.93	200.83	2.00	0.00	1.00	0.00
44.10	191.89	0.78	0.78	1.00	0.02	44.26	181.76	0.68	1.05	1.00	0.02
44.43	174.63	0.61	1.35	1.00	0.03	44.59	175.17	0.62	1.35	1.00	0.03
44.75	155.37	0.46	1.63	1.00	0.03	44.92	141.95	0.37	1.75	1.00	0.03
45.08	128.76	0.30	1.90	1.00	0.04	45.25	145.19	0.39	1.72	1.00	0.03
45.41	157.82	0.48	1.61	1.00	0.03	45.57	167.94	0.56	1.43	1.00	0.03
45.74	171.06	0.59	1.39	1.00	0.03	45.90	164.99	2.00	0.00	1.00	0.00
46.07	155.03	0.46	1.63	1.00	0.03	46.23	149.36	0.42	1.68	1.00	0.03
46.39	165.12	0.54	1.55	1.00	0.03	46.56	188.59	0.76	0.80	1.00	0.02
46.72	225.49	2.00	0.00	1.00	0.00	46.88	282.94	2.00	0.00	1.00	0.00
47.05	414.75	2.00	0.00	1.00	0.00						

Total estimated settlement: 3.87

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

MINIMUM FOUNDATION DESIGN

FOUNDATIONS FOR STUD BEARING WALLS – MINIMUM REQUIREMENTS

EXPANSION INDEX (E. I.)	FOUNDATIONS FOR SLAB AND RAISED FLOOR SYSTEM						REINFORCEMENT FOR FOUNDATIONS	CONCRETE SLAB 3-1/2" MINIMUM THICKNESS (4" WHEN OVER 51, E. I.)		PREMOISTENING CONTROLS FOR SOILS UNDER FOOTINGS, PEIRS AND SLABS	PIERS UNDER RAISED FLOORS
	NUMBER OF STORIES	STEM THICKNESS	FOOTING WIDTH	FOOTING THICKNESS	ALL PERIMETER FOOTINGS	INTERIOR FOOTINGS FOR SLAB AND RAISED FLOORS		REINFORCEMENT	TOTAL THICKNESS OF SAND		
					DEPTH BELOW NATURAL SURFACE OF GROUND & FINISH GRADE						
		INCHES									
0 -20 VERY LOW (NON-EXPANSIVE)	1 2 3	6 8 10	12 15 18	6 7 8	12 18 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	2"	MOISTENING OF GROUND PRIOR TO PLACING CONCRETE IS RECOMMENDED	PIERS ALLOWED FOR SINGLE FLOOR LOADS ONLY
21-50 LOW	1 2 3	6 8 10	12 15 18	6 7 8	15 21 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS ALLOWED FO SINGLE FLOOR LOADS ONLY
51-90 MEDIUM	1 2 3	6 8 10	12 15 18	6 8 8	21 21 24	12 18 24	1 - #4 @ TOP AND BOTTOM #3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJ ACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
91-130 HIGH	1 2 3	6 8 10	12 15 18	8 8 8	27 27 27	12 18 24	2 - #4 @ TOP AND BOTTOM #3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 24" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
ABOVE 130 VERY HIGH	REQUIRES SPECIAL DESIGN BY A STATE LICENSED SOILS PROFESSIONAL										

GEOTECHNICAL ENGINEERING REPORT
FOR
1300 CRAVENS LANE
PROPOSED RESIDENTIAL DEVELOPMENT
CARPINTERIA, CALIFORNIA

VT-23345-01
MARCH 17, 2005

PREPARED FOR
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March 17, 2005

VT-23345-01
05-3-8

Scott Ellinwood
1300 Cravens Lane
Carpinteria, California 93013

Project: 1300 Cravens Lane
Proposed Residential Development
Carpinteria, California

As authorized, we have performed a geotechnical study for the proposed residential development to be located at 1300 Cravens Lane in Carpinteria, California. The accompanying Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, as well as our conclusions and recommendations pertaining to geotechnical aspects of project design.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

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INTRODUCTION

A. Project Description

This report presents results of a Geotechnical Engineering study performed for the proposed residential development second to be located at 1300 Cravens Lane in Carpinteria, California. The development will include additions to an existing single family residence, a new single family residence, and 34 townhomes. It is assumed herein that the proposed construction will be one- to two-story wood frame structures with slab-on-grade floors. Structural considerations for building column loads of up to 20 kips with maximum wall loads of 2 kips per lineal foot were used as a basis for the recommendations of this report. If actual loads vary significantly from these assumed loads, Earth Systems Southern California should be notified since reevaluation of the recommendations contained in this report may be required.

B. Purpose and Scope of Work

The purpose of the geotechnical study that led to this report was to evaluate the soil conditions of the site with respect to the proposed construction. These conditions include surface and subsurface soil types, expansion potential, settlement potential, bearing capacity, the presence or absence of subsurface water, and liquefaction potential. The scope of our work included:

1. Reconnaissance of the site.
2. Drilling/hand augering, sampling and logging of six borings and performing one cone penetrometer test (CPT) to study soil and groundwater conditions.
3. Laboratory testing of soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
4. Analyzing of the geotechnical data obtained.
5. Consulting with owner representatives.
6. Preparing this report.

Contained in this report are:

1. Descriptions and results of field and laboratory tests that were performed.
2. Discussions pertaining to the local soil and groundwater conditions.
3. Conclusions and recommendations pertaining to site grading and structural design.

C. Site Setting

The site of the proposed improvements is located at 1300 Cravens Lane in Carpinteria, California (see Vicinity Map in Appendix A). The site is currently occupied by two existing single-family residences and barn. One of the existing residences and the barn will be demolished prior to the new construction. The site is approximately 4 acres in area and is relatively flat. The site is bounded by Cravens Lane to the west, an existing residential development to the south, and vacant land to the north and east. There is a man-made pond located on the west side of the property. Numerous trees and annual grasses cover the site.

GEOLOGIC HAZARDS

Geologic hazards that are common to the Southern California area include fault rupture, seismic shaking, liquefaction, landslides, and rockfalls. Below, we will address each of these hazards as they relate to the subject site.

Fault Rupture

The parcel does not lie within a State of California designated fault hazard zone. Therefore, the potential for fault rupture hazard on the subject site is considered low.

Seismic Shaking

It is the standard of practice when evaluating seismicity to consider the design basis (10% probability of exceedance in 50 years) accelerations. The California Division of Mines and Geology, in concert with the U.S. Geological Survey and the scientific community, has prepared a statewide probabilistic seismic hazard assessment (CDMG, Seismic Shaking Map Sheets, Map Sheet 48, 1999). The focus of the assessment was to generate a seismic hazard map showing zones of estimated peak ground accelerations at a hazard level of 10% probability of exceedance in 50 years. The site location plots between 0.60 g to 0.70 g acceleration potential. A contour map of the estimated magnitude of earthquake that causes the dominant hazard for peak ground acceleration at 10% probability of exceedance in 50 years with alluvial site conditions was also prepared as part of the statewide seismic hazard assessment survey. The site location plots within a zone of magnitude 6.5 to 7.0. The structures should be designed for the 2001 California Building Code (CBC) Zone 4 requirements; however, the project Structural Engineer should be made aware of the design basis acceleration.

For the project site the 2001 California Building Code Seismic Design Parameters are:

Seismic Zone - Figure 16-2	4
Seismic Zone Factor Z - Table 16A-I	0.40
Soil Profile Type - Table 16A-J	S_D
Seismic Coefficient C_a - Table 16A-Q	$0.44N_a$
Seismic Coefficient C_V - Table 16A-R	$0.64N_v$
Near Source Factor N_a -Table 16A-S	1.3
Near Source Factor N_V -Table 16A-T	1.6
Seismic Source Type - Table 16A-U	B

These values area based on a distance of less than 2 kilometers from the Red Mountain fault as determined from the 1997 Uniform Building Code (UBC) Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.

Liquefaction

A major cause of damage during earthquakes is a significant reduction of soil strength or stiffness, generally referred to as liquefaction. Liquefaction can cause translational instability, bearing failure, settlement, ground loss, and other related phenomena. Translational instabilities can be slope failures or lateral spreading. Bearing failure can occur when soil strength loss is near a foundation. Settlement can occur when bearing failure is precluded, but volumetric compression occurs. Ground loss results from sand boils and is usually very localized. Liquefaction is typically a design problem only if it occurs in the upper 50 feet of the subsurface soils. However, on sloping ground or when foundations reach beyond that depth, liquefaction should be considered to a greater depth.

The soils most susceptible to liquefaction are sandy soils and silty soils of low plasticity. Cohesive soils with fines content greater than 30% are generally not susceptible to liquefaction if their fines classify as clays, or they have a plasticity index greater than 30. Generally, if a soil has a clay content greater than 15%, or the water content is less than 0.9 times the liquid limit, liquefaction can be a ruled out. However, cohesive soils, if sensitive, can lose significant strength even if they cannot liquefy, and there may be a need to address this problem. Although widely believed to be non-liquefiable, gravelly soils can be susceptible to liquefaction if internal drainage is impeded. In order for liquefaction to occur, a potentially liquefiable soil must be

saturated and subjected to rapid cyclic loading that is sufficiently intense to overcome a soil's internal resistance to liquefaction.

At this site, the groundwater was located about 3 to 7 feet below the ground surface during the field study. Sandy and silty soils are present based on the subsurface study. The site is also located in a seismically active area. Therefore, an analytical evaluation of liquefaction potential is necessary.

For the purposes of the liquefaction analyses performed as part of this report, the selected seismic factors include were a peak ground acceleration of 0.7 g and an earthquake magnitude of 7.0.

The CPT data were used to evaluate liquefaction potential.

Clayey soils with more than 15% clay sized particles are not susceptible to liquefaction. Therefore, it is important to identify those soil layers that have more than 15% clay sized particles. For the analyses herein, the clay content was selected based on either the soils boring information or the interpreted CPT soil behavior type, with more credence given to the size analyses from the borings.

The data were analyzed using a spread sheet format (developed internally at ESSC based on NCEER 1997, Robertson and Wride). The data used was as discussed above. The results of the analyses for the CPT-1 location are included in Appendix C.

The analysis of the CPT data indicates that all soil layers had factors of safety that exceeded 1.3, except for a number of zones (varying in thickness from a few inches to about 2 feet thick, and having a total liquefiable thickness of about 10 feet) encountered in the CPT No. 1 location. Zones with factors of safety less than 1.3 are considered potentially liquefiable.

The volumetric strain for the potentially liquefiable zones was estimated within the computer program using a chart derived by Tokimatsu and Seed (1987). For the zones encountered in CPT No.1, the total estimated liquefaction induced settlement is about 2 inches. In accordance with SP117, differential settlement is estimated to be about one-half the total settlement, or about 1 inch.

According to a chart derived by Ishihara (1985), no "ground" damage would be expected related to the zones encountered in CPT. Examples of ground damage are sand boils and ground cracks. Although the analysis predicts that there will be no ground damage, there is a potential for differential settlement suggested by the findings.

Landslides and Rockfall

There are no identified landslides or rockfalls either on or trending into the site, therefore, hazards associated with this phenomena should be considered low.

SOIL CONDITIONS

Evaluation of the subsurface indicates that soils at the proposed building areas are generally alluvial deposits consisting of interbedded clays, silts and sands. Two of the borings encountered approximately 3 feet of disturbed soils (either uncertified fill or previously agricultural disturbance) consisting of silty sand to sandy silt. Soils encountered at approximate bearing depths are characterized by low to moderate in-place densities. Testing indicates that anticipated bearing soils lie in the "low" expansion range of Table 18-I-B of the 2001 California Building Code. Groundwater was encountered at 3 to 7 feet below the existing ground surface. It appears that soils can be cut by normal heavy grading equipment, although free flowing water and soil with above optimum moisture content will be encountered (see Site Grading/Development section of this report for de-watering recommendations).

Samples for near-surface soils were tested for pH, resistivity, soluble sulfates and soluble chlorides. Testing indicates that anticipated bearing soils lie within the "negligible" sulfate exposure range in Table 19-A-4 of the 2001 California Building Code. Hence, special concrete designs do not appear necessary to combat sulfate attack. A soil resistivity measurement indicates that the soil is "moderately corrosive" to ferrous metals. The test results should be provided to the project designers for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils.

CONCLUSIONS AND RECOMMENDATIONS

The site is suitable for the proposed development from a Geotechnical Engineering standpoint provided that the recommendations contained in this report are successfully implemented into the project.

A. Grading

1. General Grading

a. Grading at a minimum should conform to Chapter 33 of the 2001 California Building Code.

b. The existing ground surface should be initially prepared for grading by removing all vegetation, debris piles, large roots, any other organics, and any noncomplying fill. All organics and vegetation should be removed from the site to preclude their incorporation in site fills. Voids created by removing such material should be properly backfilled and compacted. No compacted fill should be placed unless a representative of the Geotechnical Engineer has observed the underlying soil.

c. Fill and backfill placed at near optimum moisture in layers with loose thickness not greater than 8 inches should be compacted to a minimum of 90% of the maximum dry density obtainable by the ASTM D 1557 test method unless otherwise recommended or specified. Random compaction tests by Earth Systems Southern California can assist the Grading Contractor in evaluating whether the Grading Contractor is meeting compaction requirements. Compaction tests pertain only to a specific location, however, and do not guaranty that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve uniform compaction in accordance with the requirements of this report and the grading ordinance.

d. Shrinkage of soils affected by compaction should be about 20%.

e. Import soils used to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

f. Roof draining systems should be designed so that water is not discharged into bearing soils or near the structure. Final site grade could be such that all water is diverted away from the structure, and is not allowed to pond. In landscape areas adjacent to the building we recommend a minimum gradient of 2% toward either hardscapes or drain inlets.

g. Earth Systems Southern California should be retained to provide Geotechnical Engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations. This will allow for timely design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

h. Plans and specifications should be provided to Earth Systems Southern California prior to grading. Plans should include the grading plans, foundation plans, and foundation details. Earth Systems Southern California will review these plans only for conformity with geotechnical parameters not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary to the proper function and performance of the structure.

2. Site Grading/Development

a. Prior to grading, the site should be dewatered to a depth about 2 feet below the lowest elevation of the grading. Dewatering at adjacent sites has involved subdrains placed at depths of 6 to 8 feet deep. This should be performed by a contractor experienced in dewatering. After construction is complete (at a minimum foundations, interior slabs, utilities and exterior hardscape should be completed), the dewatering can be discontinued and water levels can rise to their equilibrium.

b. Overexcavation and recompaction of soils in all of the proposed structure areas will be necessary because of soft and variable density soils at bearing depth. The structure footprints to a distance of 5 feet beyond their building footprints (including any exterior columns) should be overexcavated to the deeper depth of either: 1) one foot below the bottom of the foundation, 2) through the disturbed soils (about 3 feet), or 3) 3 feet below existing grade. If the resulting surface is pumping or otherwise unstable, then stabilization of the excavation bottom will be required prior to placing fill. This can be accomplished by either: 1)

drying the soils, 2) working thin lifts of 1-1/2 inch (minimum size) float rock into the excavation bottom until stabilization is achieved, 3) lime or cement treatment of the soils, or 4) use of geotextiles in combination with rock.

c. Areas outside of the buildings to receive fill, or paving should be overexcavated through any disturbed soils and then the exposed surface should be scarified to a depth of 1 foot, moisture conditioned, and recompacted.

d. On-site soils may be used for fill once they are cleaned of all organic material, rock, debris and irreducible material larger than 8 inches. Alternately, import soils meeting the criteria previously discussed can be used.

3. Utility Trenches

a. The provisions of this report relating to minimum compaction standards should govern utility trench backfill. In general, on-site service lines may be backfilled with native soils compacted to 90% of maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.

b. Jetting of native soils is not recommended.

B. Structural Design

1. Post-Tensioned Foundations into Recompacted Fill

a. Post-tensioned slabs should be used to support the structures. The following design criteria should be incorporated into the design by the Project Structural Engineer. The foundations should be supported by compacted structural fill. We recommend that a post-tensioned slab be designed for soils in the "low" expansion range and to accommodate the estimated potential differential liquefaction settlement of about 1 inch.

b. If the PTI method is used to design the foundation, then design parameters should include:

Thornthwaite Moisture Index:	-20
Edge Moist. Var. Dist. (e_m)	
Ctr. Lift Condition	6 feet
Edge Lift Condition	3 feet
Est. Diff. Swell (y_m)	
Ctr. Lift Condition	3.4 inches
Edge Lift Condition	0.38 inches
Differential Settlement	1.25 inches

c. A bearing value of 1,000 psf may be used for slabs situated on four inches of sand over compacted subgrade soils. A bearing capacity of 1,000 psf may be used for 18 inch deep footings. This bearing value utilizes a factor of three and should not be increased because of shallow groundwater.
d. To minimize moisture variations near the edges of the slabs, we recommend that the perimeter beams be bottomed no less than 18 inches below lowest adjacent grade.
e. Slab areas should be underlaid with a minimum of 4 inches of sand. A vapor retarder should be placed on the subgrade (i.e. at the base of the sand layer) to reduce upward moisture transmission from the subgrade soils to the slab. The sand above the vapor retarder should be lightly moistened just prior to placing concrete.
f. Slab subgrade soils should be premoistened to 3% over the optimum moisture content to a depth of 18 inches below lowest adjacent grade. Premoistening should be confirmed by testing.
g. An equivalent "waffle" slab is an acceptable alternative foundation system.

2. Exterior Slabs-on-Grade
   a. It is recommended that perimeter slabs (walks, patios, etc.) be designed relatively independent of footing stems (i.e., free floating) so foundation adjustment will be less likely to cause cracking.
   b. The slab designs should be provided by the project Structural Engineer.
   c. Slabs should be underlain with a minimum of 4 inches of sand.
   d. Slabs should at a minimum be reinforced at mid-slab with No. 3 bars on 24-inch centers, each way.

3. Frictional and Lateral Coefficients
   a. Resistance to lateral loading may be provided by friction acting on the base of foundations. A coefficient of friction of 0.6 may be applied to dead load forces. This value does not include a factor of safety.
   b. Passive resistance acting on the sides of foundation stems equal to 370 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a factor of safety.

c. A minimum factor of safety of 1.5 should be incorporated into designs for sliding or overturning.
d. Passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

4. Settlement Considerations
   a. Maximum expected settlement of about 1/2-inch is anticipated for foundations and floor slabs designed as recommended and subjected to static loading. Differential settlement between adjacent load bearing members could be about half this amount.
   b. A potential settlement of 2 inches could be associated with liquefaction. Differential settlement could be about one-half the total liquefaction related settlement, or about 1 inch.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by Earth Systems Southern California during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

1. Review of the building and grading plans during the design phase of the project.
2. Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
3. Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analysis and recommendations submitted in this report are based in part upon the data obtained from the borings drilled on the site. The nature and extent of variations beyond and between the borings may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water,

groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring log regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of our client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they be due to natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structures and other improvements are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems Southern California strives to provide our services in accordance with the generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of Scott Ellinwood and any authorized agents.

It is recommended that Earth Systems Southern California be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems Southern California is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation of our recommendations.

REFERENCES

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APPENDIX A

Field Study
Vicinity Map
Site Plan
Boring Logs
CPT Data and Interpretations
Symbols Commonly Used on Boring Logs
Unified Soil Classification

FIELD STUDY

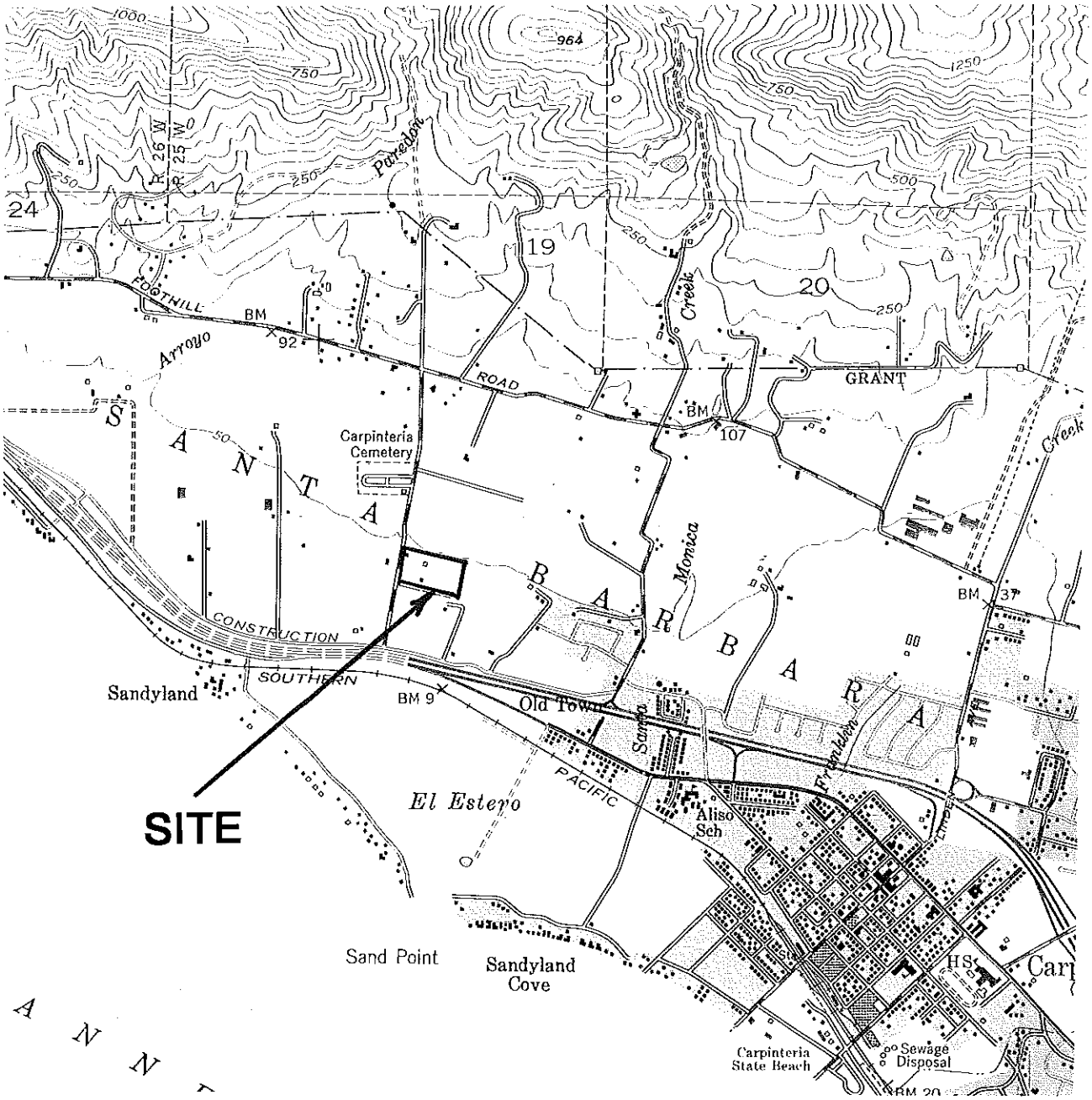
A. On January 18, 2005, six borings were hand augered to depths ranging between 3.5 feet to 7 feet below the existing ground surface. On January 19, 2005, one boring was drilled with a subcontracted Mobil Drill B-61 drilling rig to a depth of 51.5 feet below the existing ground surface. The borings were performed to observe the soil profile and to obtain samples for laboratory analysis. The approximate locations of the borings were determined in the field by pacing and sighting, and are shown on the Site Plan in this appendix.

B. Samples were obtained within the test borings with a Modified California (M.C.) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586), and with a Standard Penetration Test (SPT) sampler (ASTM D 1586). The M.C. sampler has a 3.00-inch outside diameter and a 2.37-inch inside diameter. The SPT sampler has a 2.00-inch outside diameter and a 1.37-inch inside diameter with liners, but was used without liners (1.63-inch inside diameter). The samples within the drilled boring were obtained by driving the sampler with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. The hammer used to obtain the samples within the drilled boring was an above ground automatic trip hammer. The samples within the hand augered borings were obtained by driving the sampler with a lightweight slide hammer.

C. Bulk samples of the soils encountered were gathered from the auger cuttings.

D. The final log of the borings represents our interpretation of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface study. The final logs are included in this Appendix.

E. On February 8, 2005, one cone penetrometer test (CPT) was performed to a depth of 47.1 feet below the existing ground surface. The CPT met with refusal on dense soils or bedrock. The CPT exploration was conducted by hydraulically advancing an instrument Hogentogler 10 cm^2 conical probe into the ground at a rate of 2 cm per second using a 23-ton truck as a reaction mass. An electronic data acquisition system recorded a near-continuous log of the resistance of the soil against the cone tip (Q_c) and soil friction against the cone sleeve (f_s) as the probe was advanced. Resistance readings were recorded for every 5.08 cm (2 inches) of depth. Empirical relationships (Robertson and Campanella, 1989) were applied to the data to give a near-continuous profile of soil stratigraphy. Interpretation of CPT data provides correlations for SPT blow count, internal friction angle, undrained strength (S_u) of clays, and soil behavior type. A log of the CPT sounding is included in this Appendix.



SCALE: 1"=2,000'

NORTH

*Taken from U.S.G.S. 7.5' Carpinteria Quadrangle, 1952 (Photorevised 1967)

EARTH SYSTEMS SOUTHERN CALIFORNIA

1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

VICINITY MAP

1300 Cravens Lane
Carpinteria, California

VT-23345-01

Mar-05

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 19, 2005
DRILL RIG: Mobile B-80
DRILLING METHOD: 6" Hollow Stem Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						GM			**SURFACE:** About 4 to 6 inches of base.
			■	2/2/3		CL	94.3	24.3	**ALLUVIUM:** Fine to medium sandy silty CLAY, trace fine gravel, moist, very loose, dark brown to dark reddish brown. ▼
			■	2/1/2		CL	86.3	32.8	**ALLUVIUM:** Fine sandy silty CLAY, low plasticity, wet, soft, dark reddish brown.
5		■		2/1/2		CL SC	--	--	Same as above to clayey fine to coarse SAND, low plasticity, wet, soft, dark reddish brown. HYDRO: 16.2% clay, 26.7% silt, 56.3% sand, 0.8% gravel.
10		■		3/3/4		CL	--	--	**ALLUVIUM:** Fine to medium sandy silty CLAY, low to medium plasticity, wet, medium stiff, moderate to dark reddish brown. HYDRO: 20.8% clay, 34.1% silt, 44.8% sand, 0.3% gravel.
15		■		5/9/14		CL SC	--	--	Same as above to slightly clayey silty fine to coarse SAND, wet, medium dense, moderate reddish brown. HYDRO: 15.0% clay, 26.2% silt, 58.3% sand, 0.5% gravel.
20		■		10/11/13		SM	--	--	**ALLUVIUM:** Silty fine SAND, wet, medium dense, light reddish brown with some dark gray staining. HYDRO: 6.2% clay, 35.2% silt, 57.4% sand, 1.2% gravel.
25		■		11/22/26		SW	--	--	**ALLUVIUM:** Slighlty silty fine to medium SAND, trace fine gravel, moderately graded, wet, dense, light reddish brown. HYDRO: 2.6% clay, 17.0% silt, 75.7% sand, 4.7% gravel.
30		■		5/10/16		SM	--	--	**ALLUVIUM:** Silty fine SAND, trace clay, wet, medium dense, light reddish brown. HYDRO: 2.9% clay, 10.4% silt, 85.6% sand, 1.1% gravel.
35		■		7/11/21		SM	--	--	**ALLUVIUM:** Silty fine SAND, some clay, wet, hard, light reddish brown to light brown. HYDRO: 15.2% clay, 29.9% silt, 54.7% sand, 0.2% gravel.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 19, 2005
DRILL RIG: Mobile B-80
DRILLING METHOD: 6" Hollow Stem Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
40				7/14/22		SM	--	--	**ALLUVIUM:** Clayey silty fine to medium SAND, wet, hard, moderate brown. HYDRO: 15.9% clay, 34.5% silt, 49.3% sand, 0.3% gravel.
45				8/12/19		SM	--	--	Same as above. HYDRO: 15.8% clay, 35.2% silt, 48.2% sand, 0.8% gravel.
50				7/12/18		ML SM	--	--	ALLUVIUM: Fine to medium sandy SILT with layers of silty fine sand, wet, medium dense to very stiff, light reddish brown to moderate brown. HYDRO: 12.4% clay, 39.9% silt, 46.2% sand, 1.5% gravel.
55									Final Depth: 51.5 feet Groundwater was encountered at 3.0 feet.
60									
65									
70									
75									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 2
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			SM	107.3	17.3	**ALLUVIUM:** Clayey silty fine to medium SAND, trace rootlets, moist, loose to medium dense, dark brown.
			■			SM	91.7	23.0	**ALLUVIUM:** Slightly clayey silty fine to medium SAND, wet, medium stiff, dark brown to dark reddish brown.
5									Final Depth: 3.5 feet Groundwater was encountered at 3.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 3
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0	X		■			ML	107.3	16.3	**ARTIFICIAL FILL:** Clayey fine to medium sandy SILT, trace fine gravel, very moist, medium stiff to stiff, moderate brown to dark brown.
	X		■			SM	106.7	14.5	**ALLUVIUM:** Silty fine to medium SAND, very moist, loose, moderate to dark brown.
5			■			SM	101.1	19.9	**ALLUVIUM:** Silty fine to coarse SAND, trace fine gravel and clay, very moist, loose, dark brown to dark reddish brown. ▼
10									Final Depth: 7.5 feet Groundwater was encountered at 7.0 feet.
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 4
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: **4"** Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6" N)	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			ML	102.7	20.4	**ALLUVIUM:** Fine to medium sandy clayey SILT, low plasticity, trace roots up to 1/2 inch in diameter, very moist, medium stiff to stiff, dark brown with some dark reddish brown.
			■			SM	89.3	27.2	**ALLUVIUM:** Silty fine SAND, some clay, wet, loose, dark reddish brown.
5									Final Depth: 3.5 feet Groundwater was encountered at 3.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 5
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			ML	102.1	18.1	**ALLUVIUM:** Clayey fine to medium sandy SILT, very moist, medium stiff, dark brown to dark reddish brown.
			■			CL	87.4	26.7	**ALLUVIUM:** Fine sandy CLAY, low plasticity, some silt, very moist, soft, dark reddish brown. ▼
5									Final Depth: 5.0 feet Groundwater was encountered at 4.5 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 6
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger
LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0			■			SM	117.7	13.5	**DISTURBED SOIL:** Silty fine to coarse SAND, trace charcoal and clay, moist, medium dense dark brown.
			■			ML	91.7	26.3	**ALLUVIUM:** Fine to coarse sandy SILT, trace clay, wet, loose to medium dense, moderate to light reddish brown. ▼
5									Final Depth: 5.0 feet Groundwater was encountered at 4.0 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: 7
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-01
BORING LOCATION: Per Plan

DRILLING DATE: January 18, 2005
DRILLING METHOD: 4" Hand Auger

LOGGED BY: Wesley Smith

Vertical Depth	Sample Type: Bulk	Sample Type: P-Bag	Sample Type: Ring Sample	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0	X		■			ML	--	--	**ALLUVIUM:** Fine sandy clayey SILT, trace rootlets, low plasticity, moist, soft to medium stiff, dark brown.
	X		■			ML SM	--	--	**ALLUVIUM:** Fine sandy clayey SILT to silty clayey fine SAND, very moist to wet, soft to loose, dark reddish brown.
5									Final Depth: 4.0 feet Groundwater was encountered at 3.5 feet
10									
15									
20									
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: 1300 Cravens Lane Project No: VT-23345-01 Date: 02/08/05

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 3.0 Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Claan Sand Qc1n	Claan Sand $N_{1(60)}$	Claan Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
0.15	0.5	95.66	0.26	Sand	SP	dense	120	5.0	19	0.015	0.015	0.26	0.50	1.70	153.7	1.43	153.7	33	31	95	37		
0.30	1.0	36.63	0.99	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	12	0.045	0.045	0.99	0.64	1.70	58.9	2.09	84.7	21	17	55	33		
0.46	1.5	15.05	2.52	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	0.075	0.075	2.54	0.80	1.70	24.2	2.64		8				0.88	59.9
0.61	2.0	8.18	2.71	Silty Clay to Clay	CL	firm	120	1.5	5	0.105	0.105	2.74	0.87	1.70	13.1	2.88		5				0.47	23.1
0.76	2.5	6.11	2.10	Silty Clay to Clay	CL	firm	120	1.5	4	0.135	0.135	2.14	0.89	1.70	9.8	2.92		4				0.35	13.3
0.91	3.0	4.29	1.64	Sensitive fine grained	ML	soft	120	2.0	2	0.165	0.165	1.71	0.91	1.70	6.9	3.01		2				0.24	7.5
1.07	3.5	9.14	0.56	Sensitive fine grained	ML	loose	120	2.0	5	0.195	0.179	0.57	0.76	1.70	14.7	2.50	40.8	8	8	-3	29		
1.22	4.0	6.47	0.99	Sensitive fine grained	ML	firm	120	2.0	3	0.225	0.194	1.03	0.83	1.70	10.4	2.74		3				0.37	9.7
1.37	4.5	4.02	1.80	Sensitive fine grained	ML	soft	120	2.0	2	0.255	0.208	1.92	0.93	1.70	6.5	3.06		2				0.22	5.4
1.52	5.0	3.90	2.31	Clay	CL/CH	soft	120	1.0	4	0.285	0.223	2.50	0.95	1.70	6.3	3.12		4				0.22	4.9
1.68	5.5	3.85	1.99	Sensitive fine grained	ML	soft	120	2.0	2	0.315	0.237	2.17	0.94	1.70	6.2	3.10		2				0.21	4.5
1.83	6.0	10.02	0.95	Clayey Silt to Silty Clay	ML/CL	loose	120	2.0	5	0.345	0.251	0.98	0.78	1.70	16.1	2.57	50.4	9	10	1	29		
1.98	6.5	18.19	0.60	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	6	0.375	0.266	0.61	0.68	1.70	29.2	2.24	52.0	10	10	26	30		
2.13	7.0	13.70	0.76	Sandy Silt to Clayey Silt	ML	loose	120	2.5	5	0.405	0.280	0.78	0.73	1.70	22.0	2.40	51.0	9	10	14	30		
2.29	7.5	7.38	1.14	Sensitive fine grained	ML	firm	120	2.0	4	0.435	0.295	1.21	0.83	1.70	11.9	2.73		4				0.42	7.1
2.44	8.0	8.80	0.76	Sensitive fine grained	ML	loose	120	2.0	4	0.465	0.309	0.81	0.79	1.70	14.1	2.58	45.2	7	9	-4	29		
2.59	8.5	4.17	1.85	Sensitive fine grained	ML	soft	120	2.0	2	0.495	0.323	2.10	0.94	1.70	6.7	3.06		2				0.23	3.4
2.74	9.0	4.25	1.34	Sensitive fine grained	ML	soft	120	2.0	2	0.525	0.338	1.52	0.91	1.70	6.8	2.99		2				0.23	3.3
2.90	9.5	5.92	1.44	Sensitive fine grained	ML	firm	120	2.0	3	0.555	0.352	1.59	0.88	1.70	9.5	2.87		3				0.33	4.6
3.05	10.0	9.76	1.68	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	0.585	0.367	1.79	0.83	1.70	15.7	2.71		5				0.55	7.5
3.20	10.5	10.07	3.08	Silty Clay to Clay	CL	stiff	120	1.5	7	0.615	0.381	3.28	0.87	1.70	16.2	2.85		7				0.57	7.4
3.35	11.0	12.56	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.645	0.395	2.55	0.82	1.70	20.2	2.71		6				0.72	9.0
3.51	11.5	18.84	0.76	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	8	0.675	0.410	0.79	0.69	1.70	30.3	2.28	57.1	12	11	27	31		
3.66	12.0	18.15	1.10	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	7	0.705	0.424	1.14	0.72	1.70	29.2	2.38	64.9	11	13	26	30		
3.81	12.5	12.34	2.95	Silty Clay to Clay	CL	stiff	120	1.5	8	0.735	0.439	3.13	0.84	1.70	19.8	2.77		8				0.70	7.9
3.96	13.0	14.20	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	0.765	0.453	3.00	0.82	1.70	22.8	2.71		7				0.81	8.9
4.11	13.5	15.66	2.81	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	0.795	0.467	2.96	0.81	1.70	25.2	2.67		8				0.89	9.5
4.27	14.0	12.88	2.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.825	0.482	3.14	0.84	1.70	20.7	2.75		6				0.73	7.5
4.42	14.5	13.82	2.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	0.855	0.496	2.39	0.81	1.70	22.2	2.66		7				0.78	7.8
4.57	15.0	18.91	1.94	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	8	0.885	0.511	2.04	0.76	1.70	30.4	2.51	85.3	11	17	27	30		
4.72	15.5	21.86	2.43	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	11	0.915	0.525	2.53	0.77	1.70	35.1	2.52	100.5	15	20	33	32		
4.88	16.0	23.73	2.99	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	12	0.945	0.539	3.11	0.78	1.69	37.8	2.55	115.2	16	23	36	32		
5.03	16.5	30.46	2.13	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	12	0.975	0.554	2.20	0.73	1.60	46.1	2.39	104.4	16	21	45	32		
5.18	17.0	40.87	2.12	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	16	1.005	0.568	2.18	0.70	1.55	59.7	2.30	116.7	22	23	55	34		
5.33	17.5	38.28	2.11	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	15	1.035	0.583	2.17	0.71	1.53	55.2	2.33	112.2	20	22	52	33		
5.49	18.0	15.30	3.24	Silty Clay to Clay	CL	stiff	120	1.5	10	1.065	0.597	3.48	0.84	1.61	23.3	2.74		10				0.86	7.2
5.64	18.5	16.65	2.64	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	1.095	0.611	2.83	0.81	1.56	24.6	2.67		8				0.94	7.6
5.79	19.0	53.12	2.55	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.125	0.626	2.61	0.70	1.44	72.4	2.30	140.1	27	28	63	35		
5.94	19.5	132.69	0.91	Sand	SP	dense	120	5.0	27	1.155	0.640	0.92	0.53	1.30	163.5	1.73	172.5	33	34	97	37		
6.10	20.0	126.38	1.69	Sand to Silty Sand	SP/SM	dense	120	4.0	32	1.185	0.655	1.71	0.59	1.33	158.4	1.93	193.0	39	39	96	38		
6.25	20.5	91.87	2.47	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	31	1.215	0.669	2.51	0.65	1.35	117.1	2.14	179.7	37	36	83	38		
6.40	21.0	53.44	3.72	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	27	1.245	0.683	3.81	0.74	1.38	69.7	2.43	169.1	32	34	62	37		
6.55	21.5	52.56	3.28	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	21	1.275	0.698	3.36	0.73	1.35	67.3	2.40	154.9	25	31	60	35		
6.71	22.0	26.86	2.89	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	13	1.305	0.712	3.03	0.76	1.36	34.6	2.57	109.7	16	22	33	32		
6.86	22.5	28.98	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	1.335	0.727	3.61	0.79	1.35	36.9	2.60		14				1.66	11.4
7.01	23.0	26.90	3.26	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	1.365	0.741	3.44	0.80	1.33	33.8	2.62		13				1.54	10.3
7.16	23.5	28.30	2.61	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	11	1.395	0.755	2.74	0.77	1.30	34.7	2.54	104.2	13	21	33	31		
7.32	24.0	42.08	2.46	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	17	1.425	0.770	2.55	0.73	1.26	50.2	2.40	116.7	19	23	48	33		
7.47	24.5	44.82	2.05	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	18	1.455	0.784	2.12	0.71	1.24	52.4	2.34	108.4	20	22	50	33		
7.62	25.0	46.26	2.87	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	19	1.485	0.799	2.97	0.74	1.23	53.8	2.43	130.5	21	26	51	33		
7.77	25.5	32.93	5.13	Clay	CL/CH	very stiff	120	1.0	33	1.515	0.813	5.37	0.82	1.24	38.7	2.71		33				1.89	11.6
7.92	26.0	41.44	4.30	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	21	1.545	0.827	4.47	0.79	1.21	47.5	2.59	155.4	23	31	46	34		
8.08	26.5	86.79	3.04	Sandy Silt to Clayey Silt	ML	dense	120	2.5	35	1.575	0.842	3.10	0.69	1.17	96.0	2.27	177.5	38	35	75	38		
8.23	27.0	49.27	5.12	Clay	CL/CH	hard	120	1.0	49	1.605	0.856	5.29	0.79	1.18	55.0	2.60		49				2.85	16.7
8.38	27.5	26.69	4.53	Silty Clay to Clay	CL	very stiff	120	1.5	18	1.635	0.871	4.83	0.84	1.18	29.7	2.76		18				1.52	8.6
8.53	28.0	32.24	3.85	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	1.665	0.885	4.06	0.81	1.15	35.2	2.65		16				1.84	10.4
8.69	28.5	33.63	2.71	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	13	1.695	0.899	2.86	0.77	1.13	36.0	2.54	108.0	14	22	34	31		
8.84	29.0	55.02	2.68	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	22	1.725	0.914	2.97	0.73	1.11	57.9	2.40	135.0	23	27	54	34		
8.99	29.5	56.59	3.03	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	23	1.755	0.928	3.12	0.73	1.10	58.9	2.41	139.7	23	28	55	34		
9.14	30.0	54.12	3.96	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	27	1.785	0.943	4.09	0.76	1.09	55.9	2.51	158.9	28	32	53	35		
9.30	30.5	76.48	3.09	Sandy Silt to Clayey Silt	ML	dense	120	2.5	31	1.815	0.957	3.16	0.71	1.07	77.6	2.34	160.6	31	32	66	36		
9.45	31.0	153.37	1.11	Sand to Silty Sand	SP/SM	dense	120	4.0	38	1.845	0.971	1.12	0.55	1.05	152.0	1.81	169.2	39	34	94	38		
9.60	31.5	112.14	2.25	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	37	1.875	0.986	2.28	0.65	1.05	111.0	2.13	167.0	38	33	81	38		
9.75	32.0	156.29	0.54	Sand	SP	dense	120	5.0	31	1.905	1.000	0.54	0.50	1.03	151.9	1.60	151.9	31	30	94	36		
9.91	32.5	171.00	0.95	Sand	SP	dense	120	5.0	34	1.935	1.015	0.96	0.53	1.02	165.3	1.74	175.6	34	35	98	37		
10.06	33.0	125.11	1.42	Sand to Silty Sand	SP/SM	dense	120	4.0	31	1.965	1.029	1.44	0.60	1.02	120.2	1.96	150.1	31	30	84	36		
10.21	33.5	45.55	4.06	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	23	1.995	1.043	4.25	0.79	1.01	43.5	2.60		23				2.62	12.5
10.36	34.0	26.58	3.06	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.025	1.058	3.31	0.82	1.00	25.1	2.70		13				1.50	7.0
10.52	34.5	27.26	3.16	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	14	2.055	1.072	3.42	0.82	0.99	25.5	2.71		14				1.54	7.1
10.67	35.0	26.01	3.25	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	13	2.085	1.087	3.54	0.83	0.98	24.0	2.74		13				1.47	6.6
10.82	35.5	43.56	3.41	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	22	2.115	1.101	3.58	0.78	0.97	39.9	2.58	127.2	21	25	39	33		
10.97	36.0	43.37	4.47	Silty Clay to Clay	CL	hard	120	1.5	29	2.145	1.115	4.70	0.81	0.96	39.3	2.66		29				2.49	11.1

Earth Systems
Southern California

CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989)

Project: 1300 Cravens Lane Project No: VT-23345-01 Date: 02/08/05

CPT SOUNDING: CPT-1 Plot: 1 Density: 1 SPT N Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): **3.0** Dr correlation: 0 Baldi Qc/N: 1 Robertson Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
11.13	36.5	136.80	1.68	Sand to Silty Send	SP/SM	dense	120	4.0	34	2.175	1.130	1.71	0.61	0.96	124.2	2.00	161.7	32	32	86	37		
11.28	37.0	100.49	2.28	Silty Sand to Sandy Silt	SM/ML	dense	120	3.0	33	2.205	1.144	2.33	0.67	0.95	90.1	2.19	149.1	31	30	73	36		
11.43	37.5	36.53	4.23	Silty Clay to Clay	CL	hard	120	1.5	24	2.235	1.159	4.50	0.83	0.93	32.0	2.71		24				2.08	8.9
11.58	38.0	37.71	3.95	Clayey Silt to Silty Clay	ML/CL	hard	120	2.0	19	2.265	1.173	4.20	0.82	0.92	32.8	2.69		19				2.15	9.1
11.73	38.5	55.38	3.45	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	2.295	1.187	3.60	0.77	0.92	47.9	2.52	138.0	25	28	46	35		
11.89	39.0	45.70	4.92	Silty Clay to Cley	CL	hard	120	1.5	30	2.325	1.202	5.18	0.82	0.90	38.9	2.70		30				2.62	10.8
12.04	39.5	87.27	1.73	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	29	2.355	1.216	1.78	0.66	0.91	75.2	2.17	119.8	26	24	65	35		
12.19	40.0	48.77	3.40	Cleyey Silt to Silty Clay	ML/CL	medium dense	120	2.0	24	2.385	1.231	3.58	0.78	0.89	41.0	2.57	128.5	22	26	40	34		
12.34	40.5	50.43	3.74	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	25	2.415	1.245	3.93	0.79	0.88	41.9	2.59	136.9	23	27	41	34		
12.50	41.0	55.61	4.14	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	2.445	1.259	4.33	0.79	0.87	45.8	2.59	150.2	25	30	44	35		
12.65	41.5	60.11	3.91	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	30	2.475	1.274	4.07	0.78	0.87	49.2	2.55	149.7	27	30	47	35		
12.80	42.0	58.45	5.39	Clay	CL/CH	hard	120	1.0	58	2.505	1.288	5.63	0.81	0.85	47.1	2.67		58				3.36	13.0
12.95	42.5	41.56	4.42	Silty Clay to Clay	CL	hard	120	1.5	28	2.535	1.303	4.71	0.83	0.84	33.1	2.72		28				2.37	9.0
13.11	43.0	67.70	3.74	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	34	2.565	1.317	3.89	0.76	0.85	54.2	2.51	152.2	29	30	51	36		
13.26	43.5	116.39	3.67	Sandy Silt to Clayey Silt	ML	dense	120	2.5	47	2.595	1.331	3.76	0.71	0.85	93.4	2.34	194.3	40	39	74	39		
13.41	44.0	141.31	3.18	Sandy Silt to Clayey Silt	ML	dense	120	2.5	57	2.625	1.346	3.24	0.68	0.85	113.4	2.24	199.4	49	40	82	40		
13.56	44.5	88.10	4.05	Clayey Silt to Silty Clay	ML/CL	dense	120	2.0	44	2.655	1.360	4.17	0.75	0.83	69.0	2.46	177.4	38	35	61	38		
13.72	45.0	78.52	2.92	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	31	2.685	1.375	3.02	0.73	0.83	61.3	2.39	139.8	27	28	57	35		
13.87	45.5	83.47	3.50	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	33	2.715	1.389	3.62	0.74	0.82	64.5	2.43	158.3	28	32	59	36		
14.02	46.0	65.34	4.68	Silty Clay to Clay	CL	hard	120	1.5	44	2.745	1.403	4.88	0.79	0.80	49.4	2.61		44				3.76	13.4
14.17	46.5	86.33	3.71	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	35	2.775	1.418	3.84	0.74	0.80	65.6	2.45	164.9	29	33	59	36		
14.33	47.0	284.44	2.58	Silty Sand to Sandy Silt	SM/ML	very dense	120	3.0	95	2.805	1.432	2.61	0.60	0.83	223.9	1.98	286.3	79	57	100	45		

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				S P	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SAND WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				S C	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT **LESS** THAN 50		M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				C L	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				O L	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT **GREATER** THAN 50		M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				O H	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				P T	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

Earth Systems So. Calif.

1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

Unified Soil Classification System (USCS)



Modified California Split Barrel Sampler



Modified California Split Barrel Sampler - No Recovery



Standard Penetration Test (SPT) Sampler



Standard Penetration Test (SPT) Sampler - No Recovery



Perched Water Level



Water Level First Encountered



Water Level After Drilling



Pocket Penetrometer (tsf)



Vane Shear (ksf)

1. The approximate locations of borings were determined by sighting and pacing from nearby prominent topographic or cultural features. Borehole elevations were estimated by interpolating between available plan contour intervals. The location and elevation of each boring should be considered accurate only to the degree implied by this method.

2. Stratification lines represent the approximate boundary between soil and/or rock types. The transition between statigraphic units may be gradual.

3. Water level readings taken in boreholes are approximate and apply only to the time and date of drilling. Fluctuations in the level of groundwater from the time of initial measurement may occur due to variations in rainfall, tides, barometric pressure, temperature, or other factors.

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Symbols Commonly Used on Boring Logs

APPENDIX B

Laboratory Testing
Tabulated Test Results
Individual Test Results
Soil Chemistry Results

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of proposed structure. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ moisture content and unit dry weight for the ring samples were determined in general accordance with ASTM D 2937.

C. The relative strength characteristics of the soils were determined from the results of direct shear tests on remolded and undisturbed samples. Shear specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 0.5 to 2.0 kips per square foot in general accordance with ASTM D 3080.

D. An expansion index test was performed on the bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144 pounds per square foot at moisture content of near 50% saturation. The sample was then submerged in water for 24 hours and the amount of expansion was recorded with a dial indicator.

F. A maximum density test was performed to estimate the moisture-density relationship of typical soil materials. The test was performed in accordance with ASTM designation D 1557.

G. The gradation characteristics of selected samples were made by hydrometer (in accordance with ASTM D 422) and sieve analysis procedures. The samples were soaked in water until individual soil particles were separated and then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve and then mechanically sieved.

H. Concrete and metal corrosion potential of the near surface soil was determined by measuring pH, resistivity, and soluble sulfate and soluble chloride contents. The test was performed Capco Analytical.

I. A resistance ("R") value test was conducted on a bulk sample secured during the field study. The test was performed in accordance with California Method 301. Three specimens at different moisture contents were tested for each sample, and the R-Values at 300 psi exudation pressure were determined from the plotted results.

TABULATED TEST RESULTS

REMOLDED SAMPLES

TEST PIT AND DEPTH	B-1 @ 0-5'	B-3 @ 0-5'	B-7 @ 0-5'
SOIL TYPE	SM	--	--
MAXIMUM DENSITY (pcf)	130 132*	--	121
OPTIMUM MOISTURE (%)	8.5 8.5*	--	10.5
COHESION (psf)	300	--	240
ANGLE OF INTERNAL FRICTION	31	--	29
EXPANSION INDEX	9	--	29
GRAIN SIZE DISTRIBUTION (%)			
GRAVEL	15.6	--	--
SAND	59.6	--	--
SILT	14.1	--	--
CLAY	10.7	--	--
CHLORIDE (mg/Kg)	42	--	--
pH (S.U.)	7.5	--	--
RESISTIVITY (ohms-cm)	3,660	--	--
SULFATE (mg/Kg)	88	--	--
R-VALUE	--	9	--

* - CORRETCED FOR OVERSIZE (ASTM D4718)

RELATIVELY UNDISTURBED SAMPLE

BORING AND DEPTH	B-1 @ 3'
SOIL TYPE	SC
IN-PLACE DENSITY (pcf)	87.3
IN-PLACE MOISTURE (%)	32.8
PEAK COHESION (psf)	210
PEAK ANGLE OF INTERNAL FRICTION	28

TABULATED TEST RESULTS
(Continued)

GRAIN SIZE DISTRIBUTION (%)

BORING AND DEPTH	1 @ 5'	1 @ 10'	1 @15'	1 @ 20'	1@ 25'	1 @ 30'
GRAVEL	0.8	0.3	0.5	1.2	4.7	1.1
SAND	56.3	44.8	58.3	57.4	75.7	85.6
SILT	26.7	34.1	26.2	35.2	17.0	10.4
CLAY	16.2	20.8	15.0	6.2	2.6	2.9

BORING AND DEPTH	1 @ 35'	1 @ 40'	1 @45'	1 @ 50'
GRAVEL	0.2	0.3	0.8	1.5
SAND	54.7	49.3	48.2	46.2
SILT	29.9	34.5	35.2	39.9
CLAY	15.2	15.9	15.8	12.4

VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

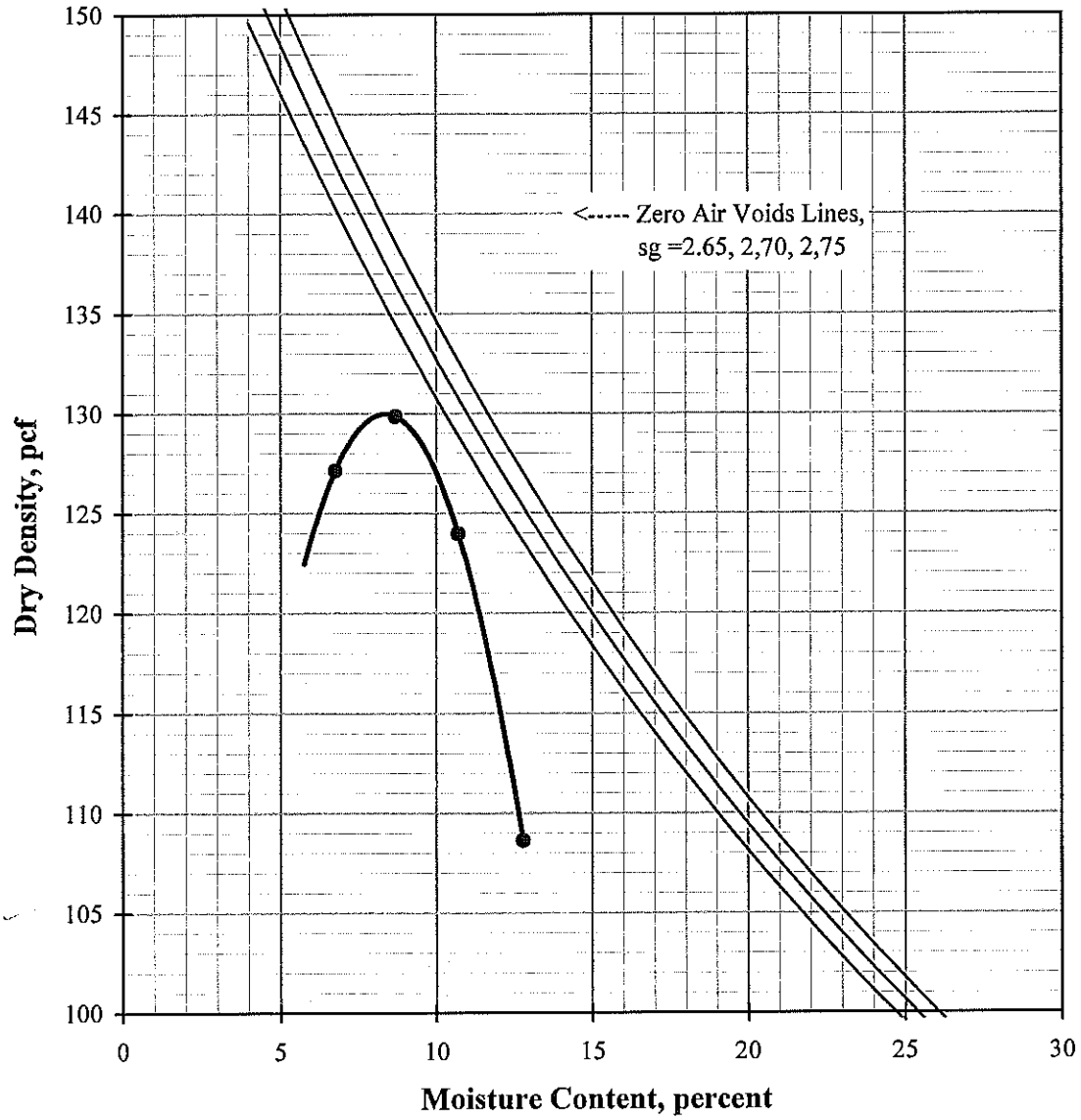
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 1 @ 0 - 5
Location:
Description: Clayey Silty Sand

Procedure Used: B
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: **130 pcf**
Optimum Moisture: **8.5%**

Sieve Size	% Retained
3/4"	0.0
3/8"	6.5
#4	0.0



VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

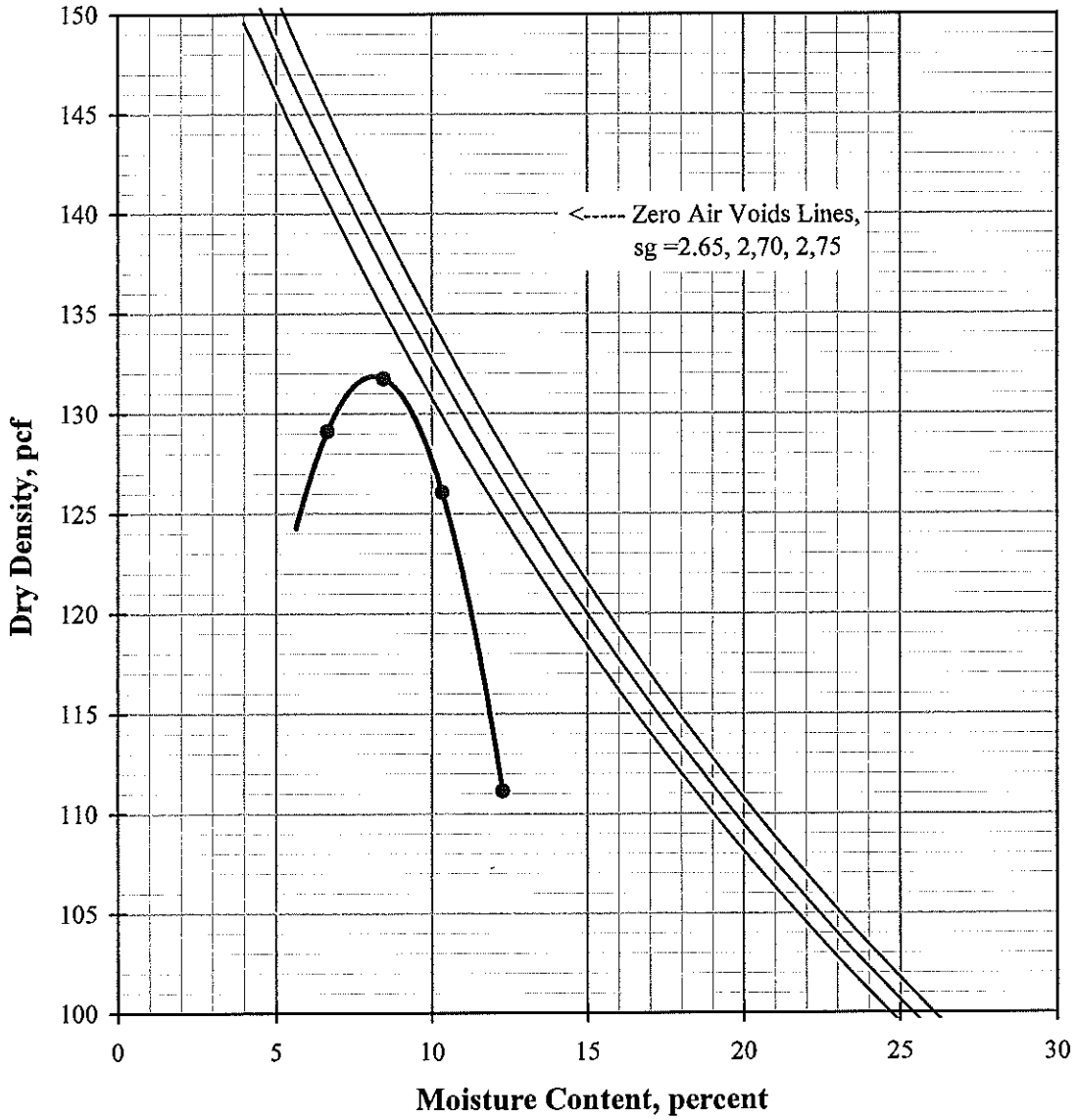
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 1 @ 0 - 5
Location:
Description: Clayey Silty Sand

Procedure Used: B
Prep. Method: Moist
Rammer Type: Manual

Maximum Density: **132 pcf**
Optimum Moisture: **8.5%**
Corrected for Oversize (ASTM D4718)

Sieve Size	% Retained
3/4"	0.0
3/8"	6.5
#4	0.0



VT-23345-01

MAXIMUM DENSITY / OPTIMUM MOISTURE

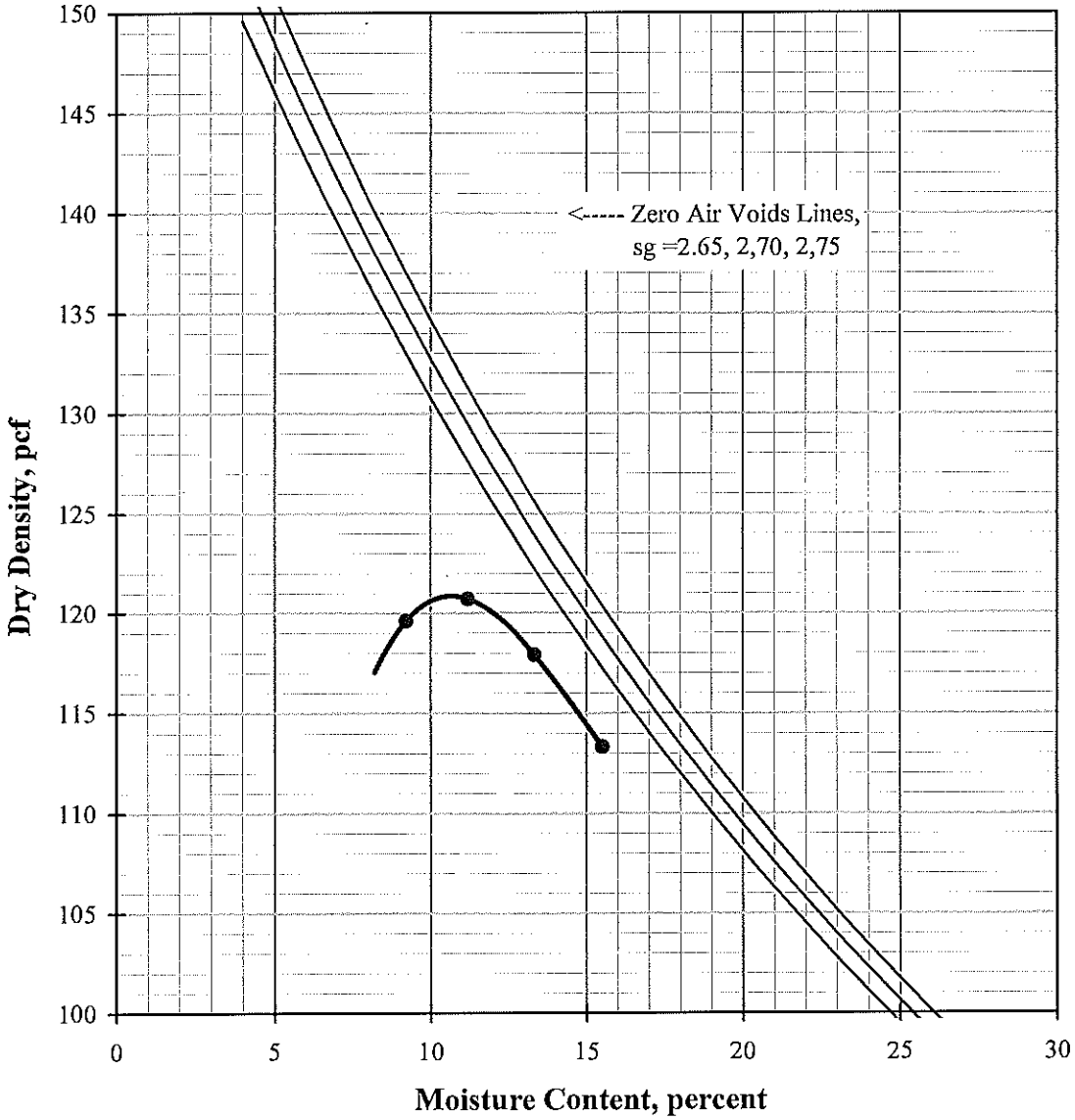
ASTM D 1557-91 (Modified)

Job Name: 1300 Cravens Lane
Sample ID: 7 @ 0 - 5
Location:
Description: Clayey Sandy Silt

Procedure Used: A
Prep. Method: Moist
Rammer Type: Automatic

Maximum Density: **121 pcf**
Optimum Moisture: **10.5%**

Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	0.0

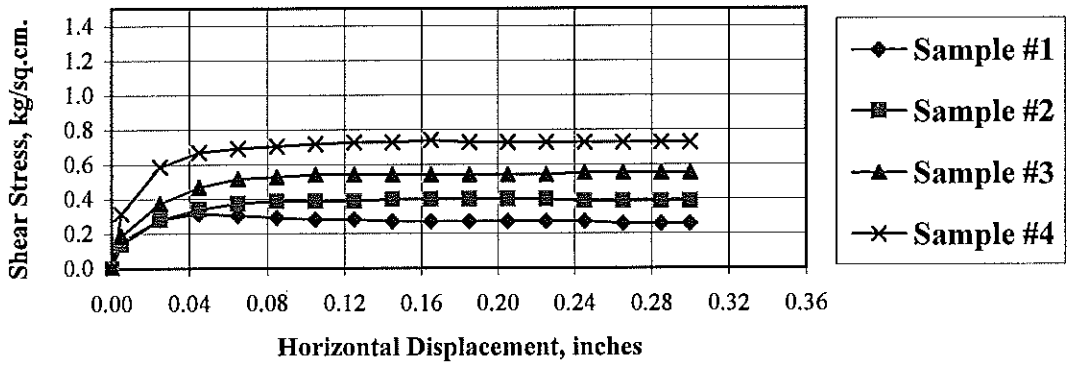


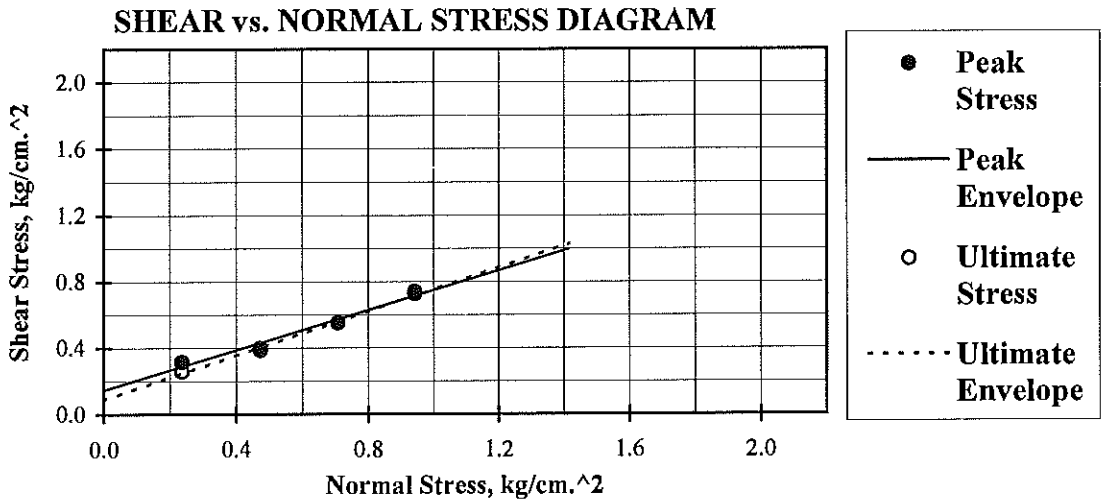
DIRECT SHEAR

1300 Cravens Lane
B 1 @ 0 - 5
Clayey Silty Sand
Remolded, ran at .024 in/min

Initial Dry Density: 116.0 pcf
Initial Mosture Content: 9.0 %
Peak Friction Angle (Ø): 31°
Cohesion (c): 0.147 kg/cm^2 (300 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	116.0	116.0	116.0	116.0	116.0
Moisture Content, %	9.0	9.0	9.0	9.0	9.0
Saturation, %	55	55	55	55	55
At Test					
Moisture Content, %	14.9	14.9	15.1	15.1	15.0
Saturation, %	91	91	92	92	92
Normal Stress, kg/cm^2	0.24	0.47	0.71	0.94	
Peak Stress, kg/cm^2	0.32	0.40	0.55	0.74	
Ultimate Stress, kg/cm^2	0.26	0.39	0.55	0.73	



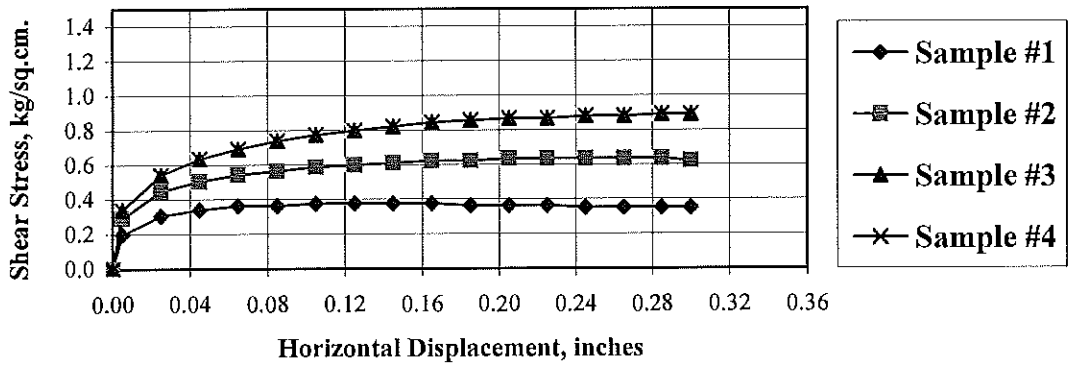


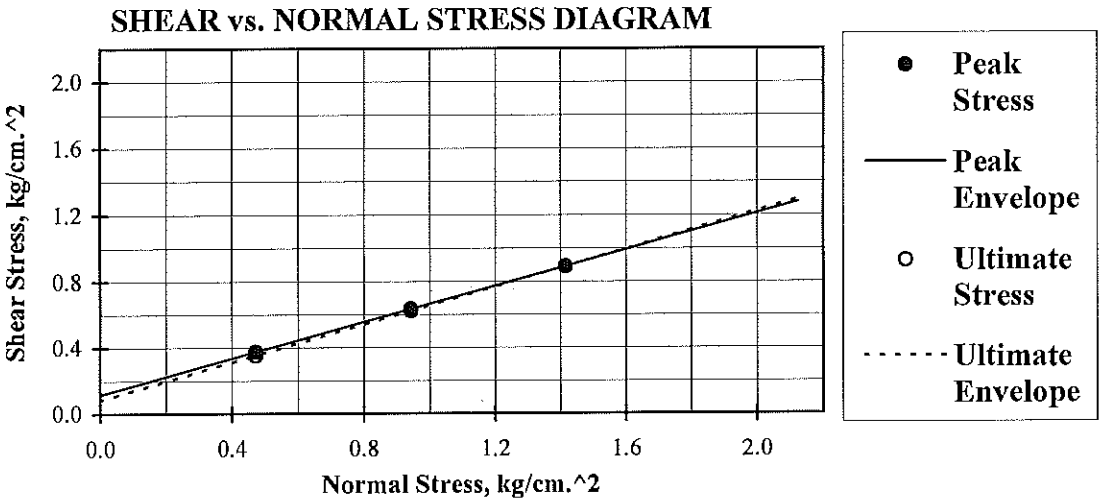
DIRECT SHEAR

1300 Cravens Lane
B 7 @ 0 - 5
Clayey Sandy Silt
Remolded, ran at .0277 in/min

Initial Dry Density: 107.9 pcf
Initial Mosture Content: 10.4 %
Peak Friction Angle (Ø): 29°
Cohesion (c): 0.117 kg/cm^2 (240 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	107.9	107.9	107.9	107.9	107.9
Moisture Content, %	10.4	10.4	10.4	10.4	10.4
Saturation, %	51	51	51	51	51
At Test					
Moisture Content, %	19.2	19.7	19.6	19.6	19.5
Saturation, %	94	97	96	96	96
Normal Stress, kg/cm^2	0.47	0.94	1.42	1.42	
Peak Stress, kg/cm^2	0.38	0.63	0.89	0.89	
Ultimate Stress, kg/cm^2	0.35	0.62	0.89	0.89	



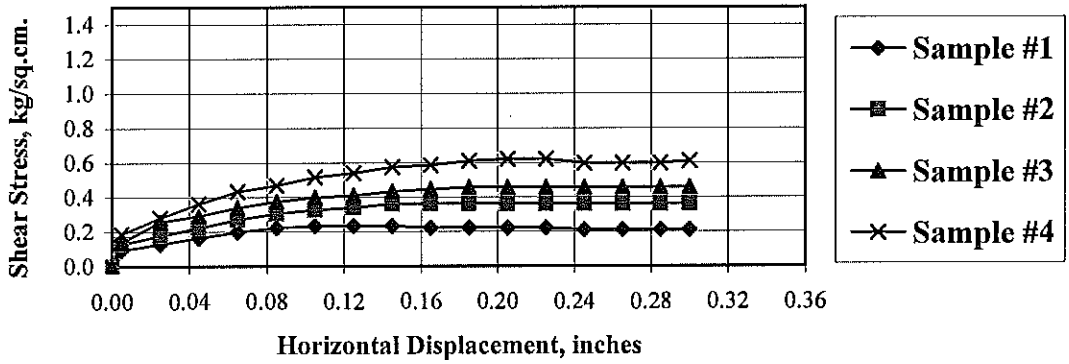


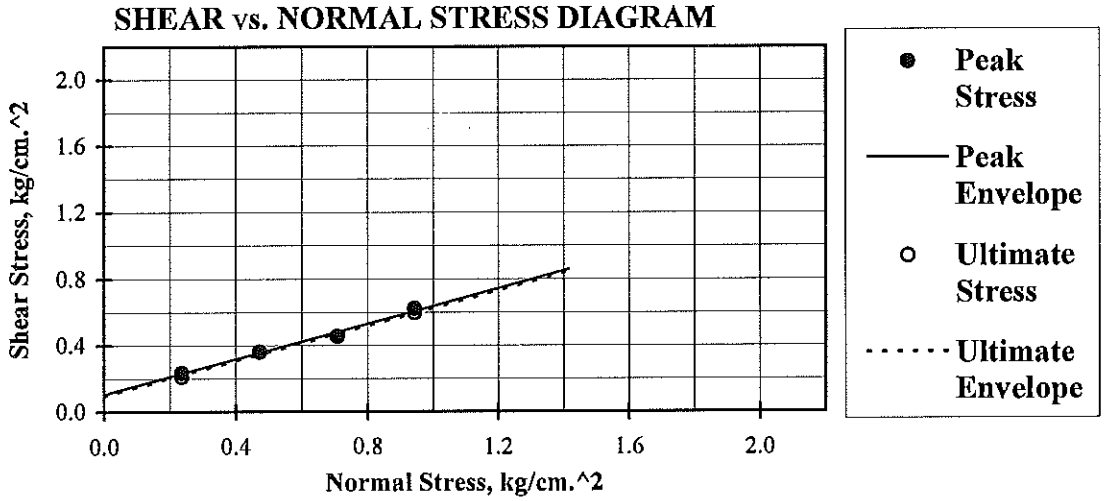
DIRECT SHEAR

1300 Cravens Lane
B 1 @ 3
Fine Sandy Silty Clay
Undisturbed, ran at .0171 in/min

Initial Dry Density: 87.3 pcf
Initial Mosture Content: 32.8 %
Peak Friction Angle (Ø): 28°
Cohesion (c): 0.105 kg/cm^2 (210 psf)

Sample No.	1	2	3	4	Average
Initial					
Dry Density, pcf	88.3	87.3	85.6	88.1	87.3
Moisture Content, %	32.8	32.8	32.8	32.8	32.8
Saturation, %	99	96	93	98	97
At Test					
Moisture Content, %	32.4	30.8	32.2	32.6	32.0
Saturation, %	98	91	91	98	94
Normal Stress, kg/cm^2	0.24	0.47	0.71	0.94	
Peak Stress, kg/cm^2	0.23	0.36	0.46	0.62	
Ultimate Stress, kg/cm^2	0.21	0.36	0.46	0.60	



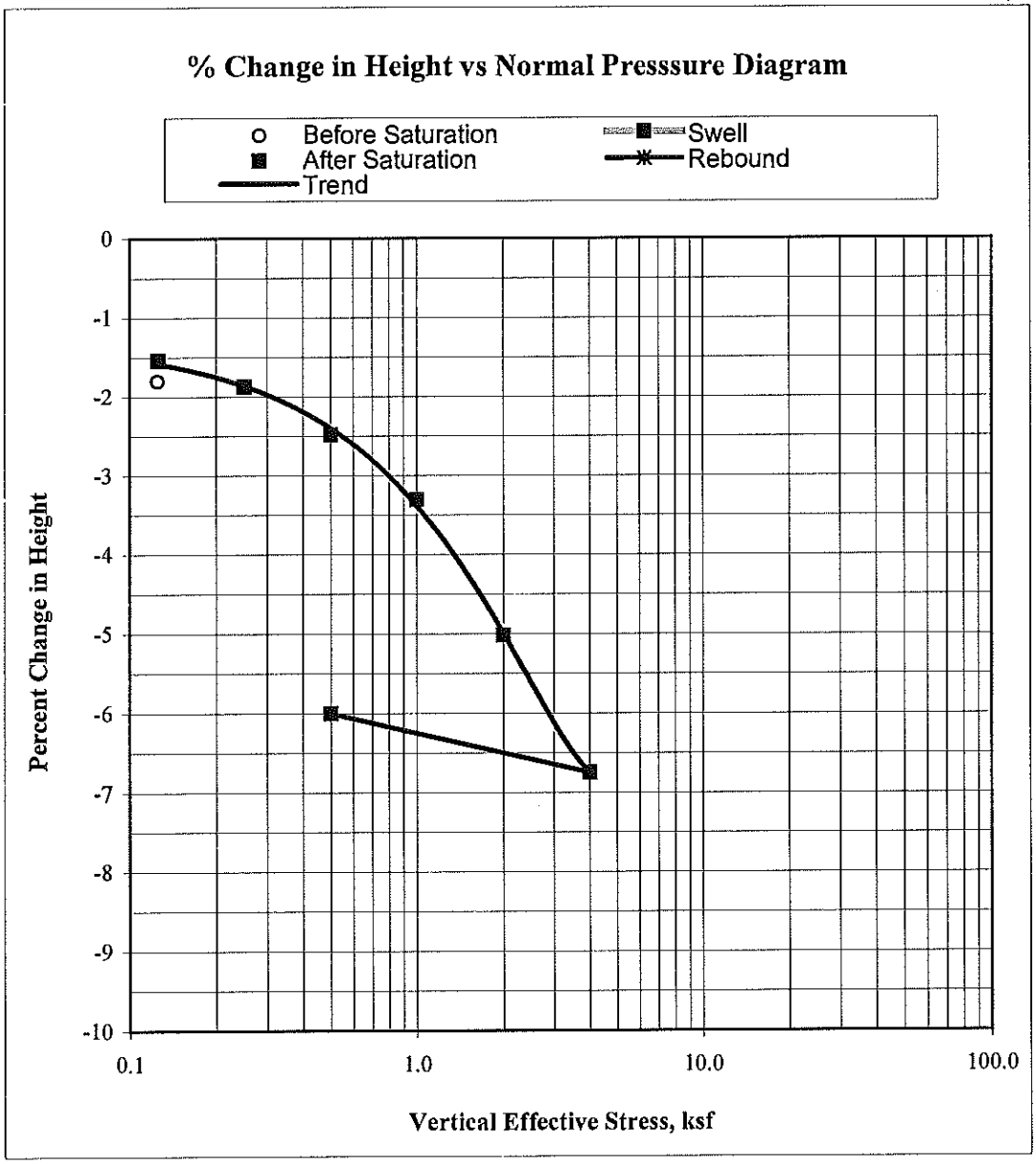


CONSOLIDATION TEST

ASTM D 2435-90

1300 Cravens Lane
2 @ 3
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 103.6 pcf
Initial Moisture, %: 23.0%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.609

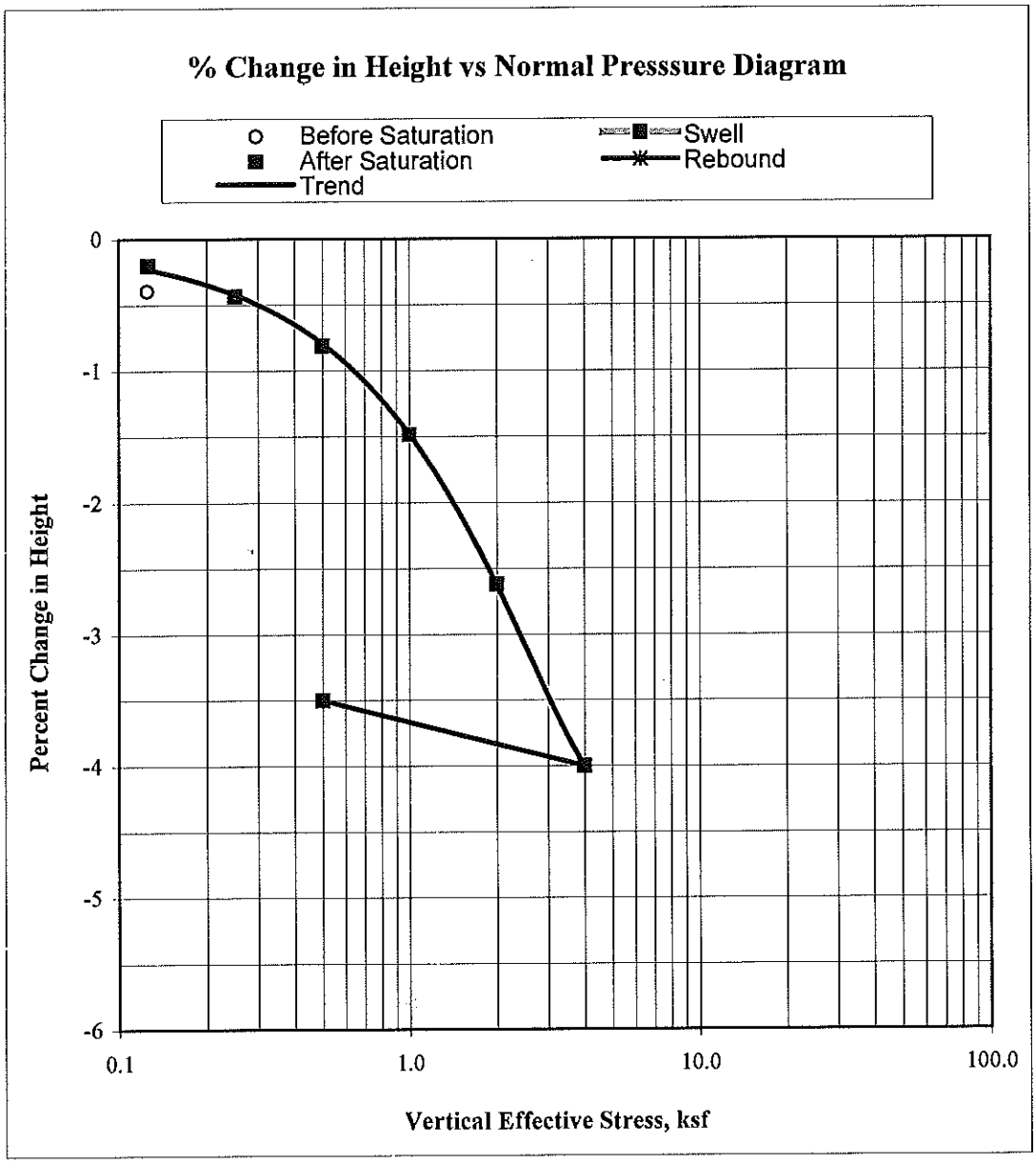


CONSOLIDATION TEST

ASTM D 2435-90

1300 Cravens Lane
3 @ 5
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 102.4 pcf
Initial Moisture, %: 19.9%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.628

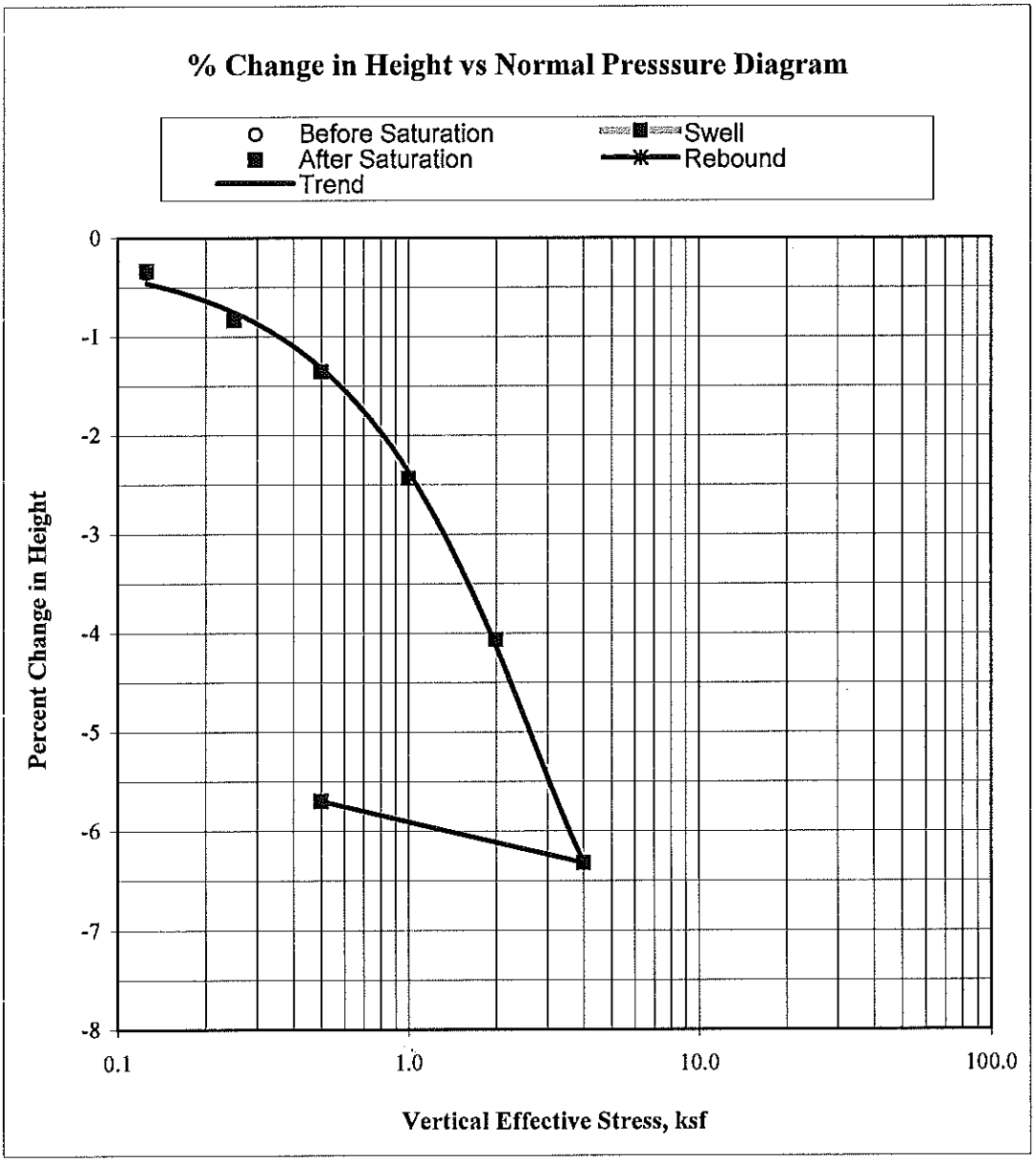


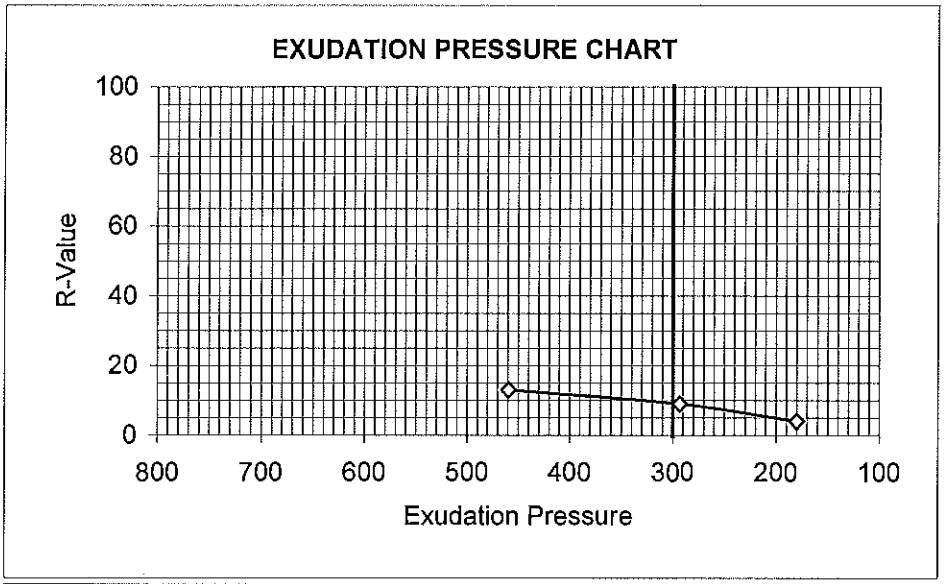
CONSOLIDATION TEST

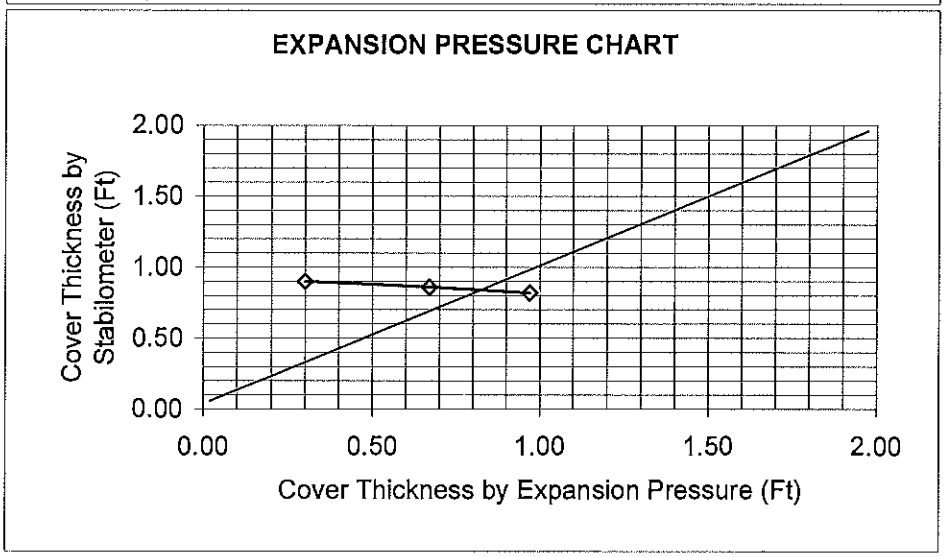
ASTM D 2435-90

1300 Cravens Lane
4 @ 3
Clayey Sandy Silt
Ring Sample

Initial Dry Density: 93.0 pcf
Initial Moisture, %: 27.2%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 0.793







JOB NAME: 1300 Cravens
SAMPLE I. D.: Boring 3@0-5'
SOIL DESCRIPTION: Fine Sandy Clay with Silt (CL)

SPECIMEN NUMBER	A	B	C
EXUDATION PRESSURE	459	293	180
RESISTANCE VALUE	13	9	4
EXPANSION DIAL(0.0001")	29	20	9
EXPANSION PRESSURE (PSF)	125.6	86.6	39.0
% MOISTURE AT TEST	13.7	15.0	16.4
DRY DENSITY AT TEST	115.6	113.5	113.3

R-VALUE @ 300 PSI EXUDATION	**9**
R-VALUE by Expansion Pressure*	**13**

**Based on a Traffic Index of 5.0 and a Gravel Factor of 1.70*

Capco Analytical Services INC. (CAS)
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Earth Systems
Sample ID: B 1 @ 0-5
Date Received: 01/24/05
Date Sampled: 01/24/05

Sample Matrix: Soil
CAS LAB NO: 05015701

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	METHOD	ANALYZED
*Chloride	42	mg/Kg	1	10	300.0M	01/28/05
pH	7.5	S.U.	1	---	9045	01/28/05
*Resistivity	3660	ohms-cm	1	3	CA test 424	01/28/05
*Sulfate	88	mg/Kg	1	10	300.0M	01/28/05

*Sample was analyzed on a 1:3 soil/water extract. Results were reported based on the original soil sample weight.
PQL: Practical Quantitation Limit
BQL: Below Practical Quantitation Limit

Principal Analyst

APPENDIX C

Liquefaction Analysis

CPT-LIQUEFY.XLS - A SPREADSHEET FOR EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL USING CPT DATA

Developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Project: Cravens Lane
Job No: VT-23345-01
Date: 3/7/2005
Sounding: CPT-1
Plot: 1

Methods: Liquefaction Analysis using 1998 NCEER workshop methods (Robertson & Wride)
Post-liquefaction Settlement Analysis from Tokimatsu & Seed (1987)
Dry Sand Settlement by Pradel, ASCE Journal of G&GE, Vol 124, No. 4

Total Liquefied Thickness (feet)
9.8

EARTHQUAKE INFORMATION:

Magnitude:	7	7.5
PGA, g:	0.70	0.59
MSF:	1.19	
GWT, feet:	3.0	
Design GWT, feet:	3.0	

Induced CSR (M=7.5): = 0.65*PGA*(po/p'o)*rd/MSF
Clean Sand Qc1n = C_Q*K_C*K_H*Qc
SF = $CRR_{7.5}$*Kσ/CSR
Use Tokimatsu & Seed (0) or Ishihara &Yoshmine (1): 0
Unit Weight of unsaturated soils: 100 pcf
Unit Weight of saturated soils: 120 pcf
Limiting Ic for liquefiable soils: 2.55
Limiting Ic for K_H: 2.0
Required SF: 1.50
Min SF of Liquefiable Layers: 0.14
Avg SF of Liquefiable Layers: 0.03

Probab	Total Induced Subsidence (inches)
Avg	
7%	
Max	
100%	1.9

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Overide	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	*Volumetric Strain (%)*
0.16	6.96	0.10	1.48	120	0.010	1.000	1.48	0.85	1.70	11.17	2.79		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
0.33	107.91	0.15	0.14	120	0.020	1.000	0.14	0.50	1.70	173.36	1.28		1	100	1.00	0.20	1.52	263.3	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.49	99.68	0.28	0.28	120	0.030	1.000	0.28	0.50	1.70	160.12	1.43		1	96	1.00	0.20	1.52	243.2	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.66	79.40	0.30	0.38	120	0.039	1.000	0.38	0.50	1.70	127.52	1.58		1	87	1.00	0.20	1.52	193.7	1.00	Infin.	0.000	0.381	Non-Liq.	Non-Liq.	0.00
0.82	49.48	0.32	0.65	120	0.049	1.000	0.66	0.57	1.70	79.43	1.88		1	67	1.17	0.20	1.52	141.3	1.00	0.343	0.343	0.381	Non-Liq.	Non-Liq.	0.00
0.98	34.22	0.32	0.92	120	0.059	1.000	0.93	0.64	1.70	54.69	2.10		1	52	1.45		1.00	79.7	1.00	0.127	0.127	0.381	Non-Liq.	Non-Liq.	0.00
1.15	26.19	0.37	1.40	120	0.069	0.999	1.40	0.70	1.70	41.97	2.30		1	41	1.94		1.00	81.5	1.00	0.130	0.130	0.381	Non-Liq.	Non-Liq.	0.00
1.31	26.19	0.37	1.40	120	0.079	0.999	1.40	0.70	1.70	41.96	2.30		1	41	1.94		1.00	81.5	1.00	0.130	0.130	0.381	Non-Liq.	Non-Liq.	0.00
1.48	19.45	0.39	1.98	120	0.089	0.999	1.99	0.76	1.70	31.11	2.49		1	28	2.73		1.00	85.0	1.00	0.137	0.137	0.381	Non-Liq.	Non-Liq.	0.00
1.64	14.03	0.39	2.79	120	0.098	0.998	2.81	0.82	1.70	22.39	2.70		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
1.80	11.66	0.33	2.80	120	0.108	0.998	2.82	0.84	1.70	18.56	2.76		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
1.97	7.90	0.24	3.08	120	0.118	0.998	3.12	0.89	1.70	12.50	2.93		0						1.00			0.381	Non-Liq.	Non-Liq.	0.00
2.13	7.01	0.17	2.35	120	0.128	0.997	2.40	0.88	1.70	11.06	2.91		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.30	6.38	0.13	2.10	120	0.138	0.997	2.15	0.88	1.70	10.03	2.92		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.46	6.60	0.13	1.91	120	0.148	0.996	1.95	0.87	1.70	10.37	2.88		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.62	5.35	0.12	2.28	120	0.157	0.996	2.35	0.91	1.70	8.34	3.00		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.79	4.21	0.10	2.42	120	0.167	0.996	2.52	0.94	1.70	6.50	3.11		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
2.95	4.28	0.06	1.38	120	0.177	0.995	1.44	0.90	1.70	6.59	2.99		0						1.00			0.380	Non-Liq.	Non-Liq.	0.00
3.12	4.38	0.05	1.12	120	0.186	0.995	1.17	0.89	1.70	6.74	2.94		0						1.00			0.382	Non-Liq.	Non-Liq.	0.00
3.28	5.58	0.05	0.93	120	0.191	0.994	0.96	0.85	1.70	8.66	2.80		0						1.00			0.392	Non-Liq.	Non-Liq.	0.00
3.44	9.81	0.04	0.41	120	0.195	0.994	0.42	0.74	1.70	15.45	2.43		1	0	1.00		1.00	15.4	1.00	0.063	0.063	0.401	0.16	100%	5.21
3.61	12.02	0.04	0.34	120	0.200	0.994	0.35	0.70	1.70	18.99	2.32		1	8	1.00		1.00	19.0	1.00	0.066	0.066	0.410	0.16	100%	4.64
3.77	6.58	0.05	0.56	120	0.205	0.993	0.57	0.77	1.70	13.46	2.54	1	0		2.96		1.00		1.00			0.419	Non-Liq.	Non-Liq.	0.00
3.94	6.07	0.06	1.00	120	0.210	0.993	1.04	0.84	1.70	9.42	2.79		0						1.00			0.427	Non-Liq.	Non-Liq.	0.00
4.10	4.77	0.07	1.40	120	0.214	0.993	1.47	0.89	1.70	7.32	2.95		0						1.00			0.435	Non-Liq.	Non-Liq.	0.00
4.27	4.29	0.06	1.42	120	0.219	0.992	1.50	0.91	1.70	6.54	3.00		0						1.00			0.442	Non-Liq.	Non-Liq.	0.00
4.43	3.99	0.07	1.73	120	0.224	0.992	1.83	0.93	1.70	6.05	3.07		0						1.00			0.449	Non-Liq.	Non-Liq.	0.00
4.59	3.78	0.09	2.25	120	0.228	0.991	2.39	0.95	1.70	5.71	3.15		0						1.00			0.456	Non-Liq.	Non-Liq.	0.00
4.76	3.88	0.09	2.37	120	0.233	0.991	2.52	0.95	1.70	5.86	3.15		0						1.00			0.463	Non-Liq.	Non-Liq.	0.00
4.92	3.70	0.09	2.38	120	0.238	0.991	2.54	0.96	1.70	5.56	3.17		0						1.00			0.469	Non-Liq.	Non-Liq.	0.00
5.09	4.11	0.09	2.19	120	0.243	0.990	2.33	0.94	1.70	6.21	3.11		0						1.00			0.475	Non-Liq.	Non-Liq.	0.00
5.25	4.11	0.07	1.70	120	0.247	0.990	1.81	0.93	1.70	6.21	3.06		0						1.00			0.481	Non-Liq.	Non-Liq.	0.00
5.41	3.47	0.07	2.05	120	0.252	0.989	2.21	0.96	1.70	5.17	3.17		0						1.00			0.486	Non-Liq.	Non-Liq.	0.00
5.58	3.62	0.09	2.43	120	0.257	0.989	2.62	0.96	1.70	5.40	3.19		0						1.00			0.492	Non-Liq.	Non-Liq.	0.00
5.74	4.20	0.08	1.79	120	0.262	0.989	1.90	0.93	1.70	6.33	3.06		0						1.00			0.497	Non-Liq.	Non-Liq.	0.00
5.91	9.35	0.06	0.68	120	0.266	0.988	0.70	0.77	1.70	14.60	2.54	1	0		2.98		1.00		1.00			0.502	Non-Liq.	Non-Liq.	0.00
6.07	11.79	0.12	1.03	120	0.271	0.988	1.06	0.77	1.70	18.51	2.53	1	0		2.93		1.00		1.00			0.507	Non-Liq.	Non-Liq.	0.00
6.23	8.93	0.10	1.12	120	0.276	0.988	1.16	0.81	1.70	13.91	2.66		0						1.00			0.511	Non-Liq.	Non-Liq.	0.00
6.40	7.25	0.09	1.28	120	0.280	0.987	1.33	0.84	1.70	11.20	2.77		0						1.00			0.516	Non-Liq.	Non-Liq.	0.00
6.56	22.46	0.06	0.26	120	0.285	0.987	0.28	0.62	1.70	35.66	2.03		1	34	1.00		1.00	35.7	1.00	0.080	0.080	0.520	0.15	100%	3.09
6.73	24.84	0.06	0.24	120	0.290	0.986	0.24	0.60	1.70	39.45	1.97		1	38	1.00	0.05	1.71	67.5	1.00	0.109	0.109	0.524	0.21	99%	2.07
6.89	19.25	0.08	0.43	120	0.295	0.986	0.43	0.66	1.70	30.46	2.16		1	27	1.00		1.00	30.5	1.00	0.075	0.075	0.528	0.14	100%	3.52
7.05	13.46	0.10	0.77	120	0.299	0.986	0.79	0.73	1.70	21.15	2.42		1	12	2.39		1.00	50.5	1.00	0.092	0.092	0.532	0.17	100%	2.52
7.22	8.38	0.09	1.09	120	0.304	0.985	1.13	0.81	1.70	12.98	2.68		0						1.00			0.535	Non-Liq.	Non-Liq.	0.00
7.38	5.39	0.06	1.19	120	0.309	0.985	1.26	0.87	1.70	8.16	2.88		0						1.00			0.539	Non-Liq.	Non-Liq.	0.00
7.55	5.20	0.08	1.58	120	0.313	0.985	1.68	0.89	1.70	7.85	2.95		0						1.00			0.542	Non-Liq.	Non-Liq.	0.00
7.71	5.20	0.08	1.58	120	0.318	0.984	1.68	0.89	1.70	7.84	2.95		0						1.00			0.546	Non-Liq.	Non-Liq.	0.00
7.87	11.54	0.08	0.65	120	0.323	0.984	0.67	0.74	1.70	18.02	2.45		1	6	2.52		1.00	45.4	1.00	0.088	0.088	0.549	0.16	100%	2.68
8.04	12.97	0.08	0.63	120	0.328	0.984	0.65	0.73	1.70	20.31	2.40		1	11	2.30		1.00	46.6	1.00	0.089	0.089	0.552	0.16	100%	2.65
8.20	7.86	0.04	0.55	120	0.332	0.983	0.57	0.76	1.70	12.10	2.58		0						1.00			0.555	Non-Liq.	Non-Liq.	0.00
8.37	5.58	0.06	1.11	120	0.337	0.983	1.18	0.86	1.70	8.42	2.85		0						1.00			0.558	Non-Liq.	Non-Liq.	0.00
8.53	4.24	0.07	1.75	120	0.342	0.982	1.90	0.93	1.70	6.26	3.06		0						1.00			0.561	Non-Liq.	Non-Liq.	0.00
8.69	4.20	0.08	1.90	120	0.347	0.982	2.08	0.93	1.70	6.19	3.09		0						1.00			0.564	Non-Liq.	Non-Liq.	0.00
8.86	4.08	0.08	1.91	120	0.351	0.982	2.09	0.94	1.70	5.99	3.10		0						1.00			0.567	Non-Liq.	Non-Liq.	0.00
9.02	4.18	0.06	1.44	120	0.356	0.981	1.57	0.92	1.70	6.14	3.03		0						1.00			0.569	Non-Liq.	Non-Liq.	0.00
9.19	4.21	0.05	1.28	120	0.361	0.981	1.40	0.91	1.70	6.19	3.01		0						1.00			0.572	Non-Liq.	Non-Liq.	0.00
9.35	4.35	0.06	1.29	120	0.365	0.981	1.41	0.91	1.70	6.40	2.99		0						1.00			0.574	Non-Liq.	Non-Liq.	0.00
9.51	4.88	0.06	1.23	120	0.370	0.980	1.33	0.89	1.70	7.25	2.94		0						1.00			0.577	Non-Liq.	Non-Liq.	0.00
9.68	5.38	0.09	1.58	120	0.375	0.980	1.70	0.89	1.70	8.04	2.95		0						1.00			0.579	Non-Liq.	Non-Liq.	0.00
9.84	7.50	0.11	1.51	120	0.380	0.980	1.59	0.85	1.70	11.44	2.80		0						1.00			0.581	Non-Liq.	Non-Liq.	0.00
10.01	9.30	0.12	1.29	120	0.384	0.979	1.35	0.81	1.70	14.33	2.66		0						1.00			0.584	Non-Liq.	Non-Liq.	0.00
10.17	9.70	0.15	1.59	120	0.389	0.979	1.65	0.82	1.70	14.96	2.71		0						1.00			0.586	Non-Liq.	Non-Liq.	0.00
10.33	10.29	0.22	2.17	120	0.394	0.979	2.25	0.84	1.70	15.90	2.76		0						1.00			0.588	Non-Liq.	Non-Liq.	0.00
10.50	10.55	0.28	2.62	120	0.399	0.978	2.72	0.85	1.70	16.31	2.80		0						1.00			0.590	Non-Liq.	Non-Liq.	0.00
10.66	10.35	0.28	2.66	120	0.403	0.978	2.76	0.85	1.70	15.98	2.81		0						1.00			0.592	Non-Liq.	Non-Liq.	0.00
10.83	9.30	0.37	3.96	120	0.408	0.978	4.14	0.89	1.70	14.29	2.96		0						1.00			0.594	Non-Liq.	Non-Liq.	0.00
10.99	9.17	0.33	3.59	120	0.413	0.977	3.76	0.89	1.70	14.07	2.93		0						1.00			0.596	Non-Liq.	Non-Liq.	0.00
11.15	9.87	0.27	2.75	120	0.417	0.977	2.87	0.86	1.70	15.19	2.84		0						1.00			0.598	Non-Liq.	Non-Liq.	0.00
11.32	18.64	0.17	0.92	120	0.422	0.977	0.94	0.71	1.70	29.27	2.33		1	26	2.05		1.00	60.1	1.00	0.100	0.100	0.599	0.17	100%	2.26
11.48	27.21	0.13	0.49	120	0.427	0.976	0.50	0.62	1.70	43.04	2.05		1	42	1.38		1.00	59.2	1.00	0.099	0.099	0.601	0.17	100%	2.29
11.65	17.97	0.10	0.55	120	0.432	0.976	0.56	0.68	1.70	28.18	2.24		1	24	1.77		1.00	49.9	1.00	0.092	0.092	0.603	0.15	100%	2.55
11.81	11.33	0.14	1.24	120	0.436	0.975	1.29	0.79	1.70	17.50	2.59		0						1.00			0.604	Non-Liq.	Non-Liq.	0.00
11.98	21.58	0.22	1.02	120	0.441	0.975	1.04	0.70	1.70	33.97	2.30		1	32	1.95		1.00	66.2	1.00	0.107	0.107	0.606	0.18	100%	2.11
12.14	20.22	0.14	0.70	120	0.446	0.975	0.72	0.68	1.70	31.77	2.24		1	29	1.78		1.00	56.5	1.00	0.097	0.097	0.608	0.16	100%	2.36

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_o	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_c	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
12.30	12.66	0.20	1.57	120	0.450	0.974	1.63	0.79	1.70	19.62	2.61		0						1.00			0.609	Non-Liq.	Non-Liq.	0.00
12.47	12.16	0.31	2.51	120	0.455	0.974	2.61	0.83	1.70	18.81	2.74		0						1.00			0.611	Non-Liq.	Non-Liq.	0.00
12.63	11.68	0.37	3.13	120	0.460	0.974	3.26	0.85	1.70	18.03	2.81		0						1.00			0.612	Non-Liq.	Non-Liq.	0.00
12.80	13.18	0.42	3.19	120	0.465	0.973	3.31	0.84	1.70	20.43	2.77		0						1.00			0.614	Non-Liq.	Non-Liq.	0.00
12.96	13.31	0.40	3.03	120	0.469	0.973	3.14	0.83	1.70	20.63	2.76		0						1.00			0.615	Non-Liq.	Non-Liq.	0.00
13.12	14.41	0.40	2.78	120	0.474	0.973	2.98	0.82	1.70	22.39	2.70		0						1.00			0.616	Non-Liq.	Non-Liq.	0.00
13.29	14.89	0.40	2.69	120	0.479	0.972	2.78	0.81	1.70	23.16	2.68		0						1.00			0.618	Non-Liq.	Non-Liq.	0.00
13.45	15.90	0.43	2.70	120	0.484	0.972	2.79	0.81	1.70	24.77	2.66		0						1.00			0.619	Non-Liq.	Non-Liq.	0.00
13.62	15.90	0.46	2.89	120	0.488	0.972	2.98	0.81	1.70	24.76	2.68		0						1.00			0.620	Non-Liq.	Non-Liq.	0.00
13.78	15.19	0.43	2.82	120	0.493	0.971	2.91	0.81	1.70	23.62	2.69		0						1.00			0.621	Non-Liq.	Non-Liq.	0.00
13.94	13.68	0.39	2.85	120	0.498	0.971	2.96	0.83	1.70	21.18	2.73		0						1.00			0.623	Non-Liq.	Non-Liq.	0.00
14.11	12.46	0.38	3.07	120	0.502	0.971	3.19	0.84	1.70	19.21	2.78		0						1.00			0.624	Non-Liq.	Non-Liq.	0.00
14.27	12.49	0.36	2.89	120	0.507	0.970	3.01	0.84	1.70	19.25	2.77		0						1.00			0.625	Non-Liq.	Non-Liq.	0.00
14.44	11.96	0.32	2.63	120	0.512	0.970	2.75	0.84	1.70	18.39	2.76		0						1.00			0.626	Non-Liq.	Non-Liq.	0.00
14.60	12.45	0.28	2.26	120	0.517	0.970	2.35	0.82	1.70	19.17	2.71		0						1.00			0.627	Non-Liq.	Non-Liq.	0.00
14.76	17.04	0.31	1.84	120	0.521	0.969	1.89	0.77	1.70	26.54	2.54	1	0		2.95		1.00		1.00			0.628	Non-Liq.	Non-Liq.	0.00
14.93	17.72	0.33	1.87	120	0.526	0.969	1.93	0.77	1.70	27.63	2.53		1	23	2.91		1.00	80.3	1.00	0.128	0.128	0.629	0.20	99%	1.83
15.09	18.67	0.36	1.91	120	0.531	0.969	1.96	0.76	1.69	29.00	2.51		1	25	2.84		1.00	82.3	1.00	0.132	0.132	0.630	0.21	99%	1.79
15.26	20.33	0.42	2.05	120	0.536	0.968	2.11	0.76	1.68	31.38	2.51		1	29	2.80		1.00	87.7	1.00	0.143	0.143	0.631	0.23	99%	1.70
15.42	21.88	0.50	2.27	120	0.540	0.968	2.32	0.76	1.67	33.63	2.51		1	32	2.81		1.00	94.6	1.00	0.159	0.159	0.632	0.25	99%	1.59
15.58	22.02	0.47	2.14	120	0.545	0.967	2.19	0.76	1.65	33.52	2.49		1	31	2.74		1.00	91.7	1.00	0.152	0.152	0.633	0.24	99%	1.64
15.75	21.69	0.62	2.87	120	0.550	0.967	2.95	0.78	1.67	33.33	2.58		0						1.00			0.634	Non-Liq.	Non-Liq.	0.00
15.91	23.58	0.65	2.77	120	0.554	0.967	2.84	0.77	1.65	35.82	2.54	1	0		3.00		1.00		1.00			0.635	Non-Liq.	Non-Liq.	0.00
16.08	24.63	0.76	3.08	120	0.559	0.966	3.15	0.78	1.64	37.32	2.56		0						1.00			0.636	Non-Liq.	Non-Liq.	0.00
16.24	22.99	0.73	3.18	120	0.564	0.966	3.26	0.79	1.64	34.76	2.59		0						1.00			0.637	Non-Liq.	Non-Liq.	0.00
16.40	23.70	0.69	2.92	120	0.569	0.966	2.99	0.78	1.62	35.41	2.56		0						1.00			0.638	Non-Liq.	Non-Liq.	0.00
16.57	26.49	0.69	2.61	120	0.573	0.965	2.67	0.76	1.59	38.96	2.50	1	0		2.76		1.00		1.00			0.638	Non-Liq.	Non-Liq.	0.00
16.73	32.45	0.79	2.45	120	0.578	0.965	2.49	0.73	1.56	46.93	2.42		1	45	2.39		1.00	112.1	1.00	0.211	0.211	0.639	0.33	97%	1.34
16.90	32.45	0.43	1.33	120	0.583	0.965	1.35	0.69	1.51	45.35	2.26		1	44	1.83		1.00	83.0	1.00	0.133	0.133	0.640	0.21	99%	1.78
17.06	24.63	0.58	2.36	120	0.587	0.964	2.42	0.76	1.56	35.50	2.50		1	34	2.78		1.00	98.6	1.00	0.169	0.169	0.641	0.26	99%	1.53
17.22	33.34	0.83	2.49	120	0.592	0.964	2.53	0.73	1.53	47.39	2.42		1	46	2.40		1.00	113.5	1.00	0.216	0.216	0.642	0.34	97%	1.32
17.39	64.63	0.98	1.52	120	0.597	0.963	1.54	0.63	1.44	86.88	2.08		1	71	1.42		1.00	123.2	1.00	0.254	0.254	0.642	0.40	96%	1.20
17.55	59.06	0.65	1.11	120	0.602	0.963	1.12	0.61	1.41	78.18	2.02		1	67	1.33		1.00	104.1	1.00	0.185	0.185	0.643	0.29	98%	1.45
17.72	33.75	0.78	2.32	120	0.606	0.963	2.36	0.73	1.50	47.00	2.40		1	45	2.32		1.00	109.1	1.00	0.201	0.201	0.644	0.31	98%	1.38
17.88	22.04	0.64	2.90	120	0.611	0.962	2.98	0.79	1.54	31.23	2.60		0						1.00			0.644	Non-Liq.	Non-Liq.	0.00
18.04	16.14	0.56	3.48	120	0.616	0.962	3.61	0.84	1.57	23.06	2.76		0						1.00			0.645	Non-Liq.	Non-Liq.	0.00
18.21	15.69	0.46	2.94	120	0.621	0.962	3.06	0.83	1.55	22.12	2.72		0						1.00			0.646	Non-Liq.	Non-Liq.	0.00
18.37	14.07	0.46	3.30	120	0.625	0.961	3.45	0.85	1.56	19.83	2.79		0						1.00			0.646	Non-Liq.	Non-Liq.	0.00
18.54	13.63	0.42	3.10	120	0.630	0.961	3.25	0.85	1.55	19.05	2.79		0						1.00			0.647	Non-Liq.	Non-Liq.	0.00
18.70	14.60	0.43	2.97	120	0.635	0.960	3.11	0.84	1.53	20.23	2.76		0						1.00			0.648	Non-Liq.	Non-Liq.	0.00
18.86	21.73	0.40	1.85	120	0.639	0.960	1.91	0.76	1.47	29.22	2.50	1	0		2.79		1.00		1.00			0.648	Non-Liq.	Non-Liq.	0.00
19.03	26.72	0.88	3.29	120	0.644	0.960	3.37	0.78	1.48	36.37	2.59		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
19.19	33.85	1.10	3.25	120	0.649	0.959	3.31	0.76	1.45	45.54	2.51	1	0		2.83		1.00		1.00			0.649	Non-Liq.	Non-Liq.	0.00
19.36	98.78	1.11	1.12	120	0.654	0.959	1.13	0.57	1.32	122.14	1.88		1	85	1.17	0.30	1.41	201.0	1.00	Infin.	0.000	0.650	Non-Liq.	Non-Liq.	0.00
19.52	120.23	0.97	0.80	120	0.658	0.958	0.81	0.53	1.28	145.05	1.73		1	92	1.06	0.30	1.41	215.5	1.00	Infin.	0.000	0.650	Non-Liq.	Non-Liq.	0.00
19.69	133.42	1.14	0.85	120	0.663	0.958	0.86	0.52	1.28	160.10	1.71		1	98	1.05	0.30	1.41	235.6	1.00	Infin.	0.000	0.651	Non-Liq.	Non-Liq.	0.00
19.85	144.43	1.55	1.07	120	0.668	0.957	1.08	0.53	1.28	173.77	1.76		1	100	1.08	0.30	1.41	262.9	1.00	Infin.	0.000	0.651	Non-Liq.	Non-Liq.	0.00
20.01	142.58	1.99	1.40	120	0.673	0.957	1.40	0.56	1.29	172.86	1.84		1	100	1.14	0.30	1.41	276.7	1.00	Infin.	0.000	0.652	Non-Liq.	Non-Liq.	0.00
20.18	129.50	2.20	1.69	120	0.677	0.957	1.70	0.59	1.30	158.19	1.93		1	96	1.22	0.30	1.41	271.0	1.00	Infin.	0.000	0.652	Non-Liq.	Non-Liq.	0.00
20.34	107.07	2.13	1.99	120	0.682	0.956	2.00	0.62	1.31	131.92	2.03		1	88	1.35		1.00	177.7	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
20.51	97.01	2.05	2.12	120	0.687	0.956	2.13	0.63	1.31	119.87	2.08		1	84	1.42		1.00	170.3	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
20.67	97.53	2.45	2.52	120	0.691	0.955	2.53	0.65	1.32	120.63	2.14		1	85	1.52		1.00	183.9	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
20.83	81.08	2.26	2.79	120	0.696	0.955	2.81	0.67	1.33	100.76	2.22		1	77	1.72		1.00	173.5	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
21.00	60.64	2.05	3.38	120	0.701	0.954	3.42	0.72	1.34	76.14	2.37		1	66	2.18		1.00	166.0	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
21.16	49.07	1.98	4.03	120	0.706	0.954	4.09	0.75	1.36	62.02	2.48		1	57	2.69		1.00	166.7	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
21.33	50.61	1.90	3.76	120	0.710	0.954	3.81	0.74	1.35	63.44	2.45		1	58	2.55		1.00	161.7	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
21.49	62.53	1.90	3.04	120	0.715	0.953	3.08	0.71	1.32	77.07	2.33		1	66	2.05		1.00	157.7	1.00	0.445	0.445	0.656	0.68	78%	0.61
21.65	58.56	1.78	3.03	120	0.720	0.953	3.07	0.71	1.32	71.94	2.35		1	63	2.11		1.00	152.1	1.00	0.407	0.407	0.656	0.62	83%	0.74
21.82	36.58	1.38	3.77	120	0.725	0.952	3.85	0.78	1.34	45.45	2.56		0						1.00			0.656	Non-Liq.	Non-Liq.	0.00
21.98	28.62	0.77	2.70	120	0.729	0.952	2.77	0.77	1.33	35.12	2.54	1	0		3.00		1.00		1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.15	26.53	0.72	2.70	120	0.734	0.951	2.78	0.78	1.33	32.42	2.57		0						1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.31	25.43	0.83	3.26	120	0.739	0.951	3.35	0.80	1.33	31.10	2.64		0						1.00			0.657	Non-Liq.	Non-Liq.	0.00
22.47	26.16	0.91	3.46	120	0.743	0.950	3.56	0.80	1.33	31.88	2.65		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.64	30.61	1.02	3.32	120	0.748	0.950	3.40	0.78	1.31	37.03	2.59		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.80	30.18	1.07	3.54	120	0.753	0.949	3.63	0.79	1.31	36.40	2.61		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
22.97	28.20	1.02	3.61	120	0.758	0.949	3.71	0.80	1.31	33.88	2.64		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
23.13	27.51	0.85	3.10	120	0.762	0.948	3.19	0.79	1.30	32.75	2.61		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.29	24.99	0.77	3.07	120	0.767	0.948	3.17	0.80	1.29	29.61	2.64		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.46	25.73	0.71	2.77	120	0.772	0.947	2.86	0.79	1.28	30.25	2.60		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.62	29.80	0.65	2.17	120	0.776	0.947	2.23	0.75	1.26	34.64	2.49	1	0		2.70		1.00		1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.79	29.36	0.85	2.88	120	0.781	0.946	2.96	0.78	1.27	34.21	2.57		0						1.00			0.659	Non-Liq.	Non-Liq.	0.00
23.95	37.27	0.96	2.58	120	0.786	0.946	2.63	0.75	1.25	43.05	2.46		1	42	2.58		1.00	111.2	1.00	0.208	0.208	0.660	0.32	98%	1.36
24.11	46.24	1.11	2.39	120	0.791	0.945	2.43	0.72	1.23	52.98	2.37		1	50	2.20		1.00	116.7	1.00	0.228	0.228	0.660	0.35	97%	1.29
24.28	42.73	1.03	2.42	120	0.795	0.945	2.47	0.73	1.23	48.80	2.40		1	47	2.32		1.00	113.4	1.00	0.215	0.215	0.660	0.33	98%	1.33
24.44	37.52	0.95	2.53	120	0.800	0.944	2.59	0.75	1.23	42.75	2.46		1	42	2.57		1.00	110.0	1.00	0.204	0.204	0.660	0.31	98%	1.37
24.61	45.83	0.88	1.91	120	0.805	0.943	1.94	0.70	1.21	51.58	2.32		1	49	2.00		1.00	103.2	1.00	0.182	0.182	0.660	0.28	99%	1.47
24.77	51.12	0.88	1.71	120	0.810	0.943	1.74	0.68	1.20	57.10	2.25		1	54	1.80		1.00	102.9	1.00	0.181	0.181	0.660	0.27	99%	1.47
24.93	53.94	1.06	1.97	120	0.814	0.942	2.00	0.69	1.20	60.16	2.27		1	56	1.87		1.00	112.3	1.00	0.212	0.212	0.660	0.32	98%	1.34
25.10	49.53	1.50	3.04	120	0.819	0.942	3.09	0.74	1.21	55.60	2.43		1	52	2.43		1.00	135.3	1.00	0.310	0.310	0.661	0.47	92%	1.07
25.26	35.30	1.28	3.62	120	0.824	0.941	3.71	0.78	1.22	39.66	2.59		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.43	26.51	1.68	6.34	120	0.828	0.941	6.55	0.86	1.23	29.98	2.85		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.59	24.40	1.45	5.92	120	0.833	0.940	6.13	0.87	1.23	27.39	2.86		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.75	47.88	1.49	3.11	120	0.838	0.939	3.17	0.74	1.19	52.88	2.45	1	0		2.54		1.00		1.00			0.661	Non-Liq.	Non-Liq.	0.00
25.92	37.68	1.54	4.08	120	0.843	0.939	4.18	0.79	1.20	41.69	2.61		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
26.08	36.10	1.60	4.44	120	0.847	0.938	4.55	0.80	1.20	39.82	2.65		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
26.25	50.55	2.21	4.38	120	0.852	0.938	4.45	0.77	1.18	55.51	2.54		1	52	3.00		1.00	166.4	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.41	80.55	2.53	3.14	120	0.857	0.937	3.18	0.70	1.16	87.29	2.30		1	71	1.96		1.00	170.9	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.57	90.72	2.74	3.01	120	0.862	0.936	3.04	0.68	1.15	97.77	2.26		1	76	1.82		1.00	177.6	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
26.74	89.35	2.74	3.06	120	0.866	0.936	3.09	0.69	1.15	95.97	2.27		1	75	1.85		1.00	177.3	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
26.90	86.54	2.55	2.94	120	0.871	0.935	2.97	0.69	1.14	92.56	2.26		1	74	1.84		1.00	170.3	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
27.07	79.33	2.65	3.34	120	0.876	0.934	3.38	0.71	1.14	84.77	2.33		1	70	2.05		1.00	174.0	1.00	Infin.	0.000	0.661	Non-Liq.	Non-Liq.	0.00
27.23	39.88	2.36	5.91	120	0.880	0.934	6.04	0.82	1.16	42.88	2.72		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.40	28.61	1.75	6.10	120	0.885	0.933	6.30	0.86	1.17	30.54	2.83		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.56	23.08	1.31	5.69	120	0.890	0.932	5.92	0.87	1.16	24.39	2.88		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.72	24.96	1.12	4.49	120	0.895	0.932	4.65	0.84	1.15	26.21	2.79		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
27.89	32.03	1.10	3.42	120	0.899	0.931	3.52	0.80	1.14	33.49	2.63		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
28.05	34.51	1.34	3.87	120	0.904	0.930	3.98	0.80	1.13	36.02	2.64		0						1.00			0.661	Non-Liq.	Non-Liq.	0.00
28.22	33.49	1.32	3.94	120	0.909	0.929	4.05	0.81	1.13	34.81	2.66		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.38	28.71	1.07	3.72	120	0.913	0.929	3.85	0.82	1.13	29.62	2.69		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.54	27.19	0.95	3.50	120	0.918	0.928	3.63	0.82	1.12	27.88	2.70		0						1.00			0.660	Non-Liq.	Non-Liq.	0.00
28.71	34.59	0.73	2.10	120	0.923	0.927	2.16	0.75	1.11	35.25	2.47		1	34	2.63		1.00	92.8	1.00	0.154	0.154	0.660	0.23	99%	1.62
28.87	39.11	0.99	2.53	120	0.928	0.926	2.59	0.75	1.10	39.84	2.48		1	39	2.68		1.00	106.9	1.00	0.194	0.194	0.660	0.29	98%	1.41
29.04	46.86	1.37	2.92	120	0.932	0.926	2.98	0.75	1.10	47.71	2.47		1	46	2.60		1.00	124.0	1.00	0.257	0.257	0.660	0.39	96%	1.20
29.20	56.00	1.55	2.76	120	0.937	0.925	2.81	0.73	1.09	56.84	2.39		1	53	2.28		1.00	129.8	1.00	0.283	0.283	0.660	0.43	94%	1.13
29.36	62.19	1.84	2.97	120	0.942	0.924	3.01	0.72	1.09	62.97	2.38		1	58	2.24		1.00	141.2	1.00	0.342	0.342	0.659	0.52	90%	1.01
29.53	63.84	1.65	2.58	120	0.947	0.923	2.62	0.71	1.08	64.32	2.33		1	59	2.06		1.00	132.6	1.00	0.297	0.297	0.659	0.45	93%	1.10
29.69	56.78	1.65	2.91	120	0.951	0.923	2.96	0.73	1.08	57.03	2.41		1	54	2.34		1.00	133.7	1.00	0.302	0.302	0.659	0.46	93%	1.09
29.86	49.14	1.76	3.59	120	0.956	0.922	3.66	0.76	1.08	49.21	2.52		1	47	2.86		1.00	140.8	1.00	0.340	0.340	0.659	0.52	90%	1.01
30.02	53.00	2.11	3.98	120	0.961	0.921	4.05	0.77	1.08	52.96	2.53		1	50	2.91		1.00	154.3	1.00	0.422	0.422	0.659	0.64	81%	0.69
30.18	68.93	2.01	2.92	120	0.965	0.920	2.96	0.71	1.07	68.57	2.35		1	61	2.13		1.00	145.8	1.00	0.368	0.368	0.658	0.56	87%	0.90
30.35	40.42	2.01	4.97	120	0.970	0.919	5.10	0.81	1.07	40.01	2.68		0						1.00			0.658	Non-Liq.	Non-Liq.	0.00
30.51	65.53	2.04	3.12	120	0.975	0.918	3.16	0.72	1.06	64.74	2.39	1	0		2.27		1.00		1.00			0.658	Non-Liq.	Non-Liq.	0.00
30.68	92.66	2.67	2.88	120	0.980	0.918	2.91	0.69	1.05	91.36	2.26		1	73	1.83		1.00	167.3	1.00	Infin.	0.000	0.658	Non-Liq.	Non-Liq.	0.00
30.84	71.26	2.33	3.27	120	0.984	0.917	3.32	0.72	1.05	69.98	2.38		1	62	2.24		1.00	156.6	1.00	0.437	0.437	0.657	0.66	79%	0.64
31.00	157.85	1.47	0.93	120	0.989	0.916	0.94	0.53	1.04	153.69	1.75		1	95	1.07	0.40	1.31	215.8	1.00	Infin.	0.000	0.657	Non-Liq.	Non-Liq.	0.00
31.17	153.77	1.88	1.22	120	0.994	0.915	1.23	0.56	1.04	149.56	1.84		1	94	1.14	0.40	1.31	222.9	1.00	Infin.	0.000	0.657	Non-Liq.	Non-Liq.	0.00
31.33	131.67	2.57	1.95	120	0.999	0.914	1.97	0.62	1.04	128.01	2.04		1	87	1.35		1.00	173.0	1.00	Infin.	0.000	0.656	Non-Liq.	Non-Liq.	0.00
31.50	100.31	2.79	2.78	120	1.003	0.913	2.81	0.68	1.04	97.30	2.23		1	76	1.75		1.00	170.1	1.00	Infin.	0.000	0.656	Non-Liq.	Non-Liq.	0.00
31.66	104.45	2.09	2.00	120	1.008	0.912	2.02	0.64	1.03	100.86	2.12		1	77	1.48		1.00	149.8	1.00	0.392	0.392	0.656	0.60	84%	0.80
31.82	140.71	0.77	0.54	120	1.013	0.911	0.55	0.50	1.02	134.97	1.65		1	89	1.00	0.40	1.31	176.9	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
31.99	161.86	0.84	0.52	120	1.017	0.910	0.52	0.50	1.02	155.03	1.59		1	95	1.00	0.40	1.31	202.9	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
32.15	166.31	0.92	0.55	120	1.022	0.909	0.56	0.50	1.02	158.94	1.59		1	96	1.00	0.40	1.31	208.0	1.00	Infin.	0.000	0.655	Non-Liq.	Non-Liq.	0.00
32.32	172.10	1.06	0.61	120	1.027	0.908	0.62	0.50	1.02	164.13	1.61		1	97	1.00	0.40	1.31	214.8	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.48	173.83	1.77	1.02	120	1.032	0.907	1.02	0.53	1.01	165.55	1.75		1	98	1.07	0.40	1.31	232.7	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.64	167.08	2.05	1.23	120	1.036	0.906	1.24	0.56	1.01	158.76	1.83		1	96	1.13	0.40	1.31	233.9	1.00	Infin.	0.000	0.654	Non-Liq.	Non-Liq.	0.00
32.81	146.17	2.24	1.53	120	1.041	0.905	1.54	0.59	1.01	138.48	1.94		1	90	1.22	0.40	1.31	221.9	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
32.97	128.27	1.62	1.26	120	1.046	0.904	1.27	0.58	1.01	121.07	1.92		1	85	1.21	0.40	1.31	191.1	1.00	Infin.	0.000	0.653	Non-Liq.	Non-Liq.	0.00
33.14	100.88	1.48	1.46	120	1.050	0.903	1.48	0.62	1.00	94.77	2.04	1	0		1.36		1.00		1.00			0.652	Non-Liq.	Non-Liq.	0.00
33.30	64.24	1.72	2.68	120	1.055	0.902	2.73	0.72	1.00	59.83	2.37	1	0		2.19		1.00		1.00			0.652	Non-Liq.	Non-Liq.	0.00
33.46	40.85	2.01	4.91	120	1.060	0.901	5.04	0.82	1.00	37.55	2.70		0						1.00			0.651	Non-Liq.	Non-Liq.	0.00
33.63	31.56	1.45	4.60	120	1.065	0.900	4.76	0.84	0.99	28.67	2.77		0						1.00			0.651	Non-Liq.	Non-Liq.	0.00
33.79	25.54	0.91	3.55	120	1.069	0.899	3.70	0.84	0.99	22.92	2.77		0						1.00			0.650	Non-Liq.	Non-Liq.	0.00
33.96	27.01	0.74	2.75	120	1.074	0.898	2.87	0.81	0.99	24.22	2.68		0						1.00			0.650	Non-Liq.	Non-Liq.	0.00
34.12	27.20	0.78	2.86	120	1.079	0.897	2.98	0.81	0.98	24.30	2.69		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
34.28	27.52	0.84	3.04	120	1.084	0.896	3.17	0.82	0.98	24.50	2.70		0						1.00			0.649	Non-Liq.	Non-Liq.	0.00
34.45	27.45	0.86	3.13	120	1.088	0.895	3.25	0.82	0.98	24.35	2.71		0						0.99			0.648	Non-Liq.	Non-Liq.	0.00
34.61	26.81	0.89	3.31	120	1.093	0.894	3.45	0.83	0.97	23.66	2.74		0						0.99			0.648	Non-Liq.	Non-Liq.	0.00
34.78	26.05	0.86	3.31	120	1.098	0.893	3.45	0.83	0.97	22.87	2.75		0						0.99			0.647	Non-Liq.	Non-Liq.	0.00
34.94	24.71	0.91	3.67	120	1.102	0.892	3.84	0.85	0.97	21.55	2.80		0						0.99			0.647	Non-Liq.	Non-Liq.	0.00
35.10	27.26	0.76	2.79	120	1.107	0.890	2.91	0.81	0.96	23.82	2.69		0						0.99			0.646	Non-Liq.	Non-Liq.	0.00
35.27	41.68	1.07	2.57	120	1.112	0.889	2.64	0.76	0.96	36.92	2.51	1	0		2.84		1.00		0.99			0.646	Non-Liq.	Non-Liq.	0.00
35.43	47.95	1.60	3.34	120	1.117	0.888	3.42	0.77	0.96	42.46	2.54	1	0		3.00		1.00		0.99			0.645	Non-Liq.	Non-Liq.	0.00
35.60	41.05	1.77	4.31	120	1.121	0.887	4.43	0.81	0.95	36.00	2.67		0						0.99			0.644	Non-Liq.	Non-Liq.	0.00
35.76	35.96	1.65	4.60	120	1.126	0.886	4.75	0.83	0.95	31.26	2.74		0						0.99			0.644	Non-Liq.	Non-Liq.	0.00
35.93	37.95	1.77	4.65	120	1.131	0.885	4.80	0.83	0.95	32.94	2.72		0						0.99			0.643	Non-Liq.	Non-Liq.	0.00
36.09	56.20	2.33	4.15	120	1.136	0.883	4.23	0.78	0.95	49.26	2.56		0						0.99			0.643	Non-Liq.	Non-Liq.	0.00
36.25	89.59	2.34	2.61	120	1.140	0.882	2.65	0.69	0.95	79.39	2.27	1	0		1.86		1.00		0.99			0.642	Non-Liq.	Non-Liq.	0.00
36.42	134.53	2.28	1.70	120	1.145	0.881	1.71	0.61	0.95	120.13	2.01	1	0		1.31		1.00		0.98			0.641	Non-Liq.	Non-Liq.	0.00
36.58	159.37	1.86	1.16	120	1.150	0.880	1.17	0.56	0.95	142.74	1.84		1	92	1.14	0.15	1.58	256.7	0.97	Infin.	0.000	0.641	Non-Liq.	Non-Liq.	0.00
36.75	163.70	2.07	1.26	120	1.154	0.878	1.27	0.57	0.95	146.24	1.86		1	93	1.15	0.15	1.58	266.3	0.97	Infin.	0.000	0.640	Non-Liq.	Non-Liq.	0.00
36.91	140.69	1.78	1.26	120	1.159	0.877	1.27	0.58	0.95	125.08	1.91		1	86	1.20	0.15	1.58	236.4	0.96	Infin.	0.000	0.639	Non-Liq.	Non-Liq.	0.00
37.07	101.89	1.73	1.69	120	1.164	0.876	1.71	0.64	0.94	89.58	2.10	1	0		1.46		1.00		0.98			0.639	Non-Liq.	Non-Liq.	0.00
37.24	58.88	2.29	3.89	120	1.169	0.875	3.97	0.77	0.93	50.53	2.54	1	0		2.95		1.00		0.98			0.638	Non-Liq.	Non-Liq.	0.00
37.40	43.65	1.86	4.26	120	1.173	0.873	4.38	0.81	0.92	36.93	2.66		0						0.98			0.637	Non-Liq.	Non-Liq.	0.00
37.57	33.28	1.55	4.67	120	1.178	0.872	4.84	0.84	0.91	27.72	2.78		0						0.98			0.637	Non-Liq.	Non-Liq.	0.00
37.73	32.65	1.23	3.75	120	1.183	0.871	3.90	0.83	0.91	27.13	2.73		0						0.98			0.636	Non-Liq.	Non-Liq.	0.00
37.89	34.50	1.31	3.79	120	1.187	0.869	3.92	0.82	0.91	28.64	2.71		0						0.98			0.635	Non-Liq.	Non-Liq.	0.00
38.06	35.39	1.34	3.80	120	1.192	0.868	3.93	0.82	0.91	29.31	2.70		0						0.98			0.634	Non-Liq.	Non-Liq.	0.00
38.22	43.23	1.84	4.25	120	1.197	0.867	4.37	0.81	0.91	35.96	2.67		0						0.98			0.634	Non-Liq.	Non-Liq.	0.00
38.39	44.57	1.34	3.01	120	1.202	0.865	3.09	0.77	0.91	37.14	2.56		0						0.97			0.633	Non-Liq.	Non-Liq.	0.00
38.55	73.63	2.16	2.93	120	1.206	0.864	2.98	0.72	0.91	62.26	2.38	1	0		2.24		1.00		0.97			0.632	Non-Liq.	Non-Liq.	0.00
38.71	47.93	2.12	4.42	120	1.211	0.863	4.54	0.80	0.90	39.61	2.65		0						0.97			0.631	Non-Liq.	Non-Liq.	0.00
38.88	35.49	2.15	6.07	120	1.216	0.861	6.26	0.86	0.89	28.73	2.85		0						0.97			0.630	Non-Liq.	Non-Liq.	0.00
39.04	39.64	2.08	5.25	120	1.221	0.860	5.42	0.84	0.89	32.21	2.77		0						0.97			0.630	Non-Liq.	Non-Liq.	0.00
39.21	61.96	2.13	3.44	120	1.225	0.859	3.51	0.76	0.90	51.38	2.49	1	0		2.73		1.00		0.97			0.629	Non-Liq.	Non-Liq.	0.00
39.37	95.96	1.82	1.89	120	1.230	0.857	1.92	0.66	0.91	81.09	2.17		1	68	1.59		1.00	128.9	0.96	0.279	0.267	0.628	0.43	94%	1.14
39.53	91.50	1.09	1.19	120	1.235	0.856	1.21	0.62	0.91	77.49	2.05		1	66	1.37		1.00	106.1	0.95	0.191	0.182	0.627	0.29	98%	1.42
39.70	74.36	1.56	2.10	120	1.239	0.854	2.13	0.69	0.90	61.93	2.28		1	57	1.90		1.00	117.6	0.95	0.231	0.220	0.626	0.35	97%	1.27
39.86	50.54	1.61	3.19	120	1.244	0.853	3.27	0.77	0.88	41.13	2.54	1	0		2.98		1.00		0.97			0.625	Non-Liq.	Non-Liq.	0.00
40.03	48.77	1.72	3.52	120	1.249	0.852	3.61	0.78	0.88	39.45	2.58		0						0.97			0.625	Non-Liq.	Non-Liq.	0.00
40.19	46.99	1.65	3.50	120	1.254	0.850	3.60	0.79	0.88	37.83	2.60		0						0.97			0.624	Non-Liq.	Non-Liq.	0.00
40.35	49.92	1.76	3.53	120	1.258	0.849	3.62	0.78	0.87	40.16	2.58		0						0.97			0.623	Non-Liq.	Non-Liq.	0.00
40.52	48.83	1.82	3.73	120	1.263	0.847	3.83	0.79	0.87	39.09	2.60		0						0.97			0.622	Non-Liq.	Non-Liq.	0.00
40.68	52.53	2.09	3.98	120	1.268	0.846	4.08	0.79	0.87	42.01	2.60		0						0.96			0.621	Non-Liq.	Non-Liq.	0.00
40.85	55.97	2.23	3.99	120	1.273	0.844	4.08	0.78	0.87	44.75	2.58		0						0.96			0.620	Non-Liq.	Non-Liq.	0.00
41.01	56.80	2.27	4.00	120	1.277	0.843	4.09	0.78	0.86	45.30	2.58		0						0.96			0.619	Non-Liq.	Non-Liq.	0.00
41.17	54.06	2.40	4.43	120	1.282	0.841	4.54	0.80	0.86	42.81	2.63		0						0.96			0.618	Non-Liq.	Non-Liq.	0.00
41.34	54.19	2.17	4.00	120	1.287	0.840	4.10	0.79	0.86	42.87	2.60		0						0.96			0.617	Non-Liq.	Non-Liq.	0.00

Layer Depth (feet)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio %	Total Unit Wt. (pcf)	Eff.Stress at Midpt. p'o (tsf)	rd	F	n	C_Q	Corrected Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens. Dr (%)	K_C	H (m)	K_H	Clean Sand Qc1n	Kσ	$CRR_{7.5}$	EQ CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Probab. P_L	Volumetric Strain (%)
41.50	59.22	2.52	4.26	120	1.291	0.838	4.35	0.78	0.86	46.83	2.59		0						0.96			0.617	Non-Liq.	Non-Liq.	0.00
41.67	66.93	2.32	3.46	120	1.296	0.837	3.53	0.75	0.86	53.24	2.48		1	51	2.68		1.00	142.9	0.94	0.352	0.331	0.616	0.54	89%	1.00
41.83	87.71	2.91	3.32	120	1.301	0.835	3.37	0.72	0.86	70.33	2.38		1	62	2.25		1.00	158.3	0.94	0.449	0.422	0.615	0.69	78%	0.59
41.99	50.04	2.92	5.84	120	1.306	0.834	5.99	0.83	0.84	38.67	2.74		0						0.96			0.614	Non-Liq.	Non-Liq.	0.00
42.16	37.61	2.64	7.02	120	1.310	0.832	7.27	0.88	0.83	28.44	2.90		0						0.96			0.613	Non-Liq.	Non-Liq.	0.00
42.32	35.33	1.62	4.57	120	1.315	0.831	4.75	0.84	0.83	26.76	2.79		0						0.96			0.612	Non-Liq.	Non-Liq.	0.00
42.49	36.29	1.72	4.75	120	1.320	0.829	4.92	0.85	0.83	27.42	2.79		0						0.96			0.611	Non-Liq.	Non-Liq.	0.00
42.65	53.06	2.09	3.94	120	1.325	0.827	4.04	0.79	0.84	40.95	2.61		0						0.96			0.610	Non-Liq.	Non-Liq.	0.00
42.81	64.47	2.44	3.78	120	1.329	0.826	3.86	0.77	0.84	50.10	2.53		1	48	2.92		1.00	146.3	0.96	0.371	0.355	0.609	0.58	86%	0.87
42.98	74.15	2.36	3.18	120	1.334	0.824	3.24	0.74	0.84	58.02	2.43		1	54	2.44		1.00	141.5	0.93	0.344	0.321	0.608	0.53	89%	1.00
43.14	64.48	2.76	4.28	120	1.339	0.823	4.37	0.78	0.83	49.68	2.57		0						0.95			0.607	Non-Liq.	Non-Liq.	0.00
43.31	69.37	3.26	4.70	120	1.343	0.821	4.79	0.78	0.83	53.35	2.58		0						0.95			0.606	Non-Liq.	Non-Liq.	0.00
43.47	124.82	3.84	3.08	120	1.348	0.820	3.11	0.69	0.85	98.82	2.26		1	76	1.83		1.00	180.8	0.91	Infin.	0.000	0.605	Non-Liq.	Non-Liq.	0.00
43.64	154.98	5.03	3.24	120	1.353	0.818	3.27	0.67	0.85	123.06	2.22		1	85	1.71		1.00	210.3	0.91	Infin.	0.000	0.604	Non-Liq.	Non-Liq.	0.00
43.80	145.87	4.41	3.02	120	1.358	0.816	3.05	0.67	0.85	115.55	2.21		1	83	1.69		1.00	195.5	0.91	Infin.	0.000	0.603	Non-Liq.	Non-Liq.	0.00
43.96	156.99	4.71	2.96	120	1.362	0.815	2.99	0.66	0.85	126.03	2.18		1	86	1.62		1.00	203.9	0.90	Infin.	0.000	0.602	Non-Liq.	Non-Liq.	0.00
44.13	119.06	4.23	3.56	120	1.367	0.813	3.60	0.71	0.83	92.84	2.33		1	74	2.04		1.00	188.9	0.90	Infin.	0.000	0.601	Non-Liq.	Non-Liq.	0.00
44.29	78.09	3.53	4.52	120	1.372	0.811	4.60	0.77	0.82	59.40	2.53		1	55	2.95		1.00	175.1	0.93	Infin.	0.000	0.600	Non-Liq.	Non-Liq.	0.00
44.46	73.96	3.34	4.52	120	1.376	0.810	4.61	0.77	0.82	55.97	2.55		0						0.95			0.599	Non-Liq.	Non-Liq.	0.00
44.62	112.26	3.48	3.10	120	1.381	0.808	3.14	0.70	0.83	87.01	2.30		1	71	1.95		1.00	169.5	0.90	Infin.	0.000	0.598	Non-Liq.	Non-Liq.	0.00
44.78	101.30	3.73	3.68	120	1.386	0.807	3.73	0.72	0.82	77.65	2.39		1	66	2.27		1.00	176.2	0.92	Infin.	0.000	0.597	Non-Liq.	Non-Liq.	0.00
44.95	71.08	1.28	1.80	120	1.391	0.805	1.83	0.69	0.83	54.51	2.28		1	52	1.89		1.00	103.0	0.92	0.182	0.167	0.596	0.28	99%	1.46
45.11	63.17	2.07	3.27	120	1.395	0.803	3.35	0.76	0.81	47.33	2.50		1	46	2.78		1.00	131.7	0.95	0.293	0.277	0.594	0.47	93%	1.10
45.28	66.87	2.44	3.64	120	1.400	0.802	3.72	0.76	0.81	49.96	2.52		1	48	2.87		1.00	143.1	0.95	0.353	0.334	0.593	0.56	87%	1.00
45.44	92.51	2.85	3.09	120	1.405	0.800	3.13	0.72	0.82	70.28	2.36		1	62	2.16		1.00	152.1	0.92	0.407	0.374	0.592	0.63	82%	0.73
45.60	91.02	3.44	3.78	120	1.410	0.798	3.84	0.74	0.81	68.53	2.43		1	61	2.46		1.00	168.5	0.92	Infin.	0.000	0.591	Non-Liq.	Non-Liq.	0.00
45.77	63.49	3.46	5.45	120	1.414	0.797	5.58	0.81	0.79	46.40	2.67		0						0.94			0.590	Non-Liq.	Non-Liq.	0.00
45.93	63.07	2.97	4.71	120	1.419	0.795	4.82	0.80	0.79	46.14	2.62		0						0.94			0.589	Non-Liq.	Non-Liq.	0.00
46.10	69.47	2.68	3.86	120	1.424	0.793	3.94	0.77	0.80	51.22	2.53	1	0		2.92		1.00		0.94			0.588	Non-Liq.	Non-Liq.	0.00
46.26	73.30	2.62	3.57	120	1.428	0.792	3.64	0.75	0.80	54.17	2.49		1	51	2.71		1.00	146.6	0.91	0.373	0.341	0.587	0.58	86%	0.86
46.42	90.67	2.64	2.91	120	1.433	0.790	2.95	0.71	0.81	67.91	2.35		1	61	2.13		1.00	144.9	0.91	0.363	0.331	0.586	0.57	87%	1.00
46.59	95.03	4.43	4.66	120	1.438	0.788	4.73	0.76	0.79	70.13	2.50		1	62	2.75		1.00	192.7	0.91	Infin.	0.000	0.585	Non-Liq.	Non-Liq.	0.00
46.75	122.38	5.48	4.48	120	1.443	0.787	4.53	0.73	0.80	91.13	2.41		1	73	2.35		1.00	214.0	0.88	Infin.	0.000	0.584	Non-Liq.	Non-Liq.	0.00
46.92	404.73	5.48	1.35	120	1.447	0.785	1.36	0.51	0.85	325.35	1.66		1	100	1.01	0.10	1.64	539.7	0.88	Infin.	0.000	0.582	Non-Liq.	Non-Liq.	0.00
47.08	548.71	5.48	1.00	120	1.452	0.783	1.00	0.50	0.85	441.53	1.47		1	100	1.00	0.10	1.64	726.0	0.88	Infin.	0.000	0.581	Non-Liq.	Non-Liq.	0.00
47.24	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.41	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.57	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.74	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
47.90	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.06	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.23	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.39	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.56	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.72	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
48.88	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.05	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.21	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.38	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.54	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.70	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
49.87	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.03	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.20	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.36	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.52	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.69	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
50.85	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.02	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.18	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.35	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.51	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.67	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
51.84	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.00	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.17	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.33	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.49	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.66	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.82	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
52.99	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
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53.31	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.48	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.64	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.81	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
53.97	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.13	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.30	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.46	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
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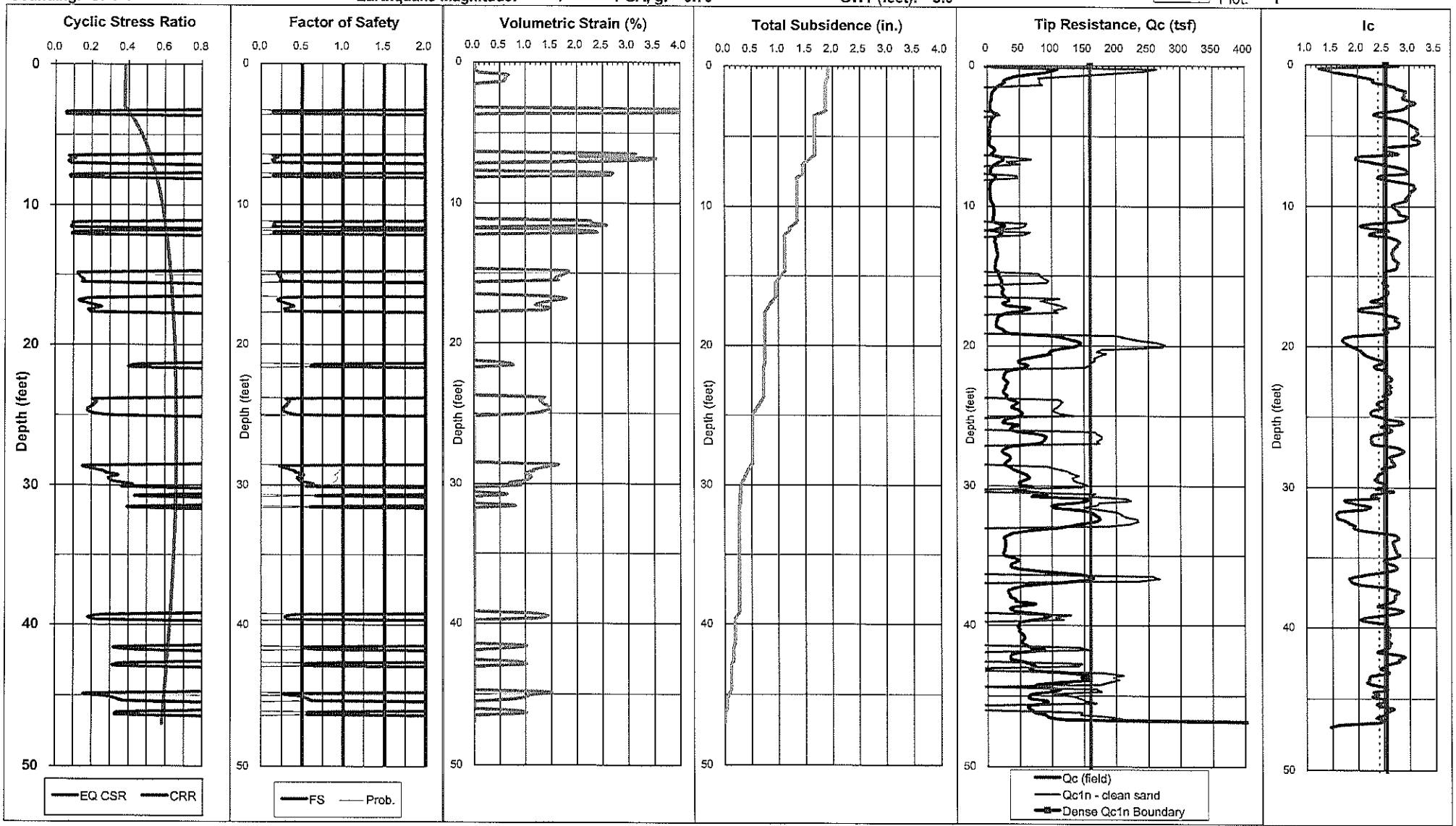
54.79	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
54.95	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.12	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.28	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.45	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.61	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.77	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A
55.94	#N/A	#N/A	#N/A	120	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Non-Liq.	#N/A	#N/A

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Cravens Lane Project No: VT-23345-01

Sounding: CPT-1 Earthquake Magnitude: 7 PGA, g: 0.70 GWT (feet): 3.0 Plot: 1



Total Thickness of Liquefiable Layers: 9.8 feet

Estimated Total Ground Subsidence (Settlement): 1.9 inches



LEGEND

SYMBOLS

- FIRE HYDRANT
- HORIZONTAL & VERTICAL CONTROL
- MANHOLE
- 256.5 – SPOT ELEVATION (AT DECIMAL POINT)
- VALVE
- FOUND SURVEY MONUMENT AS NOTED
- 7424 10"OAK – EXISTING TREE CANOPY (DRIP LINE)
- STRUCTURE FOOTPRINT
- EXISTING STRUCTURE FOOTPRINT

35 NEW UNITS:
20 - 3 Bdrm T.H.
14 - 1 Bdrm Flats
1 - New S.F.R.
1 - Existing R.
36 - TOTAL UNITS

SCALE: 1"=20
0 20 40 60

PROPOSED SITE PLAN
Green Heron Spring
an environmentally responsible residential development
1300-1326 CRAVENS LANE CARPINTERIA, CALIFORNIA

EARTH SYSTEMS SOUTHERN CALIFORNIA
1731-A Walter Street, Ventura, California 93003
PH: (805) 642-6727 FAX: (805) 642-1325

1300 CRAVENS LANE
SITE PLAN
AND
BORING LOCATIONS
JAN. OF 2005 VT-23345-01

SCOTT ELLINWOOD & ASSOCIATES
INCORPORATED
RESOURCE CONSCIOUS ARCHITECTURE & PLANNING
1300 CRAVENS LANE SUITE 100 CARPINTERIA CALIFORNIA 93013
(805) 684-0993 fax: (805) 684-0834
e-mail: SEFAIA@aol.com

Appendix H

Stormwater Control Plan

Stormwater Control Plan

for

Green Heron Spring

May 30th, 2017

Owner:

Cravens Lane, LLC.

23622 Calabasas Road, Suite 220
Calabasas, CA 91302
Phone: (818) 222-2530

Prepared by:

United Civil, Inc.

30141 Agoura Road, Suite 215
Agoura Hills, CA 91301
Phone: (818) 707-8648

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Maintenance Agreement

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This Stormwater Control Plan was prepared using the template dated 18 February 2014.

I. Project Data

Table 1. Project Data

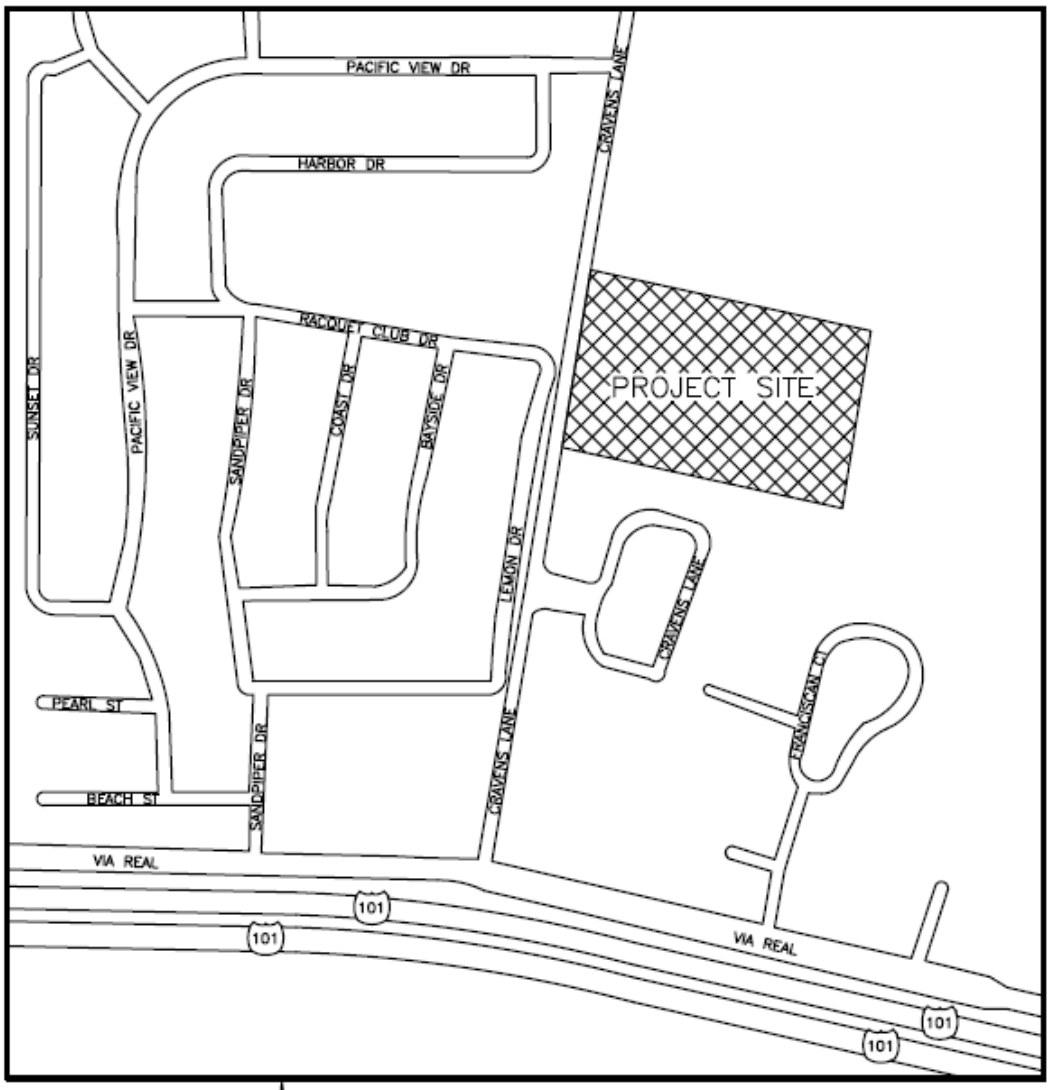
<table>
<tr><td>Project Name/Number</td><td>Green Heron Spring/ TM25178</td></tr>
<tr><td>Application Submittal Date</td><td>[to be verified by municipal staff]</td></tr>
<tr><td>Project Location</td><td>1300 Cravens Lane, Carpinteria, CA 93013</td></tr>
<tr><td>Project Phase No.</td><td>NA</td></tr>
<tr><td>Project Type and Description</td><td>31-unit condominium project with a central open space area, outdoor guest parking stalls, and a detention basin</td></tr>
<tr><td>Total Project Site Area (acres)</td><td>3.69</td></tr>
<tr><td>Total New Impervious Surface Area</td><td>1.55</td></tr>
<tr><td>Total Replaced Impervious Surface Area</td><td>0.24</td></tr>
<tr><td>Total Pre-Project Impervious Surface Area</td><td>0.28</td></tr>
<tr><td>Total Post-Project Impervious Surface Area</td><td>1.79</td></tr>
<tr><td>Net Impervious Area</td><td>1.79</td></tr>
<tr><td>Watershed Management Zone(s)</td><td>1</td></tr>
<tr><td>Design Storm Frequency and Depth</td><td>2- thru 100-Year, based on South Coast Rainfall Amount,
<table>
<tr><td>2-Year</td><td>5-Year</td><td>10-Year</td><td>25-Year</td><td>50-Year</td><td>100-Year</td></tr>
<tr><td>3.20</td><td>4.61</td><td>5.55</td><td>6.71</td><td>7.56</td><td>8.38</td></tr>
</table></td></tr>
<tr><td>Urban Sustainability Area</td><td>N/A</td></tr>
</table>

II. Setting

II.A. Project Location and Description

The proposed 3.87 acres TM 25178 Green Heron Spring project is located at 1300 Cravens Lane, in the City of Carpinteria in the Santa Barbara County, California. The project site has been annexed into the City of Carpinteria since 2010. It has been given a Medium Density Residential (MDR) land use designation, and is zoned as Planned Unit Development (PUD). The project site is bounded by Franciscan Sediment Basin to the north, a Reinforced Concrete Channel (RCC) to the east that was built as part of the Franciscan Sediment Basin located north of the project site, by an AC paved driveway to the south, and by Cravens Lane to the west. A minimum of 30 feet setback is required from the eastern property boundary. The site is located approximately 900 feet north of Highway 101.

The proposed project is a 31-unit condominium development, with a large central community orchard, garden, village green and children's play area. There are permeable pavement and an on-site pond located near the center of the site for storm water retention and infiltration. The total building footprint adds up to 61,990 SF. There will be 53 parking spaces within garages and 15 uncovered guest parking spaces. The project is envisioned to represent a model for creating environmentally responsible multi-family residential developments. The single overarching theme of this project is to create a showcase of 'environmentally responsible design'. The project has been accepted as a part of the 'LEED for HOMES' Pilot Project and is seeking the highest 'Platinum Rating' from the U.S. Green Building Council. A vicinity map is shown below for reference.



VICINITY MAP
N.T.S.

II.B. Existing Site Features and Conditions

The 3.87 acres project site is a rectangular shaped parcel with existing ground surface sloping from the northeast corner to the southwest corner. There is an existing pond with 2:1 side slope near the center of the site. The existing site has two building structures with few sheds at the northwest corner, one building structure with few sheds near the middle of the northern property boundary, and a building structure in the middle of the site near the existing pond. The site has Soil Type C, with Camarillo, variant, fine sandy loam (Cb) per the Web Soil Survey by USDA. Groundwater is generally 3-7 feet below existing ground surface per the "Update of Geotechnical Engineering Reports for 1300 Cravens Lane, Carpinteria, California", dated November 7, 2016, prepared by Earth Systems Southern California. The majority of the site has dirt cover with scattered short grass and trees. There are existing buildings and AC paved driveway, totaling to approximately 0.28 acres for existing impervious area. The Franciscan Sediment Basin is located north of the project site, and approximately 0.78 acres of the Franciscan Sediment Basin parcel has off-site drainage tributary to the project site. The off-site drainage surface flows southerly across the northern property boundary and, combine with the on-site surface runoff from portion of 1.76 acres of the site, discharge into the existing pond near the center of the site. The existing pond acts as a detention basin, with overflow exiting the pond as surface flow southerly onto the AC paved driveway along the southern property boundary. The easterly 1.88 acres of the project site surface flow from the northeast corner to the middle of the southern property boundary and discharge onto the existing AC paved driveway along the southerly boundary. The westerly 0.23 acre of the project site surface flow from the northwest corner to the southwest corner of the site. All surface flows confluence at the southwest corner of the site and discharge onto Cravens Lane. The combined runoff flows southerly along the existing curb and gutter on Cravens Lane before being intercepted by an existing catch basin at the northeast corner of Cravens Lane and Via Real. The runoff is conveyed by existing triple CMP arch outlets at the catch basin across Via Real and discharges onto the Carpinteria Salt Marsh Reserve south of Via Real along the coast.

II.C. Opportunities and Constraints for Stormwater Control

The existing pond near the center of the site will be recontoured, and the accumulated silt and debris will be dredged to restore the pond to its original depth. Wetland vegetation and compatible native species will be replanted to increase the habitat complexity and species diversity, improving the functional value of the habitat for native birds and wildlife. The project site has shallow groundwater that is 3-7 feet below existing ground based on findings per the "Update of Geotechnical Engineering Reports for 1300 Cravens Lane, Carpinteria, California", dated November 7, 2016, prepared by Earth Systems Southern California. The reconditioned pond will continue to be utilized as a wet detention basin, with a proposed outlet riser with vertical orifices at different elevations to control the outflow.

There are oak trees across the entire project site that need to be protected and remain in place.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

The project site is a rectangular shaped parcel with an existing pond near the center of the site. The existing pond is to be reconditioned and to remain in place. There are also oak trees across the site that will be protected in place.

III.A.2. Preservation of natural drainage features

The existing drainage pattern from northeast to southwest corner of the site will remain.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

A 25' setback from the pond to proposed building is provided per the City of Carpinteria requirement.

III.A.4. Minimization of imperviousness

Permeable pavement will be utilized for all on-site proposed driveway and parking spaces. The majority of the site is also planned as landscaped areas to minimize imperviousness.

III.A.5. Use of drainage as a design element

Runoff from building roofs are directed onto the permeable pavement driveway and adjacent landscaped areas for infiltration. The looped driveway with permeable pavement acts as the primary conveyance for stormwater runoff, and peak runoff will be discharged into the reconditioned pond for detention and infiltration.

III.B. Use of Permeable Pavements

Permeable pavement will be utilized for all on-site proposed driveway and parking spaces.

III.C. Dispersal of Runoff to Pervious Areas

Runoff from building roofs are directed onto the permeable pavement driveway and adjacent landscaped areas for infiltration.

III.D. Stormwater Control Measures

All runoff from building roofs and walkway are dispersed onto adjacent pervious areas, such as landscaped areas and permeable pavement. Since the looped driveway has sufficient area to contain and detain the runoff from the impervious areas, additional SCM is not required. However, the reconditioned pond will act as the on-site Wet Detention Pond. Even though LID detention is not needed, the reconditioned pond serves as the detention basin to reduce the discharge flow from 2-year to 100-year storm events.

IV. Documentation of Drainage Design

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

DMA Name	Surface Type	Area (square feet)
DMA-1	Roof	13,134
DMA-2	Roof	1,752
DMA-3	Roof	1,755
DMA-4	Roof	1,751
DMA-5	Roof	2,694
DMA-6	Roof	1,754
DMA-7	Roof	5,165
DMA-8	Roof	1,753
DMA-9	Roof	1,741
DMA-10	Roof	3,342
DMA-11	Roof	5,161
DMA-12	Roof	5,385
DMA-13	Open/ Porous Pavers	1,303
DMA-14	Open/ Porous Pavers	3,029

IV.A.2. Drainage Management Area Descriptions

DMA-1, totaling 13,134 square feet, drains the roofs of Buildings 4, 5, & 6. DMA-1 drains to DMA – SRA#1.

DMA-2, totaling 1,752 square feet, drains the roof of Building 7. DMA-2 drains to DMA – SRA#1.

DMA-3, totaling 1,755 square feet, drains the roof of Building 8. DMA-3 drains to DMA – SRA#1.

DMA-4, totaling 1,751 square feet, drains the roof of Building 9. DMA-4 drains to DMA – SRA#1.

DMA-5, totaling 2,694 square feet, drains the roof of Building 10. DMA-5 drains to DMA – SRA#1.

DMA-6, totaling 1,754 square feet, drains the roof of Building 11. DMA-6 drains to DMA – SRA#1.

DMA-7, totaling 5,385 square feet, drains the roof of Building 12. DMA-7 drains to DMA – SRA#1.

DMA-8, totaling 1,753 square feet, drains the roof of Building 13. DMA-8 drains to DMA – SRA#1.

DMA-9, totaling 1,741 square feet, drains the roof of Building 14. DMA-9 drains to DMA – SRA#1.

DMA-10, totaling 3,342 square feet, drains the roof of Building 15. DMA-10 drains to DMA – SRA#1.

DMA-11, totaling 5,161 square feet, drains the roof of Building 3. DMA-11 drains to DMA – SRA#1.

DMA-12, totaling 5,385 square feet, drains the roofs of Buildings 1 & 2. DMA-12 drains to DMA – SRA#1.

DMA-13, totaling 1,303 square feet, drains the Children's Play and Exercise Area. DMA-13 drains to DMA – SRA#3.

DMA-14, totaling 3,029 square feet, drains the Community Organic Garden. DMA-14 drains to DMA – SRA#4.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for LID Facility Design

Total Project Area (Square Feet)	160,884 SF (3.69 Acres)
Design Storm Depth	2.3 inches
Applicable Requirements	Tier 2/Tier 3

IV.B.2. Self-Treating Areas

DMA Name	Area (square feet)
N/A	N/A

IV.B.3. Self-Retaining Areas

DMA Name	Area (square feet)
DMA – SRA#1	29,013
DMA – SRA#2	7,361
DMA – SRA#3	31,613
DMA – SRA#4	30,581

DMA – SRA#1, totaling 29,013 square feet, is the main looped driveway and parking spaces with Permeable Pavement. DMA – SRA#1 is a self-retaining area where tributary storm water runoffs are retained and infiltrated thru the Permeable Pavement. Excess runoffs are intercepted by underdrains and conveyed to the reconditioned pond for detention and overflow.

DMA – SRA#2, totaling 7,361 square feet, is the central landscaped area surrounded by the looped driveway. DMA – SRA#2 is a self-retaining area where tributary storm water runoffs are retained and infiltrated thru proposed landscape surface. Overflow is intercepted by grated inlet and conveyed to the reconditioned pond for detention and overflow.

DMA – SRA#3, totaling 31,613 square feet, is the landscaped area north, east, and southeast of the looped driveway surrounding Buildings 4 to 12, the Children's Play and Exercise Area, and the Community Organic Garden. DMA – SRA#3 is a self-retaining area where tributary storm water runoffs are retained and infiltrated thru proposed landscape surface. Overflow is intercepted by grated inlet and conveyed to the reconditioned pond for detention and overflow.

DMA – SRA#4, totaling 30,581 square feet, is the landscaped area southwest of the looped driveway surrounding Buildings 1 to 3 and 13 to 15, and the reconditioned pond. DMA – SRA#4 is a self-retaining area where tributary storm water runoffs are retained and infiltrated thru proposed landscape surface. Overflow is intercepted by grated inlet and conveyed to the reconditioned pond for detention and overflow.

IV.B.4. Areas Draining to Self-Retaining Areas

See attached results from Central Coast SCM Sizing Calculator.

IV.B.5. Areas Draining to Bioretention Facilities (Tier 2 Projects)

See attached results from Central Coast SCM Sizing Calculator.

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

This is a residential development, and would not have any commercial or industrial activities such as loading dock, outdoor storage, or food services. Primary potential sources of pollutants include oil and grease from vehicles, litter and trash, and fertilizers and pesticides from planting.

V.B. Source Control Table

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
On-site storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	Mark all inlets with the words "No Dumping! Flows to Bay" or similar.	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Landscape/ Outdoor Pesticide Use/Building and Grounds Maintenance	Final Landscape Plan will accomplish the following, a) Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. b) Design landscaping to minimize irrigation and runoff, to promote	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at

	surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. c) Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. d) Consider using pest-resistant plants, especially adjacent to hardscape. e) To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	www.cabmphandbooks.com Provide IPM information to new owners, lessees and operators.
Plazas, sidewalks, and parking lots.		Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

V.C. Features, Materials, and Methods of Construction of Source Control BMPs

Storm drain inlets marking will be of Santa Barbara County approved 4" stainless steel markers to prevent potential pollution from wear out paint. Landscape features will be built per Landscape Plans to minimize fertilizers and pesticides. Dripped irrigation system will be implemented to minimize non-stormwater discharge from irrigation water.

VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

See attached Maintenance Agreement.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

Facility	Responsible Party	Maintenance Frequency	Maintenance Activities
Reconditioned Pond	HOA	Semi-annual, after significant storms, or more frequent as needed	Remove invasive vegetation, trash, debris, and sediment clogging the inlet/outlet structures, and dispose of properly. Perform vector control, if necessary. Maintain protected vegetated buffer around pond. Mow side slopes and maintain vegetation in and around basin to prevent any erosion or aesthetic problems. Minimize use of fertilizers and pesticides. Reseed if necessary. Manage and harvest wetland plants. Also check for algal growth and signs of pollution such as oil sheens, discolored water, or unpleasant odors, and signs of flooding.
Driveway with Permeable Pavement	HOA	Semi-annual, after significant storms, or more frequent as needed	Inspect permeable pavement to determine if stormwater runoff is infiltrating properly at least twice during the wet season after significant storms. If infiltration is significantly reduced, remove surface clogging by vacuuming. Remove any evidence of oil, gasoline, contaminants, or other pollutants.

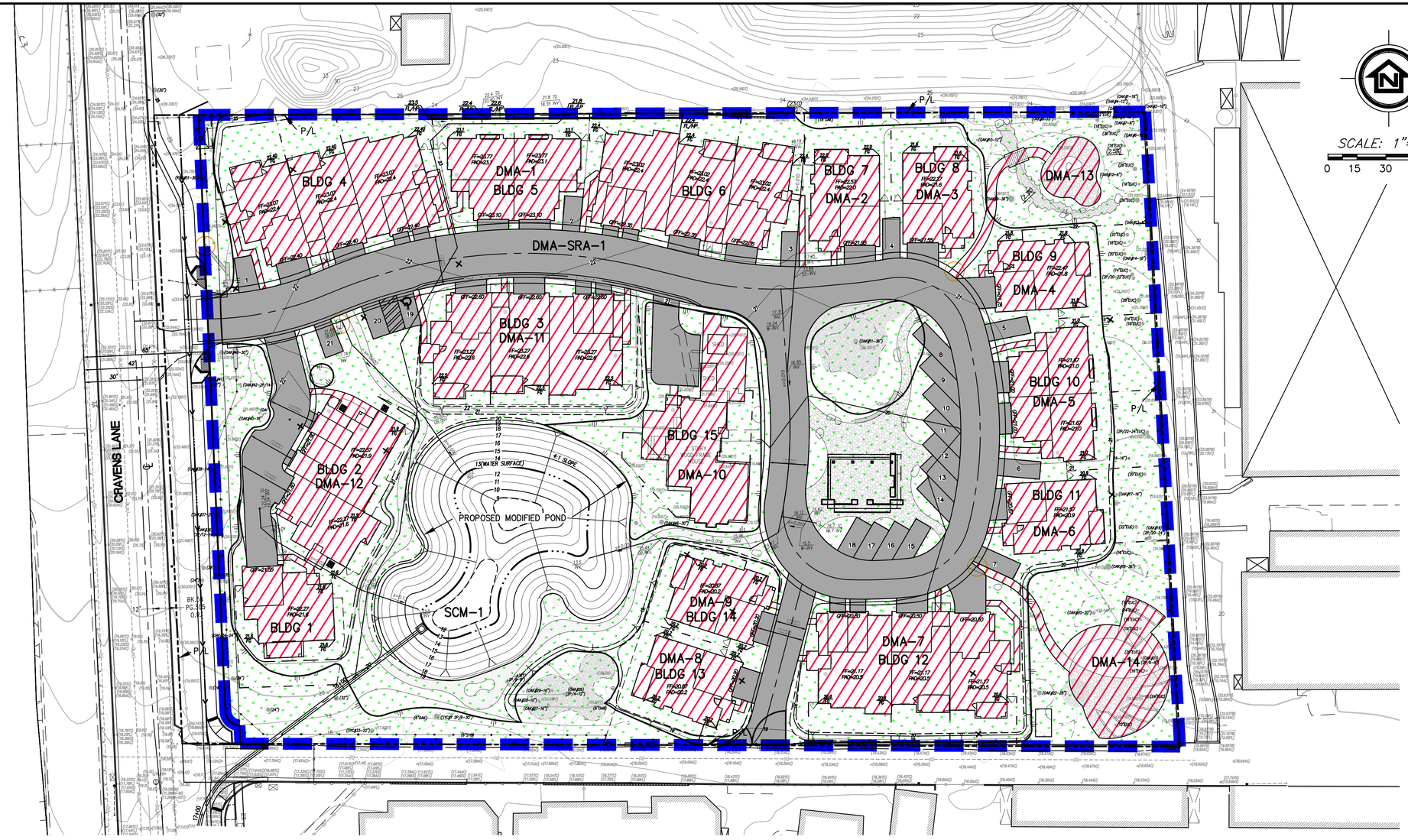
VII. Construction Checklist

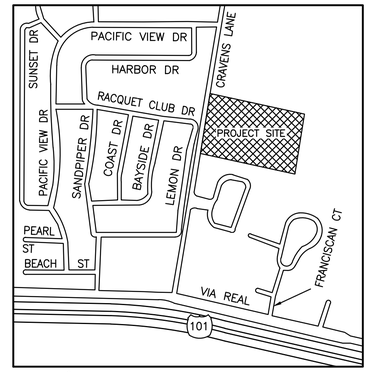
Stormwater Control Plan Page #	BMP Description	See Plan Sheet #s
1	Reconditioned Pond	
1	Permeable Pavement	

VIII. Certifications

The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.

Stormwater Control Plan Exhibit





VICINITY MAP
NTS

LEGENDS:

- DRAINAGE BOUNDARY
- FLOW DIRECTION
- DMA (IMPERVIOUS AREA)
- DMA-SRA (PERMEABLE PAVEMENT)
- DMA-SRA (LANDSCAPE AREA)

HYDROLOGIC CHARACTERISTICS SUMMARY

DESIGN RAINFALL FREQUENCY: 2- THROUGH 100-YEAR STORM

24-HOUR RAINFALL AMOUNTS (INCHES):

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
SOUTH COAST	3.20	4.61	5.55	6.71	7.56	8.38

95TH PERCENTILE RAINFALL DEPTH: 2.3 INCHES

SOIL TYPE: SOIL TYPE C

EXISTING LAND USE: SINGLE-FAMILY RESIDENTIAL
CN = 79

PROPOSED LAND USE: 31-UNIT MULTI-FAMILY RESIDENTIAL
CN = 90

NOTES:

1) COMPLIANCE OF ALL STREET DRAINAGE REQUIREMENTS WILL BE MET TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
2) SITE NOT WITHIN COUNTY ADOPTED FLOODWAY.
3) PORTION OF SITE WITHIN FEMA ZONE "A". SEPARATE CLOMR WILL BE FILED TO REVISE BASE FLOOD ELEVATIONS (BFEs) OR FLOOD DEPTHS.

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

STORMWATER CONTROL PLAN

GREEN HERON SPRING

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE

SCALE

PROJECT NUMBER

REVIEWED BY: DATE

CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2017

PROJECT ENGINEER: DATE

Sheet 1 of 1 Sheet

Stormwater Control Measures –

Central Coast SCM Sizing Calculator

Central Coast Region Stormwater Control Measure Sizing Calculator

1. Project Information

Project name:	Green Heron Spring
Project location:	1300 Cravens Lane, Carpinteria
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	2.3
Total project area (ft2):	160884
Total DMA area (ft2):	148287
Total new impervious area (ft2):	39265
Total replaced impervious within a USA (ft2):	0
Total replaced impervious not in a USA (ft2):	10454
Total pervious/landscape area (ft2):	98568
Total SCM area (ft2):	12597

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA-1	Drains to Self-Retaining	13134	Roof		DMA - SRA#1
DMA-2	Drains to Self-Retaining	1752	Roof		DMA - SRA#1
DMA-3	Drains to Self-Retaining	1755	Roof		DMA - SRA#1
DMA-4	Drains to Self-Retaining	1751	Roof		DMA - SRA#1
DMA-5	Drains to Self-Retaining	2694	Roof		DMA - SRA#1
DMA-6	Drains to Self-Retaining	1754	Roof		DMA - SRA#1
DMA-7	Drains to Self-Retaining	5165	Roof		DMA - SRA#1
DMA-8	Drains to Self-Retaining	1753	Roof		DMA - SRA#1
DMA-9	Drains to Self-Retaining	1741	Roof		DMA - SRA#1
DMA-10	Drains to Self-Retaining	3342	Roof		DMA - SRA#1
DMA-11	Drains to Self-Retaining	5161	Roof		DMA - SRA#1
DMA-12	Drains to Self-Retaining	5385	Roof		DMA - SRA#1
DMA-13	Drains to Self-Retaining	1303	Open/porous pavers		DMA - SRA#3
DMA-14	Drains to Self-Retaining	3029	Open/porous pavers		DMA - SRA#4
DMA - SRA#1	Self-Retaining	29013			
DMA - SRA#2	Self-Retaining	7361			
DMA - SRA#3	Self-Retaining	31613			
DMA - SRA#4	Self-Retaining	30581			

DMA Summary Area		
Total DMA area (ft2):	148287	
New impervious area (ft2):	45387	*Check DMA table areas against plan sheet areas*
Replaced impervious within a USA (ft2):	0	
Replaced impervious not in a USA (ft2):	0	*Check DMA table areas against plan sheet areas*
Total pervious/landscape area (ft2):	98568	

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
SCM-1	Direct Infiltration	2	Site-Specific	3	12594

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)	Orifice Diameter (in)

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name(s)	Eff. Tributary DMA Area (ft2)	Effective Tributary / SRA Area Ratio
DMA - SRA#1	29013	DMA-1; DMA-2; DMA-3; DMA-4; DMA-5; DMA-6; DMA-7; DMA-8; DMA-9; DMA-10; DMA-11; DMA-12	45387	1.56
DMA - SRA#2	7361		0	0.00
DMA - SRA#3	31613	DMA-13	0	0.00
DMA - SRA#4	30581	DMA-14	0	0.00

Maintenance Agreement

Recording requested by and when recorded return to:
City of Carpinteria Department of Public Works
5775 Carpinteria Avenue,
Carpinteria, CA 93013

No Fee Per Government Code Section 6103

Project:
APN:
Location:

OWNER'S AGREEMENT TO CONSTRUCT AND MAINTAIN PRIVATE DRAINAGE IMPROVEMENTS FOR WATER QUALITY

This Agreement is by and between: Cravens Lane, LLC.

and: **City of Capinteria Department of Public Works**

with reference to the following:

A. Cravens Lane, LLC. hereby known as the OWNER, the owner of that property located on Assessor's Parcel No. 004-013-026 wish to develop said property in accordance with approved plans on file with the City of Capinteria Department of Public Works, Development Case File No. 05-1239-TEX.

B. The City of Carpinteria Planning Commission approved the project subject to compliance with certain conditions as set forth in the Condition of Approval letter from the Public Works Department, which incorporates conditions set forth by the City in the letter dated Feb 27, 2012, attached hereto as exhibit "A".

WHEREAS, the Conditions require that the OWNER enter into an agreement with the City of Carpinteria Department of Public Works, for the construction and maintenance of private drainage improvements for water quality treatment which benefit this development; and,

WHEREAS, the OWNER wishes to construct and provide for such maintenance of those private drainage improvements upon development of the property as allowed by this approval;

NOW THEREFORE, the OWNER, for the present owner(s) and heirs, executors, administrators, successors, and/or assigns of the owner(s) does hereby irrevocably agree as follows:

1. The OWNER agrees to install, maintain, repair and replace all water quality drainage improvements according to plans, specifications, and to a standard approved by the Director of the Public Works Department, hereinafter referred to as the DIRECTOR.

   Said installation of all drainage improvements shall be completed within one year following the execution of this agreement, or within such extension of that time as is approved by the Director.

   There shall be no clearance for occupancy granted until such time as all water quality drainage improvements are constructed or installed in accordance with the approved plans and a Water Quality Improvement Certificate completed by a Registered Civil Engineer is submitted to the Public Works Department). All such improvements shall be maintained in a safe, usable and visually acceptable condition, free of obstructions to the design flow and free from impediments to use of the water quality improvements. Adequate access shall be maintained at all times to allow for maintenance, repair and replacement as needed.

   All such maintenance, repair, replacement and installation shall be at the sole cost and expense of the owner(s) of the real property described on the attached Exhibit ñB ò and shall be performed as defined in Exhibit ñC ò. This commitment shall be recorded and made binding upon the heirs, executors, successors and/or assigns of the owners.

2. OWNER hereby acknowledges that, during high intensity storms, some storm water from the public storm drain system may flow onto said real property.

3. Upon failure to complete needed inspection, repair, maintenance or replacement, the DIRECTOR or successor may, upon (10) calendar daysô notice to the address last appearing for the parcel on the County Assessorôs roll, enter upon the premises and complete such needed work or improvement at the cost of and to be recovered from owner, or ownerôs heirs, executors, administrators, successors and/or assigns, by bid force account, negotiated contract, or such other manner as may appear suitable to said DIRECTOR. Owner or ownerôs heirs, executors, administrators, successors and/or assigns shall repay the Public Works Department for all such costs and expensed incurred, including all costs reasonably incurred to enforce this agreement and reasonable attorneyôs fees if legal action is instituted.

4. OWNER agrees that OWNER, and OWNERôS heirs, executors, administrator, successors and/or assigns shall indemnify the City of Carpinteria Department of Public Works, itôs officers, agents and employees, defend them and save them harmless from, and against any act or omission to act as agents, employees, or independent contractors, and does hereby waive any claim against the City of Carpinteria Department of Public Works for failure to maintain said drainage improvements and/or easements or for City of Carpinteria Department of Public Worksôs failure to enforce any or all provisions of this agreement to the full extent permitted by law.

5. This agreement insures to and is for the benefit of the real property described in Exhibit ñB ò and is intended to be a covenant running with said described real property, binding upon the heirs, executors, administrators, successors and/or assigns of the undersigned. In the event that this agreement is not enforceable as a covenant running with the land, it shall nevertheless be enforceable as an equitable servitude.

6. All parties to this agreement warrant and represent that they have the power and authority to enter into this agreement in the names, titles and capacities herein stated and on behalf of any entities, persons, or firms represented or purported to be represented by such entity(ies), person(s) or firm(s) and that all formal requirements necessary or required by any state and/or federal law in order to enter into this agreement have been fully complied with.

_____ _____

Signature Date Title

_____

Print or type name

_____

Company

_____

Address

_____

Telephone

INSERT NOTARY HERE

CERTIFICATION

The OWNER'S agreement to construct and maintain private drainage improvements and private drainage maintenance easements set forth above, is hereby acknowledged, and the recordation hereof is approved.

Dated: _____

City of Carpinteria

By:_____ _____

Charlie Ebeling, Public Works Director

EXHIBIT A
Condition Letter

ATTACHMENT A

CONDITIONS OF APPROVAL

February 27, 2012

PROJECT NO. 05-1239-TEX
GREEN HERON SPRING TIME EXTENSION
1300 and 1326 Cravens Lane (APN 004-013-026)

The Conditions set forth in this permit affect the title and possession of the real property that is the subject of this permit and shall run with the real property or any portion thereof. All the terms, covenants, conditions, and restrictions herein imposed shall be binding upon and inure to the benefit of the owner (applicant, developer), his or her heirs, administrators, executors, successors and assigns. Upon any sale, division or lease of real property, all the conditions of this permit shall apply separately to each portion of the real property and the owner (applicant, developer) and/or possessor of any such portion shall succeed to and be bound by the obligations imposed on the owner (applicant, developer) by this permit.

PROJECT DESCRIPTION

Desc-1. This Development Plan, Vesting Tentative Tract Map, General Plan/Coastal Plan Text Amendment, Rezone and Coastal Development Permit approval is restricted to APN 004-013-026, located at 1300 and 1326 Cravens Lane. The 31-unit Green Heron Spring condominium project proposes to dismantle an existing residence, barn and storage shed (the materials would be salvaged), remodel one residence and construct 30 new residential units. Twenty of the new residences are proposed to be three-bedroom townhomes; two of these would be affordable under the City's Inclusionary Housing Requirement. Ten of the new residences are proposed to be one-bedroom flats, with two of these affordable. In all, 11 structures totaling 61,990 sq. ft. of floor area is proposed.

Building heights are proposed to range from 24'-5" to 29'-6". Parking includes 53 spaces within garages and 15 uncovered guest spaces. No fences, walls or gates are proposed at the project's entrance at Cravens Lane. A five-foot high wrought iron fence is proposed to enclose the project's common open space and private yard areas. The wrought iron fence increases to six feet at the project's southwest property boundary. An eight-foot high solid concrete fence is proposed along the project's southeast, east and northeast property boundary. This solid concrete fence drops down to a height of six feet along the north and northwest property boundary. Grading is estimated at 1,270 cubic yards of cut and 3,200 cubic yards of fill.

Proposed common open space would include a community orchard, garden, village green and children's play area. An existing agricultural pond would be enhanced and incorporated into the project as part of the open space. The area adjacent to the pond

would be revegetated with native plantings replacing the existing non-native species. The plantings have been selected for their appropriateness to the upland wetland setting and to attract and support wildlife.

The Green Heron Spring project is envisioned to represent a model for creating environmentally responsible multiple-family residential developments. The single overarching theme of this proposal is to create a showcase of 'environmentally responsible design'.

This would be accomplished with the following interconnected features:

- The site design preserves 30 mature native oaks, sycamores and redwoods, planting more than 80 new native trees;
- An existing residence, barn and storage shed would be dismantled, with the materials salvaged and used on site where possible;
- A large community organic garden and orchard would provide food to residents with surplus to the farmers market;
- Fruit and vegetable scrap composting containers would be provided within all units for use in the organic garden and orchard;
- An innovative water harvesting/ bio-filtration/storage/reuse system that also provides storm water retention and uses a solar powered pump to send water to a restored water tower for landscape irrigation;
- The site design includes the use of permeable paving blocks for all drives and walks;
- Buildings have been designed and would be constructed with sustainable materials selected for durability and non-toxic maintenance, i. e: Fly-ash concrete, FSC certified lumber, fiber-cement siding, recycled steel roofing, formaldehyde-free insulation, sheathing and cabinets;
- Building insulation beyond UBC requirements, including 2x6 exterior walls with R-24, perimeter foundation slab insulation and R-30 roof insulation;
- Passive solar heating with thermal storage, natural lighting and natural ventilation, designed to minimize fossil energy use would be incorporated within all residential structures;
- Building integrated solar electric photo-voltaic systems for all units;
- Energy Star appliances, heating system, water heaters, vent fans and light fixtures;
- Extra water-conserving toilets with dual flush along with low flow fixtures and instant flow water heaters would be installed in all units; and
- Units and Buildings would qualify as 'Energy Star Homes' under the DOE criteria.

The cumulative effect of all these features would be independently analyzed by an evaluation system being developed by the U. S. Green Building Council with its new LEED for Homes Pilot Program. LEED stands for Leadership in Energy and Environmental Design. The project has been accepted as a part of the 'LEED for HOMES' Pilot Project and will be seeking the highest 'Platinum Rating' from the U. S. Green Building Council.

The project will also demonstrate the practicality of meeting the '2030 Challenge' of the U. S. Conference of Mayors and the American Institute of Architects as a response to reducing impacts on global warming.

Additional Project Components:

The 3.87-acre site is proposed to be annexed to the City of Carpinteria. The City's General Plan/Coastal Plan (April 2003) included the parcel within its Sphere of Influence and gave it a Land Use Designation of Medium Density Residential (MDR). The project also includes an annexation to the Carpinteria Sanitary District.

The application package to construct the 31-unit residential condominium project includes a General Plan/Coastal Plan Text Amendment, Rezone to Planned Unit Development (PUD), Development Plan, Vesting Tentative Tract Map, and Coastal Development Permit.

Any minor changes may be approved by the City Manager and/or Community Development Director. Any major changes will require the filing of a revised project application.

MITIGATION MEASURES FROM THE PROJECT MND

Aest-1 The design, scale and character of the project architecture shall be compatible and blend harmoniously with vicinity development. In addition, the project shall maintain as much of the beneficial screening as possible, with structures located to take advantage of the natural landforms and screening. **Plan Requirement and Timing:** The applicant shall submit architectural, landscape and grading plans of the project for final review by the Architectural Review Board prior to approval of any Building Permit for physical development. **Monitoring:** CDD shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect prior to, and during the construction phase.

Aest-2 Natural building materials and colors compatible with surrounding terrain (earthtones and non-reflective paints) shall be used on exterior surfaces of all structures. **Plan Requirement:** Materials shall be denoted on building plans. **Timing:** Structures shall be painted prior to occupancy clearance. **Monitoring:** CDD shall inspect prior to occupancy clearance.

Aest-3 The developer shall clear the project site of all excess construction debris. **Plan Requirement:** This requirement shall be noted on final building plans. **Timing:** Debris clearance shall occur prior to occupancy clearance. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Aest-4 Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spill-over onto adjacent parcels. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for dimming lights after 10:00 p.m. **Plan Requirements**: The locations of all exterior lighting fixtures and an arrow showing the direction of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector shall inspect

structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.

Aest-5 No signs of any type are approved with this action unless otherwise specified. All signs require a separate Sign Permit and review by the Architectural Review Board and shall comply with the City Code Chapter 14 (Sign Regulations).

Ag-1 In order to protect the existing agricultural operations from encroaching development, site perimeter walls shall be installed along property lines as shown on the proposed site plan and maintained to protect agricultural land from residential intrusion for the life of the project. **Plan Requirement and Timing:** Plans shall be submitted prior to issuance of a Grading or Building Permit; the walls shall be installed prior to Occupancy of the first unit.

Ag-2 The following buyer notification shall be recorded on a separate information sheet with the final map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Report, provided to County Planning and Development to be noted on the Assessor's Parcel pages and included in the project CC&Rs:

IMPORTANT: BUYER NOTIFICATION
This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural growing, packing and shipping operations are located east and north of the property. Delivery trucks use the adjacent 20-foot driveway located south of the property to service the packing shed just east of the project site. Approximately 2.5 acres of the adjacent parcel to the north is occupied by a County of Santa Barbara Flood Control District siltation basin operating under a long term easement agreement. While the project design includes site walls and landscape buffers to reduce possible noise, light, odors and dust from impacting residents of the Green Heron project, future buyers are to be notified that these are existing conditions and will not be considered by the City of Carpinteria to be nuisance requiring extraordinary actions by the adjacent agricultural operators, County of Santa Barbara Flood Control District or landowners. It is in the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from properly conducted agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.

AQ-1 If the construction site is graded and left undeveloped for over three weeks, the applicant shall employ the following methods immediately to inhibit dust generation:

a. seeding and watering to revegetate graded areas; and/or

b. spreading of soil binders; and/or

c. any other methods deemed appropriate by Community Development.

Plan Requirements: These requirements shall be noted on all plans. **Timing:** Plans are required prior to issuance of a Grading or Building Permit. **Monitoring:** Grading Inspector shall perform periodic site inspections.

AQ-2 Dust generated by the development activities shall be kept to a minimum with a goal of retaining dust on the site by following the dust control measures listed below. During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.

b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.

Plan Requirements: All requirements shall be shown on grading and building plans. **Timing:** Condition shall be adhered to throughout all grading and construction activities. **Monitoring:** CDD shall ensure measures are on plans. CDD Grading and Building Inspectors shall spot check; Grading and Building Inspectors shall ensure compliance on-site. APCD inspectors shall respond to nuisance complaints.

AQ-3 The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. **Plan Requirements:** The name and telephone number of such persons shall be provided to the APCD and the Community Development Department. **Timing:** The dust monitor shall be designated prior to issuance of a Grading or Building Permit. **Monitoring:** CDD shall contact the designated monitor as necessary to ensure compliance with dust control measures.

Bio-1 In order to protect existing pond and improve the habitat functions and values, the applicant shall implement the Wetlands Mitigation Program contained within the *Conceptual Wetlands Mitigation Habitat Enhancement and Monitoring Plan;* December 2005, prepared by Katherine Rindlaub, Botanist. The Wetlands Mitigation Program includes the recontouring of the pond and reducing the slope from a 1:2 to approximately 1:4, dredging the accumulated silt and debris in order to restore the pond to its original depth, replanting wetland vegetation and compatible native species in order to increase the habitat complexity and species diversity, improving the functional value of the habitat for native birds and wildlife. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Wetlands Mitigation Program to CDD for review and approval. All aspects of the Program shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee successful re-establishment of the wetland and upland habitat. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD shall conduct site inspections throughout all phases of development to ensure compliance with the Program. Release of performance security requires CDD staff signature.

Bio-2 In order to protect existing native trees and minimize adverse effects of grading and construction onsite, the applicant shall implement the 14 recommendations contained within the *Tree Assessment and Protection Plan for Green Heron Spring LLC*; November 8, 2005, prepared by Bill Spiewak, Consulting Arborist, as modified herein. No ground disturbance, including grading, shall occur within the critical root zone of any native tree unless specifically authorized by the Tree Assessment and Protection Plan. The Tree Assessment and Protection Plan shall include a large number and/or larger size of the replacement oaks (along with understory species) to be planted in groves in the vicinity of the existing pond. In order to implement the Tree Assessment and Protection Plan, the applicant shall have prepared and submit a graphic Tree Protection and Replacement Plan including the following:

a. An exhibit showing the location, diameter and critical root zone of all native trees located onsite.

b. Fencing of all trees to be protected at or outside of the critical root zone. Fencing shall be at least three feet in height of chain link or other material acceptable to CDD and shall be staked every six feet. The applicant shall place signs stating "tree protection area" at 15-foot intervals on the fence. Said fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to commencement of grading and/or construction and shall remain in place throughout all grading and construction activities.

c. The tree protection plan shall clearly identify any areas where landscaping, grading, trenching or construction activities would encroach within the critical root zone of any native or specimen tree. All encroachment is subject to review and approval by CDD.

d. Construction equipment staging and storage areas shall be located outside of the protected area and shall be depicted on project plans submitted for issuance of a Grading or Building Permit. No construction equipment shall be parked, stored or operated within the protected area. No fill soil, rocks or construction materials shall be stored or placed within the protected area.

e. All proposed utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are minimized.

f. Any proposed tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the critical root zone of all protected trees unless specifically authorized.

g. Any encroachment within the critical root zone of native trees shall adhere to the following standards:

    i. Any paving shall be of pervious material (gravel, brick without mortar or turf block).

    ii. Any trenching required within the critical root zone of a protected tree shall be done by hand.

iii. Any roots one inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.

h. All trees located within 25 feet of buildings shall be protected from stucco and/or paint during construction.

i. No permanent irrigation shall occur within the critical root zone of any native tree. Drainage plans shall be designed so that tree trunk areas are properly drained.

j. Only trees designated for removal on the approved tree protection plan shall be removed.

k. Any protected trees which are removed, relocated and/or damaged (more than 20% encroachment into the critical root zone) shall be replaced on a 10:1 basis with one gallon size saplings grown from seed obtained from the same watershed as the project site. A limited number of replacement trees may be permitted on a 3:1 ratio with 24-inch boxed trees. Where necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. A drip irrigation system with a timer shall be installed. Trees shall be planted prior to issuance of occupancy clearance and irrigated and maintained until established (three years). The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing and gopher fencing during the maintenance period.

Plan Requirements: Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Tree Protection and Replacement Plan to CDD for review and approval. All aspects of the plan shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee tree replacement. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD, or a qualified monitor acceptable to the CDD, shall conduct site inspections throughout all phases of development to ensure compliance with all tree protection and replacement measures. Release of performance security requires CDD staff signature.

Bio-3 During construction, washing of concrete trucks, paint, equipment or similar activities shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Wash water shall not be discharged to the storm drains, street, drainage ditches, creeks or wetlands. Areas designated for washing functions shall be at least 100 feet from any storm drain, waterbody or sensitive biological resources. The location of the washout area shall be clearly noted at the construction site with signs. **Plan Requirements:** The applicant shall designate a washout area, acceptable to CDD, and this area shall be shown on the construction and/or grading and building plans. **Timing:** The wash off area shall be designated on all plans prior to issuance of a Grading or Building Permit. The washout area shall be in place and maintained throughout construction. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and staff shall site inspect throughout the construction period to ensure proper use and maintenance of the washout area.

Bio-4 To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be modified to be wildlife permeable (i.e., with a wooden (not wire) rail at the top and with a space greater than 14 inches between the ground and the bottom rail). **Plan Requirements and Timing:** The applicant shall provide a detail of the wildlife permeable fence sections and the location of where the fence would be installed on the construction and/or grading and building plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and staff shall site inspect throughout the construction period to ensure proper installation.

Bio-5 Proposed construction activities involving tree removal and other disturbances to vegetation shall take place outside of the breeding bird season (February 1 – August 15) to avoid all migratory nongame native bird species take (including disturbances which would cause abandonment of active nests containing eggs and or young). If these project activities cannot avoid the breeding bird season, pre-project nest surveys shall be conducted and active nests shall be avoided and provided with a minimum buffer as determined by the City Biologist. **Timing and Monitoring:** CDD shall require the pre-project nest survey to be conducted if these proposed construction activities cannot avoid the breeding bird season. In the event active nests are found in the vicinity, the City Biologist shall provide a recommendation on the minimum buffer or alternate action to be taken.

CulRes-1 In the event archaeological remains are encountered during grading, work shall be stopped immediately or redirected until a CDD-qualified archaeologist and Native American representative are retained by the applicant to evaluate the significance of the find pursuant to Phase 2 investigations of the City Archaeological Guidelines. If remains are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

CulRes-2: A Phase 1.5 archaeological investigation pursuant to City Archaeological Guidelines shall be funded by the applicant and performed prior to recordation of the tract map and issuance of a grading permit. The scope of work for the study shall be prepared by a qualified archaeologist, shall include one to five shovel test pits, and shall be reviewed and approved by CDD. The findings of the investigation shall be submitted to CDD; CDD shall apply State law and CulRes-1 requirements if archeological resources are found on the site. A copy of the survey shall be filed with the UCSB Central Coast Information Center and provided to the Santa Ynez Band of Mission Indians.

Geo-1 Structures shall be designed to earthquake standards of the Uniform Building Code Seismic Zone 4. **Plan Requirements and Timing:** Prior to plan check, the applicant shall submit building plans indicating standards to the satisfaction of the Building and Safety Division. **Monitoring:** Building Inspector shall site inspect prior to occupancy clearance.

Geo-2 Grading and erosion and sediment control plans shall be designed to minimize erosion and shall include the following:

a. Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins and spot grading shall be used to reduce erosion and siltation during grading and construction activities.

b. All entrances/exits to the construction site shall be stabilized (e.g., using rumble plates, gravel beds or other best available technology) to reduce transport of sediment off site. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods.

c. Storm drain inlets shall be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters and excavated inlet sediment traps.

d. Graded areas shall be revegetated within three weeks of grading activities with deep rooted, native, drought-tolerant species to minimize slope failure and erosion potential. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

Plan Requirements: The grading and erosion and sediment control plan shall be submitted for review and approved by CDD prior to issuance of a Grading Permit. The plan shall be designed to address erosion and sediment control during all phases of development of the site. The applicant shall notify CDD prior to commencement of grading. **Timing:** Components of the grading plan shall be implemented prior to occupancy clearance. Erosion and sediment control measures shall be in place throughout grading and development of the site until all disturbed areas are permanently stabilized. **Monitoring:** CDD shall inspect revegetation and ensure compliance with plan. Grading inspector shall monitor installation and maintenance of erosion control measures throughout all grading and construction activities.

Geo-3 The applicant shall limit excavation and grading to the dry season of the year (April 15 to November 1) unless an approved erosion and sediment control plan is in place and all measures therein are in effect. All exposed graded surfaces shall be reseeded with ground cover vegetation to minimize erosion. **Plan Requirements:** This requirement shall be noted on all grading and building plans. **Timing:** Graded surfaces shall be reseeded within three weeks of grading completion, with the exception of surfaces graded for the placement of structures. These surfaces shall be reseeded if construction of structures does not commence within three weeks of grading completion. **Monitoring:** CDD shall site inspect during grading and three weeks after grading to verify reseeding and to verify the construction has commenced in areas graded for placement of structures.

Geo-4 Drainage shall be consistent with approved drainage plans. **Plan Requirements:** Prior to issuance of a Grading Permit, a drainage plan shall be submitted to CDD and Public Works for review and approval. The plan shall include the location(s) of all proposed pipelines, the entire length of all proposed pipelines, trees located within fifteen feet of the pipeline, pipe diameters, and amount of water that would flow from each pipeline. **Timing:** The components of the drainage plan shall be implemented prior to commencement of construction of structures. **Monitoring:** CDD shall site inspect during grading.

Geo-5 Project construction and grading shall comply with all recommendations outlined in the Geotechnical Engineering Report dated March 17, 2005, prepared by Earth Systems Southern California to the satisfaction of the City Engineer. **Plan Requirements:** Grading and building plans shall include all required measures as determined by the City Engineer. **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.

HazMatl-1 Soil in the vicinity of the barn is shown to be contaminated with lead, petroleum hydrocarbons, and dieldrin at concentrations exceeding Santa Barbara County Fire Department Investigation Levels and residential cleanup goals. Based on the contamination discovered thus far, the Fire Department is likely to require remediation by removal and legal offsite disposal of the contaminated soil. **Plan Requirements/Timing:** Grading or building permits shall not be approved until remediation of the site has been completed and the Fire Department has issued a closure letter for the contamination site. **Monitoring:** CDD shall check and verify that the closure letter has been issued by the Hazardous Materials Division of the Fire Department before approving grading or building permits for residential development.

HazMatl-2 In the event any contaminated, odorous or discolored soil or groundwater/surface water is encountered during grading, work shall be stopped immediately and the Hazardous Materials Division of the County Fire Department shall be called at (805) 686-8170. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

Noise-1 Construction activity for site preparation and for future development shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions. **Plan Requirements:** Two signs stating these restrictions shall be provided by the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** Building Inspector shall spot check and respond to complaints.

Noise-2 Stationary construction equipment that generates noise which exceeds 65 dBA at the project boundaries shall be shielded to CDD's satisfaction and shall be located a minimum of 60 feet from occupied residences. **Plan Requirements:** The equipment area with appropriate acoustic shielding shall be designated on building and grading plans. **Timing:** Equipment and shielding shall remain in the designated location throughout construction activities. **Monitoring:** CDD shall perform site inspections to ensure compliance.

Wat-1 The project had been designed to provide for on-site retention of storm water runoff, infiltration, and recharge utilizing an environmentally enhanced onsite pond. The pond shall be maintained for the life of the project by the Homeowners' Association. Recharge systems shall be developed in conjunction with Public Works and CDD. **Plan Requirements:** A Final Drainage Plan showing the location and design of the pond/retention basin and site infrastructure shall be submitted to CDD and Public Works

for review and approval. Installation and maintenance for five years shall be ensured through a performance security provided by the applicant. Long term maintenance requirements shall be specified in the Homeowners' Association's CC&Rs. **Timing:** The retention system shall be installed (landscaped and irrigated subject to CDD and Public Works approval) prior to occupancy clearance. **Monitoring:** CDD shall site inspect for installation and maintenance of landscaping. Public Works approval is required on final grading/drainage plans, and CDD approval is required for release of the performance security.

Wat-2 The applicant shall submit proof of exemption or a copy of the Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System issued by the California Regional Water Quality Control Board. **Plan Requirements and Timing:** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP.

Wat-3 To prevent illegal discharges to storm drains, all on-site storm drain inlets, whether new or existing, shall be labeled to advise the public that the storm drain discharges to the ocean and that dumping waste is prohibited (e.g., "Don't Dump – Drains to Ocean"). The information shall be provided in English and Spanish. **Plan Requirements and Timing**: Location of storm drain inlets shall be shown on site, building and grading plans prior to approval of grading permits. Labels shall be installed prior to occupancy clearance. Standard labels are available from Public Works or other label designs shall be shown on the plans and submitted to CDD prior to approval of grading permits. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Wat-4 The project has been designed to provide for on-site permanent biofilter/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professional to ensure that the retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by CDD to be infeasible. Invasive plants shall not be used in the biofilter. Biofilters shall not replace existing riparian vegetation or native vegetation unless otherwise approved by CDD. **Plan Requirements and Timing**: The applicant shall include the biofilter design, including the plant palette and the source of plant material, on the grading and drainage and landscape plans, and depict it graphically. The applicant shall submit a maintenance plan for the biofilter to CDD for review and approval. A performance security shall be required to ensure installation and five-year maintenance. Long-term maintenance shall be the responsibility of the Homeowners' Association. Maintenance requirements shall be specified in the CC&Rs. The plans and a copy of the long-term maintenance program shall be submitted to CDD and Public Works for review prior to approval of a Building Permit. **Monitoring:** CDD shall site inspect for installation and periodically inspect for maintenance throughout the five-year performance period. Performance security release requires CDD approval.

Wat-5 To reduce runoff from impervious areas and allow for infiltration, the applicant shall incorporate pervious materials or surfaces (e.g., porous pavement or unit pavers on sand) into the project design. **Plan Requirements and Timing**: Pervious surfaces shall be described and depicted graphically on the site, building, grading and landscape plans. The plans shall be submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect for installation.

Wat-6 A Homeowners' Association shall be responsible for the long-term maintenance of the water quality conditions of approval. **Plan Requirements and Timing**: The proposed maintenance responsibilities and schedule shall be included in the CC&Rs. The CC&Rs shall be submitted for review by CDD and Public Works prior to recordation of the Final Map. Annual records of the maintenance activities shall be maintained by the HOA and submitted to CDD upon request. **Monitoring:** CDD shall review the maintenance records or site inspect, as needed. Costs shall be borne by the Homeowners Association.

Wat-7 Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities.

ENGINEERING CONDITIONS

GENERAL ENGINEERING CONDITIONS

Eng-1 The applicant shall submit grading, drainage and street improvement plans prepared by a California Registered Civil Engineer in conformance with City Standards. Said plans shall include but not be limited to street, utility, and storm drain improvements and shall be submitted to the Community Development Department for review and approval prior to recordation of the Tract or Parcel Map, and prior to issuance of a building permit.

Eng-2 Prior to issuance of Engineering Permits, an Engineering Cost Estimate shall be submitted with the Grading and Improvement Plans. Each page of the Cost Estimate shall be signed and stamped by the applicant's engineer.

Eng-3 Prior to or issuance of building permits, faithful performance and labor and material bonds (each to be 100% of the City Engineer's estimate) shall be filed with the City to cover all public improvements and any on-site grading and retaining walls. A cash deposit in the amount of 10% of the bond amount shall be submitted with each bond.

Eng-4 Prior to issuance of a Building Permit, the applicant shall submit plans and calculations, as required, to apply for all necessary Engineering permits. Said permits include, but are not limited to, Street Construction, Excavation in the public right-of-way, Grading and/or Encroachment.

Eng-5 Development shall be undertaken in accordance with conditions and requirements of the State of California Regional Water Quality Control Board. Project Grading and Storm Drain Improvement Plans shall identify and incorporate Best Management Practices (BMP's) appropriate to the uses conducted on-site and during construction to effectively mitigate storm water pollution.

Eng-6 At the time of acceptance of public improvements, the applicant shall submit a set of "Record Drawings" showing any and all changes made to the design plans during the construction period. The "Record Drawings" shall be the original construction tracings or permanent mylar copies of a quality acceptable to the City Engineer.

UTILITIES

Eng-7 Prior to occupancy of the project, all new and existing utility services shall be placed underground and completed prior to any paving required for the project. No new utility poles shall be installed.

Eng-8 Existing overhead transmission and distribution lines located along the edges of the property shall be placed underground. The undergrounding shall extend along the project street frontage to the nearest utility pole(s) outside of the project limits. Feed points shall be as approved by the City Engineer. All costs of undergrounding existing utility lines and service laterals shall be borne by the applicant.

Eng-9 Existing and proposed easements for all utilities shall be located and described on the engineering plans or the architectural drawings prior to issuance of building permits.

Eng-10 Separate electric meters shall be installed for each unit unless a 'gang' meter is approved by SCE. Electric meters shall be shown on plans submitted for building permit to be checked by the City building permit plan checker.

STREET IMPROVEMENTS

Eng-11 Plans shall be submitted for frontage improvements prior to issuance of building permits for review by the City Engineer. Frontage improvements, including monolithic 6" curb, 18" or 24" gutter, 5' wide sidewalk, handicap ramp(s), driveway aprons, paving, street lights, fire hydrants, street signs, street trees, and other facilities as determined by the Planning Commission, are to be installed in conformance with the standards, specifications, and policies of the City at the locations shown on the improvement plans. Unless otherwise specified, the City utilizes the County of Santa Barbara Engineering Standards.

Eng-12 Paving and curbs and gutters shall transition into existing public improvements as required by the City Engineer. Transition plans shall be submitted prior to issuance of building permits for review by the City Engineer and shall include all needed striping, signing and guardrail. Construction shall be completed prior to issuance of Certificate of Occupancy.

Eng-13 All streetlights shall be installed behind the sidewalk unless authorized by the City Engineer. Plans shall be submitted prior to issuance of building permits for review by the City Engineer. Construction shall be completed prior to issuance of Certificate of Occupancy.

Eng-14 A Street Construction and/or Excavation Permit shall be obtained from the City Engineer prior to any construction within the street right-of-way.

Eng-15 All improvements in the public right of way shall be completed to the satisfaction of the City Engineer prior to the issuance of a Certificate of Occupancy by the Community Development Department.

Eng-16 Prior to the release of any securities, a Notice of Completion for all public improvements shall be presented to and accepted by the City Council.

GRADING

Eng-17 A Soils Report (2 copies) shall be submitted with Improvement Plans and Grading/Drainage Plans for review and approval by the City Engineer. The Soils Report shall be prepared by a California Registered Geologist or Soils Engineer and submitted to the Community Development Department. The Report shall address soils engineering and compaction requirements, R-values, and other soils and geology related issues (including liquefaction) and shall contain recommendations as to foundation design, retaining wall design, and paving sections, where applicable for the project.

Eng-18 At the time that Improvement and/or Grading and Drainage Plans are submitted for review and approval by the City Engineer, hydrology/hydraulic calculations shall be submitted by the applicant's engineer determining the adequacy of the proposed drainage system and the adequacy of the existing downstream system. A rain fall frequency of twenty-five (25) years shall be used for sizing piping and inlet structures. If no overland escape is available, 100 year flows shall be used as the basis of design. Santa Barbara County Engineering Design Standards shall be used. Storm drainage run-off shall be conducted to the public street in a safe and adequate manner per Santa Barbara County Standards. Easements required for drainage shall be described and shown on the Improvement Plans.

Eng-19 Prior to performing any grading, the developer shall obtain a Grading Permit from the City Engineer, in accordance with Chapter 8.36 of the Carpinteria Municipal Code, and pay the required grading permit deposits/fees. For all projects over 1 acre in size, a separate grading permit is required to be obtained from the State Water Resources Control Board.

Eng-20 An Erosion and Sediment Control Plan must be prepared and submitted to obtain the necessary Grading Permit from the City Engineer prior to any grading activity.

SUBDIVISION / MAP

Eng-21 The Tract Map shall be subject to the Subdivision Ordinance of the City of Carpinteria and to the State Subdivision Map Act. The map shall be prepared by a qualified California Registered Civil Engineer or Licensed Land Surveyor. Closure calculations shall be submitted along with adequate reference data and a current title report. Two copies of the map and one copy of the calculations shall be submitted. Within thirty (30) days after the recordation of the Final Map, the applicant shall deliver one set of reproducible mylar copies of the recorded map to the Community Development Department.

Eng-22 The developer shall offer to dedicate to the City of Carpinteria, in fee, a 23' wide strip of land for Public Road purposes along the parcel's frontage on Cravens Lane. In addition, the developer shall offer to dedicate an easement of an additional 7' wide strip of land for Public Road purposes, adjacent to the 23' noted above.

Eng-23 The Final Map shall be substantially in conformance with the Tentative Map as approved. Any substantial changes, as determined by City staff, require the approval of the Planning Commission and the City Council.

Eng-24 The applicant shall pay all engineering fees and all other fees and deposits prior to approval of the Final Map by the City Council. The project may be subject to the City of Carpinteria Street and Bridges Traffic Impact and Improvement Fee.

Eng-25 Before recordation of the Final Map, Developer shall provide the City Engineer with written evidence from the Santa Barbara County Clerk's Office that Developer has executed and filed with the Clerk all certificates, statements and securities required by Government Code Sections 66492 and 66493.

Eng-26 Prior to recordation of the Final Map, and in accordance with the Subdivision Ordinance, the developer shall prepare plans and specifications for review by the City Engineer, and shall enter into a Subdivision Improvement Agreement with the City to install improvements.

Eng-27 Codes, Covenants and Restrictions (CCR's) for the project shall be submitted for review to the City Attorney and approved by the City Council prior to acceptance of the Final Map. The CCR's shall include provisions for HOA maintenance of any landscaping and specialty hardscape within the City's Right of Way. Further, the City Attorney and the City Council may require additional restrictions within the CCR's as found to be appropriate.

Eng-28 The lanes of access on the private drive shall be adequately controlled to prevent blockage of emergency vehicles. This shall include at minimum "no parking" signage and "red curb" treatment at the appropriate locations.

COUNTY FLOOD CONTROL DISTRICT / FEMA REQUIREMENTS

Eng-29 The project is subject to the City's Floodplain Ordinance. Prior to issuance of building permits, the applicant shall be responsible for proving that the project complies with said ordinance.

Eng-30 The developer shall apply for and obtain a Letter of Map Revision (LOMR), based on fill, with the Federal Emergency Management Agency (FEMA).

Eng-31 Prior to occupancy clearance, the applicant shall provide an elevation certificate for each unit's lowest floor elevation for review and approval by the City Engineer. The need for elevation certificates will be superseded by approval from FEMA of a LOMR.

DEVELOPMENT PLAN CONDITIONS

DP-1 Approval of the Time Extension shall expire three years after approval, unless prior to the expiration date a Building Permit has been issued or the permittee has diligently worked toward Building Permit issuance.

DP-2 No permits for development, including grading, shall be issued except in conformance with an approved Final Development Plan. The size, shape, arrangement, use, and location of buildings, walkways, parking areas, and landscaped areas shall be developed in conformity with the approved Development Plan. Substantial conformity shall be determined by the Community Development Department Director.

DP-3 On the date a subsequent Development Plan is approved for this site, any previously approved but unbuilt plans shall become null and void.

DP-4 The applicant shall obtain final review from the Architectural Review Board prior to issuance of a Building Permit.

DP-5 When not specified herein, all conditions shall be satisfied prior to the issuance of Building Permits or prior to occupancy when allowed by the Director of Community Development.

DP-6 An approval granted by the Planning Commission/City Council does not constitute a Building Permit or authorization to begin any construction. An appropriate permit issued by the Building Division must be obtained prior to constructing, enlarging, moving, converting, or demolishing any building or structure within the City.

DP-7 If, at any time, the City or Planning Commission determines that there has been, or may be, a violation of the findings or conditions of this Development Plan, or of the Municipal Code regulations, a public hearing may be held before the Planning Commission to review this permit. At said hearing, the Planning Commission may add additional conditions, or recommend enforcement actions, or revoke the permit entirely, as necessary to ensure compliance with the Municipal Code, and to provide for the health, safety, and general welfare of the City.

DP-8 In accordance with Chapter 15.80 of the Carpinteria Municipal Code, the applicant shall pay Development Impact Fees to the City prior to issuance of a (Building Permit – certificate of occupancy). The amount of the fees will be determined at the time permits are issued. A protest to the fees may be filed at the time of project approval of the development or within 90 days after the date of the imposition of the fees, dedications, reservations, or other exactions to be imposed on the development project.

MAP CONDITIONS

Map-1 Prior to recordation of the tentative map and subject to CDD approval as to form and content, the applicant shall include all of the mitigation measures, conditions, agreements and specific plans associated with or required by this project approval on a separate informational sheet to be recorded with the Final Map. All applicable conditions and mitigation measures of the project shall be printed on grading and/or building plans and shall be graphically illustrated where feasible. For any subsequent development on

any parcels created by the project, each set of plans accompanying a Building Permit application shall contain these conditions.

Map-2 Prior to recordation of the map, applicant shall pay applicable Quimby fees.

Map-3 Title to the common open space shall be held by a non-profit association of homeowners or by any other non-profit group on such reasonable terms and conditions as the City may prescribe. If the common open space is conveyed to a group other than the homeowners association, the rights to develop such property with anything except open space or noncommercial recreation shall be conveyed to the City of Carpinteria.

Map-4 The Tentative Tract Map shall be subject to the Subdivision Ordinance of the City of Carpinteria and the Subdivision Map Act.

Map-5 The applicant shall pay all engineering fees, CDD permit processing fees and all other applicable fees and deposits prior to City Council approval of the Final Map.

Hous-1 Prior to final map clearance the applicant shall enter into and record an *Agreement to Provide Affordable Housing*, which shall include a model *Restrictive Covenant and Preemptive Right*. The *Covenant* shall be executed and recorded by each purchaser of an affordable unit. The *Agreement* and *Covenant* shall be based on the City's model documents, as they may be amended from time to time, and subject to the review and approval of CDD and the City Attorney. These shall specify affordability terms described in condition # Des-1. In addition, the *Agreement* and *Covenant* shall include provisions describing marketing and lottery requirements for the initial sale of units; requiring income eligibility of prospective buyers to be determined by the City or its designee; requiring prospective buyers of the affordable units to sign an *Intent to Reside* statement; requiring a *Notice of Default* and *Notice of Sale*, as well as the Covenant, be recorded with the original and all subsequent deeds, and stating that the maximum sales rate for the affordable units shall not exceed the maximum levels established by the City Council, consistent with the provisions of the Housing Element and state law.

Hous-2 Affordable units shall be constructed concurrent with the construction of the market rate units in each phase of development. Occupancy clearance for no more than 50% of the market rate units in a given phase shall be allowed prior to occupancy clearance for all the affordable units for that same phase of development. **Plan Requirements & Timing:** Prior to final map clearance, this requirement shall be included in the *Agreement to Provide Affordable Housing* and shall be printed on all grading and building plans. **Monitoring:** CDD shall ensure compliance during construction.

OTHER DEPARTMENT/AGENCY CONDITIONS

Dept-1 Compliance with Departmental letters required as follows:

a. Carpinteria Sanitary District letters dated August 29, 2005 and March 26, 2007
b. Carpinteria – Summerland Fire Protection District letter dated April 9, 2007
c. Carpinteria Valley Water District letters dated Oct. 19, 2005 and April 17, 2007
d. SB County Air Pollution Control District letter dated August 18, 2005.

Sch-1 The applicant shall pay the statutory school fees in effect at the time of issuance of building permits to the Carpinteria Unified School District. **Plan Requirements and Timing:** The applicant shall submit final square footage calculations and a copy of the fee payment to the school district prior to issuance of building permits. **Monitoring:** CDD shall ensure payment is made prior to issuance of a Building Permit.

CITY RULES AND REGULATIONS

Rules-1 Approval of this project is expressly contingent on the California Coastal Commission's ("Commission") final certification of the LCP Amendment to Rezone the parcel to Planned Unit Development (PUD) and the General Plan/Local Coastal Plan Program Amendment to modify the language of to Implementation Policy 12 of the Wetlands discussion within the Open Space, Recreation & Conservation Element of the City's General Plan/Coastal Plan and Policy 9-4 of the City's Coastal Plan (January 1980) and to create a new site specific Overlay [Ellinwood Parcel (APN 004-013-026) Overlay District] is inserted in the City's Municipal Code, Title 14, Zoning. Approval of the project is also contingent upon the Annexation of the parcel to the City of Carpinteria and the Carpinteria Sanitary District.

Rules-2 Before using any land or structure, or commencing any work pertaining to the erection, moving, alteration, enlarging, or rebuilding of any building, structure, or improvement, the applicant shall obtain a Building Permit. These Permits are required by ordinance and are necessary to ensure implementation of the conditions required by the Planning Commission. Before any Permit will be issued by Community Development, the applicant must obtain written clearance from all departments having conditions; such clearance shall indicate that the applicant has satisfied all pre-construction conditions. A form for such clearance is available from Community Development.

Rules-3 Prior to the issuance of any Building Permits, the applicant shall post a landscape security bond of $2,500.00 and;

a. The landscaping shall be maintained in good condition for three years, at which time the security will be released;
b. Landscaping shall be drought resistant, low water-use species;
c. Where feasible, locally adapted native plants shall be required;
d. Prior to occupancy all landscaping and planting shall be installed; and
e. Specimen trees shall be appropriate to the site and shall be maintained in good condition so as to attain a full and healthy mature appearance.

Rules-4 Landscaping shall be maintained for the life of the project.

Rules-5 All applicable final conditions of approval shall be printed in their entirety on applicable pages of grading/construction or building plans submitted to CDD. These shall be graphically illustrated where feasible.

Rules-6 Applicant/Owner/Developer/Permittee hereby agrees to defend, indemnify, and hold harmless the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any claim, action or proceeding (collectively "Claims") against the City and the City's Agents to attack, review, set aside, void or annul, in whole or in part, the City's approval of the Time Extension for the Green Heron Spring project

(05-1239-DP/TM/CDP/LCPA), or any condition attached thereto, or any proceedings, acts, or determinations taken, done, or made prior to the approval that were part of the approval process. Applicant/Owner/Developer/Permittee further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorneys' fees or court costs made in connection with any Claim. Applicant/Owner/Developer/Permittee further agrees to pay any and all City costs, permits, attorneys' fees, engineering fees, license fees and taxes arising out of or concerning the Project, whether incurred prior to or subsequent to the date of approval and that the City's costs shall be reimbursed prior to this approval becoming valid.

Applicant/Owner/Developer/Permittee shall execute a written agreement, in a form approved by the City Attorney, evidencing the foregoing commitments of defense and indemnification within thirty (30) days of being notified of a lawsuit regarding the Project. These commitments of defense and indemnification are material conditions of the approval of the Project. If Applicant/Owner/Developer/Permittee fails to execute the required defense and indemnification agreement within the time allotted, the Project approval shall become null and void absent subsequent acceptance of the agreement by the City, which acceptance shall be within the City's sole and absolute discretion. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and the City's Agents shall bear their own attorneys' fees, expenses, and costs of that independent defense.

Rules-7 In the event that any Condition of Approval imposing a fee, exaction, dedication or other mitigation measure is challenged by Applicant/Owner/Developer/Permittee in an action filed in a court of law or threatened to be filed therein which action is brought within the time period provided by law, this approval shall be suspended pending dismissal of such action, the expiration of the limitation period applicable to such action, or final resolution of such action. If any Condition of Approval is invalidated by a court of law, the entire project shall be reviewed by the City and substitute Conditions of Approval may be imposed.

End of Conditions

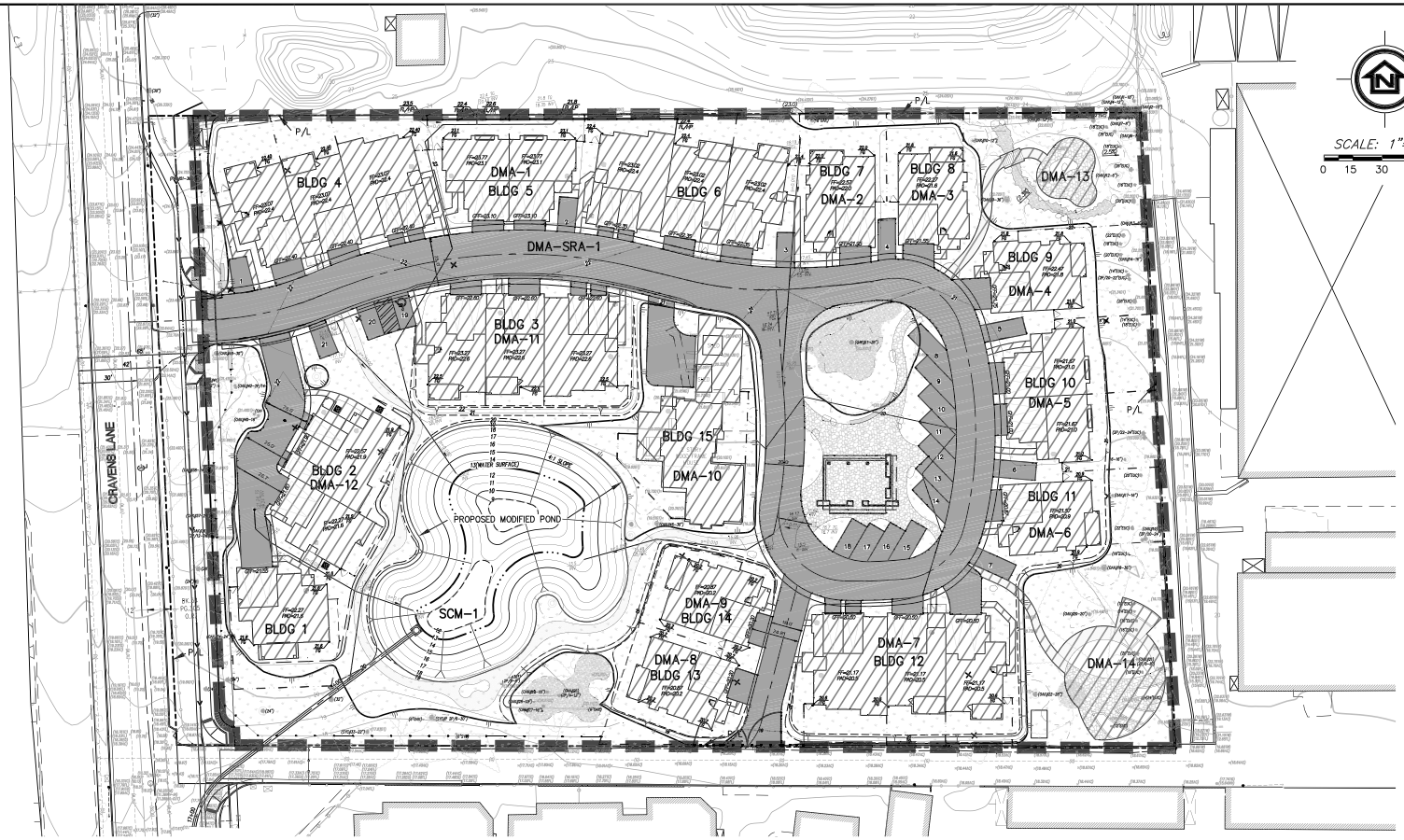
EXHIBIT B
Legal Description

LEGAL DESCRIPTION:

All that land situated in the County of Santa Barbara, California, described as follows:

Parcel 26 of Parcel Map No. 004-013, in the County of Santa Barbara, State of California, per the map thereof, recorded in Book 004, Pages 013, of Parcel Maps in the Office of the County Recorder of said County.

EXHIBIT C
Storm Water Quality Mitigation Plan



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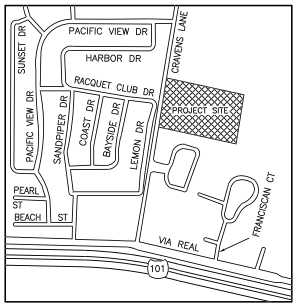
0 15 30 60



VICINITY MAP
N.T.S.

LEGENDS:

- DRAINAGE BOUNDARY
- FLOW DIRECTION
- DMA (IMPERVIOUS AREA)
- DMA-SRA (PERMEABLE PAVEMENT)
- DMA-SRA (LANDSCAPE AREA)

HYDROLOGIC CHARACTERISTICS SUMMARY

DESIGN RAINFALL FREQUENCY: 2- THROUGH 100-YEAR STORM

24-HOUR RAINFALL AMOUNTS (INCHES):

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
SOUTH COAST	3.20	4.61	5.55	6.71	7.56	8.38

95TH PERCENTILE RAINFALL DEPTH: 2.3 INCHES

SOIL TYPE: SOIL TYPE C

EXISTING LAND USE: SINGLE-FAMILY RESIDENTIAL
CN = 79

PROPOSED LAND USE: 31-UNIT MULTI-FAMILY RESIDENTIAL
CN = 90

NOTES:

1) COMPLIANCE OF ALL STREET DRAINAGE REQUIREMENTS WILL BE MET TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
2) SITE NOT WITHIN COUNTY ADOPTED FLOODWAY.
3) PORTION OF SITE WITHIN FEMA ZONE "A". SEPARATE CLOMR WILL BE FILED TO REVISE BASE FLOOD ELEVATIONS (BFEs) OR FLOOD DEPTHS.

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

STORMWATER CONTROL PLAN

GREEN HERON SPRING

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:

SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW H. HUAT NG NO.46026 12-31-18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE

SCALE

REVIEWED BY: DATE

CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2017

PROJECT NUMBER

PROJECT ENGINEER: DATE

Sheet 1 of 1 Sheet

Appendix I

Soil Investigations Report and Work Plan

FINAL

Soil Investigation Report

Green Heron Spring Condo Project
1300 and 1326 Cravens Lane
Carpinteria, California

Prepared for:

Kate Sulka
Supervising Hazardous Materials Specialist
Fire Prevention Division
County Fire Department
4410 Cathedral Oaks Road
Santa Barbara, California 93110-1042

Prepared by:

DUDEK

605 Third Street
Encinitas, CA 92024
(760) 942-5147

621 Chapala Street
Santa Barbara, CA 93101
(805) 963-0651



Nicole Peacock, P.E.
Associate Environmental Engineer

Trey Driscoll
Hydrogeologist

May 2007

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Appendix A Laboratory Analytical Data

1. Executive Summary

Dudek conducted the Soil Investigation for the property located at 1300 and 1326 Cravens Lane in Carpinteria, California (subject property, Figure 1) in order to address concerns regarding potential contamination associated with the pond and the barn that were raised in the January 24, 2007 letter from the Santa Barbara County Fire Department. The objective of the Soil Investigation was to determine 1) if concentrations of organochlorine pesticides exist in pond soil samples at concentrations greater than the residential Cal/EPA California Human Health Screening Levels (CHHSLs), and 2) if concentrations of organochlorine pesticides, Total Petroleum Hydrocarbons (TPH), and total lead exist in barn soil samples at concentrations greater than the residential CHHSLs. The soil investigation was conducted in accordance with the Soil Investigation Work Plan dated March 2007 and the Santa Barbara County Fire Department approval letter for the work plan dated March 26, 2007.

Dudek collected four soil samples, P-1, P-2, P-3, and P-4, from 0 to 6 inches below land surface in and around the pond on April 10, 2007 (Figure 2). The soil samples were analyzed by D-TEK Analytical Laboratories, Inc. (D-TEK) in San Diego, CA by EPA Method 8081A for organochlorine pesticides. Organochlorine pesticides were not detected above residential CHHSLs in any of the soil samples.

Dudek collected five soil samples, B-1, B-2, B-3, B-4, and B-5, from 0 to 6 inches below land surface in and around the barn on April 10, 2007 (Figure 2). The soil samples were analyzed by D-TEK in San Diego, CA by EPA Method 8081A for organochlorine pesticides, EPA Method 8015B for TPH, and EPA Method 6010B for total lead. Dieldrin was detected in B-3 at a concentration above the residential CHHSL. TPH-motor oil (C_{23}-C_{32}) was detected in B-5 at a concentration above RWQCB Region IV guidance. Total lead was detected in B-1, B-3, and B-5 at concentrations above the residential CHHSL.

Based on these findings, Dudek recommends additional sampling around the barn to determine vertical and lateral extent of Dieldrin, TPH-motor oil (C_{23}-C_{32}), and total lead contamination.

2. Background Information

Scott Ellinwood, the owner of the site, provided background information for the site in an e-mail sent to the Santa Barbara County Fire Department in February 2007. The e-mail included the following information.

Mr. Ellinwood has lived on the site since purchasing it in July 1976. At that time, the site had approximately 200 mature avocado trees, as well as the two existing houses and a barn. According to the previous owner's family, the avocado trees required no pesticides, only watering and a twice yearly hand feeding of fertilizer. In the late 1970s, a severe storm caused local flooding, and the groundwater table was raised near the surface, killing all the avocado trees.

As a solution, after consulting with the County agricultural advisor, Mr. Ellinwood excavated the present pond, using the removed earth to create mounds on which he planted 100 new avocado seedlings. The ponds purpose was and is to provide a retention basin. The mounds were to raise the root level above the ground water level. All but three of the seedlings perished shortly after being planted.

The three remaining trees have matured as dwarfs, but produce regularly. No pesticides and almost no fertilizer has been applied in the last 31 years that Mr. Ellinwood has lived on the site. Weed control is accomplished by mowing. The barn is used as a garage for his automobile, lawn tractor and household storage. ROUND-UP weed control had previously been used to control kukuya grass which had overrun a small area of the site.

3. Soil Investigation Activities

The objective of the Soil Investigation was to determine 1) if concentrations of organochlorine pesticides exist in pond soil samples at concentrations greater than the residential CHHSLs, and 2) if concentrations of TPH, total lead, and organochlorine pesticides exist in barn soil samples at concentrations greater than the residential CHHSLs. Dudek accomplished this by 1) collecting four surficial soil samples in and around the pond and analyzing for organochlorine pesticides, and 2) collecting five surficial soil samples in and around the barn and analyzing for TPH, total lead, and organochlorine pesticides.

Soil sampling was conducted by Trey Driscoll of Dudek on April 10, 2007 and was witnessed by Joshua Neipp, a hazardous materials specialist with the Santa Barbara County Fire Department. Soil samples were collected from 0 to 6 inches below land surface using dedicated hand trowels. The samples were placed in 4 ounce glass jars, which were then labeled, placed in Ziploc bags, and placed in a cooler on ice. A chain-of-custody record was filled out with the sample identifiers and sample time. The sample cooler was sent to D-TEK via Fed-Ex on April 10, 2007.

3.1 Pond Sampling

Dudek collected four surficial soil samples from locations in and around the pond on April 10, 2007 (Figure 2). Sample PN-1 was collected at the waterline from soil on the northern edge of the pond. Sample PN-2 was collected at the waterline from soil on the southern edge of the pond. Sample PN-3 was collected beyond the eastern edge of the

pond at the maximum depth accessible with hip waders. This soil sample also contained some leaves. Sample PN-4 was collected beyond the western edge of the pond at the maximum depth accessible with hip waders. This soil sample also contained some roots.

The soil samples were analyzed by EPA Method 8081A for organochlorine pesticides (Table 1; Appendix A). The sample results and quality control are discussed in Section 4.1.1.

3.2 Barn Sampling

Dudek collected five surficial soil samples from locations in and around the barn on April 10, 2007 (Figure 2). The Work Plan stated that four surficial soil samples would be collected in and around the barn. However, Dudek under the direction of the Fire Department collected an additional sample to account for the two observed 55 gallon drums located outside the barn beyond the southern and eastern corners of the barn. Sample B-1 was collected outside the barn from soil just beyond the western corner of the area beneath the overhang. The Fire Department indicated that they observed pesticides stored adjacent to this sample location on shelving located behind a door that leads to the overhang area. Sample B-2 was collected outside the barn from soil in the northern corner of the area beneath the overhang. Sample B-3 was collected within the barn from soil in the central area. Sample B-4 was collected outside the barn from soil beyond the southern corner of the barn. Dudek observed a 55-gallon drum in this sample location. According to the property owner, the drum had been in this location for over 30 years and contained unknown contents. Sample B-5 was collected outside the barn from soil beyond the eastern corner of the barn. Dudek observed a second 55-gallon drum in this sample location. Dudek also observed a slight sheen of oil on the lid of the drum. It appeared that both drums were approximately full and intact. There were no signs of staining on nearby soils.

The soil samples were analyzed by EPA Method 8081A for organochlorine pesticides (Table 1; Appendix A), EPA Method 8015B for TPH in the gasoline, diesel, and motor oil carbon ranges (Table 2; Appendix A), and EPA Method 6010B for total lead (Table 3; Appendix A). The sample results and quality control are discussed in Sections 4.2.1 through 4.2.3.

4. Soil Investigation Data Evaluation

The four soil samples in and around the pond were analyzed for organochlorine pesticides. The five soil samples in and around the barn were analyzed for organochlorine pesticides, TPH, and total lead. The detected concentrations of these compounds were compared to the residential CHHSLs, which have been established based on the theoretical ***de minimis*** cancer risk (one in a million increased risk) for contaminants that are considered carcinogenic. If CHHSLs were not available, as in the

case for TPH, the detected concentrations were evaluated according to RWQCB Region IV guidance.

4.1 Pond Sampling

4.1.1 Organochlorine Pesticides Soil Samples

Dudek collected four soil samples in four locations in and around the pond for organochlorine pesticide analysis (Figure 2). The organochlorine pesticide soil sampling data is summarized in Table 1. Organochlorine pesticides were not detected in PN-1 and PN-2.

Alpha-BHC was reported at the detection limit of 0.6 µg/kg in PN-3. The residential CHHSL for Alpha-BHC is 500 µg/kg, which is based on the parent chemical, Lindane.

4,4'-DDE was reported at the detection limit of 0.5 µg/kg in PN-4. The residential CHHSL for 4,4'-DDE is 1,600 µg/kg.

Therefore, the concentrations of Alpha-BHC and 4,4'-DDE detected at PN-3 and PN-4, respectively, are orders of magnitude below the residential CHHSL.

As part of the laboratory quality control, a Laboratory Control Sample (LCS) was spiked with a known amount of G-BHC (Lindane), Heptachlor, Aldrin, Dieldrin, Endrin, and 4,4'DDT. The percent recoveries for all the compounds ranged from 56 to 120, which were within the acceptable limits established by the laboratory. A matrix spike was analyzed with known amounts of the same compounds. The percent recoveries for all the compounds ranged from 46 to 109, which were within the acceptable limits established by the laboratory. A matrix spike duplicate was also analyzed. The percent recoveries for all the compounds ranged from 43 to 107, which were within the acceptable limits established by the laboratory. The relative percent differences (RPD) between the sample results and the duplicate results ranged from 2-24%. No acceptable limits for RPD were provided by the lab. Surrogate recoveries for the pond samples were also reported and the percent recoveries ranged from 71 to 83, which were within the acceptable limits established by the laboratory (Appendix A).

4.2 Barn Sampling

4.2.1 Organochlorine Pesticides Soil Samples

Dudek collected five soil samples in five locations in and around the barn for organochlorine pesticide analysis (Figure 2). The organochlorine pesticide soil sampling data is summarized in Table 1. Organochlorine pesticides were detected in all five samples.

4,4'-DDD was reported above the detection limit of 0.5 µg/kg in B-3 and B-5. The reported concentrations were 2 µg/kg in B-5 and 14.6 µg/kg in B-3. The residential CHHSL for 4,4'-DDD is 2,300 µg/kg.

4,4'-DDE was reported above the detection limit of 0.5 µg/kg in all five samples. Concentrations ranged from 0.73 µg/kg in B-2 to 10 µg/kg in B-3. The residential CHHSL for 4,4'-DDE is 1,600 µg/kg.

4,4'-DDT was reported above the detection limit of 0.4 µg/kg in all five samples. Concentrations ranged from 2.72 µg/kg in B-1 to 135 µg/kg in B-3. The residential CHHSL for 4,4'-DDT is 1,600 µg/kg.

Alpha-Chlordane was reported above the detection limit of 0.5 µg/kg in B-1, B-3, B-4, and B-5. Concentrations ranged from 1.2 µg/kg in B-1 to 164 µg/kg in B-3. The residential CHHSL for Alpha-Chlordane is 430 µg/kg.

Gamma-Chlordane was reported above the detection limit of 0.5 µg/kg in B-3, B-4, and B-5. Concentrations ranged from 0.9 µg/kg in B-1 to 90 µg/kg in B-3. The residential CHHSL for Gamma-Chlordane is 430 µg/kg.

Dieldrin was reported above the detection limit of 0.3 µg/kg in B-3 and B-4. The reported concentrations were 0.7 µg/kg in B-4 and 425 µg/kg in B-3. The residential CHHSL for Dieldrin is 35 µg/kg.

Therefore, the concentrations of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Alpha-Chlordane, and Gamma-Chlordane detected at the site are below the residential CHHSL. Only the concentration of Dieldrin detected in B-3 is above the residential CHHSL.

As part of the laboratory quality control, a LCS was spiked with a known amount of G-BHC (Lindane), Heptachlor, Aldrin, Dieldrin, Endrin, and 4,4'DDT. The percent recoveries for all the compounds ranged 56 to 120, which were within the acceptable limits established by the laboratory. A matrix spike was analyzed with known amounts of the same compounds. The percent recoveries for all the compounds ranged 46 to 109, which were within the acceptable limits established by the laboratory. A matrix spike duplicate was also analyzed. The percent recoveries for all the compounds ranged 43 to 107, which were within the acceptable limits established by the laboratory. The RPD between the sample results and the duplicate results ranged from 2-24%. No acceptable limits for RPD were provided by the lab. Surrogate recoveries for the barn samples were also reported and the percent recoveries ranged from 75 to 96, which were within the acceptable limits established by the laboratory (Appendix A).

4.2.2 TPH Soil Samples

Dudek collected five soil samples from five locations in and around the barn for TPH analysis in the gasoline, diesel, and motor oil carbon ranges (Figure 2). The TPH soil sampling data is summarized in Table 2. TPH-gasoline (C_4-C_{12}) and TPH-diesel (C_{10}-C_{23}) were not detected in the samples.

TPH-motor oil (C_{23}-C_{32}) was detected above the detection limit of 10 mg/kg in B-1, B-3, B-4, and B-5. Concentrations ranged from 68 mg/kg in B-4 to 4,490 mg/kg in B-5 (Table 2). There are no residential CHHSLs for TPH. According to the RWQCB Region IV guidance (*Interim Site Assessment & Cleanup Guidebook, May 1996. RWQCB Region IV*), the maximum soil screening level for TPH-motor oil (C_{23}-C_{32}) in soils less than 20 feet above groundwater is 1,000 mg/kg. It is assumed the subject property has soils less than 20 feet above groundwater because GeoTracker identified two sites less than 1 mile from the subject property with depths to water less than 20 feet. Therefore, the concentration of TPH-motor oil (C_{23}-C_{32}) detected in B-5 is above the RWQCB Region IV guidance maximum screening level.

As part of the laboratory quality control, a LCS was spiked with a known amount of TPH-gasoline and TPH-diesel. The percent recoveries for both compounds were 102 and 89, respectively, which were within the acceptable limits established by the laboratory. A matrix spike was analyzed with a known amount of TPH-gasoline. The percent recovery was 120, which was within the acceptable limits established by the laboratory. A matrix spike duplicate was also analyzed. The percent recovery was 120, which was within the acceptable limits established by the laboratory. The RPD between the sample result and the duplicate result was 0%. No acceptable limits for RPD were provided by the lab. Surrogate recoveries for the barn samples were also reported and all of the percent recoveries ranged from 75 to 96, which were within the acceptable limits established by the laboratory (Appendix A).

4.2.3 Total Lead Soil Samples

Dudek collected five soil samples in five locations in and around the barn for total lead analysis (Figure 2). The total lead soil sampling data is summarized in Table 3. Lead was detected above the detection limit of 2.5 mg/kg in all five samples. Concentrations ranged from 39.3 mg/kg in B-2 to 347 µg/kg in B-5 (Table 3). The residential CHHSL for total lead is 150 mg/kg. Therefore, the concentrations of total lead detected at B-1, B-3, and B-5 are above the residential CHHSL.

The Santa Barbara Fire Department also requested in the March 26, 2007 work plan approval letter that the soil samples with total lead greater than 50 mg/kg be analyzed additionally for soluble lead. B-1, B-3, B-4, and B-5 contained concentrations of total lead greater than 50 mg/kg. The soluble lead soil sampling data is summarized in Table 4. Soluble lead was reported below the detection limit of 0.10 mg/L in B-1, B-3, and B-

4. B-5 was not analyzed for soluble lead because there was insufficient sample to perform the analysis. The soluble threshold limit concentration (STLC) for lead is 5 mg/L (Title 22 California Code of Regulations). Therefore, the concentrations of soluble lead detected in B-1, B-3, and B-4 are orders of magnitude below the STLC.

As part of the laboratory quality control for the total lead analyses, a LCS was spiked. The LCS and spike percent recoveries were 108 and 96, which were within the acceptable limits established by the laboratory. A matrix spike duplicate was also analyzed and the RPD between the sample result and the duplicate result was 0%. No acceptable limits for RPD were provided by the lab (Appendix A).

As part of the laboratory quality control for the soluble lead analyses, a LCS was spiked. The LCS and spike percent recoveries were 100 and 100, which were within the acceptable limits established by the laboratory. A matrix spike duplicate was also analyzed and the RPD between the sample result and the duplicate result was 1%. No acceptable limits for RPD were provided by the lab (Appendix A).

5. Conclusions

Dudek conducted this Soil Investigation in order to address concerns regarding potential contamination associated with the pond and barn that were raised in a January 24, 2007 letter from the Santa Barbara County Fire Department. The objective of the Soil Investigation was to determine 1) if concentrations of organochlorine pesticides exist in pond soil samples at concentrations greater than the residential CHHSLs, and 2) if concentrations of organochlorine pesticides, TPH, and total lead exist in barn soil samples at concentrations greater than the residential CHHSLs.

Dudek collected four surficial soil samples from 0 to 6 inches below land surface in and around the pond on April 10, 2007 (Figure 2). The soil samples were analyzed EPA Method 8081A for organochlorine pesticides. Organochlorine pesticides were not detected above residential CHHSLs in any of the soil samples around the pond.

Dudek collected five surficial soil samples from 0 to 6 inches below land surface in and around the barn on April 10, 2007 (Figure 2). The soil samples were analyzed by EPA Method 8081A for organochlorine pesticides, EPA Method 8015B for TPH, and EPA Method 6010B for total lead. The compounds detected at concentrations above residential CHHSLs and RWQCB Region IV guidance in soil samples, B-1, B-2, B-3, B-4, and B-5, are discussed below.

Dieldrin was the only organochlorine pesticide at concentrations above the residential CHHSL (in sample B-3, which was the only sample collected within the barn). Dieldrin was detected at 425 µg/kg and the residential CHHSL was 35 µg/kg. Dieldrin is an insecticide commonly used to control termites. Therefore, Dudek recommends additional

sampling in the vicinity of B-3 to determine the vertical and lateral extent of Dieldrin in the barn.

TPH-motor oil (C_{23}-C_{32}) was reported at a concentration of 4,490 mg/kg in B-5. This concentration was greater than the RWQCB Region IV maximum screening level for soils less than 20 feet above groundwater of 1,000 mg/kg (***RWQCB Region IV, Interim Site Assessment & Cleanup Guidebook, May 1996***). Therefore, Dudek recommends additional sampling to determine the vertical and lateral extent of TPH-motor oil (C_{23}-C_{32}) around the drum.

Total lead was reported in samples B-1, B-3, and B-5 at concentrations above the residential CHHSL. Total lead was detected at 206 mg/kg, 162 mg/kg, and 347 mg/kg at B-1, B-3, and B-5, respectively, and the residential CHHSL is 150 mg/kg. Therefore, Dudek recommends additional sampling near these sample locations to determine the vertical and lateral extent of the total lead.

Based on these findings, Dudek will prepare a brief addendum to the March 2007 Soil Investigation Work Plan describing the additional sampling recommended to assess the Dieldrin, TPH-motor oil (C_{23}-C_{32}), and total lead contamination in and around the barn. Remediation actions, if necessary, can be specified after this additional investigation.

6. Limitations

The findings and conclusions presented in this report are professional opinions based solely upon the indicated data described in this report, visual observations of the site and vicinity and our interpretation of the available historical information and documents reviewed. Dudek makes no warranty as to the accuracy of statements made by others or the accuracy of information included in documentation reviewed in connection with this study. It should be recognized that this study was not intended to be a definitive investigation of potential contamination at the site and that the recommendations do not necessarily include all conditions that may be present. Because the scope of the investigation was limited, it is possible that currently unrecognized conditions or contamination might exist at the site.

No warranties or guarantees or representations, expressed or implied, are made by Dudek, except that this report has been prepared in accordance with current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professionals performing the same or similar services. The conclusions are intended exclusively for the purpose outlined herein and may not be suitable to satisfy the needs of other users. Thus, any use or reuse of this document is at the sole risk of said user.

TABLES

TABLE 1
Environmental Site Assessment Soil Sampling Data
Organochlorine Pesticides
(micrograms per kilogram)

ANALYTE	DETECTION LIMIT (µg/kg)	Cal/EPA ResidentialCHHSLs (µg/kg)	B-1	B-2	B-3	B-4	B-5	PN-1	PN-2	PN-3	PN-4
4,4'-DDD	0.5	2,300	<0.5	<0.5	**14.6**	<0.5	**2**	<0.5	<0.5	<0.5	<0.5
4,4'-DDE	0.5	1,600	**1.04**	**0.73**	**10**	**2.5**	**2**	<0.5	<0.5	<0.5	**0.5**
4,4'-DDT	0.4	1,600	**2.72**	**3**	**135***	**4.2**	**11**	<0.4	<0.4	<0.4	<0.4
Aldrin	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Alpha-BHC	0.6	500**	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	**0.6**	<0.6
Beta-BHC	0.6		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Gamma-BHC	0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Delta-BHC	0.6		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Alpha-Chlordane	0.5	430	**1.2**	<0.5	**164***	**4.1**	**12.8**	<0.5	<0.5	<0.5	<0.5
Gamma-Chlordane	0.5	430	<0.5	<0.5	**90***	**0.9**	**7.3**	<0.5	<0.5	<0.5	<0.5
Dieldrin	0.3	35	<0.3	<0.3	**425***	**0.7**	<0.3	<0.3	<0.3	<0.3	<0.3
Endosulfan I	0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Endosulfan II	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan Sulfate	0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Endrin	0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Endrin Aldehyde	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin Ketone	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Methoxychlor	12		<12	<12	<12	<12	<12	<12	<12	<12	<12
Toxaphene	25		<25	<25	<25	<25	<25	<25	<25	<25	<25

* Dilution factor = 5x, detection limits and analytical results corrected accrodingly
** CHHSL not available for Alpha-BHC, use CHHSL for parent chemical, Lindane

TABLE 2
Environmental Site Assessment Soil Sampling Data
TPH
(milligrams per kilogram)

ANALYTE	DETECTION LIMIT (mg/kg)	Cal/EPAResidential CHHSLs (mg/kg)	B-1	B-2	B-3	B-4	B-5
Gasoline	10	NA	<10	<10	<10	<10	<10
Diesel	10	NA	<10	<10	<10	<10	<10
Motor Oil	10	NA	**85**	<10	**166**	**68**	**4490**

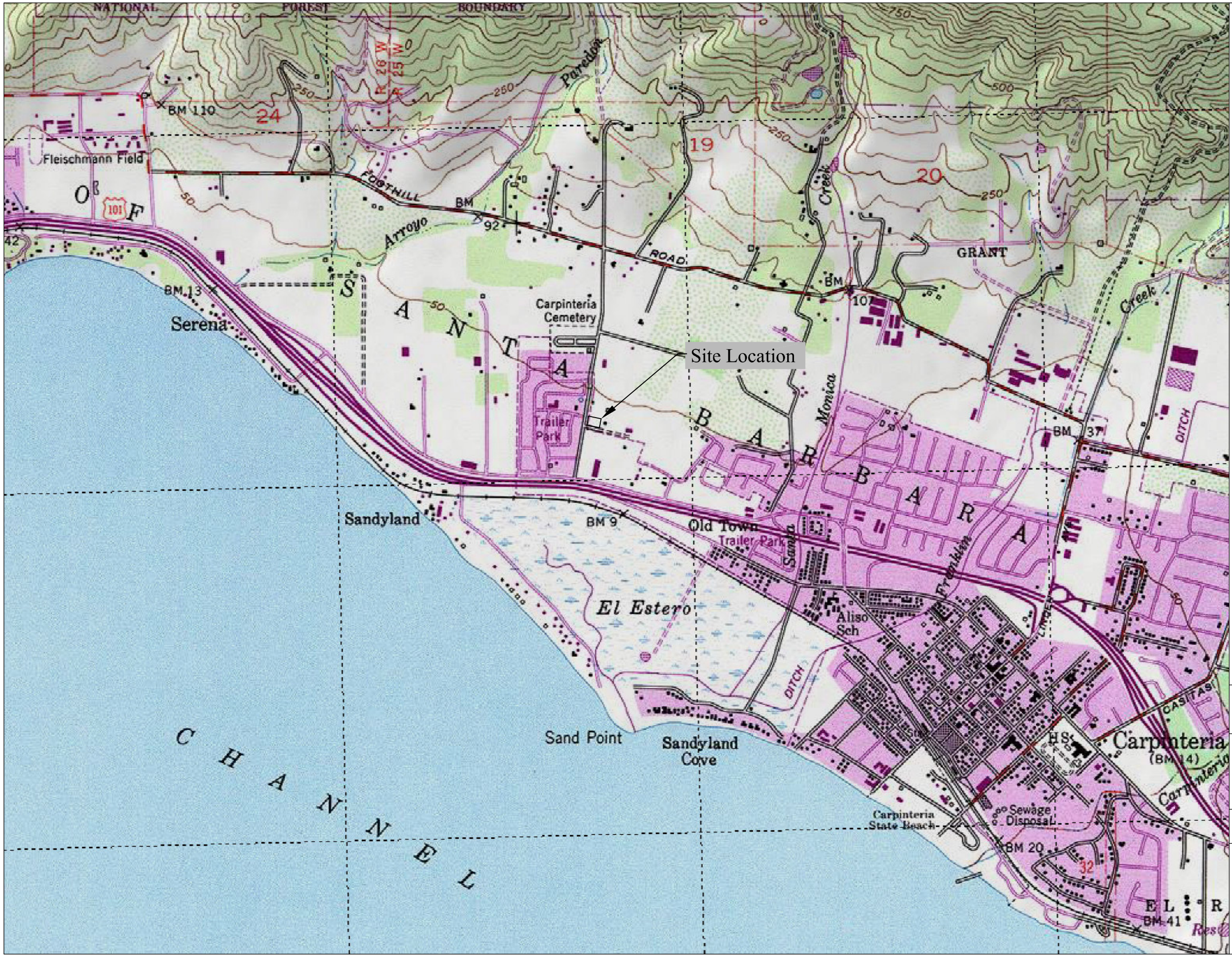
TABLE 3
Environmental Site Assessment Soil Sampling Data
Total Lead
(milligrams per kilogram)

ANALYTE	DETECTION LIMIT (mg/kg)	Cal/EPA Residential CHHSLs (mg/kg)	B-1	B-2	B-3	B-4	B-5
Lead	2.5	150	**206**	**39.3**	**162**	**54.4**	**347**

TABLE 4
Environmental Site Assessment Soil Sampling Data
Soluble Lead
(milligrams per liter)

ANALYTE	DETECTION LIMIT (mg/L)	Title 22 CCR STLC (mg/L)	B-1	B-3	B-4
Soluble Lead	0.1	5	<0.10	<0.10	<0.10

FIGURES



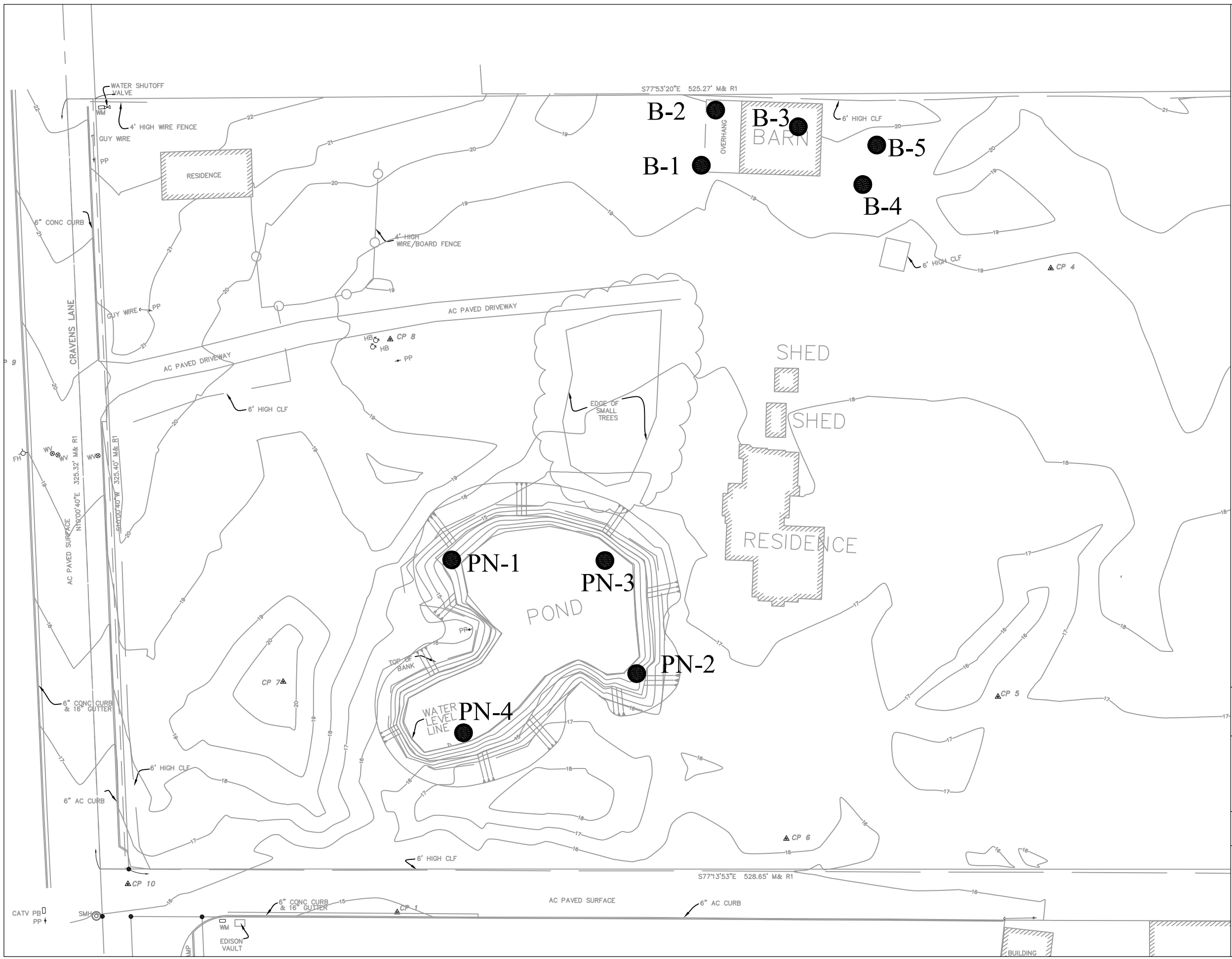
NOT TO SCALE

Site Map

Green Heron Spring Condo Project
1300 and 1326 Cravens Lane
Carpinteria, CA

Figure 1

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



● Surface Soil Sampling Locations. Analyzed for TPH, Lead, and Organochlorine Pesticides

GRAPHIC SCALE

0 25' 50' 100'

SCALE: 1"=50'

Sample Locations

Green Heron Spring Condo Project
1300 and 1326 Cravens Lane
Carpinteria, CA

Figure 2

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

APPENDIX A

Laboratory Analytical Data

D-TEK ANALYTICAL LABORATORIES, INC.
9020 Kenamar Drive, Suite 205
San Diego, CA 92121
(858) 566-4540 FAX (858) 566-4542

Dudek & Associates, Inc.
605 Third Street
Encinitas, CA 92024

Date Sampled: 04/10/07
Date Received: 04/11/07
Date Reported: 04/20/07

Attn: Trey Driscoll

Project ID: 5523-01
Log Numbers: 07-2319 through 07-2323
Sample IDs: B-1 through B-5

The following are attached:

* Analytical Report
* Quality Control Report
* Chain-of-Custody

Testing was conducted using EPA or equivalent methods approved by the State of California Department of Health Services. All applicable QC met the required acceptance criteria.

Thank you for choosing D-TEK to serve your analytical needs!

Reviewed and approved:

Ellen Atienza
Operations Manager

D-TEK Analytical Laboratories, Inc.

9020 Kenamar Drive, Suite 205
San Diego, CA 92121
(858) 566-4540 FAX (858) 566-4542

DUDEK & ASSOCIATES, INC.
605 Third Street
Encinitas, CA 92024

Attn: Trey Driscoll

Date of Report:	**4/20/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/15/07**
Date Analyzed:	**April 18, 2007**
Analyzed By:	**EA**
Sample Type:	**Soil**
Project Number:	**5523-01**
Method:	**EPA 8081A**
Units:	**µg/kg**

ANALYSES RESULTS

ANALYSIS	Detection Limit	Log Number: 07-2319 Sample ID: B-1	07-2320 B-2
4,4' - DDD	0.5	<DL	<DL
4,4' - DDE	**0.5**	**1.04**	**0.73**
4,4' - DDT	**0.4**	**2.72**	**3.0**
Aldrin	0.2	<DL	<DL
Alpha- BHC	0.6	<DL	<DL
Beta - BHC	0.6	<DL	<DL
Gamma - BHC	0.3	<DL	<DL
Delta - BHC	0.6	<DL	<DL
Alpha-chlordane	**0.5**	**1.2**	<DL
Gamma-chlordane	0.5	<DL	<DL
Dieldrin	0.3	<DL	<DL
Endosulfan I	0.3	<DL	<DL
Endosulfan II	0.5	<DL	<DL
Endosulfan Sulfate	0.4	<DL	<DL
Endrin	0.4	<DL	<DL
Endrin Aldehyde	0.5	<DL	<DL
Endrin Ketone	0.5	<DL	<DL
Heptachlor	0.2	<DL	<DL
Heptachlor Epoxide	0.3	<DL	<DL
Methoxychlor	12	<DL	<DL
Toxaphene	25	<DL	<DL

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DUDEK & ASSOCIATES
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Encinitas, CA 92024

Attn: Trey Driscoll

Date of Report:	**4/20/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/15/07**
Date Analyzed:	**4/18/07**
Analyzed By:	**EA**
Sample Type:	**Soil**
Project Number:	**5523-01**
Method:	**EPA 8081A**
Units:	**µg/kg**

ANALYSES RESULTS

ANALYSIS	Detection Limit	Log Number: 07-2321 Sample ID: B-3	DF
4,4' - DDD	**0.5**	**14.6**	
4,4' - DDE	**0.5**	**10**	
4,4' - DDT	**2.0**	**135**	**5X**
Aldrin	0.2	<DL	
Alpha- BHC	0.6	<DL	
Beta - BHC	0.6	<DL	
Gamma - BHC	0.3	<DL	
Delta - BHC	0.6	<DL	
Alpha-chlordane	**2.5**	**164**	**5X**
Gamma-chlordane	**2.5**	**90**	**5X**
Dieldrin	**1.5**	**425**	**5X**
Endosulfan I	0.3	<DL	
Endosulfan II	0.5	<DL	
Endosulfan Sulfate	0.4	<DL	
Endrin	0.4	<DL	
Endrin Aldehyde	0.5	<DL	
Endrin Ketone	0.5	<DL	
Heptachlor	0.2	<DL	
Heptachlor Epoxide	0.3	<DL	
Methoxychlor	12	<DL	
Toxaphene	25	<DL	

DF = Dilution Factor : The detection limits and analyses results were corrected accordingly.

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Attn: Trey Driscoll

Date of Report:	**4/20/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/15/07**
Date Analyzed:	**April 18, 2007**
Analyzed By:	**EA**
Sample Type:	**Soil**
Project Number:	**5523-01**
Method:	**EPA 8081A**
Units:	**µg/kg**

ANALYSES RESULTS

ANALYSIS	Detection Limit	Log Number: 07-2322 Sample ID: B-4	07-2323 B-5
4,4' - DDD	**0.5**	<DL	**2.0**
4,4' - DDE	**0.5**	**2.5**	**2.0**
4,4' - DDT	**0.4**	**4.2**	**11.0**
Aldrin	0.2	<DL	<DL
Alpha- BHC	0.6	<DL	<DL
Beta - BHC	0.6	<DL	<DL
Gamma - BHC	0.3	<DL	<DL
Delta - BHC	0.6	<DL	<DL
Alpha-chlordane	**0.5**	**4.1**	**12.8**
Gamma-chlordane	**0.5**	**0.9**	**7.3**
Dieldrin	**0.3**	**0.7**	<DL
Endosulfan I	0.3	<DL	<DL
Endosulfan II	0.5	<DL	<DL
Endosulfan Sulfate	0.4	<DL	<DL
Endrin	0.4	<DL	<DL
Endrin Aldehyde	0.5	<DL	<DL
Endrin Ketone	0.5	<DL	<DL
Heptachlor	0.2	<DL	<DL
Heptachlor Epoxide	0.3	<DL	<DL
Methoxychlor	12	<DL	<DL
Toxaphene	25	<DL	<DL

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Encinitas, CA 92024

Attn: Trey Driscoll

Date of Report:	**4/20/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/15/07**
Date Analyzed:	**April 18, 2007**
Analyzed By:	**EA**
Sample Type:	**Soil**
Project Number:	**5523-01**
Method:	**EPA 8081A**
Units:	**µg/kg**

ANALYSES RESULTS

ANALYSIS	Detection Limit	Log Number: 07-2324 Sample ID: PN-1	07-2325 PN-2
4,4' - DDD	0.5	<DL	<DL
4,4' - DDE	0.5	<DL	<DL
4,4' - DDT	0.4	<DL	<DL
Aldrin	0.2	<DL	<DL
Alpha- BHC	0.6	<DL	<DL
Beta - BHC	0.6	<DL	<DL
Gamma - BHC	0.3	<DL	<DL
Delta - BHC	0.6	<DL	<DL
Alpha-chlordane	0.5	<DL	<DL
Gamma-chlordane	0.5	<DL	<DL
Dieldrin	0.3	<DL	<DL
Endosulfan I	0.3	<DL	<DL
Endosulfan II	0.5	<DL	<DL
Endosulfan Sulfate	0.4	<DL	<DL
Endrin	0.4	<DL	<DL
Endrin Aldehyde	0.5	<DL	<DL
Endrin Ketone	0.5	<DL	<DL
Heptachlor	0.2	<DL	<DL
Heptachlor Epoxide	0.3	<DL	<DL
Methoxychlor	12	<DL	<DL
Toxaphene	25	<DL	<DL

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DUDEK & ASSOCIATES, INC.
605 Third Street
Encinitas, CA 92024

Attn: Trey Driscoll

Date of Report:	**4/20/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/15/07**
Date Analyzed:	**April 18, 2007**
Analyzed By:	**EA**
Sample Type:	**Soil**
Project Number:	**5523-01**
Method:	**EPA 8081A**
Units:	**µg/kg**

ANALYSES RESULTS

ANALYSIS	Detection Limit	Log Number: 07-2326 Sample ID: PN-3	07-2327 PN-4
4,4' - DDD	0.5	<DL	<DL
4,4' - DDE	**0.5**	<DL	**0.5**
4,4' - DDT	0.4	<DL	<DL
Aldrin	0.2	<DL	<DL
Alpha- BHC	**0.6**	**0.6**	<DL
Beta - BHC	0.6	<DL	<DL
Gamma - BHC	0.3	<DL	<DL
Delta - BHC	0.6	<DL	<DL
Alpha-chlordane	0.5	<DL	<DL
Gamma-chlordane	0.5	<DL	<DL
Dieldrin	0.3	<DL	<DL
Endosulfan I	0.3	<DL	<DL
Endosulfan II	0.5	<DL	<DL
Endosulfan Sulfate	0.4	<DL	<DL
Endrin	0.4	<DL	<DL
Endrin Aldehyde	0.5	<DL	<DL
Endrin Ketone	0.5	<DL	<DL
Heptachlor	0.2	<DL	<DL
Heptachlor Epoxide	0.3	<DL	<DL
Methoxychlor	12	<DL	<DL
Toxaphene	25	<DL	<DL

D-TEK Analytical Laboratories, Inc.

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San Diego, CA 92121
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QUALITY CONTROL DATA REPORT

Date:	**4/20/07**
Attn:	**Trey Driscoll**
Log #:	**07-2319 to 07-2327**
Date Extracted:	**4/15/07**
Date Analyzed:	**April 18, 2007**
Analysis Method:	**EPA 8081A**

METHOD BLANK

No target analytes were detected in the method blank.

LABORATORY CONTROL SAMPLE

Compound	% Recovery	QC Limits % *
G-BHC (Lindane)	56	32-127
Heptachlor	111	34-111
Aldrin	103	42-122
Dieldrin	93	36-146
Endrin	120	30-147
4,4' DDT	86	25-160

MATRIX SPIKE RESULTS (07-2327)

Compound	Spike % Recovery	Spike Dup. % Recovery	MS/MSD RPD %
G-BHC (Lindane)	46	44	4
Heptachlor	97	88	10
Aldrin	82	80	2
Dieldrin	102	107	5
Endrin	109	101	8
4,4 - DDT	55	43	24

*** QC Limits: Applies to LCS, MS & MSD.**

QUALITY CONTROL TERMINOLOGY

- **LCS - LABORATORY CONTROL SAMPLE.** Reported as % recovery of an independent standard carried through all sample preparation procedures to verify method performance. Acceptable range is based on historical laboratory control data and EPA requirements. Any out-of-control QC data is clearly indicated.
- **Spike-** environmental sample is matrix spiked with method compounds and % recovery of concentration spiked into sample is calculated. Reported as % recovery. Acceptable range for "Normal Matrix Sample" is based on historical laboratory control data. Any out-of-control QC data is clearly indicated.
- **Surrogates-** Compounds representative of a group of compounds. Surrogates are spiked into environmental samples and % recovery of concentration spiked is calculated and reported. Acceptable range varies depending on sample matrix and analysis method. Any out-of-control QC data is clearly indicated.

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605 Third Street
Encinitas, CA 92024

Attn: Trey Driscoll

Date of Report:	**4/18/07**
Sampling Date:	**4/10/07**
Date Sample Received:	**4/11/07**
Date Extracted:	**4/11/07**
Date Analyzed:	**April 12, 2007**
Analyzed By:	**EA**
Sample Type:	**Soil**
Method:	**EPA 8015B**
Units:	**mg/kg**

ANALYSES RESULTS

Log Number:	Sample ID:	Gasoline	Diesel	Motor oil
07-2319	**B-1**	<10	<10	**85**
07-2320	B-2	<10	<10	<10
07-2321	**B-3**	<10	<10	**166**
07-2322	**B-4**	<10	<10	**68**
07-2323	**B-5**	<10	<10	**4490**

TPH - Total Petroleum Hydrocarbons
DHS - Recommended Procedure From Leaking Underground Fuel Tank Field Manual, May 1989
Total Petroleum Hydrocarbon analysis resulting in hydrocarbons of the range C4-C44. Sample quantitated against gasoline , diesel and motor oil.
DF= Dilution Factor. The detection limits and analyses results were corrected accordingly.

D-TEK Analytical Laboratories, Inc.

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QUALITY CONTROL DATA REPORT

Date:	**4/18/07**
Attn:	**Trey Driscoll**
Date Analyzed:	**April 12, 2007**
Analysis Method:	**EPA 8015B**
Sample Log #:	**07-2319 to 07-2323**

METHOD BLANK

No target analytes were detected in the method blank.

LABORATORY CONTROL SAMPLE

Compound	% Recovery
TPH-Gasoline	102
TPH-Diesel	89

MATRIX SPIKE RESULTS (07-2135)

Compound	Spike % Recovery	Spike Dup. % Recovery	MS/MSD RPD %
TPH-Gasoline	120	120	0

QUALITY CONTROL TERMINOLOGY

- **LCS - LABORATORY CONTROL SAMPLE.** Reported as % recovery of an independent standard carried through all sample preparation procedures to verify method performance. Acceptable range is 80% - 120% . Any out-of-control QC data is clearly indicated.
- **Spike-** environmental sample is matrix spiked with method compounds and % recovery of concentration spiked into sample is calculated. Reported as % recovery. Acceptable range for "Normal Matrix Sample" is 75% 125% . Any out-of-control QC data is clearly indicated.

D-TEK ANALYTICAL LABORATORIES, INC.
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Dudek & Associates, Inc.
605 Third Street
Encinitas, CA 92024

Attn: Trey Driscoll

Date Reported: 04/20/07
Date Sampled: 04/10/07
Date Received: 04/11/07
Sample Type: SOIL

Project ID: 5523-01

Analysis:	Lead
Method:	EPA6010B
Date:	04/19/07
Analyst:	JV
RL:	2.50
Units:	mg/Kg

Log Number	Sample ID	
07-2319	B-1	206
07-2320	B-2	39.3
07-2321	B-3	162
07-2322	B-4	54.4
07-2323	B-5	347

D-TEK ANALYTICAL LABORATORIES, INC.
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San Diego, CA 92121
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QUALITY CONTROL DATA REPORT
Method(s): Inorganics

Report Date: 04/20/07

Log Numbers: 07-2319 through 07-2323

No target analytes were detected in the Method Blanks.

Analysis	Method	LCS % Recovery	Spike % Recovery	Duplicate RPD
Lead	EPA6010B	108	96	0

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Dudek & Associates, Inc.
605 Third Street
Encinitas, CA 92024

Attn: Trey Driscoll

Date Reported: 05/11/07
Date Sampled: 04/10/07
Date Received: 05/01/07
Sample Type: SOIL

Project ID: 5523-01

Analysis:	Lead
Method:	WETDI/6010B
Date:	05/11/07
Analyst:	JV
RL:	0.10
Units:	mg/L

Log Number	Sample ID	
07-2828	B-1 (07-2319)	< 0.10
07-2829	B-3 (07-2321)	< 0.10
07-2830	B-4 (07-2322)	< 0.10

D-TEK ANALYTICAL LABORATORIES, INC.
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QUALITY CONTROL DATA REPORT
Method(s): Inorganics

Report Date: 05/11/07

Log Numbers: 07-2828 through 07-2830

No target analytes were detected in the Method Blanks.

Analysis	Method	LCS % Recovery	Spike % Recovery	Duplicate RPD
Lead	WETDI/6010B	100	100	1

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SURROGATE RECOVERIES
(Tetrachloro-M-Xylene)

Log #	Percent Recovery:
Method Blank	88
07-2319	86
07-2320	80
07-2321	96
07-2322	78
07-2323	75
07-2324	78
07-2325	71
07-2326	71
07-2327	83
LCS	77
07-2327 MS	86
07-2327 MSD	83

QC Limits: 43 to 169%

Ellen Atienza
Operations Manager

QUALITY CONTROL TERMINOLOGY

- **LCS - LABORATORY CONTROL SAMPLE**. Reported as % recovery of an independent standard carried through all sample preparation procedures to verify method performance. Acceptable range is based on historical laboratory control data and EPA requirements. Any out-of-control QC data is clearly indicated.
- **Spike-** environmental sample is matrix spiked with method compounds and % recovery of concentration spiked into sample is calculated. Reported as % recovery. Acceptable range for "Normal Matrix Sample" is based on historical laboratory control data. Any out-of-control QC data is clearly indicated.
- **Surrogates-** Compounds representative of a group of compounds. Surrogates are spiked into environmental samples and % recovery of concentration spiked is calculated and reported. Acceptable range varies depending on sample matrix and analysis method. Any out-of-control QC data is clearly indicated.

D-TEK ANALYTICAL LABORATORIES, INC.
9020 Kenamar Drive, Suite 205
San Diego, CA 92121
(858) 566-4540 FAX (858) 566-4542

QUALITY CONTROL DATA REPORT

Report Date: 04/20/07

Log Numbers: 07-2319 through 07-2323

* **LCS** - Laboratory Control Sample. The LCS is a blank spiked with a known amount of method analyte(s) obtained from independent standards and is carried through all sample preparation and analytical procedures. Recoveries are calculated in order to evaluate method accuracy.

* **Spike** - The spike is an actual sample spiked with a known amount of method analyte(s) and is carried through all sample preparation and analytical procedures. Recoveries are calculated in order to evaluate potential matrix interferences.

* **RPD** = Rel % Difference = ((Result 1 - Result 2) / Average Result) X 100% The RPD provides a measure of method precision by comparing analytical results of 2 duplicate samples.

* **% Recovery** = ((Spike Sample Result - Sample Result) / Spike Conc) X 100% The result of the unspiked sample is treated as zero if it is less than established reporting limits.

D-TEK Analytical Laboratories, Inc.
9020 Kenamar Drive, Suite 205
SAN DIEGO, CA 92121
(858) 566-4540, FAX (858) 566-4542

CHAIN OF CUSTODY

COC No. _____

PAGE 1 OF 1

CUSTOMER INFORMATION

COMPANY: Dudek
CONTACT PERSON: Trey Driscoll
PROJECT MANAGER: Trey Driscoll
ADDRESS: 605 Third Street
CITY: Encinitas
ZIP: 92024
PHONE: 760.415.1425
FAX: 760.942.5206

PROJECT INFORMATION

PROJECT NAME/NUMBER: 5523-01

BILLING INFORMATION

BILL TO: Dudek
ADDRESS: 605 Third St. Encinitas, CA 92024
PHONE: 760.415.1425
P.O.#: 5523-01

D-TEK LOG # LAB USE ONLY	SAMPLE # / SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	# OF CONTAINERS	Organochlorine Pesticides EPA 8081A	Total Lead EPA 6010B	TPH Carbon chain (C4-C40) EPA 8015B
	B-1	4/10/07	10:23	Soil	4oz. jar glass	1 each	X	X	X
	B-2		10:28						
	B-3		10:33						
	B-4		10:39						
	B-5		10:46						
	PN-1		11:03						
	PN-2		11:11						
	PN-3		11:20						
	PN-4		11:30			9 total			

ANALYSIS REQUEST

	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
MEETS HOLDING TIME ?	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
CORRECT CONTAINERS ?	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

SAMPLE INTEGRITY

1. RELINQUISHED BY	2. RELINQUISHED BY	3. RELINQUISHED BY
PRINTED NAME: Trey Driscoll	PRINTED NAME:	PRINTED NAME:
SIGNATURE: Trey Driscoll	SIGNATURE:	SIGNATURE:
DATE AND TIME: 10 April 2007, 13:00	DATE AND TIME:	DATE AND TIME:
1. RECEIVED BY	**2. RECEIVED BY**	**3. RECEIVED BY**
PRINTED NAME:	PRINTED NAME:	PRINTED NAME:
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE AND TIME:	DATE AND TIME:	DATE AND TIME:

SAMPLE RECEIPT

RECEIVED IN ICE? Y/N NA
TAPE SEAL INTACT Y/N NA
PRESERVATIVE YES/NO NA
pH VERIFIED: YES/NO NA
Recorded temp_____

SPECIAL INSTRUCTIONS

Hold Samples for reanalysis if necessary

TAT Normal

-- ALL SAMPLES ARE SUBJECT TO TERMS AND CONDITIONS ON REVERSE SIDE --

DUDEK

621 CHAPALA STREET
SANTA BARBARA, CALIFORNIA 93101
T 805.963.0651 F 805.963.2074

May 23, 2016

Mr. Scott Dinovitz
Valdin, LLC
256 26th Street, Suite 201
Santa Monica, California 90402
mailto:sdinovitz@d2homes.com

Re: Cost Estimate for Phase I Environmental Site Assessment and Soil Sampling for 1300 Cravens Lane, Carpinteria, California, APN 004-013-026

Dear Mr. Dinovitz:

Per your request, presented herein is an estimate for additional soil sampling, and a Phase I Environmental Site Assessment (ESA) for the property located at 1300 Cravens Lane (APN 004-013-026) in Carpinteria, Santa Barbara County, California (subject property).

Following concerns raised by the Santa Barbara County Fire Department in 2007 regarding pesticides and hydrocarbons around the pond and barn areas, Dudek conducted preliminary soil sampling for the land owner. Our findings, discussed in the 2007 Soil Investigation Report, indicated that additional soil sampling was necessary to determine the extent of pesticides and lead in and around the barn area, and motor oil in the vicinity of a 55-gallon drum located near the barn. The Fire Department issued a closure letter for the site on May 9, 2011. The letter stated that if the land use changed, additional characterization and mitigation may be required. The site is currently listed in the State Water Resources Control Board database as, "Open – Inactive." Notes in the database state that the Fire Department issued an interim closure letter, and that the work required to change from agricultural to residential land use has not been completed. Further, the site was re-enrolled in the Voluntary Oversight Program with the Santa Barbara County Environmental Health Services Division in 2013.

Dudek can conduct the additional sampling per the findings of the 2007 Soil Investigation Report. Prior to sampling, Dudek will prepare a work plan and health and safety plan to submit to the County Environmental Health Services department for their approval. After the sampling, Dudek will prepare a report which will discuss the findings of the sampling and contain recommendations for remedial alternatives, if necessary. The estimated cost to prepare the work plan and health and safety plan, collect samples (5 pesticides, 11 lead, and 5 total petroleum hydrocarbons), and prepare a report is **$9,040**.

Also, per your request, a scope and fee for a Phase I ESA is included as follows. The Phase I ESA will be prepared in accordance with ASTM Standard E 1527-13 and will include: a search of regulatory agency records to see if there are currently, or were previously, any reports of hazardous materials contamination or usage at the subject properties or contamination at other sites within the ASTM-specified search radius; a review of historical aerial photographs and topographic maps; a review of available Sanborn fire insurance maps and City Directory listings; an interview with the current owner and/or representative of the subject properties; a review of previous environmental assessment reports; evaluation of vapor intrusion risk; an environmental lien search; and a site inspection to identify potential evidence of activities that could impact the environmental conditions of the subject property. Records maintained by the certified unified program agency will also be reviewed, if available.

The findings of the investigation will be summarized in a Phase I ESA report. If the findings of the Phase I ESA indicate potential impacts of hazardous wastes or materials on the subject property, the report will also contain recommendations for further work related to sampling, mitigation, and/or human health risk analyses.

An electronic copy of the Phase I ESA report will be submitted approximately four weeks following receipt of a signed contract. The cost for the Phase I Environmental Site Assessment is **$6,635**.

Please note that Dudek will require a retainer in the amount of $2,000, which will be applied to the final invoice.

We appreciate this opportunity to assist you. If you have any questions, please contact me at (760) 479-4130 or gmcmahon@dudek.com.

Sincerely,

Glenna McMahon, P.E.

Temporary State ID Number Issuance Website

Thank you. A new Temporary State ID Number: CAC002839863 has been created for you. Information about this ID Number has been sent to Email: sefaia@aol.com

Temporary State ID Number: CAC002839863

Site Address: **1300 CRAVENS LANE CARPINTERIA, CA 93013**

Site EPA ID# (if applicable): **CAC002839863**

To Whom it May Concern:

I hereby authorize a representative of Asbury Environmental Services to sign profile forms, manifests and, if applicable, Land Disposal Restriction Forms (LDRs) as an agent for:

DAVID SCOTT ELLINWOOD

Generator / Company Name

It is understood that these forms will be used to characterize particular waste streams for acceptance at a Treatment Storage & Disposal Facility (TSDF). The information used to complete these forms is based on information provided by a representative of the generating company, and should any of this information change, it is the generator's responsiblity to contact Asbury Environmental Services with the changes.



(Generator Authorized Signature)

12/15/15
(Date)

David Scott Ellinwood
(Print Name)

owner
(Title)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAC002839863
2. Page 1 of: 1
3. Emergency Response Phone: (800) 424-9300
4. Manifest Tracking Number: 015236232 JJK

GENERATOR

5. Generator's Name and Mailing Address
PRIVATE OWNER - DAVID SCOTT ELLINWOOD
1300 CRAVENS LANE
CARPINTERIA CA 93013
Generator's Phone: 805 701-0483

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: ASBURY ENVIRONMENTAL SERVICES
U.S. EPA ID Number: CAD028277036

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
EVOQUA WATER TECHNOLOGIES LLC
5375 SOUTH BOYLE AVENUE
LOS ANGELES CA 90058
Facility's Phone: (323)277-1500
U.S. EPA ID Number: CAD097030993

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA HAZARDOUS WASTE, SOLID (OILY DIRT/DEBRIS)	4	DM	2000	P	352
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
D218352
EMERGENCY CONTACT : CHEMTREC 1-800-424-9300 NAERG# 9B1 : 171 * PROFILE # 9B1 : AP214 OILY DIRT AND DEBRIS *
PO# A110221876 * APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT
4 X 55

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: David Scott Ellinwood | Signature | Month 12 | Day 21 | Year 15

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Billy Montgomery | Signature | Month 12 | Day 21 | Year 15

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Aaron Axtell | Signature | Month 12 | Day 29 | Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

SOIL SAMPLING WORK PLAN

Green Heron Spring Project
1300 Cravens Lane
Carpinteria, California

Prepared for:

Cravens Lane, LLC
23622 Calabasas Road, Suite 220
Calabasas, California 91302

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024

APRIL 2017

Printed on 30% post-consumer recycled material.

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A Health and Safety Plan

1.0 INTRODUCTION

This Soil Sampling work plan has been prepared for the property located at 1300 Cravens Lane in Carpinteria, Santa Barbara County, California, Assessor's Parcel Number (APN) 004-013-026 (site; Figure 1). The site is 3.87 acres. It is currently owned and occupied by David Scott Ellinwood. Cravens Lane, LLC plans to acquire the property to dismantle an existing residence, barn and storage shed, remodel one residence and construct 32 new units, for a projected total of 33 residential condominiums. Before Cravens Lane LLC can move forward with the project, soil sampling must be conducted to address contaminants previously identified near the barn area (Dudek, 2007).

1.1 Objective

The objective of this work plan is to outline the soil sampling methods and procedures to determine the lateral and vertical extent of the contaminants identified onsite per the 2007 Final Soil Investigation Report. The chemicals of potential concern include pesticides, lead and total petroleum hydrocarbons (TPH). If these chemicals of potential concern are found in the subsurface, the results will be analyzed for human health screening purposes.

1.2 Overview

This work plan includes:

- discussion of the known locations of contamination at the site;
- a field sampling plan for soil (sample locations, sampling procedures, sample handling, and sample analysis);
- a quality assurance project plan; and
- a human health risk screening approach.

1.3 Data Collection and Analysis

The sampling will be performed to evaluate the potential presence of pesticides, lead, and TPH at the site. Soil samples will be collected from areas of the site as shown on Figure 2 and analyzed by a California-certified stationary laboratory.

2.0 SITE DESCRIPTION

2.1 Location

The site consists of approximately 3.9 acres of land located approximately 0.2 miles north of the intersection of Via Real and Cravens Lane, at 1300 Craven Lane, Carpentaria, California (Figure 1). The site is currently used for residential purposes. The subject property is bordered to the north by a property that includes a small house and pond. To the east, the property is bordered by a floral company, Florabundance, which includes irrigated floral areas and an operations building. A residential subdivision borders the property to the south. The property is border to the west by Cravens Lane and a residential mobile home park, Sandpiper Mobile Village.

2.2 Background Information

Dudek conducted soil sampling at the site on April 10, 2007 to evaluate potential contamination as requested by the Santa Barbara County Fire Department, Fire Prevention Division (FPD) in a letter dated January 24, 2007 (FDP, 2007). Per review of a Draft Mitigated Negative Declaration (MND) for a development project for the site, FDP expressed concerns regarding the long-time use of the pond for run-off from orchards, and potential for releases of pesticides and other chemicals adjacent to the barn. Dudek collected four samples from 0-6" below ground surface (bgs) in and around the pond. Pesticides were not detected above residential California Human Health Screening Levels (CHHSLs) in any of the pond samples. Dudek collected five soil samples from 0-6" bgs in and around the barn. The pesticide, dieldrin, was detected one order of magnitude above the residential CHHSL in the sample collected inside the barn. Total petroleum hydrocarbons were detected at approximately 5 times the screening level in one sample. Lead was detected in three samples above the residential CHHSL. Dudek recommended additional sampling to assess the lateral and vertical extent of these contaminants. The Final Soil Investigation Report was submitted to FPD on May 31, 2007.

FPD issued a conditional closure letter for the site on May 9, 2011. The letter stated that if the land use changed, additional characterization and mitigation may be required. The site is currently listed in the State Water Resources Control Board database as, "Open – Inactive." Notes in the database state that FPD issued an interim closure letter, and that the work required to change from agricultural to residential land use has not been completed. Further, the site was re-enrolled in the Voluntary Oversight Program with the Santa Barbara County Environmental Health Services Division in 2013.

As the Green Heron Spring project is moving forward, this work plan has been prepared to conduct the additional sampling as required by FPD and to address mitigation measure HAZ-1 of the 20XX MND, which states that, "the applicant shall conduct additional assessments, develop a

work plan to complete remediation, complete the remediation work including removal of contaminated soils, and have the case formally closed by the Fire Department."

3.0 AREAS OF CONCERN

The proposed sampling locations are presented on Figure 2 and are focused in the area of the barn where contaminants were identified during the 2007 soil-sampling event. Original 2007 sampling locations focused on areas where pesticides and drums with unknown contents had either previously been observed or were directly observed during the soil sampling field visit. Because pesticides were not detected in the pond area in 2007, current samples will focus on contaminants near the barn. Proposed sample locations are in and around the barn located on the northern side of the site (Figure 2).

4.0 PROPOSED SOIL SAMPLING

The following sections describe the proposed sampling activities at the site. All field activities will be performed under the supervision of a California Registered Professional Engineer or Geologist. All field activities will be conducted in accordance with the site-specific Health and Safety Plan (HSP) presented as Appendix A. Proposed sampling locations are presented on Figure 2.

Surficial soil samples will be collected from in and around the barn area and analyzed for Pesticides, Lead, and TPH. The soil samples will be analyzed by EPA Method 8081A for organochlorine pesticides, EPA Method 8015B for TPH, and EPA Method 6010B for total lead Sample locations are shown on Figure 2. Sixteen samples from 12 locations will be collected from the barn area to determine the lateral and vertical extent of contaminants (Table 1).

Each sample will be collected using a dedicated hand trowel and placed in a glass jar. If a hand auger is needed (depending on the hardness of the soil) it will be decontaminated between each sample. A portion of the barn interior is paved; thus, locations of the soil samples may have to be moved.

4.1 Barn Interior

Lead was detected above the screening level in one sample collected from the barn interior in 2007 (Figure 2). In order to further delineate the extent of lead in this area, five soil samples will be collected from the interior of the barn and analyzed for lead. Three of the five samples will be collected from a depth of approximately 6” bgs and two of the five samples will be collected from a depth of approximately 12”.

Pesticides were detected in one sample collected from the barn interior in 2007; only dieldrin was above the screening level (Figure 2). In order to further delineate the extent of pesticides in this area, five soil samples will be collected from the interior of the barn and analyzed for pesticides. The samples will be collected from a depth of approximately 6” bgs.

4.2 Barn Exterior

Lead was detected in all four samples collected around the exterior of the barn in 2007; two were above the screening level (Figure 2). In order to further delineate the extent of lead in this area, six soil samples will be collected around the exterior of the barn and analyzed for lead. Four of the six samples will be collected from a depth of approximately 6” bgs and two of the six samples will be collected from a depth of approximately 12”.

TPH-motor oil was detected in three of the four samples collected around the exterior of the barn in 2007; one was above the screening level. In order to further delineate the extent of TPH-motor oil in this area, five samples will be collected and analyzed for TPH. The samples will be located near the 2007 location where TPH was found above the screening level and will be collected from a depth of approximately 6".

Table 1. Sample Matrix

Sample Location	Sample Name	Depth of Sample (Inches)	Analysis		
			Lead *EPA 6010*	*Pesticides*[a] *EPA 8081A*	*TPH*[b] *EPA 8015M*
Barn Interior					
1	B-INT-1-6	6	X	X	
1	B-INT-1-12	12	X	X	
2	B-INT-2-6	6	X	X	
2	B-INT-2-12	12	X	X	
3	B-INT-3	6	X	X	
4	B-INT-4	6		X	
5	B-INT-5	6		X	
Barn Exterior					
6	B-EXT-1-6	6	X		
6	B-EXT-1-12	12	X		
7	B-EXT-2-6	6	X		
7	B-EXT-2-12	12	X		
8	B-EXT-3	6			X
9	B-EXT-4	6			X
10	B-EXT-5	6			X
11	B-EXT-6	6			X
12	B-EXT-7	6			X

[a] Organochlorine Pesticides
[b] Total Petroleum Hydrocrabons

5.0 FIELD METHODS AND PROCEDURES

5.1 Field Equipment

Soil sampling equipment includes the following:

- Maps/plot plan
- Safety equipment, as specified in the site-specific Health and Safety Plan
- Tape measure
- Camera
- GPS unit
- Glass Jar
- Dedicated hand trowels,
- Hand auger, if needed
- Logbook and/or field forms
- Chain-of-custody forms and custody seals
- Sample bottles/containers
- Sample labels
- Ice and cooler
- Resealable plastic bags
- Nitrile gloves

5.2 Procedures

5.2.1 Sampling

Soil samples will be collected from twelve locations (Figure 2). Sampling personnel will wear nitrile gloves during sample collection. A new pair of gloves will be used for each sample collected.

At each location, Dudek will collect the soil samples using a dedicated hand trowel and glass jar. If necessary, a hand auger will be used. The hand auger will be decontaminated between sample locations. Dudek will wipe the threads of the sample container, then cover, seal, and label the container. The glass sample container will be placed in a resealable plastic bag and placed in a cooler on ice. A custody seal will be used to seal the cooler and chain of custody form will be included in the cooler submitted to the laboratory.

5.2.2 Field Notes

Dudek field personnel will record pertinent field activities on field forms and/or in a logbook. Copies of site maps will be used to plot sample locations and note any previously unknown structures or landmarks. Photographs will also be taken to document various site characteristics and field activities.

The following information will be recorded in the field logbook or on field forms during sampling activities:

- Sample name
- Sample location and description
- Date and time of sample collection
- Type of sample (e.g., soil)
- Type of sampling equipment used
- Field observations and details related to analysis or integrity of the samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Preliminary sample descriptions (e.g., clay loam, very wet)
- Reference to completed chain-of-custody
- Shipping arrangements
- Name of receiving laboratory

The following information will also be recorded in the field logbook each day of sampling:

- Date and time of arrival and departure
- Personnel onsite and their arrival and departure times
- Summaries of site activities
- Summary of any meetings or discussions with client, contractors, and/or federal/state agency personnel
- Deviations from this work plan or HSP procedures
- Calibration readings for any equipment used along with the equipment model and serial number.

5.2.2.1 Photographs

Photographs may be taken at the sampling locations and at other places of interest onsite. They will serve to verify information entered in the field notes. Notes regarding photographs will be recorded in the field notes.

5.2.2.2 Labeling

Samples will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The sample labels will contain the following information: sample name, date and time of collection, analytical parameters, type of preservation, and sampler's initials.

5.2.2.3 Chain-of-Custody Forms and Custody Seals

Chain-of-custody (COC) record forms are used to document sample collection and shipment to laboratories for analysis. All sample shipments will be accompanied by a COC record.

The contents of each shipment will be identified in the COC record form. In addition, the custodial integrity of the samples will be recorded on the COC record form. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped or delivered to the laboratory, custody of the samples will be the responsibility of Dudek. A member of the sampling team will sign the chain-of-custody form in the "relinquished by" box and note the date and time.

A self-adhesive custody seal will be placed across the lid of the cooler just prior to shipment. The seal will be signed and dated by a member of the sampling team.

5.2.3 Decontamination Procedures

If a hand auger is used, it will be decontaminated between sample locations. The hand auger will be washed with Alconox and tap water, then rinsed with tap water, and finally rinsed with distilled water.

5.2.4 Investigation-Derived Waste Management

No investigation-derived waste (IDW) will be generated during the investigation. Soil removed for sampling and not collected in sample containers will be put back in place.

5.2.5 Field Variances Documentation

As conditions in the field may vary, it may be necessary to make modifications to the sampling locations and/or procedures presented in this work plan. Modifications to the approved work plan will be documented in the Soil Sampling Report.

5.3 Laboratory Analyses

Soil samples will be analyzed by a fixed California-certified laboratory for TPH by EPA Method 8015M, for lead by EPA Method 6010B and for pesticides by EPA Method 8081A.

6.0 REPORTING

Following receipt of analytical data, Dudek will tabulate the results and compare them to current US EPA preliminary remediation goals for residential scenario.

The final report will include a summary of the field activities, including any deviations from this work plan, a summary of the data and comparisons to the screening levels, as wells as findings and recommendations, as necessary.

7.0 REFERENCES

Dudek, 2007. Soil Investigation Report Gereen Heron Springs Condo Project, 1300 and 1326 Cravens Lane, Carpentaria, California. May 2007.

Santa Barbara County Fire Department, Fire Prevention Division (FPD), 2007. Letter re: The Green Heron Springs Condo Project ND, 1300 and 1326 Cravens Lane, Carpinteria. Letter from FPD to Steve Goggia, Senior Planner, Community Development Department, City of Carpinteria. January 24, 2007.

Appendix J

Hydrology Report

Hydrology Study

for

GREEN HERON SPRING

(Precise Grading Phase)

1300 – 1326 Cravens Lane
Carpinteria, CA 93013

July 27th, 2017

Prepared under the direction of:

_____

Siew Huat Ng Date
R.C.E. No. 46026

UNITED CIVIL, INC.
30141 Agoura Road, Suite 215
Agoura Hills, CA 91301-4311
Tel: (818) 707-8648
Fax: (818) 707-8649

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   - II. Proposed Post-Development Condition (Precise Grading Phase)

INTRODUCTION

A. Project Description

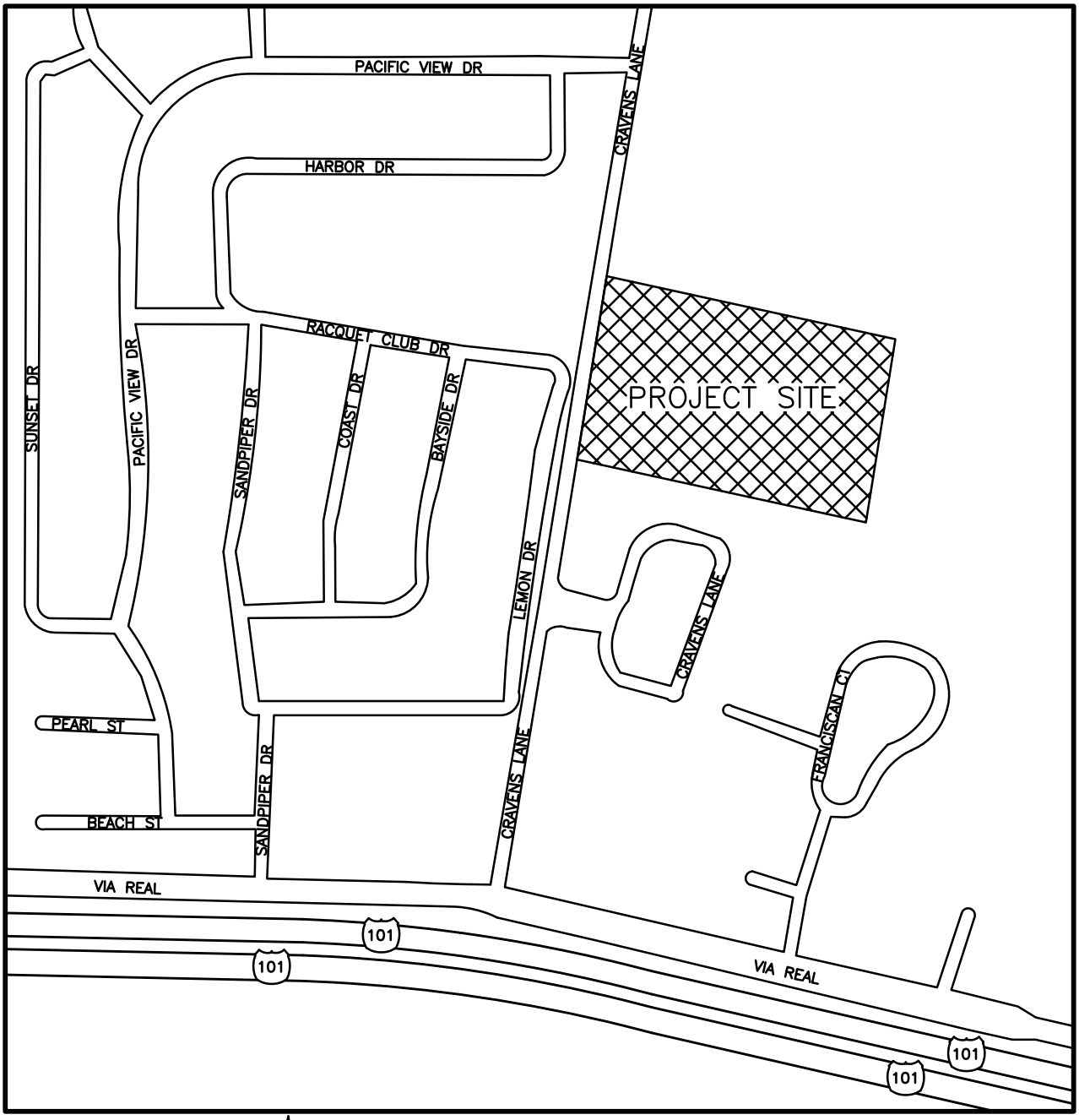
The proposed development is located at 1300 – 1326 Cravens Lane in the City of Carpinteria, County of Santa Barbara. The project site currently has a 2 story wood frame house, sheds, trees, and natural ground surface.

The proposed Green Heron Spring project consists of 7 Single-Family Detached Homes and 23 Townhomes. The development involves dismantling the existing barn and storage shed (the materials would be salvaged), remodeling one residence and constructing 30 new residential units. One of the new residences is proposed to be four-bedroom unit; nineteen of the new residences are proposed to be three-bedroom unit; ten of the new residences are proposed to be two-bedroom unit. Ten of the new residences are proposed to be one-bedroom flats.

The existing drainage of the site sheet flows southwesterly and is intercepted by an existing pond. In the proposed condition, the existing pond will remain in place, and will be modified to 4:1 slope, and will be sized to capture the increase in volume of storm water runoff up to 100-yr storm event in the proposed condition from the existing condition.

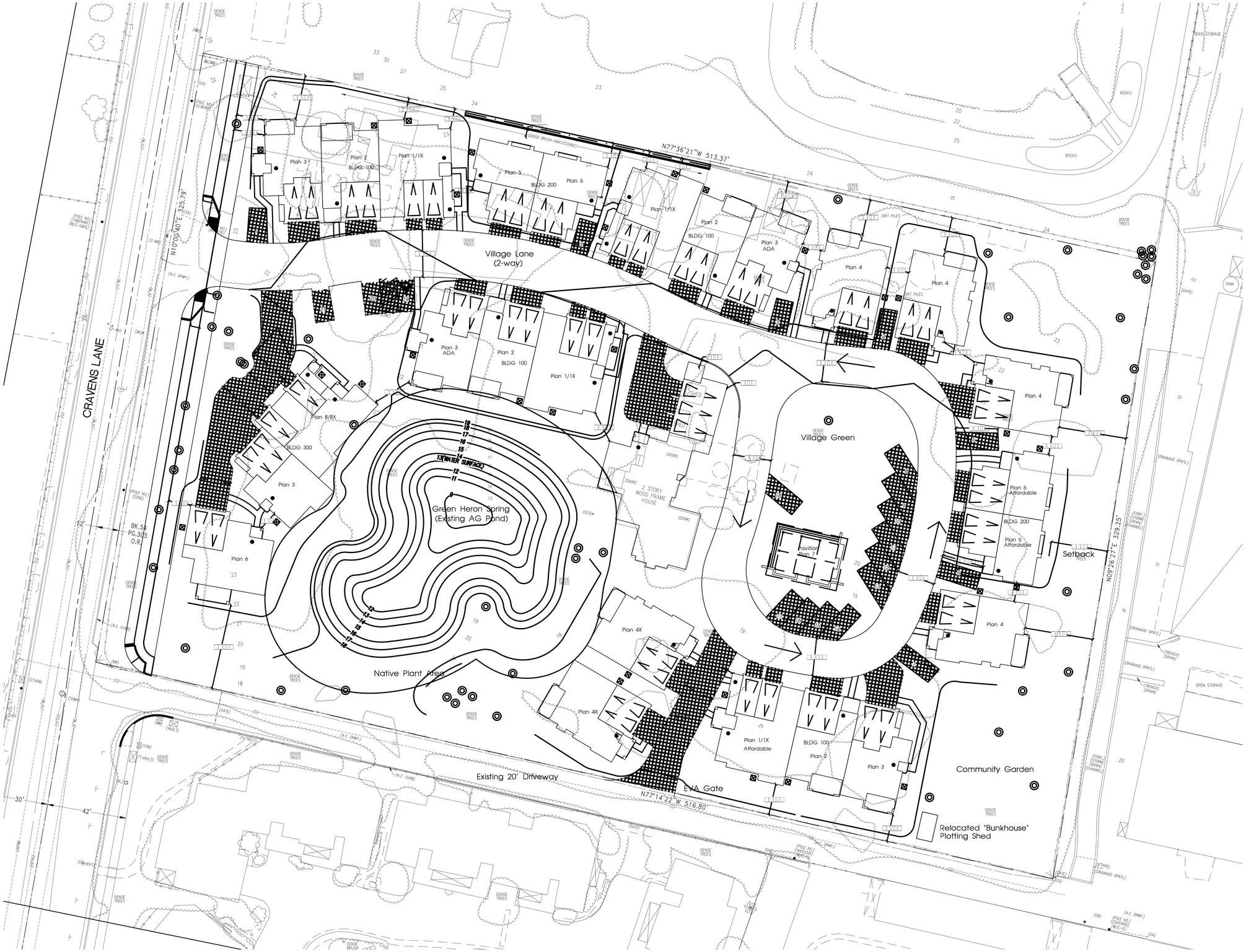
B. Purpose and Scope

1. To determine the design peak 100-year Storm runoffs from project site in the existing pre-developed condition and in the proposed post-developed condition per the Santa Barbara County Flood Control and Water Conservation District;
2. To determine if there is a delta increased in peak developed runoff from the proposed project development and to size and locate the appropriate onsite detention storage system to mitigate the delta increased runoff;
3. To provide sufficient Best Management Practices (BMP) for LID design of storm drainage facilities per the Stormwater Technical Guide for Low Impact Development requirement;



VICINITY MAP

N.T.S.



Project Summary

Total Site Area: ± 3.89 Acres

Total Units: 31 Homes
- (10) Flats
- (13) Townhomes
- (7) Single Family Detached Homes
- (1) Existing SFD to be Remodeled

Density: 8.0 Homes per Acre

Parking:

Required: 73 Spaces (2.35 spaces per home)
- (24) 2+ Bdrm TH x 2.0 Spaces = 48 Spaces
- (7) 2+ Bdrm SFD x 2.0 Spaces = 14 Spaces
- (31) Guest x 0.33 Spaces = 11 Spaces

Provided: 74 Spaces (2.39 spaces per home)
- Garage: 53 Spaces
- Head In: 21 Spaces (9' x 18')

Bedrooms: 81 Total Bedrooms
- Plan 1: 2 Bdrm x 4=8
- Plan 1X: 2 Bdrm x 4=8
- Plan 2: 3 Bdrm x 4=12
- Plan 3: 3 Bdrm x 5=15
- Plan 4: 3 Bdrm x 6=18
- Plan 5: 3 Bdrm x 4=12
- Plan 6: 4 Bdrm x 1=4
- Plan 7: 0 Bdrm (Pavillion)
- Plan 8: 2 Bdrm x 2=4

Building Footprint Area: 37,767 SF

Total Livable Area: 54,410 SF

Total Gross Area: 65,484 SF (Livable+Garages)

Gross Area– Previous Plan: 61,990 SF

◎ Oak Trees to Remain

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

WILLIAM HEZMALHALCH ARCHITECTS, INC. © 2017

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Conceptual Site Plan

Green Heron Spring

Carpinteria, California

D2 Development, Inc.

WILLIAM HEZMALHALCH
ARCHITECTS INC.
2850 REDHILL AVENUE SUITE 200 SANTA ANA CA 92705-5543
949 250 0607 www.whainc.com fax 949 250 1529

2016101 February 24, 2017

METHODOLOGY

The drainage area studied (see enclosed Hydrology Maps in Appendix D), consists of the proposed 3.87 acres of project site with 0.8 acre of offsite run-on, is situated within the South Coast area of Santa Barbara County. The hydrologic/ hydraulic analysis is based on the Santa Barbara Unit Hydrograph Method (SBUH) with the following parameters,

Runoff Method:	SBUH
Pond Routing Method:	Storage-Indication
Rainfall Distribution:	SCS 24-hour, Type I Distribution
Antecedent Moisture Condition:	AMC II
Hydrograph ordinate time increment:	0.10 hour

Based on the Standard Conditions of Project Plan Approval by Santa Barbara County Flood Control and Water Conservation District, the South Coast area has the rainfall amounts (inches), 24-hour total as follows,

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
South Coast	3.20	4.61	5.55	6.71	7.56	8.38

The hydrologic soil group for the area is determined thru the web soil survey by United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). The entire project site is situated within Soil Type C/D. For the purpose of this analysis, the site is assumed to be Soil Type C (See Appendix A). See Appendix B for the excerpts of the Geotechnical Engineering Report by Earth Systems, dated November 7, 2016.

The curve number (CN) for the hydrologic soil group is per Table 2-2A through 2-2D (Runoff Curve Numbers) of "TR-55, Urban Hydrology for Small Watersheds," published by USDA NRCS, and is determined to be 79 based on existing cover type and hydrologic condition (See Appendix A).

The HydroCAD v10.00 program, with SBUH Method available, is used to perform the analysis with the above parameters for the drainage area in both the existing pre-developed condition and the proposed post-developed condition.

HYDROLOGIC CHARACTERISTICS SUMMARY

Runoff Calculation: Santa Barbara Unit Hydrograph (SBUH) Method

Design Storm: 2- through 100-Year Storm

24-hour Rainfall Amounts (inches):

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
South Coast	3.20	4.61	5.55	6.71	7.56	8.38

95th Percentile Rainfall: 2.3 inches

Hydrologic Soil Group: Soil Type C

Existing Land Use: Single-Family Residential
CN = 79

Proposed Land Use: 31-unit Condominium
CN = 90 (Precise Grading Phase)

The same CN of 90 is used for the proposed Single-Family Houses and Townhomes area because they have similar lot sizes and land use

DRAINAGE DISCUSSION

This hydrology study focuses on the Post-Development Condition of the proposed 31-unit Green Heron Spring condominium project (see Appendix C for Precise Grading Plan). The existing pond near the center of the site will be modified to provide enough capacity such that the post-development peak storm water runoff discharge rate shall not exceed the pre-development rate for the 2-year through 100-year storm events.

In the Existing Pre-Development Condition, the project site is mainly divided into three drainage subareas 1A, 2B, and 3C. Subarea 1A (node 1S) is the middle portion of the site and the offsite tributary area northerly of the project site, totaling 2.25 AC; subarea 2B (node 3S) is the easterly portion of the site with 0.24 AC; and subarea 3C (node 4S) is the westerly portion of the site with 1.89 AC. Runoff from subarea 1A sheet flows southerly over existing ground surface into the existing pond (node 2P) near the center of the site. The storage capacity of the existing pond is about 0.79 AF (Acre-Feet). Once the existing pond fills up, the runoff overflows onto the ground surface and discharges onto the driveway along the southerly boundary of the site. The runoff, conveyed by curb and gutter, continues to flow westerly until it turns southerly along Cravens Lane. Runoff from Subarea 2B and 3C surface flow southerly over existing ground surface onto the driveway along the southerly boundary of the site, where they combine with the runoff from subarea 1A. The total discharge (node 5L) from the offsite run-on and onsite runoff onto the driveway along the southerly boundary of the site are as follows (see Appendix D for HydroCAD output),

Total Discharge onto Driveway along Southerly Boundary of the Site in the Existing Pre-Development Condition						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Q_{peak} [CFS]	1.02	2.03	2.77	3.70	4.65	5.07

In the Proposed Post-Development Condition, the site is divided into four drainage Subareas 1A, 2A, 3B, and 4C.

Subarea 1A (node 1S, 0.63 AC) includes the offsite tributary area. Runoff from Subarea 1A will be intercepted by grated inlet at the north boundary of the project site, and will be conveyed to the proposed underground storm drain RCP outlet directly. Since the off-site drainage would not be comingled with on-site drainage, it can be directly conveyed to the proposed discharge point and no treatment is needed.

Subarea 2A is 3.16 AC, and its runoff will be intercepted by grated inlets or infiltrates thru permeable pavement along onsite driveway, and will be discharged into the modified pond (node 4P) near the center of the site. The groundwater is at an elevation of ±13' based on the Geotechnical Investigation title "Installation of Piezometers" dated July 20, 2017, prepared by Earth Systems (see Appendix B). The Piezometer reading at Boring No. P-11 indicates that the groundwater is approximately 6 feet below the existing ground surface of 19' elevation south of the existing pond. The modified pond has a storage capacity of 0.84 AF from the groundwater elevation of 13' to the proposed top of pond elevation 18', and will provide incidental infiltration and detention for the tributary runoff. The outlet riser is custom designed with multiple vertical orifices at different elevations to control the peak discharge outflow such that it does not exceed those in the Existing Pre-Development Condition from 2-year to 100-year storm. The sizes, numbers, and elevations of the vertical orifices on the outlet riser are shown on the HydroCAD Output in Appendix E, and is indicated in the riser outlet detail on sheet 2 of the Hydrology Map – Proposed Post-Development Condition in Appendix F. The outlet riser and the 18" Elliptical RCP outlet is designed to convey up to the 100-year storm. There is an emergency overflow opening at the top of the riser. Storm water will secondarily overflow near the southerly portion of the pond across the walkway and surface flow onto the existing paved driveway along the southerly boundary of the site.

Subarea 3B (node 5S) is the easterly and southerly 0.32 AC portion of the site. The majority of this subarea will be undisturbed, with a proposed Community Organic Garden constructed at existing grades at the southeast corner. The southeast corner is a sump area approximately 4 inches lower than the existing paved driveway along the southerly boundary of the project site. The surface runoff flows southerly towards the southeast corner where the LID runoff is retained for infiltration. Every 4th block at grade of the perimeter block wall will be removed to allow surface runoff to overflow onto the existing paved driveway to mimic the existing drainage pattern.

Subarea 4C (node 6S) is the westerly 0.32 AC portion of the site that will be dedicated to the City of Carpinteria for Cravens Lane widening. The parkway and sidewalk is sloped towards the proposed curb and gutter along Cravens Lane, and the flow is conveyed southerly along Cravens Lane. A proposed cross gutter at the existing paved driveway along the southerly boundary of the site will convey the flow southerly along Cravens Lane.

The combined discharge from surface runoff and underground runoff conveyed by proposed 18" RCP on Cravens Lane (node 7L) for 2-Year thru 100-Year Storm Events are as follows (see Appendix E for HydroCAD output),

Total Discharge at the Southerly Boundary of the Site in the Proposed Post-Development Condition						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Q_{peak} [CFS]	0.82	1.49	2.09	3.36	4.28	5.05

Comparing the Existing Pre-development Condition and the Proposed Post-development Condition, the changes in the total discharge flow rates are as follows,

Comparison of Total Discharge at the Southerly Boundary of the Site						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Existing Pre-Development Q_{peak} [CFS]	1.02	2.03	2.77	3.70	4.65	5.07
Proposed Post-Development Q_{peak} [CFS]	0.82	1.49	2.09	3.36	4.28	5.05
ΔQ_{peak} [CFS]	-0.20	-0.54	-0.68	-0.34	-0.37	-0.02

With the modified pond near the center of the project site, the total peak runoff flow rates from the site in the Proposed Post-development Condition are less than that in the Existing Pre-development Condition.

CONCLUSION

From the Summaries and calculations performed for this Drainage Study and the enclosed Hydrology Maps, the proposed 31-unit condominium project will not contribute significant negative impact to the adjacent and downstream properties. Thus, the tributary storm water runoff from project site, if developed as proposed, will not adversely affect persons or properties onsite, existing drainage patterns or downstream drainage facilities, and are also in conformance with the City of Carpinteria design criteria, guidelines, policies and procedures.

REFERENCES

1. Earth Systems Southern California (2016). Update of Geotechnical Engineering Reports for 1300 Cravens Lane, Carpinteria, California, November 7, 2016.

2. United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). Web Soil Survey, websoilsurvey.sc.egov.usda.gov/App/Homepage.htm. Accessed 16 September 2016.

APPENDIX A

Hydrologic Soil Group

Search

Properties and Qualities Ratings

Open All | Close All

- Soil Chemical Properties
- Soil Erosion Factors
- Soil Physical Properties
- **Soil Qualities and Features**
  - AASHTO Group Classification (Surface)
  - Depth to a Selected Soil Restrictive Layer
  - Depth to Any Soil Restrictive Layer
  - Drainage Class
  - Frost Action
  - Frost-Free Days
  - Hydrologic Soil Group

View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☑ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ○ Lower ◉ Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Unified Soil Classification (Surface)
- Water Features

Map — Hydrologic Soil Group

Scale (not to scale)



Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil AOI were mapped at 1:24,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps of contrasting soils that could have been shown at a more detailed scale.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Santa Barbara County, California, South Coastal Part (CA673)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AaA	Agueda silty clay loam, 0 to 2 percent slopes, MLRA 14	C	137.8	0.1%
AaC	Agueda silty clay loam, 2 to 9 percent slopes, MLRA 14	C	548.2	0.2%
AaD	Agueda silty clay loam, 9 to 15 percent slopes	B	157.6	0.1%
AbC	Agueda-Goleta complex, 2 to 9 percent slopes	B	511.7	0.2%
AC	Aquents, fill areas		1,161.0	0.5%
AD	Aquepts, flooded		461.6	0.2%
AE	Argixerolls and Xererts, landslides areas	C	555.4	0.2%
AgD	Arnold loamy sand, 9 to 15 percent slopes	A	267.8	0.1%
AgE2	Arnold loamy sand, 15 to 30 percent slopes, eroded	A	426.0	0.2%
AgF2	Arnold loamy sand, 30 to 50 percent slopes, eroded	A	377.5	0.2%
AgG	Arnold loamy sand, 50 to 75 percent slopes	A	130.2	0.1%
AhE2	Ayar clay, 15 to 30 percent slopes, eroded	C	1,177.6	0.5%
AhF2	Ayar clay, 30 to 50 percent slopes, eroded	C	5,335.0	2.2%
AhG	Ayar clay, 50 to 75 percent slopes	C	1,321.9	0.5%
BaA	Ballard fine sandy loam, 0 to 2 percent slopes	B	234.8	0.1%
BaC	Ballard fine sandy loam, 2 to 9 percent slopes	B	1,141.7	0.5%
BbC	Ballard variant, stony fine sandy loam, 2 to 9 percent slopes	B	1,299.2	0.5%
BcC	Baywood loamy sand, 2 to 9 percent slopes	A	984.1	0.4%
BE	Beaches		1,290.1	0.5%
BgA	Botella silty clay loam, 0 to 2 percent slopes	C	129.3	0.1%
BgC	Botella silty clay loam, 2 to 9 percent slopes	C	1,174.7	0.5%
BhC	Botella shaly clay loam, 2 to 9 percent slopes	C	307.7	0.1%
BkC2	Botella variant clay loam, 2 to 9 percent slopes, eroded	C	558.1	0.2%
BkD2	Botella variant clay loam, 9 to 15 percent slopes, eroded	C	222.4	0.1%
Ca	Camarillo fine sandy loam	C	1,177.0	0.5%
Cb	Camarillo, variant, fine sandy loam	C/D	939.6	0.4%
CcF	Capitan cobbly clay loam, 30 to 50 percent slopes	D	1,906.0	0.8%
CdG	Capitan-Rock outcrop complex , 50 to 75 percent slopes	D	2,908.5	1.2%
CeB	Concepcion loamy sand, 0 to 5 percent slopes	D	853.9	0.4%
CgA	Concepcion fine sandy loam, 0 to 2 percent slopes	D	636.2	0.3%
CgC	Concepcion fine sandy loam, 2 to 9 percent slopes	D	1,035.9	0.4%
CgC2	Concepcion fine sandy loam, 2 to 9 percent slopes, eroded	D	1,720.9	0.7%
CgD2	Concepcion fine sandy loam, 9 to 15 percent slopes, eroded	D	891.4	0.4%
CgE2	Concepcion fine sandy loam, 15 to 30 percent slopes, eroded	D	728.6	0.3%
CgF2	Concepcion fine sandy loam, 30 to 50 percent slopes, eroded	D	142.1	0.1%
ChC	Cortina stony loamy sand, 2 to 9 percent slopes	A	665.0	0.3%
CkD2	Crow Hill silty clay loam, 9 to 15 percent slopes, eroded	C	167.8	0.1%
CkE2	Crow Hill silty clay loam, 15 to 30 percent slopes, eroded	C	326.2	0.1%
CkF	Crow Hill silty clay loam, 30 to 50 percent slopes	C	118.7	0.0%
CkG	Crow Hill silty clay loam, 50 to 75 percent slopes	C	100.1	0.0%

Hydrologic Soil Group

DaC	Diablo clay, 2 to 9 percent slopes	C	1,292.5	0.5%
DaD	Diablo clay, 9 to 15 percent slopes	C	1,133.1	0.5%
DaE2	Diablo clay, 15 to 30 percent slopes, eroded	C	968.3	0.4%
DaF2	Diablo clay, 30 to 50 percent slopes, eroded	C	546.1	0.2%
DU	Dune land		190.3	0.1%
EaA	Elder sandy loam, 0 to 2 percent slopes, MLRA 14	A	1,733.0	0.7%
EaB	Elder sandy loam, 2 to 9 percent slopes, MLRA 14	A	546.4	0.2%
Eb	Elder-Soboba complex, 2 to 9 percent slopes		448.3	0.2%
ES	Escarpment		93.8	0.0%
GaE	Gaviota sandy loam, 9 to 30 percent slopes, MLRA 20	D	986.6	0.4%
GaG	Gaviota sandy loam, 30 to 75 percent slopes, MLRA 15	D	6,849.8	2.8%
GbG	Gaviota-Rock outcrop complex, 50 to 75 percent slopes, longer FFS, MLRA 20	D	3,182.7	1.3%
GcA	Goleta fine sandy loam, 0 to 2 percent slopes	B	2,047.5	0.8%
GcC	Goleta fine sandy loam, 2 to 9 percent slopes	B	1,753.7	0.7%
GdA	Goleta loam, 0 to 2 percent slopes	B	1,837.5	0.8%
GU	Gullied land		1,005.7	0.4%
LaE	Linne clay loam, 15 to 30 percent slopes	C	734.9	0.3%
LaF2	Linne clay loam, 30 to 50 percent slopes, eroded	C	1,245.7	0.5%
LaG	Linne clay loam, 50 to 75 percent slopes	C	313.2	0.1%
LbG	Lodo-Rock outcrop complex , 50 to 75 percent slopes	D	5,286.7	2.2%
LcG	Lodo-Sespe complex , 50 to 75 percent slopes	D	13,618.6	5.6%
LdG	Lopez-Rock outcrop complex, 50 to 75 percent slopes	D	3,163.0	1.3%
LdH	Lopez-Rock outcrop complex , 75 to 100 percent slopes	D	1,305.5	0.5%
LeE2	Lopez-Santa Lucia complex, 9 to 30 percent slopes, eroded	D	1,519.8	0.6%
LeF2	Lopez-Santa Lucia complex, 30 to 50 percent slopes, eroded	D	3,957.7	1.6%
LgE2	Los Osos clay loam, 15 to 30 percent slopes, eroded, warm MAAT, MLRA 20	D	1,256.5	0.5%
LgF2	Los Osos clay loam, 30 to 50 percent slopes, eroded, longer FFS, MLRA 20	D	6,352.6	2.6%
LhG	Los Osos-Maymen complex, 50 to 75 percent slopes	D	3,578.2	1.5%
MaE	Maymen stony fine sandy loam, 15 to 30 percent slopes	D	827.6	0.3%
MaG	Maymen stony fine sandy loam, 30 to 75 percent slopes	D	6,374.3	2.6%
MbH	Maymen-Rock outcrop complex , 50 to 75 percent slopes	D	41,644.4	17.2%
Mc	Metz loamy sand	A	184.4	0.1%
MdC	Milpitas stony fine sandy loam, 2 to 9 percent slopes	D	133.3	0.1%
MdD	Milpitas stony fine sandy loam, 9 to 15 percent slopes	D	1,748.7	0.7%
MdE	Milpitas stony fine sandy loam, 15 to 30 percent slopes	D	1,287.1	0.5%
MdF	Milpitas stony fine sandy loam, 30 to 50 percent slopes	D	843.9	0.3%
MeC	Milpitas-Positas fine sandy loams, 2 to 9 percent slopes	D	5,584.8	2.3%
MeD2	Milpitas-Positas fine sandy loam, 9 to 15 percent slopes, eroded	D	4,880.8	2.0%
MeE2	Milpitas-Positas fine sandy loams, 15 to 30 percent slopes, eroded	D	1,573.4	0.6%
MeF2	Milpitas-Positas fine sandy loams, 30 to 50 percent slopes, eroded	D	639.5	0.3%
MgF2	Montara stony clay, 15 to 50 percent slopes, eroded	D	373.8	0.2%
NaF2	Nacimiento silty clay loam, 30 to 50 percent slopes, eroded, MLRA 20	C	618.6	0.3%
NbG	Nacimiento-Landslide , 30 to 75 percent slopes	C	2,261.5	0.9%
NOTCOM	No Digital Data Available		24,675.9	10.2%
OAG	Orthents, 50 to 75 percent slopes		990.7	0.4%
PA	Pits and dumps		1,938.8	0.8%

RA	Riverwash		137.8	0.1%
Rb	Rock outcrop-Maymen complex, 75 to 100 percent slopes		26,402.3	10.9%
SaD2	San Andreas-Tierra complex, 9 to 15 percent slopes, eroded	B	192.1	0.1%
SaE2	San Andreas-Tierra complex , 15 to 30 percent slopes, eroded	B	801.1	0.3%
SaF2	San Andreas-Tierra complex, 30 to 50 percent slopes, eroded	B	716.5	0.3%
SB	Sanitary landfill areas		149.9	0.1%
ScD2	Santa Lucia shaly clay loam, 9 to 15 percent slopes, eroded	C	273.7	0.1%
ScE2	Santa Lucia shaly clay loam, 15 to 30 percent slopes, eroded	C	2,267.2	0.9%
ScF2	Santa Lucia shaly clay loam, 30 to 50 percent slopes, eroded	C	2,519.7	1.0%
ScG	Santa Lucia shaly loam, 50 to 75 percent slopes	C	1,402.8	0.6%
TaE2	Tierra-San Andreas complex , 15 to 30 percent slopes, severely eroded	D	292.3	0.1%
TbD2	Todos clay loam, 9 to 15 percent slopes, eroded	C	130.4	0.1%
TbE2	Todos clay loam, 15 to 30 percent slopes, eroded	C	1,354.2	0.6%
TdF2	Todos-Lodo complex, 30 to 50 percent slopes, eroded	C	4,969.8	2.1%
W	Water		248.1	0.1%
XA	Xerorthents, cut and fill areas		909.1	0.4%
ZaD2	Zaca clay, 9 to 15 percent slopes, eroded	C	300.6	0.1%
ZaE2	Zaca clay, 15 to 30 percent slopes, eroded	C	1,070.3	0.4%
ZaF2	Zaca clay, 30 to 50 percent slopes, eroded	C	481.8	0.2%
Totals for Area of Interest			**242,378.5**	**100.0%**

Description — Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options — Hydrologic Soil Group

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components.

The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: *None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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Table 2-2a Runoff curve numbers for urban areas [1/]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2/]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3/]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4/]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5/]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

Existing Condition

Proposed Condition

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b Runoff curve numbers for cultivated agricultural lands [1/]

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment [2/]	Hydrologic condition [3/]	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T+ CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T+ CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

[1] Average runoff condition, and I_a=0.2S

[2] Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

[3] Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good ≥ 20%), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2-2c Runoff curve numbers for other agricultural lands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2/]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3/]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4/]	48	65	73
Woods—grass combination (orchard or tree farm). [5/]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6/]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4/]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

1 Average runoff condition, and $I_a = 0.2S$.

2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

3 *Poor*: <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

4 Actual curve number is less than 30; use CN = 30 for runoff computations.

5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition [2/]	A [3/]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

1 Average runoff condition, and I_a, = 0.2S. For range in humid regions, use table 2-2c.
2 Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
3 Curve numbers for group A have been developed only for desert shrub.

APPENDIX B

Excerpts of Geotechnical Engineering Report

UPDATE OF

GEOTECHNICAL ENGINEERING REPORTS

FOR

1300 CRAVENS LANE

CARPINTERIA, CALIFORNIA

VT-23345-03

JULY 10, 2017

PREPARED FOR

CRAVENS LANE LLC

BY

EARTH SYSTEMS

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July 7, 2017

Project No.: VT-23345-03
Report No.: 17-7-16

Nancy Johns
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Project: 1300 Cravens Lane
Carpinteria, California
Subject: Update of Geotechnical Engineering Reports
References:
1. Earth Systems Southern California, 2005, Geotechnical Engineering Report, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 05-3-8, March 17
2. Earth Systems Southern California, 2006, Section for Permeable Surface for Drive Lanes & Parking Areas, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 06-2-17, February 2
3. Earth Systems Southern California, 2016, Update of Geotechnical Engineering Reports, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 06-2-17, November 7

Introduction

Earth Systems Southern California (Earth Systems) has been asked to prepare an Update of Geotechnical Engineering Reports and to perform infiltration testing for a proposed residential development to be located at 1300 Cravens Lane in Carpinteria, California. The development will include about 13 residential buildings, surface parking/drive lanes, and site walls. It is our understanding infiltration of storm water will occur though permeable paving and relatively shallow bioswales/basins.

Earth Systems prepared the referenced Geotechnical Engineering Report in February 2005 and the referenced letter “Section for Permeable Surface for Drive Lanes & Parking Areas” in February 2006. The referenced reports are attached to this report.

On July 7, 2017, a representative of this office visited the project site to observe and compare the site's current conditions to those noted in the referenced Earth Systems reports. The site conditions appear to be essentially the same now as then.

Infiltration Testing

Previous borings drilled onsite by Earth Systems (see Reference 1) encountered groundwater at about 3 feet below existing grade.

On October 20, 2016, four test holes (IT-1 through IT-4) were hand excavated to a depth of about 2 feet below the existing grade to allow installation of plastic casing for infiltration testing (see attached Site Plan for boring locations). All test holes were bottomed into native alluvium.

After excavations were completed, 2-inch diameter slotted PVC casings were lowered into each of the test holes. The annuli between the casings and test hole walls were then filled with pea gravel. The holes were then pre-saturated by adding water to each hole. The infiltration tests were run according to a procedure consistent with the referenced Native Soil Assessment for Small Infiltration-Based Stormwater Control Measures (Earth Systems Pacific, December 2013). The procedure used, falling-head borehole infiltration test, is typically accepted by the County of Santa Barbara. Tests were performed at about 2 feet below existing grade. About 1 to 2 feet of water was added to the bottom of each of the holes to start the tests and the drop in the water surface monitored by taking periodic measurements. Readings were taken at about 1-minute intervals, and after each of these intervals, water was added to return the water level to its original refill depth above the hole bottom for the next test interval. Test results are attached and indicate that relatively steady infiltration rates were obtained.

The following table summarizes our infiltration test rates.

Boring	Boring Depth (feet)	Infiltration Rate (in./hr.)*
IT-1	2.0	4.7
IT-2	2.0	3.9
IT-3	2.0	0.5
IT-4	1.9	12.8

*The test rates were determined by averaging the last three readings.

There are many factors that influence the infiltration rate. Clear water was used in our tests, whereas oil residue, silt, organic matter, and other deleterious material will likely be contained in the stormwater. Variations in soil conditions beyond the borings will likely affect infiltration characteristics. The designer of the proposed vertical chambers for the project should consider these factors in their design, as well as apply a factor-of-safety to the infiltration rate to account for future disposal bed siltation.

Revised Seismic Design Values

Although the site is not within a State-designated "fault rupture hazard zone", it is located in an active seismic region where large numbers of earthquakes are recorded each year. Historically, major earthquakes felt in the vicinity of the subject site have originated from faults near or outside the site area. These include the December 21, 1812 "Santa Barbara Region" earthquake, that was

presumably centered in the Santa Barbara Channel, the 1857 Fort Tejon earthquake, the 1872 Owens Valley earthquake, and the 1952 Arvin-Tehachapi earthquake. The June 25, 1925 Santa Barbara earthquake had an estimated magnitude of 6.8 and is not considered a "major" earthquake. However, it did cause widespread damage around Santa Barbara because of poor construction techniques.

It is assumed that the 2016 CBC and ASCE 7-10 guidelines will apply for the seismic design parameters. The 2016 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. The seismic design parameters presented herein were determined by the U.S. Seismic Design Maps "risk-targeted" calculator on the USGS website for the jobsite coordinates (Latitude 34.409° North and Longitude 119.538° West). The calculator adjusts for Soil Site Class D, and for Occupancy (Risk) Category II.

The calculated 2016 California Building Code (CBC) and ASCE 7-10 seismic parameters typically used for structural design are included in Appendix C and summarized in the table below.

Summary of Seismic Parameters – 2016 CBC

Site Class (Table 20.3-1 of ASCE 7-10 with 2013 update)	D
Maximum Considered Earthquake (MCE) Ground Motion	
Spectral Response Acceleration, Short Period – S_s	2.786 g
Spectral Response Acceleration at 1 sec. – S_1	0.986 g
Site Coefficient – F_a	1.00
Site Coefficient – F_v	1.50
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	2.786 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	1.479 g
Design Earthquake Ground Motion	
Short Period Spectral Response – S_{DS}	1.857 g
One Second Spectral Response – S_{D1}	0.986 g
Reference: USGS, 2015, Latitude: 34.409 N degrees Longitude: 119.538 W degrees	

The values presented in the table above are appropriate for a 2% probability of exceedance in 50 years. A listing of the calculated 2016 CBC and ASCE 7-10 seismic parameters is attached. The site peak ground acceleration (PGA) per Section 1803.5.12 of the 2016 CBC and Section 11.8.3 of ASCE 7-10 is 1.093 g. The PGA_M is also 1.092 g.

The Fault Parameters table in Appendix C lists the significant "active" and "potentially active" faults within a 63-mile (100-kilometer) radius of the subject site. The distance between the site and the

nearest portion of each fault is shown, as well as the respective estimated maximum earthquake magnitudes, and the deterministic mean site peak ground accelerations.

Revised Liquefaction Analysis and Dry Sand Settlement

A major cause of damage during earthquakes is a significant reduction of soil strength or stiffness in sandy soils, generally referred to as liquefaction. A related phenomenon, referred to as cyclic softening, can occur in clayey soils. Liquefaction and cyclic softening can cause translational instability, bearing failure, settlement, ground loss, and other related phenomena. Translational instabilities can be slope failures or lateral spreading. Bearing failure can occur when soil strength loss or softening is near a foundation. Settlement can occur when bearing failure is precluded, but volumetric compression occurs. Ground loss results from sand boils and is usually very localized. Liquefaction and cyclic softening are typically a design problem only if they occur in the upper 50 feet of the subsurface soils. However, on sloping ground or when foundations reach beyond that depth, liquefaction should be considered to a greater depth. There are a number of conditions that need to be satisfied for liquefaction or cyclic softening to occur. Of primary importance is that groundwater, perched or otherwise, usually must be within the upper 50 feet of soils. Another type of ground damage caused by earth quakes is settlement in non-saturated (dry) sands. This occurs when ground motion causes the soil particles to reorient into a denser configuration.

Earth Systems performed a liquefaction settlement analyses in Reference 1. The 2016 California Building Code requires higher ground accelerations to be used in these analyses than were required by the 2001 California Building Code in effect in 2005.

Liquefaction and dry sand seismic induced settlement potential have been re-analyzed using the new peak ground acceleration of PGA_M=1.093 g. The results of the new analyses are significantly different than the previous analyses (Earth Systems, 2005). At the approximate location of previous exploration points CPT-1/Boring 1 (both taken to about 50 feet below the ground surface), the previous analyses predicted about 2 inches of liquefaction-induced settlement potential. The current analyses predict about 3.9 inches of liquefaction-induced settlement potential. Seismically induced settlement of dry sands potential is considered low because the upper near-surface soils will be recompacted and the groundwater level is close to the ground surface.

Anticipated differential seismic induced settlement potential could be half of the total settlement, or about 1.9 inches. This amount of differential settlement could occur between two typically spaced columns, or over a distance of 30 to 40 feet. This is equivalent to an angular rotation of about 0.005, a level at which structural damage will be sustained.

Revised Grading Recommendations

Grading at a minimum should conform to Appendix J of the 2016 California Building Code. The grading recommendations set forth in the Geotechnical Engineering Report (Reference 1) will apply to the proposed construction. This previous discussion includes dewatering during reconstruction

which we still think is necessary. Compaction tests should be performed in 12 to 18 inch vertical intervals within the recompacted fill.

Surface draining systems should be designed so that water is not discharged into bearing soils or near the structure. Final site grade could be such that all water is diverted away from the building toward either hardscapes or drain inlets, and is not allowed to pond. In landscape areas adjacent to the building, the 2016 California Building Code (Section 1804.4) requires a minimum gradient of 5% away from the edge of the building foundation for a minimum distance of 10 feet.

Revised Foundation Design Parameters

The amount of predicted seismic induced settlement is anticipated to be more than a typical structure can tolerate. Methods to mitigate settlement include foundation systems strong enough to endure the anticipated movement, foundations that support the structure below the potentially settling soils, or ground modification to reduce the anticipated settlement potential.

The previously recommended post tension can be considered, if the structural engineer can design the foundation for the anticipated 3.9 inches of total liquefaction settlement and 1.9 inches of potential differential settlement over a distance of about 30 to 40 feet.

It is our understanding that no retaining walls greater than 6 feet in height will be constructed. Seismic increment of earth pressure does not need to be considered for retaining walls that are retaining 6 feet or less measured from the finish grade to top of fill behind the wall.

Revised Post-Tensioned Slab Foundations

When lightly loaded foundations are constructed on expansive soils, the California Building Code requires that they be designed to either penetrate the expansive soils and be designed to resist uplift forces, or by the WRI/CRSI Design of Slab-on-Ground Foundations, or by the PTI Standard Requirements for the Design of Shallow Post-Tensioned Concrete Foundations on Expansive Soil. This report provides data to use the PTI procedure according to the 3rd Edition.

The soils parameters required include the soil moisture content, Atterberg limits, fines fraction, clay fraction, and as a check, expansion index. For the project site, these parameters are:

Parameter	Result
Expansion Index	29

Additional considerations for the PTI method are:

Parameter	Value
Thornthwaite Moisture Index	-20
Soil Suction (pF)	4.0
Depth to Constant Suction (feet)	9

Using these data and the soil data, the PTI design method yielded the following design parameters that can be used with other data to design a post-tensioned slab-on-ground for the proposed residential structures.

Parameter	Center Lift	Edge Lift
e_m	5.3 feet	2.5 feet
y_m	0.13 inches	0.41 inches

Post-tension slabs must also be designed for the estimated total and differential seismic induced settlements of 3.9inches and 1.9 inches, respectively.

Perimeter footings should be a minimum of 15 inches deep and interior foundations a minimum of 12 inches deep for one-story construction. For two-story construction, perimeter and interior foundations should be a minimum of 18 inches deep. For three-story construction, perimeter and interior foundations should be a minimum 24 inches deep. Slabs and foundations can be designed for an allowable bearing value of 1,000 psf.

Exterior isolated footings should be tied to the main foundations with tie beams in two directions. The beams should be a minimum of 12 inches below lowest adjacent grade.

Subgrade soils should be pre-moistened to a minimum of optimum moisture to a depth of 12 inches. After pre-moistening is approved, the subgrade should be covered with a vapor retarder in areas where floor wetness would be undesirable. The vapor retarder should in turn be covered with a minimum of 2 inches of clean sand. (The total thickness of sand recommended under post-tensioned slabs is 2 inches.) The sand should be lightly moistened before pouring concrete.

A member of Earth Systems should check footing excavations prior to placing reinforcing to confirm bearing conditions. Slab subgrade premoistening should be confirmed by testing before placing the plastic vapor retarder

Permeable Pavement/Paver Design

Two R-value measurements were determined for the near-surface site subgrade soils and the results were R=9 and R=12. Using a typical residential neighborhood traffic index of 5.5 and the more conservative R-value of 9, paver sections for the interior access roads/parking should have 3 inches (minimum thickness) of pavers over 12.5 inches of aggregate base. The above paving section has been designed for the type of traffic indicated using a procedure outlined by the Interlocking Concrete Pavement Institute. If the pavers are placed before construction on the project is complete, construction loads should be taken into account. Subgrade should be compacted to a minimum of 95% of maximum density to a depth of 12 inches. The subgrade should be firm and unyielding when proof rolled with a loaded water truck or similar load. Aggregate base should be compacted to a minimum of 95% maximum density and should be firm and unyielding prior to placing pavement.

Conclusions

Based on our observations and review of the referenced reports, we conclude that the referenced information along with the additional revised information included in this update letter are appropriate for the proposed construction. The update will remain valid for one year from the date of this letter.

Prior to construction we request the opportunity to review the grading and foundation plans to verify that our recommendations are properly incorporated and make any additional recommendations that might be needed.

Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

EARTH SYSTEMS SOUTHERN CALIFORNIA

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Attached: Vicinity Map
Revised Site Plan
Log of Boring IT-1 through IT-4
Infiltration Test Results
R-Value Test Results
Table 1 Fault Parameters
2016 California Building Code (CBC)(ASCE 7-10) Seismic Design Parameters
USGS Design Maps
CPT Interpretations and Revised Liquefaction Analyses
Table 18-I-D
Referenced Geotechnical Engineering Report (March 17, 2005)

Copies: 1 - Nancy Johns (3 copies US Mail, 1 copy email)
1 - Scott Dinovitz (1 copy email)
1 - Project File

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July 20, 2017

Project No.: VT-23345-04
Report No.: 17-7-74

Nancy Johns
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Project: 1300 Cravens Lane
Carpinteria, California
Subject: Installation of Piezometers
References:
1. Earth Systems Southern California, 2005, Geotechnical Engineering Report, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 05-3-8, March 17
2. Earth Systems Southern California, 2006, Section for Permeable Surface for Drive Lanes & Parking Areas, 1300 Cravens Lane, Carpinteria, California, File VT-23345-01, Report 06-2-17, February 2
3. Earth Systems Southern California, 2016, Update of Geotechnical Engineering Reports, 1300 Cravens Lane, Carpinteria, California, File VT-23345-03, Report 16-11-14, November 7
4. Earth Systems Southern California, 2017, Update of Geotechnical Engineering Reports, 1300 Cravens Lane, Carpinteria, California, File VT-23345-03, Report 17-7-16, July 10
5. Earth Systems Southern California, 2017, Response to Review, 1300 Cravens Lane, Carpinteria, California, File VT-23345-03, Report 17-7-15, July 10

On July 12 and 13, 2017, twelve piezometers were installed at the subject site. Nine of the piezometers were installed in 6-inch diameter borings drilled by a hollow-stem auger rig. The remaining three piezometers were installed in approximately 3-inch diameter hand-augered borings. The depth of the piezometers ranged from 9.3 to 10 feet below the existing ground surface. The piezometer installation consisted of placing 2-inch diameter slotted PVC casings into each boring from the bottom to the top. Most PVC casings were flush with the ground surface except for Boring No. 9 which extended several inches above the ground surface. The casings were then surrounded by pea-gravel up to within a foot or less from the ground surface. A bentonite seal was then placed up to the ground surface and the casings were capped.

Each of the piezometers were logged by a representative of the Engineering Geologist (see attached Boring Logs). The soils encountered within the piezometer borings were similar to the soils encountered during the previous exploration (see Reference 1). On July 20, 2017, stabilized

groundwater was measured within the piezometers from about 6.21 to 9.09 feet below the top of the casings. The stabilized groundwater depths are presented on the Boring Logs. The approximate locations of the piezometers are shown on the attached Site Plan.

The soil and groundwater data from the piezometers should be used by dewatering system designers. Additional reading of the groundwater should be made prior to installation of the dewatering system to determine if there are any fluctuations in the groundwater depths.

Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

EARTH SYSTEMS SOUTHERN CALIFORNIA

Reviewed and Approved

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7/20/17

Attached: Boring Logs
Site Plan

Copies: 1 - Nancy Johns (3 copies US Mail, 1 copy email)
1 - Scott Dinovitz (1 copy email)
1 - Project File

Earth Systems Southern California
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BORING NO: P-1
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown clayey sandy silt; loose; dry.
									Becomes moist.
5								▼	
						SC			**ALLUVIUM:** Olive brown clayey sand; loose; wet.
						CL			**ALLUVIUM:** Dark olive brown sandy clay; stiff; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 6.42 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-2
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Reddish brown sandy silt; loose; dry.
5						ML			**ALLUVIUM:** Reddish brown clayey silt; firm; very moist.
						SC		▼	**ALLUVIUM:** Olive brown clayey sand; loose; wet.
10						CL			**ALLUVIUM:** Dark olive brown sandy clay; stiff; wet.
15									Total Depth: 10.0 feet. Groundwater Depth: 6.43 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-3
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Reddish brown silty sand; loose to medium dense; damp to moist.
5						ML			**ALLUVIUM:** Olive brown sandy silt; minor clay; firm; moist. Very moist at 5.0 feet.
						SC			**ALLUVIUM:** Olive brown to reddish brown clayey sand; loose; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 6.60 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-4
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Reddish brown silty sand; loose to medium dense; damp to moist.
5						ML			**ALLUVIUM:** Olive brown sandy silt; minor clay; firm; moist. Very moist at 5.0 feet.
						SC		▼	**ALLUVIUM:** Olive brown to reddish brown clayey sand; loose; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 7.19 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-5
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Reddish brown silty sand to sandy silt; loose to medium dense; damp to moist.
5						CL			**ALLUVIUM:** Olive brown sandy clay; firm; moist. Wet at 5.0 feet. Scattered sandy lenses.
10									Total Depth: 10.0 feet. Groundwater Depth: 6.84 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-6
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Medium brown silty fine sand; loose; moist.
5						ML			**ALLUVIUM:** Olive brown clayey sandy silt; firm; moist. Very moist at 5.0 feet.
						SC		▼	**ALLUVIUM:** Reddish brown clayey sand; loose; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 7.19 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-7
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Medium brown silty fine sand; loose; dry to damp.
5						ML			**ALLUVIUM:** Dark olive brown sandy clayey silt; firm; moist.
						CL		▼	**ALLUVIUM:** Dark olive brown sandy clay; firm; very moist to wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 9.00 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-8
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Medium brown to reddish brown silty fine sand; loose; dry to damp.
5						ML			**ALLUVIUM:** Olive brown clayey silt; minor sand; firm; moist.
						CL		▼	**ALLUVIUM:** Dark olive brown sandy clay; stiff; very moist to wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 7.75 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-9
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: 6.0" Hollow Stem Auger
DRILL: Mobile B-61
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Medium brown silty fine sand; loose; dry to damp.
5						ML			**ALLUVIUM:** Olive brown clayey sandy silt; loose; moist.
						SC		▼	**ALLUVIUM:** Olive brown clayey sand; firm; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 7.21 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack and bentonite seal.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-10
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM			**ALLUVIUM:** Medium brown silty fine sand; loose; damp to moist.
5						ML			**ALLUVIUM:** Olive brown sandy silt; loose; moist. Silty sand lense at five feet.
						SC			**ALLUVIUM:** Olive brown clayey sand; firm; wet.
10									Total Depth: 9.3 feet. Groundwater Depth: 6.49 feet. Water depth corrected for additional pipe height. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-11
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						SM/ML			**ALLUVIUM:** Medium brown silty sand and sandy silt; loose; dry to damp.
5									Moist at 4.0 feet. Wet at 6.0 feet.
						CL			**ALLUVIUM:** Dark gray sandy clay; firm to stiff; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 6.21 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems Southern California
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: P-12
PROJECT NAME: 1300 Cravens Lane
PROJECT NUMBER: VT-23345-04
BORING LOCATION: Per Plan

DRILLING DATE: July 12, 2017
DRILLING METHOD: Hand Auger
DRILL:
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0						ML			**ALLUVIUM:** Medium brown sandy silt; firm; dry.
						SM			**ALLUVIUM:** Reddish brown silty sand; medium dense; damp; with gravels at 3.0 feet.
5						SM			**ALLUVIUM:** Yellowish brown slightly silty sand; medium grained with gravels; medium dense; moist. Wet at 6.5 feet.
						ML		▼	**ALLUVIUM:** Olive brown clayey sandy silt; firm; wet.
10									Total Depth: 10.0 feet. Groundwater Depth: 9.09 feet. Observed 7-19-2017. Installed 10.0 feet of 2.0" slotted PVC pipe with gravel pack.
15									
20									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.



Approximate Location of Piezometers

Approximate Scale: 1" = 60'

0 60' 120'

N

SITE PLAN

1300 Cravens Lane
Carpinteria, California

Earth Systems
Southern California

July 2017 | VT-23345-04 | B-23

APPENDIX C

Precise Grading Plan

PRECISE GRADING PLAN FOR TRACT TM 25178 1300-1326 CRAVENS LANE APN 004-013-026 CARPINTERIA, SANTA BARBARA, CA

GENERAL NOTES

1. A COPY OF THE GRADING PERMIT AND APPROVED GRADING PLANS MUST BE IN THE POSSESSION OF A RESPONSIBLE PERSON AND AVAILABLE AT THE SITE AT ALL TIMES.
2. ANY MODIFICATIONS OF OR CHANGES TO APPROVED GRADING PLANS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
3. ALL GRADED SITES MUST HAVE DRAINAGE SWALES, BERMS, AND OTHER DRAINAGE DEVICES APPROVED AT THE ROUGH GRADING STAGE.
4. THE FIELD ENGINEER MUST SET DRAINAGE STAKES FOR ALL DRAINAGE DEVICES.
5. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE FIELD ENGINEER. WEEKLY STATUS REPORTS SHALL BE SUBMITTED BY THE FIELD ENGINEER TO THE ENGINEERING SERVICES DIVISION.
6. FINAL GRADING MUST BE APPROVED BEFORE OCCUPANCY OF BUILDINGS WILL BE ALLOWED.
7. CONSTRUCTION OF THE RETAINING WALL(S) SHOWN ON THESE PLANS REQUIRES A PERMIT FROM THE BUILDING AND SAFETY DIVISION.
8. SEPARATE PLANS FOR TEMPORARY DRAINAGE AND EROSION CONTROL MEASURES TO BE USED DURING THE RAINY SEASON MUST BE SUBMITTED PRIOR TO OCTOBER 1. THE EROSION CONTROL DEVICES SHOWN ON SAID PLANS MUST BE INSTALLED BY NO LATER THAN NOVEMBER 1 AND MAINTAINED IN OPERABLE CONDITION UNTIL APRIL 15 OF THE FOLLOWING YEAR. (17.25.030 U.D.C.)
9. ALL SUBDRAIN OUTLETS TO BE SURVEYED FOR LINE AND ELEVATION. THIS MUST BE SHOWN ON THE AS-BUILT GRADING PLAN INCLUDED IN THE FINAL GEOTECHNICAL AND GEOLOGY REPORT.
10. THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION. THIS CONTROL MUST CONSIST OF JUTE NETTING AND EFFECTIVE PLANTING, OR OTHER DEVICES SATISFACTORY TO THE CITY ENGINEER. (17.28.020(A) U.D.C.)
11. A PREVENTIVE PROGRAM TO PROTECT THE SLOPES FROM POTENTIAL DAMAGE FROM BURROWING RODENTS IS REQUIRED. OWNER TO INSPECT SLOPES PERIODICALLY FOR EVIDENCE OF BURROWING RODENTS AND AT FIRST EVIDENCE OF THEIR EXISTENCE SHALL EMPLOY AN EXTERMINATOR FOR THEIR REMOVAL. (17.28.020(E) U.D.C.)
12. WHERE NECESSARY, CHECK DAMS, CRIBBING, RIPRAP, OR OTHER DEVICES OR METHODS SHALL BE EMPLOYED FOR EROSION CONTROL. ALSO, JUTE NETTING SHALL BE IMMEDIATELY INSTALLED ON ANY SLOPES HAVING A VERTICAL HEIGHT OF SEVEN FEET OR MORE AND STEEPER THAN 3:1 (H:V) TO MINIMIZE OR CONTROL EROSION PROBLEMS.
13. ROOF DRAINAGE MUST BE DIVERTED FROM GRADED SLOPES.
14. ALL CONSTRUCTION AND GRADING WITHIN STORM DRAIN EASEMENT TO BE DONE PER STORM DRAIN PLAN.

FILL NOTES

15. ALL FILL SHALL BE COMPACTED TO THE FOLLOWING MINIMUM RELATIVE COMPACTION CRITERIA:

    A. 90 PERCENT OF MAXIMUM DRY DENSITY WITHIN 40 FEET BELOW FINISH GRADE

    B. 93 PERCENT OF MAXIMUM DRY DENSITY DEEPER THAN 40 FEET BELOW FINISH GRADE, UNLESS A LOWER RELATIVE COMPACTION (NOT LESS THAN 90 PERCENT OF MAXIMUM DRY DENSITY) IS JUSTIFIED BY THE GEOTECHNICAL ENGINEER.

    THE RELATIVE COMPACTION SHALL BE DETERMINED BY ASTM SOIL COMPACTION TEST D1557-91, WHERE APPLICABLE; WHERE NOT APPLICABLE A TEST ACCEPTABLE TO THE CITY ENGINEER SHALL BE USED. (17.27.020(A) U.D.C.)
16. FIELD DENSITY SHALL BE DETERMINED BY A METHOD ACCEPTABLE TO THE CITY ENGINEER, HOWEVER, A MINIMUM OF 10 PERCENT OF THE REQUIRED DENSITY TESTS SHALL BE OBTAINED BY THE SAND CONE METHOD (ASTM D1556). THE REQUIRED 10 PERCENT BY SAND CONE METHOD SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE DEPTHS AND LIMITS OF THE FILL.
17. SUFFICIENT TESTS OF THE FILL SOILS SHALL BE MADE TO DETERMINE THE RELATIVE COMPACTION OF THE FILL IN ACCORDANCE WITH THE FOLLOWING MINIMUM GUIDELINES:
    (a) ONE TEST FOR EACH TWO FOOT VERTICAL LIFT.
    (b) ONE TEST FOR EACH 1000 CUBIC YARDS OF MATERIAL PLACED.
    (c) ONE TEST AT THE LOCATION OF THE FINAL FILL SLOPE FOR EACH BUILDING SITE (LOT) IN EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.
    (d) ONE TEST IN THE VICINITY OF EACH BUILDING PAD FOR EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.

    SUFFICIENT TESTS OF FILL SOILS SHALL BE MADE TO VERIFY COMPLIANCE OF THE SOIL PROPERTIES WITH THE DESIGN REQUIREMENTS INCLUDING SOIL TYPES AND SHEAR STRENGTHS.
    THE RESULTS OF SUCH TESTING SHALL BE INCLUDED IN THE REPORTS REQUIRED BY SECTION (17.29.020(C) U.D.C.)
18. NO FILL SHALL BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS, AND INSTALLATION OF SUBDRAINS IF ANY) HAVE BEEN INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER. (17.27.020(B) U.D.C.)
19. NO ROCK OR SIMILAR MATERIAL GREATER THAN 12 INCHES IN DIAMETER WILL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BE SUBMITTED BY THE GEOTECHNICAL ENGINEER AND APPROVED IN ADVANCE BY THE CITY ENGINEER. (17.27.020(D) U.D.C.)
20. CONTINUOUS INSPECTION BY THE GEOTECHNICAL ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL FILL PLACEMENT AND COMPACTION OPERATIONS WHERE FILLS HAVE A VERTICAL HEIGHT OR DEPTH GREATER THAN 30 FEET OR SLOPE SURFACE STEEPER THAN 2:1. (17.27.020(G) U.D.C.)
21. CONTINUOUS INSPECTION BY THE GEOTECHNICAL ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS. (17.27.020(B) U.D.C.)
22. FILL SLOPES IN EXCESS OF 2:1 STEEPNESS RATIO ARE TO BE CONSTRUCTED BY THE PLACEMENT OF SOIL AT SUFFICIENT DISTANCE BEYOND THE PROPOSED FINISH SLOPE TO ALLOW COMPACTION EQUIPMENT TO BE OPERATED AT THE OUTER LIMITS OF THE FINAL SLOPE SURFACE. THE EXCESS FILL IS TO BE REMOVED PRIOR TO COMPLETION OF ROUGH GRADING. (OTHER CONSTRUCTION PROCEDURES MAY BE USED WHEN IT IS DEMONSTRATED TO THE SATISFACTION OF THE CITY ENGINEER THAT THE ANGLE OF SLOPE, CONSTRUCTION METHOD AND OTHER FACTORS WILL HAVE AN EQUIVALENT EFFECT).
23. THE GEOTECHNICAL ENGINEER SHALL PROVIDE SUFFICIENT INSPECTIONS DURING THE PREPARATION OF THE NATURAL GROUND AND THE PLACEMENT AND COMPACTION OF THE FILL TO BE SATISFIED THAT THE WORK IS BEING PERFORMED IN ACCORDANCE WITH THE PLAN AND APPLICABLE CODE REQUIREMENTS. (17.29.010(D) U.D.C.)
24. THE GRADING CONTRACTOR SHALL SUBMIT THE STATEMENT REQUIRED BY SECTION 17.29.020 U.D.C. AT THE COMPLETION OF ROUGH GRADING.

INSPECTION NOTES - REGULAR GRADING REQUIREMENTS

25. THE PERMITEE OR HIS AGENT SHALL NOTIFY THE DEVELOPMENT SERVICES DIVISION AT LEAST ONE WORKING DAY IN ADVANCE OF REQUIRED INSPECTIONS AT FOLLOWING STAGES OF THE WORK:

    A. INITIAL. WHEN THE SITE HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL AND IT HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED FOR FILL. NO FILL SHALL HAVE BEEN PLACED PRIOR TO THIS INSPECTION.

    B. ROUGH. WHEN APPROXIMATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED; DRAINAGE TERRACES, SWALES AND BERMS INSTALLED AT THE TOP OF THE SLOPES; AND THE STATEMENTS REQUIRED IN THIS SECTION 17.29.020 U.D.C. HAVE BEEN RECEIVED.

    C. FINAL. WHEN GRADING HAS BEEN COMPLETED; ALL DRAINAGE DEVICES INSTALLED; SLOPE PLANTING ESTABLISHED, IRRIGATION SYSTEMS INSTALLED AND THE AS-BUILT PLANS, REQUIRED STATEMENTS, AND REPORTS HAVE BEEN SUBMITTED. (17.29.010(C) U.D.C.)

ENGINEERED GRADING REQUIREMENTS:

26. IN ADDITION TO THE INSPECTION REQUIRED OF THE DEVELOPMENT SERVICES DIVISION FOR REGULAR GRADING, REPORTS AND STATEMENTS SHALL BE SUBMITTED TO THE CITY ENGINEER IN ACCORDANCE WITH SECTION - 17.29.020 U.D.C.

DIGALERT DIAL TOLL FREE 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

AGENCY NOTES:

27. SECURE PERMISSION FROM THE DEVELOPMENT SERVICES DIVISION FOR CONSTRUCTION OR GRADING WITHIN STREET RIGHT-OF-WAY.
28. GRADING IN FUTURE STREET RIGHT-OF-WAY MUST BE INSPECTED BY THE CITY.
29. ALL WORK WITHIN THE STREAMBED AND AREAS OUTLINED ON THE GRADING PLANS SHALL CONFORM TO:
    - ARMY CROP 404 PERMIT NUMBER: N/A
    - CALIFORNIA FISH & GAME PERMIT NUMBER: N/A
30. A STORMWATER POLLUTION PREVENTION PLAN MUST BE PREPARED AND A COPY AVAILABLE FOR REVIEW AT THE PROJECT SITE AT ALL TIMES. ALL MEASURES OUTLINED IN THE PROJECT STORMWATER POLLUTION PREVENTION PLAN MUST BE IMPLEMENTED THROUGHOUT THE DURATION OF THE CONSTRUCTION PHASE OF THE PROJECT.

GEOLOGY AND SOIL NOTES:

31. ALL RECOMMENDATIONS INCLUDED IN THE CONSULTANT'S SOIL AND GEOLOGY REPORTS MUST BE COMPLIED WITH AND ARE A PART OF THE GRADING SPECIFICATIONS. (17.23.010(B) U.D.C.)
32. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC GEOLOGIC INSPECTION WITH MONTHLY INSPECTION REPORTS TO BE SUBMITTED TO THE DEVELOPMENT SERVICES DIVISION.
33. THE CONSULTING GEOLOGIST MUST APPROVE ROUGH GRADING BY FINAL REPORT PRIOR TO THE APPROVAL BY THE CITY ENGINEER. THE FINAL REPORT MUST INCLUDE AN AS-BUILT GEOLOGIC MAP.

PLANTING AND IRRIGATION NOTES:

34. ALL CUT SLOPES OVER FIVE FEET AND FILL SLOPES OVER THREE FEET SHALL BE PLANTED WITH AN APPROVED GROUND COVER AND PROVIDED WITH AN IRRIGATION SYSTEM AS SOON AS PRACTICAL AFTER ROUGH GRADING. (17.28.020(B) U.D.C.)

STORMWATER POLLUTION PLAN NOTES

1. EVERY EFFORT SHOULD BE MADE TO ELIMINATE THE DISCHARGE OF NON-STORMWATER FROM THE PROJECT SITE AT ALL TIMES.
2. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON-SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEETFLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
3. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
4. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
5. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC RIGHT-OF-WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
6. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
7. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC RIGHT-OF-WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
8. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
9. THE FOLLOWING BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, THE "BEST MANAGEMENT PRACTICE HANDBOOK, CALIFORNIA STORMWATER QUALITY TASK FORCE, SACRAMENTO, CALIFORNIA 2010", OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT. (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY INSPECTORS).

EROSION CONTROL
EC1 - SCHEDULING
EC2 - PRESERVATION OF EXISTING VEGETATION
EC3 - HYDRAULIC MULCH
EC4 - HYDROSEEDING
EC5 - SOIL BINDERS
EC6 - STRAW MULCH
EC7 - GEOTEXTILES & MATS
EC8 - WOOD MULCHING
EC9 - EARTH DIKES AND DRAINAGE SWALES
EC10 - VELOCITY DISSIPATION DEVICES
EC11 - SLOPE DRAINS
EC12 - STREAMBANK STABILIZATION
EC13 - RESERVED
EC14 - COMPOST BLANKETS
EC15 - SOIL PREPARATION/ ROUGHENING
EC16 - NON-VEGETATED STABILIZATION

TEMPORARY SEDIMENT CONTROL
SE1 - SILT FENCE
SE2 - SEDIMENT BASIN
SE3 - SEDIMENT TRAP
SE4 - CHECK DAM
SE5 - FIBER ROLLS
SE6 - GRAVEL BAG BERM
SE7 - STREET SWEEPING AND VACUUMING
SE8 - SANDBAG BARRIER
SE9 - STRAW BALE BARRIER
SE10 - STORM DRAIN INLET PROTECTION
SE11 - ACTIVE TREATMENT SYSTEMS
SE12 - TEMPORARY SILT DIKE
SE13 - COMPOST SOCKS & BERMS
SE14 - BIOFILTER BAGS

WIND EROSION CONTROL
WE1 - WIND EROSION CONTROL

EQUIPMENT TRACKING CONTROL
TC1 - STABILIZED CONSTRUCTION ENTRANCE EXIT
TC2 - STABILIZED CONSTRUCTION ROADWAY
TC3 - ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT
NS1 - WATER CONSERVATION PRACTICES
NS2 - DEWATERING OPERATIONS
NS3 - PAVING AND GRINDING OPERATIONS
NS4 - TEMPORARY STREAM CROSSING
NS5 - CLEAR WATER DIVERSION
NS6 - ILLICIT CONNECTION/DISCHARGE
NS7 - POTABLE WATER/IRRIGATION
NS8 - VEHICLE AND EQUIPMENT CLEANING
NS9 - VEHICLE AND EQUIPMENT FUELING
NS10 - VEHICLE AND EQUIPMENT MAINTENANCE
NS11 - PILE DRIVING OPERATIONS
NS12 - CONCRETE CURING
NS13 - CONCRETE FINISHING
NS14 - MATERIAL AND EQUIPMENT USE
NS15 - DEMOLITION ADJACENT TO WATER
NS16 - TEMPORARY BATCH PLANTS

WASTE MANAGEMENT & MATERIAL POLLUTION CONTROL
WM1 - MATERIAL DELIVERY AND STORAGE
WM2 - MATERIAL USE
WM3 - STOCKPILE MANAGEMENT
WM4 - SPILL PREVENTION AND CONTROL
WM5 - SOLID WASTE MANAGEMENT
WM6 - HAZARDOUS WASTE MANAGEMENT
WM7 - CONTAMINATION SOIL MANAGEMENT
WM8 - CONCRETE WASTE MANAGEMENT
WM9 - SANITARY/SEPTIC WASTE MANAGEMENT
WM10 - LIQUID WASTE MANAGEMENT

SOILS ENGINEER STATEMENT

THE OFFICE OF EARTH SYSTEM SOUTHERN CALIFORNIA, 1731-A WALTER STREET, VENTURA, CA. 93003, PH (805)642-8727, FAX(805)642-1325 WAS REVIEWED THE GRADING PLAN PREPARED BY UNITED CIVIL , INC.

WE FIND THE PROPOSED CONSTRUCTION TO BE FEASIBLE FROM A GEOTECHNICAL ENGINEERING AND GEOLOGIC VIEWPOINT.

THE SOILS INFORMATION PROVIDED TO UNITED CIVIL INC. BY EARTH SYSTEM SOUTHERN CALIFORNIA IS DEPICTED CORRECTLY ON THIS GRADING PLAN.

REMOVAL DEPTHS AS SHOWN ON THIS PLAN WERE PROVIDED BY EARTH SYSTEM SOUTHERN CALIFORNIA AND ARE SHOWN CORRECTLY.

SOIL REPORT: VT-23345-01

1. GEOTECHNICAL ROUGH GRADING PLAN REVIEW, GREEN HERON SPRING PROJECT TRACT (AREA I), SANTA BARBARA, CALIFORNIA DATE:

BY: DATE BY: DATE

BENCH MARK

NGS BM NO. V 1441 (1989) PID EW9491
ELEV. = 13.45 NAVD 1988
DESCRIPTION - STEEL ROD IN NGS WELL
LOCATION - IN CARPINTERIA, AT THE INTERSECTION OF THE SOUTHERN PACIFIC RAILROAD AND SANDYLAND COVE ROAD, 29.5 M (96.8 FT) EAST OF THE CENTER OF THE ROAD, 9.2 M (30.2 FT) NORTH OF THE NEAR RAIL, 5.6 M (18.4 FT) SOUTH OF A FENCE, 0.8 M (2.6 FT) WEST OF A UTILITY POLE, 0.7 M (2.3 FT) BELOW THE LEVEL OF THE TRACK, AND 0.3 M (1.0 FT) EAST OF THE WITNESS POST.

NOTES TO CONTRACTORS

1. ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED.
2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS" CONSTRUCTION SAFETY ORDERS.
3. THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTORS AND SUBCONTRACTORS COMPLIANCE WITH ANY OF THE GOVERNMENT, STATE OR CITY RULES AND REGULATIONS. CONTRACTOR FURTHER AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPT FOR THE LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS MAP. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING. PRIOR TO EXCAVATION THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 1-800-227-2600.

UNDERGROUND UTILITY NOTES:

1. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS IS OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS AND TO THE BEST OF MY KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 1-800-227-2600 AT LEAST 48 HOURS PRIOR TO ANY ON-SITE WORK.

CONTRACTOR'S RESPONSIBILITY

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL AND OWNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL OR OWNER.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

PRIVATE ENGINEER'S NOTES

THE UNDERSIGNED CIVIL ENGINEER CERTIFIES THAT THE GRADING WORK WILL BE SUPERVISED IN ACCORDANCE WITH SECTION 7020 OF THE CITY BUILDING CODE.

UTILITY LINES SHOWN ON THESE PLANS ARE OBTAINED FROM A SEARCH OF AVAILABLE RECORDS AND CROSS-REFERENCES WITH OTHER UTILITY PLANS IN THIS AREA. THE EXACT LOCATION OF THE LINES SHOWN CAN ONLY BE OBTAINED BY POTHOLING AND SURVEY IN DIRECT COORDINATION WITH THE UTILITY OWNER.

SIEW HUAT NG R.C.E. NO. 46026 DATE

GRADING PERMIT APPLICATION NO. _____

TOTAL DISTURBED AREA: _____

PRE-DEVELOPMENT IMPERVIOUS AREA: _____ (ACRES)

POST-DEVELOPMENT IMPERVIOUS AREA: _____ (ACRES)

W.D.I.D. NO. 41GC369362

JOB ADDRESS 1300-1326 CRAVENS LANE,
CARPINTERIA, CA 93013

TRACT/ PARCEL MAP NO. TM 25178

PROPERTY OWNER: CRAVENS LANE, LLC, 23622 CALABASAS ROAD
SUITE 220, CALABASAS, CA 91032
PH:
FAX:

ASSESSORS ID NUMBER APN 004-013-026

PROPERTY ZONING PLANNED UNIT DEVELOPMENT

INTENDED LAND USE MULTI FAMILY AND SINGLE FAMILY

CERTIFICATE OF COMPLIANCE: CC NO: _____

EARTHWORK QUANTITIES

QUANTITIES ARE FOR PLAN CHECK PURPOSES AND ARE NOT TO BE USED FOR BID PURPOSES

CUT: 1348 CY

FILL: 2916 CY

OVEREXCAVATION: 9363 CY

BULK FACTOR: 5.0%

CUT VOLUME INCLUDED STREET UNDER CUT

APPROXIMATE STARTING DATE: _____

APPROXIMATE COMPLETION DATE: _____

LEGAL DESCRIPTIONS:

1300 - 1326 Cravens Lane, Carpinteria, CA 93013
APN 004-013-026

THAT CERTAIN PARCEL OF LAND IN THE CARPINTERIA DISTRICT, SO-CALLED, IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE CENTER LINE OF CRAVENS LANE, AS SAID CENTER LINE IS DESCRIBED IN THE DEED TO THE COUNTY OF SANTA BARBARA, RECORDED IN BOOK 54, PAGE 305 OF OFFICIAL RECORDS, AT THE POINT OF INTERSECTION OF SAID CENTER LINE WITH THE SOUTHERLY LINE OF THE TRACT OF LAND DESCRIBED IN THE DEED TO ALBERT J. JARVIS, AND WIFE, RECORDED IN BOOK 212, PAGE 30, OF OFFICIAL RECORDS;
THENCE SOUTH 10 WEST ALONG SAID CENTER LINE, 325.32 FEET TO THE NORTHWEST CORNER OF THE SECOND PARCEL OF LAND DESCRIBED IN THE DEED TO FRANCIS C. GREER, RECORDED IN BOOK 334, PAGE 188 OF OFFICIAL RECORDS; THENCE LEAVING SAID ENTER LINE SOUTH 776 30' EAST ALONG NORTH LINE OF SAID LAND, 528.65 FEET TO THE WEST LINE OF THE FIRST PARCEL OF THE LAND DESCRIBED IN SAID DEED TO FRANCIS C. GREER;
THENCE NORTH 90 27' EAST ALONG THE WESTERLY LINE OF THE LAND SO DESCRIBED IN THE DEED TO ALBERT J. JARVIS, HEREIN ABOVE MENTIONED;
THENCE NORTH 776 54' WEST ALONG THE SOUTHERLY LINE OF THE LAND SO
DESCRIBED IN THE SAID DEED, 525.27 FEET TO THE POINT OF BEGINNING.



VICINITY MAP
N.T.S.

	EARTHWORK QUANTITY (CY)
CUT	1348
FILL	2916
NET	1568 FILL

LEGEND:
PRIVATE ON SITE STORM DRAIN
TRACT BOUNDARY
EXISTING GRADE CONTOUR (1100)
PROPOSED GRADE CONTOUR 1100
PROPOSED SLOPE
DAYLIGHT LINE
EXISTING SPOT ELEVATION + (1100.0)
PROPOSED SPOT ELEVATION + 1100.0
SLOPE PERCENTAGE 2%
CONSTRUCTION ITEM (A)
FIRE HYDRANT
REMOVAL DEPTH OF UNSUITABLE SOIL/FILL (3')
PROPOSED PROTO-II COMBO WALL

ABBREVIATIONS

A.C.	ASPHALT CONCRETE
B.C.	BEGIN CURVE
C.B.	CATCH BASIN
C.F.	CURB FACE
C.L.	CENTERLINE
E.C.	END CURVE
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
F.L.	FLOWLINE
F.S.	FINISHED SURFACE
G.B.	GRADE BREAK
H.P	HIGH POINT
INV.	INVERT ELEVATION
LT.	LEFT
M.H.	MANHOLE
N.T.S.	NOT TO SCALE
P.I.	POINT OF INTERSECTION
P.R.V.C.	POINT OF REVERSE VERTICAL CURVE
P.V.C.	POLYVINYL CHLORIDE
R.C.P.	REINFORCED CONCRETE PIPE
RT.	RIGHT
T.W.	TOP OF WALL
T.R.W.	TOP OF RETAINING WALL

INDEX TO PROJECT DRAWINGS

SHT NO.	DESCRIPTION
1	TITLE SHEET
2	ROUGH GRADING PLAN
3	CROSS-SECTIONS & DETAILS
4	UTILITY COMPOSITE PLAN
5	PRIVATE STORM DRAIN PLAN
6	CONDITIONS
7	CONDITIONS
8	CONDITIONS

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 CIVIL STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CA 91302
TEL: (818) 222-2550

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

BENCH MARK, VICINITY MAP, STANDARD NOTES

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-21-17

SCALE

PROJECT NUMBER 1323

REVIEWED BY: CHARLES W. EBELING, P.E., PUBLIC WORKS DIRECTOR/CITY ENGINEER RCE NO. 64371 DATE

Sheet 1 of 8 Sheets

CONSTRUCTION NOTES:

1. STORM DRAIN LINE AND INLET PER SEPARATE OFF-SITE STORM DARIN PLANS
2. EMERGENCY ACCESS GATE PER LANDSCAPE PLANS
3. N/A
4. LIMITS OF REMOVEL AND RECOMPACTION PER GEOTECHNICAL ENGINEERING REPORT
5. 2' BLOCK WALL WITH TUBE STEEL PER LANDSCAPE PLAN
6. CONSTRUCT BACK OF WALL DRAIN PER DETAIL 6/3
7. CONSTRUCT V-DITCH PER DETAIL E/3
8. PATH PER LANDSCAPE PLAN
9. PROTO II BLOCK WALL PER LANDSCAPE PLAN
10. MONUMENT WALL PER SEPARATE LANDSCAPE PLAN
11. DECORATIVE ROCKS PER LANDSCAPE PLAN
12. CONSTRUCT 6" CURB PER DETAIL F/3
13. CONSTRUCT 4" ROLLED CURB AND GUTTER PER DETAIL G/3
14. CONSTRUCT TRANSITION BETWEEN 4" ROLLED CURB AND 6" CURB PER DETAIL R/3
15. CONSTRUCT RIBBON GUTTER PER DETAIL J/3
16. CONSTRUCT 25' PRIVATE DRIVE AND FIRELANE PER DETAIL L/3
17. CONSTRUCT PRIVATE DRIVE WAY PER DETAIL K/3
18. CONSTRUCT 20' PRIVATE DRIVE AND FIRELANE PER DETAIL L/3
19. CONSTRUCT SD PER SEPARATE SD PLAN
20. CONSTRUCT INLET PER SD PLAN



LEGEND:

- PROPOSED STORM DRAIN LINE
- LIMITS OF OVER EXCAVATION
- PROPOSED SLOPE
- DAYLIGHT LINE
- REMOVEL DEPTH OF UNSUITABLE SOIL/FILL (3')
- OAK TREE TO REMAIN
- OAK TREE TO BE RELOCATED
- OAK TREE TO BE REMOVED

0 10 20 40 80

GRAPHICAL SCALE: 1"=20'

NOTE:

CROSS SECTIONS SHOWN ON SHEET 3.
ALL PROPOSED FENCING PER LANDSCAPE PLANS.

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 CIVIL STATE OF CALIFORNIA

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CRAVENS LANE, LLC
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CALABASAS, CA 91302
TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

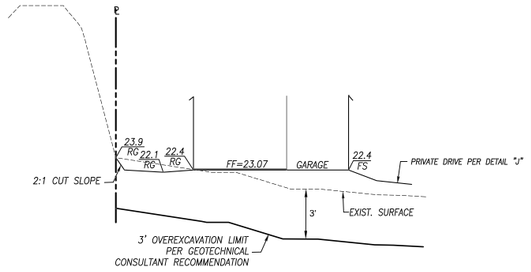
TM 25178 PRECISE GRADING PLANS

PRECISE GRADING PLAN

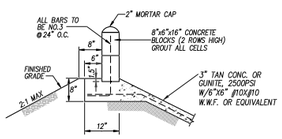
DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-21-17

SCALE 1"=20'
PROJECT NUMBER 1323

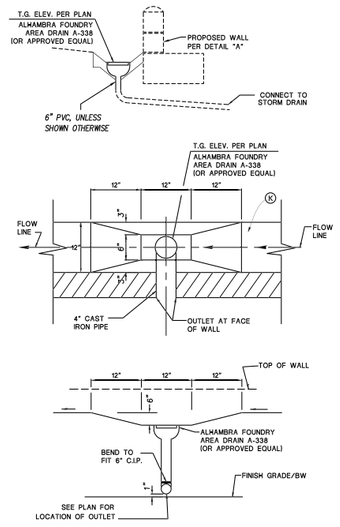
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371



SECTION A–A
N.T.S.



(A) SPLASH WALLDETAIL
NOT TO SCALE



(D) BACK OF WALL DRAIN DETAIL
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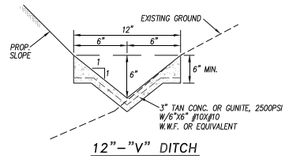
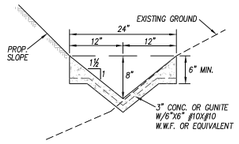
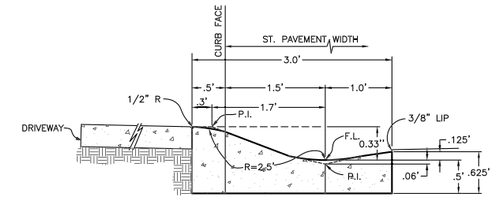


12"–"V" DITCH

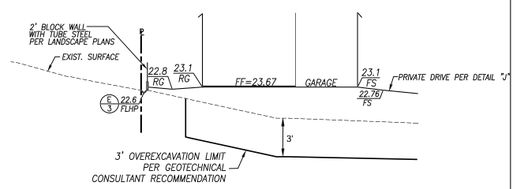


24"–"V" DITCH

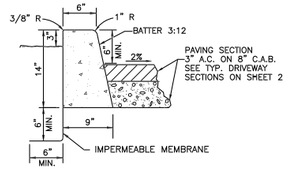
(E) "V" DITCH
NOT TO SCALE



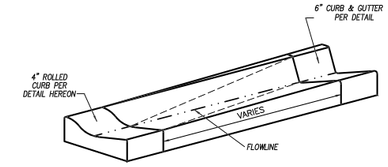
(G) 4" ROLLED CURB
NOT TO SCALE



SECTION B–B
N.T.S.



(F) 6"CURB DETAIL
NOT TO SCALE



(H) CURB TRANSITION DETAIL
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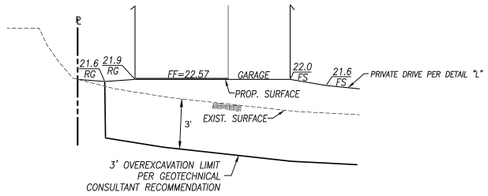

SECTION C–C
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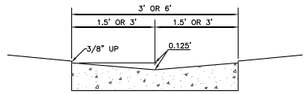
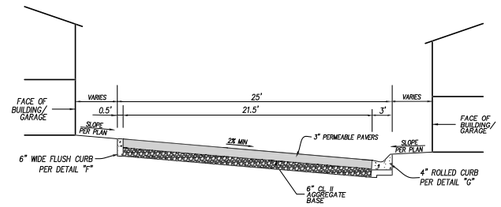
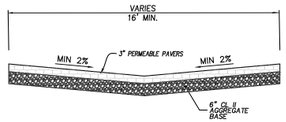


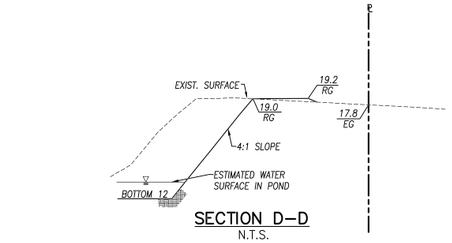
(I) CONCRETE RIBBON GUTTER
NOT TO SCALE



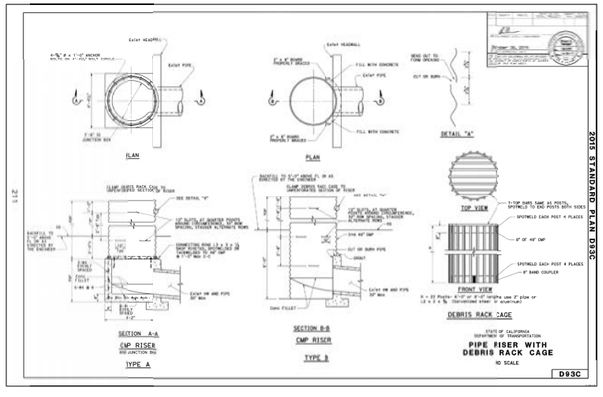
(J) TYPICAL PRIVATE 25' DRIVEWAY/FIRELANE SECTION
BETWEEN BUILDINGS
NTS

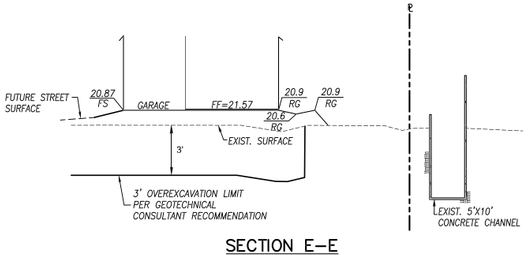


(K) TYPICAL PRIVATE 16' MIN. DRIVEWAY SECTION
NTS



SECTION D–D
N.T.S.





SECTION E–E
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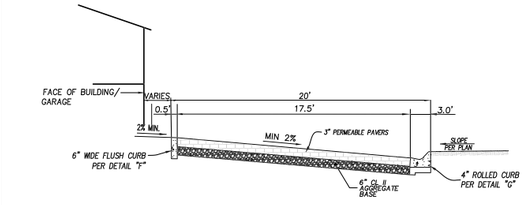


(L) TYPICAL PRIVATE 20' DRIVEWAY/FIRELANE SECTION
NTS

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CA 91302
TEL: (818) 222-2530

TM 25178 PRECISE GRADING PLANS

CROSS-SECTION & DETAILS

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 CIVIL STATE OF CALIFORNIA

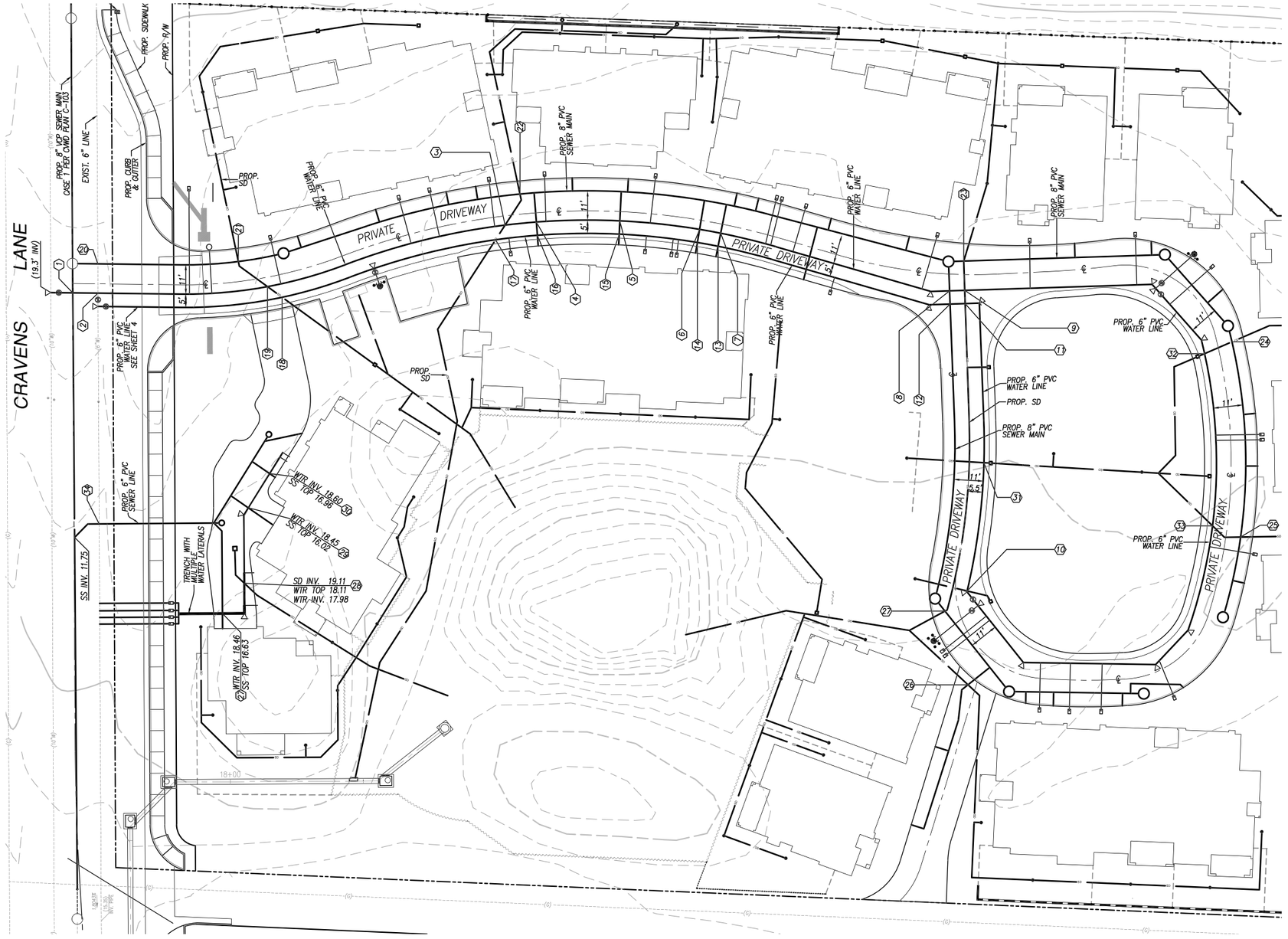
DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-21-17

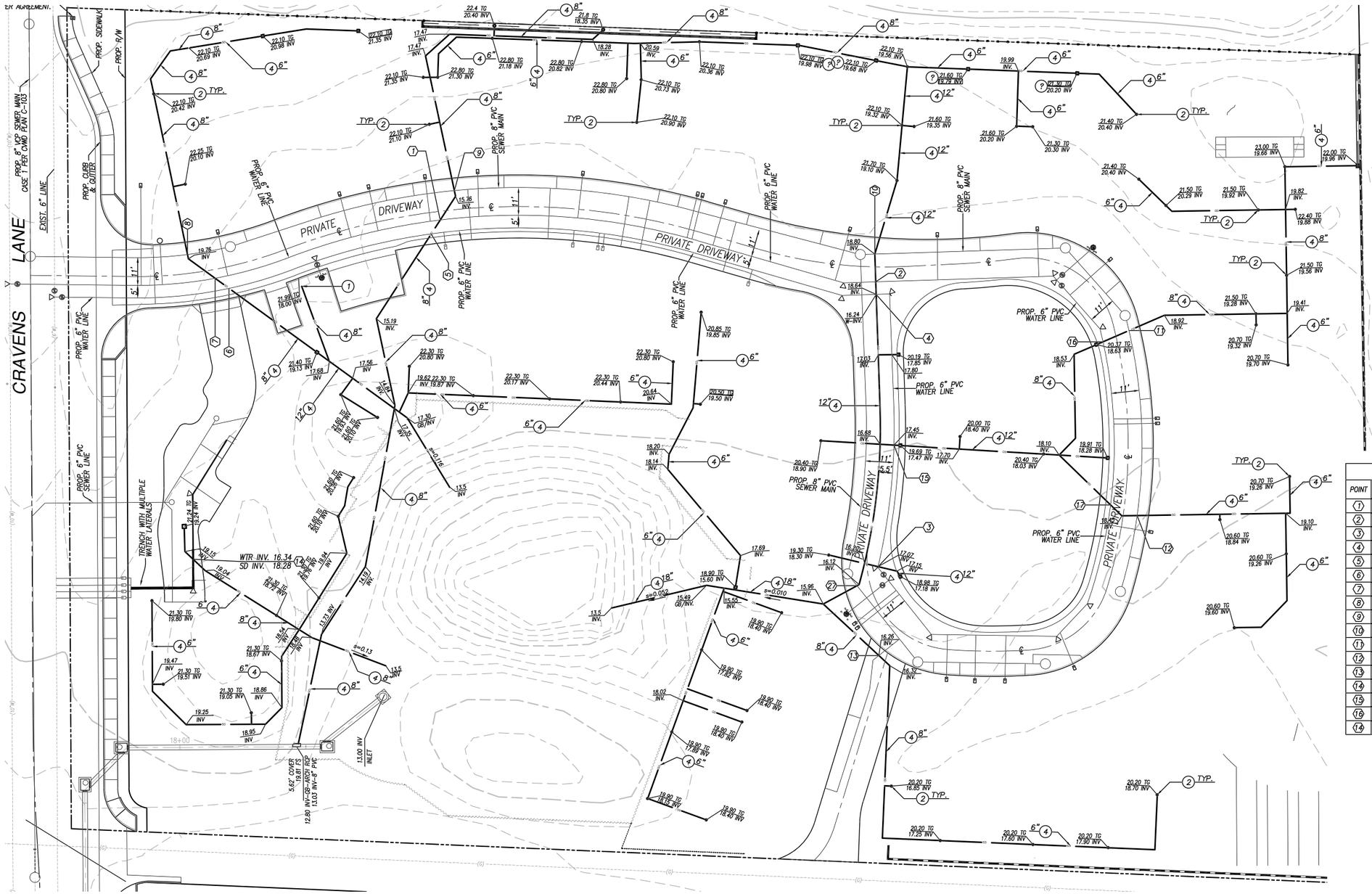
SCALE

PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 3 of 8 Sheets


CRAVENS LANE
PROP. 8" VCP SEWER MAIN CASE 1 PER CVMD PLAN C-103
EXIST. 6" LINE
PROP. SIDEWALK
PROP. R/W
PROP. CURB & GUTTER
PROP. SD
PROP. 6" PVC WATER LINE
PROP. 8" PVC SEWER MAIN
PRIVATE DRIVEWAY
PROP. 6" PVC SEWER LINE
SEE SHEET 4
TRENCH WITH MULTIPLE WATER LATERALS
SS INV. 11.75
WTR INV. 18.60
SS TOP 16.96
WTR INV. 18.45
SS TOP 16.02
SD INV. 19.11
WTR TOP 18.11
WTR INV. 17.98
WTR INV. 18.46
SS TOP 16.83
18+00
PROP. 6" PVC WATER LINE
PROP. SD
PROP. 8" PVC SEWER MAIN
PRIVATE DRIVEWAY
PROP. 6" PVC WATER LINE
PROP. 6" PVC WATER LINE
PROP. 8" PVC SEWER MAIN
PRIVATE DRIVEWAY



CONSTRUCTION NOTES

1. INSTALL 3' CATCH CURB OPENING BASIN.
2. INSTALL NYLOPLAST 8" ROUND AREA DRAIN OR APPROVED EQUAL.
3. INSTALL NYLOPLAST 12" TRAFFIC RATED SQUARE GRATE OR APPROVED EQUAL.
4. INSTALL PVC STORM DRAIN LINE SIZE PER PLAN.

UTILITY CROSSING TABLE

POINT	FINISHED GROUND ELEVATION	SEWER	WATER	STORM DRAIN	CLEARANCE DISTANCE
1	22.08	–	17.67 INV	15.98 TOP – 4"	1.69
2	xxx.xx	–	17.37 TOP	18.69 INV	1.32
3	19.20	–	16.06 TOP	16.57 INV.	0.51
4	xxx.xx	–	16.82 TOP	18.64 INV.	1.82
5	21.93	–	17.53 INV	15.92 TOP – 4"	1.61
6	21.85	–	18.56 TOP	19.56 INV	1.00
7	22.04	–	18.58 TOP	19.62 INV	1.04
8	22.46	12.80 TOP	–	19.78 INV	6.98
9	22.31	13.34 TOP	–	15.82 INV	2.48
10	xxx.xx	14.11 TOP	–	18.80 INV	4.69
11	20.79	14.75 TOP	–	18.77 INV	4.02
12	20.56	15.05 TOP	–	18.51 INV	3.46
13	xxx.xx	14.73 INV	–	16.26 INV	–
14	xxx.xx	–	16.42 TOP	18.28 INV	1.86'
15	19.86	–	16.39 TOP	17.45 INV	1.06
16	20.55	–	16.91 TOP	18.65 INV	1.74
14	20.31	–	16.61 TOP	18.39 INV	1.78

LEGEND

- EXIST WATER PIPE
- PROPOSED WATER PIPE
- PROPOSED SD PIPE
- PROPOSED FIRE HYDRANT
- PROP GATE VALVE
- AIR VALVE
- WATER METER
- THRUST BLOCK
- TREE TO REMAIN

0 20 40 60

GRAPHICAL SCALE: 1"=20'

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW YUA T. NO.46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW YUA T. NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

STORM DRAIN PLAN

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
PROJECT ENGINEER: DATE 7/26/2017

SCALE 1"=20'
PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2013

RESOLUTION NO. 5369

A RESOLUTION OF THE CITY OF CARPINTERIA CITY COUNCIL APPROVING A THREE-YEAR TIME EXTENSION FOR THE GREEN HERON SPRING PROJECT, CASE NO. 08-1239-TEX, TO CONSTRUCT A 51-UNIT CONDOMINIUM PROJECT LOCATED AT 1300 AND 1326 CRAVENS LANE (APN 004-013-028)

WHEREAS, the City Council originally approved the Development Plan, Vesting Tentative Tract Map, and Coastal Development Permit for the 31-unit Green Heron Spring project in November 2007. A Local Coastal Program Amendment for the project was also approved by the City and forwarded to the Coastal Commission for certification; and

WHEREAS, the Coastal Commission proposed modifications to the LCP Amendment were accepted by the City Council in May 2009, requiring changes to the project; and

WHEREAS, on March 8, 2010, the Community Development Director approved these changes, thereby updating the project's Findings, Conditions of Approval and Site Plan to reflect the Coastal Commission's actions. Pursuant to Condition DP-1, without an approved time extension, the project approval would expire in two years (March 8, 2012), unless prior to the expiration date a Building Permit has been issued or the permittee has diligently worked toward Building Permit issuance; and

WHEREAS, within the prescribed time frame, the applicant filed a three-year time extension request on January 20, 2012; and

WHEREAS, the City Council has conducted a hearing and received evidence regarding of the application for the three-year time extension request for the previously-approved Green Heron Spring project; and

WHEREAS, the City Council finds good cause for the time extension request in that the additional time is needed to allow the applicant to secure the necessary funding to complete the construction documents and construction financing.

NOW THEREFORE, THE CITY COUNCIL HEREBY RESOLVES AS FOLLOWS:

The three-year time extension request is approved, making the finding of good cause above and subject to the conditions set forth in Attachment A and the project plans presented in Attachment B.

PASSED, APPROVED AND ADOPTED this 27th day of February 2012, by the following vote:

AYES: COUNCILMEMBER(S):

NOES: COUNCILMEMBER(S):

ABSENT: COUNCILMEMBER(S):

Mayor, City of Carpinteria

ATTEST:

City Clerk, City of Carpinteria

I hereby certify that the foregoing Resolution was duly and regularly introduced and adopted at a regular meeting of the City Council of the City of Carpinteria held the 27th day of February 2012.

City Clerk, City of Carpinteria

APPROVED AS TO FORM:

City Attorney

CC Resolution 5369
Page 1

ATTACHMENT A

CONDITIONS OF APPROVAL

February 27, 2012

PROJECT NO. 08-1239-TEX
GREEN HERON SPRING TIME EXTENSION
1300 and 1326 Cravens Lane (APN 004-013-028)

The Conditions set forth in this permit affect the title and possession of the real property that is the subject of this permit and shall run with the real property or any portion thereof. All the terms, covenants, conditions, and restrictions herein imposed shall be binding upon and inure to the benefit of the owner (applicant, developer), his or her heirs, administrators, executors, successors and assigns. Upon any sale, division or lease of real property, all the conditions of this permit shall apply separately to each portion of the real property and the owner (applicant, developer) and/or possessor of any such portion shall succeed to and be bound by the obligations imposed on the owner (applicant, developer) by this permit.

PROJECT DESCRIPTION

Desc-1 This Development Plan, Vesting Tentative Tract Map, General Plan/Coastal Plan Text Amendment, and Coastal Development Permit for the subdivision of APN 004-013-028, located at 1300 and 1326 Cravens Lane. The 3.91-unit Green Heron Spring condominium project proposes to maintain an existing residence, barn and storage shed (the materials would be salvaged), remodel one residence and construct 30 new residents units. Twenty of the new residences are proposed to be three bedroom townhomes; two of these would be affordable under the City's Inclusionary Housing Requirement. Two of the new residences are proposed to be one-bedroom flats, with two of these affordable. In all, 51 structures totaling 61,990 sq. ft. of floor area is proposed.

Building heights are proposed to range from 24'-6" to 29'-6". Parking includes 53 spaces within garages and 18 uncovered guest spaces. No fences, walls or gates are proposed at the project's entrance at Cravens Lane. A five-foot high wrought iron fence is proposed to enclose the project's common open space and private yard areas. The wrought iron fence increases to six feet at the project's southeast property boundary. An eight-foot high solid concrete fence is proposed along the project's southeast, east and northeast property boundary. Two solid concrete fence drops down to a height of six feet along the north and northeast property boundary. Grading is estimated at 1,270 cubic yards of cut and 3,000 cubic yards of fill.

Proposed common open space would include a community orchard, garden, village green and children's play area. An existing agricultural pond would be enhanced and incorporated into the project as part of the open space. The area adjacent to the pond would be revegetated with native plantings replacing the existing non-native species. The plantings have been selected for their appropriateness to the upland wetland setting and to attract and support wildlife.

The Green Heron Spring project is envisioned to represent a model for creating environmentally responsible multiple-family residential developments. The single overarching theme of this proposal is to create a showcase of 'environmentally responsible design'.

This would be accomplished with the following interconnected features:

- The site design preserves 30 mature native oaks, sycamores and redwoods, planting more than 80 new native trees.
- An existing residence, barn and storage shed would be dismantled, with the materials salvaged and used on site where possible.
- A large community organic garden and orchard would provide food to residents with surplus to the farmers market.
- Fruit and vegetable scrap composting containers would be provided within all units for use in the organic garden and orchard.
- An innovative water harvesting/ re-use/recharge/reuse system that also provides storm water retention and uses a solar powered pump to send water to a restored agricultural pond on the property.
- The site design includes the use of permeable paving blocks for all drives and walks;
- Buildings have been designed and would be constructed with sustainable materials selected for durability and non-toxic maintenance, i. e. Fly-ash concrete, FSC certified lumber, fiber-cement siding, recycled steel roofing, formaldehyde-free cabinetry, etc.
- Building insulation beyond UBC requirements, including 2x6 exterior walls with R-24, perimeter foundation slab insulation and R-30 roof insulation.
- Passive solar heating with thermal storage, natural lighting and natural ventilation, designed to minimize heated fossil energy use would be incorporated within all residential structures.
- Building integrated solar electric photo-voltaic systems for all units.
- Energy Star appliances, heating system, water heaters, vent fans and light fixtures;
- Extra water-conserving toilets with dual flush and along with low flow fixtures and instant flow water heaters would be installed in all units; and
- Units and buildings would qualify as 'Energy Star Homes' under the EOE criteria.

The cumulative effect of all these features would be independently analyzed by an evaluation system being developed by the U. S. Green Building Council with its new LEED for Homes Pilot Program. LEED stands for Leadership in Energy and Environmental Design. This project has been accepted as a part of the LEED for HOMES Pilot Project and will be seeking the highest 'Platinum Rating' from the U. S. Green Building Council.

The project will also demonstrate the practicality of meeting the '2030 Challenge' of the U. S. Conference of Mayors and the American Institute of Architects as a response to reducing impacts on global warming.

Attachment A, Conditions of Approval February 27, 2012
08-1239-TEX Green Heron Spring Time Extension
Page 1

Additional Project Components

The 3.87-acre site is proposed to be annexed to the City of Carpinteria. The City's General Plan/Coastal Plan (April 2003) included the parcel within its Sphere of Influence and gave it a Land Use Designation of Medium Density Residential (MDR). The project also includes an annexation to the Carpinteria Sanitary District.

The application package to construct the 51-unit residential condominium project includes a General Plan/Coastal Plan Text Amendment, Rezone to Planned Unit Development (PUD), Development Plan, Vesting Tentative Tract Map, and Coastal Development Permit.

Any minor changes may be approved by the City Manager and/or Community Development Director. Any major changes will require the filing of a revised project application.

MITIGATION MEASURES FROM THE PROJECT MND

Aest-1 The design, scale and character of the project architecture shall be compatible and blend harmoniously with vicinity development. In addition, the project shall maintain as much of the beneficial screening as possible, with structures located to take advantage of the natural landforms and screening. **Plan Requirement and Timing:** The applicant shall submit architectural, landscape and grading plans of the project for final review by the Architecture Review Board prior to approval of any Building Permit for physical development. **Monitoring:** CDD shall review submitted plans, provide direction to the ARB regarding this mitigation measure and site inspect prior to, and during the construction phases.

Aest-2 Natural building materials and colors compatible with surrounding terrain (earthbrown and non-reflective paints) shall be used on exterior surfaces of all structures. **Plan Requirement:** Materials shall be denoted on building plans. **Monitoring:** CDD shall inspect prior to occupancy clearance.

Aest-3 The developer shall clear the project site of all excess construction debris. **Plan Requirement:** This requirement shall be noted on final building plans. **Timing:** Debris clearance shall occur prior to occupancy clearance. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Aest-4 Any exterior night lighting installed on the project site shall be of low intensity, low glare design, minimum height, and shall be hooded to direct light downward onto the subject parcel and prevent spill-over onto adjacent parcels. Applicant shall develop a Lighting Plan incorporating these requirements and provisions for shielding lights after 10:00 p.m. **Plan Requirements:** The locations of all exterior lighting fixtures and an annotation on the direction of light being cast by each fixture and the height of the fixtures shall be depicted on a Lighting Plan to be reviewed and approved by CDD with input from the ARB. **Monitoring:** CDD and ARB shall review a Lighting Plan for compliance with this measure prior to approval of a building permit for structures. Building Inspector shall inspect

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08-1239-TEX Green Heron Spring Time Extension
Page 2

structures upon completion to ensure that exterior lighting fixtures have been installed consistent with their depiction on the final Lighting Plan.

Aest-5 No signs of any type are approved with this action unless otherwise specified. All signs require a separate Sign Permit and review by the Architectural Review Board and shall comply with the City Code (Chapter 14 (Sign Regulations).

Ag-1 In order to protect the existing agricultural operations from encroaching development, site perimeter soils shall be installed along property lines as shown on the approved site plan and maintained to protect agricultural land from residential intrusion for the life if the project. **Plan Requirement and Timing:** Plans shall be submitted prior to issuance of a Grading or Building Permit, the walls shall be installed prior to Occupancy of thatfirst unit.

Ag-2 The following buyer notification shall be recorded on a separate information sheet with the final map, recorded with the Clerk Recorder's office for appearance on any future property owners' Title Report, provided to County Planning and Development to be noted on the Assessor's Parcel pages and included in the project CC&Rs:

IMPORTANT: BUYER NOTIFICATION
This property is located adjacent to property zoned for agriculture and is located in an area that has been planned for agricultural uses. Existing agricultural grazing, packing and shipping operations are located east and north of the property. Delivery trucks use the adjacent 25-foot driveway located south of the property to service the packing shed just east of the project site. Approximately 1.5 acres of the adjacent parcel to the north is occupied by a County of Santa Barbara Flood Control District easement and is also used for agricultural purposes. Owners of the property are the subject of an open space easement. It is the public interest to preserve agricultural land and operations within the Carpinteria Valley and to specifically protect these lands for exclusive agricultural use. Any inconvenience or discomfort from property owners' agricultural operations, including noise, lights, odors, dust, and chemicals, will not be deemed a nuisance.

AQ-1 If the construction site is graded and left undeveloped for over three weeks, the applicant shall employ the following methods immediately to inhibit dust generation:

a. seeding and watering to revegetate graded areas; and/or

b. spreading of soil binders; and/or

c. any other methods deemed appropriate by Community Development.

Plan Requirements: These requirements shall be noted on all plans. **Timing:** Plans are required prior to issuance of a Grading or Building Permit. **Monitoring:** Grading Inspector shall perform periodic site inspections.

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08-1239-TEX Green Heron Spring Time Extension
Page 4

AQ-2 Dust generated by the development activities shall be kept to a minimum with a goal of retaining dust on the site by following the dust control measures listed below. During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.

b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.

Plan Requirements: All requirements shall be shown on grading and building plans. **Timing:** Grading plans shall be released to the applicant only after all conditions affecting grading are satisfied. **Monitoring:** CDD shall ensure measures are on plans. CDD Grading and Building Inspectors shall spot check; Grading and Building Inspectors shall ensure compliance on-site. APCDinspectors shall respond to nuisance complaints.

AQ-3 The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering as necessary to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. **Plan Requirements:** The name and telephone number of such persons shall be provided to the APCD and the Community Development Department. **Timing:** The dust monitor shall be designated prior to issuance of a Grading or Building Permit. **Monitoring:** CDD shall contact the designated monitor as necessary to ensure compliance with dust control measures.

Bio-1 In order to protect existing pond and improve the habitat functions and values, he applicant shall implement the Wetlands Mitigation Program contained within the *Conceptual Wetlands Mitigation Habitat Enhancement and Monitoring Plan*, December 2008, prepared by Katherine Rindlaub, Biologist. The Wetlands Mitigation Program includes the reconstruction of the pond and reducing the slope from a 1:1 to approximately 1:4, dredging the accumulated silt and debris in order to restore the pond to its original depth, replanting wetland vegetation and compatible native species in order to increase the habitat complexity and species diversity, improving the functional value of the habitat for native birds and wildlife. **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a final Wetlands Mitigation Program to CDD for review and approval. All aspects of the Program shall be implemented as approved. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security which is acceptable to CDD to guarantee successful re-establishment of the wetland and upland habitat. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place prior to occupancy clearance. **Monitoring:** CDD shall conduct site inspections throughout all phases of development to ensure compliance with the Program. Release of performance security requires CDD staff signature.

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08-1239-TEX Green Heron Spring Time Extension
Page 5

Bio-2 In order to protect existing native trees and minimize adverse effects of grading and construction activities, the applicant shall implement the 14 recommendations contained within the *Tree Assessment and Protection Plan for Green Heron Spring (LLC)*, November 8, 2006, prepared by RM Specialists, Consulting Arborist, as modified herein. No ground disturbance, including grading, shall occur within the critical root zone of any native tree unless specifically authorized by the Tree Assessment and Protection Plan. The Tree Assessment and Protection Plan shall include a large number and/or larger size of the replacement oaks (along with understory species) to be planted in groves in the vicinity of the existing pond. In order to implement the Tree Assessment and Protection Plan, the applicant shall have prepared and submit a graphic Tree Protection and Restoration Plan including the following:

a. An exhibit showing the location, diameter and critical root zone of all native trees located onsite.

b. Fencing of all trees to be protected at or outside of the critical root zone. Fencing shall be at least three feet in height of chain link or other material acceptable to CDD and shall be located along the critical root zone. Applicant shall place signs stating 'tree protection area' at 15-foot intervals on the fence. Said fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to commencement of grading and/or construction and shall remain in place throughout all grading and construction activities.

c. The tree protection plan shall clearly identify any areas where landscaping, grading, trenching or construction activities would encroach within the critical root zone of any native or specimen tree. All encroachment is subject to review and approval by CDD.

d. Construction equipment, staging and storage areas shall be located outside of the protected area and shall be depicted on project plans submitted for issuance of a Grading or Building Permit. No construction equipment shall be parked, stored or operated within the protected area. No fill soil, rocks or construction materials shall be stored or placed within the protected area.

e. All proposed utility corridors and irrigation lines shall be shown on the tree protection plan and located as far as possible from trees. Trenches, roadways, driveways or a designated utility corridor such that impacts to trees are minimized.

f. Any proposed tree wells or retaining walls shall be shown on the tree protection plan and/or as well as grading and construction plans and shall be located outside of the critical root zone of all protected trees unless specifically authorized.

g. Any encroachment within the critical root zone of native trees shall adhere to the following standards:

i. Any paving shall be of pervious material (gravel, brick without mortar or turf block).

ii. Any trenching required within the critical root zone of a protected tree shall be done by hand.

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08-1239-TEX Green Heron Spring Time Extension
Page 6

iii. Any roots one inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.

h. All trees located within 25 feet of buildings shall be protected from stucco and/or paint during construction.

i. No permanent irrigation shall occur within the critical root zone of any native tree. Temporary plans shall be designed so that tree trunk areas are properly drained.

j. Only trees designated for removal on the approved tree protection plan shall be removed.

k. Any protected trees which are removed, relocated and/or destroyed (more than 20% encroachment into the critical root zone) shall be replaced on a 10:1 basis with one gallon size saplings grown from seed obtained from the same watershed as the project site. A limited number of replacement trees may be specified as a 15 gallon, 24-inch boxed tree. Where necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. Where replacement trees shall be installed. Trees shall be planted prior to issuance of occupancy clearance and irrigated and maintained until established. The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing and gopher fencing during the maintenance period.

Plan Requirements: Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Tree Protection and Replacement Plan to CDD for review and approval. All requirements of the City Arborist Guidelines. Prior to issuance of a Grading or Building Permit, the applicant shall successfully file and receipt evidence of posting a performance security or letter of credit which is acceptable to CDD to guarantee successful replacement. **Timing:** Timing on each measure shall be stated where applicable; where not otherwise stated, all measures shall be in place throughout all grading and construction activities. **Monitoring:** CDD shall ensure measures are on plans. CDD shall site inspect during all phases of development to ensure compliance with the approved plans. CDD shall release performance security upon completion of the five-year monitoring period.

Attachment A, Conditions of Approval February 27, 2012
08-1239-TEX Green Heron Spring Time Extension
Page 7

Bio-3 During construction, washing of concrete trucks, paint, equipment or similar activities shall occur only in areas where pollutants cannot be contained for subsequent removal from the site. Wash water shall not be discharged to the storm drains, street, drainage ditches, creeks or wetlands. Areas designated for washing functions shall be at least 100 feet from any storm drain, waterbody or sensitive biological resources. The location of the washout area shall be clearly noted at the construction site with signs. **Plan Requirements:** The applicant shall designate a washout area, acceptable to CDD, and this area shall be shown on the construction and/or grading and building plans. **Timing:** The wash of area shall be designated on all plans prior to issuance of a Grading or Building Permit. The washout area shall be in place and maintained throughout construction. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall site inspect throughout the construction period to ensure proper use and maintenance of the washout area.

Attachment A, Conditions of Approval February 27, 2012
08-1239-TEX Green Heron Spring Time Extension
Page 8

Bio-4 To the extent allowed by the building code, the perimeter fencing in the vicinity of the pond and the fencing around the pond shall be modified to be wildlife permeable (i.e. with a wooden rail and/or rail at least 18 inches above the ground, with spacing between the ground and the bottom rail). **Plan Requirements and Timing:** The applicant shall provide a detail of the wildlife permeable fence sections and the location of where the fence would be installed on the construction and/or grading and building plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall site inspect throughout the construction period to ensure proper installation.

Bio-5 Proposed construction activities involving tree removal and other disturbances to vegetation shall take place outside of the breeding bird season (February 1 – August 15) to avoid all migratory nongame native bird species take (including direct and indirect which would cause abandonment of active nests containing eggs and or young). If these project activities cannot avoid the breeding season, a pre-construction survey shall be completed within 24-hours prior to the commencement of grading. The survey shall be conducted by a qualified project nest survey to be conducted if these proposed construction activities cannot avoid the breeding bird season. If any active nests are found in the vicinity, the City Biologist shall provide a recommendation on the minimum buffer or alternate action to be taken.

CulRes-1 In the event archaeological remains are encountered during grading, work shallbe stopped immediately or redirected until a CEQA-qualified archaeologist and Native American representative are referred by the applicant to evaluate the significance of the find pursuant to Phase 1 investigations of the City Archaeological Guidelines. If remains are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines and funded by the applicant. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

CulRes-2 A Phase 1 Ii archaeological investigation pursuant to City Archaeological Guidelines shall be funded by the applicant and performed prior to issuance of rough grading permits. Should archaeological resources be found on the site, a Phase 3 investigation, if deemed appropriate, shall be implemented and approved by CDD. The findings of the investigation shall be submitted to CDD. CDD shall apply State law and Cultres 1 requirements if archeological resources are found on the site. A copy of the survey shall be filed with the UCSB Central Coast Information Center and forwarded to the Santa Ynez Band of Mission Indians.

Geo-1 Structures shall be designed to earthquake standards of the Uniform Building Code Seismic Zone 4. **Plan Requirements and Timing:** Prior to plan check, the applicant shall submit building plans indicating standards to the satisfaction of the Building and Safety Division. **Monitoring:** Building Inspector shall site inspect prior to occupancy clearance.

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08-1239-TEX Green Heron Spring Time Extension
Page 9

Geo-2 Grading and erosion and sediment control plans shall be designed to minimize erosion and shall include the following:

a. Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, and/or berms and gravel bags shall be used to reduce erosion and siltation during grading and construction activities.

b. All entrances/exits to the construction site shall be stabilized (e.g., using rumble plates, gravel beds or other best available technology) to reduce sediment tracked off site. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods.

c. Storm drain inlets shall be protected from sediment-laden waters by the use of inlet control, rolled erosion control products, silt fences, straw bale barriers, block andgravel filters and excavated inlet sediment traps.

d. Graded areas shall be revegetated within three weeks of grading activities with deep rooted, native, drought-tolerant species to minimize slope failure and surficial erosion potential. Bedding binding fabrics shall be used if necessary to hold slope soils until vegetation is established.

Plan Requirements: The grading and erosion and sediment control plan shall be submitted for review and approved by CDD prior to issuance of a Grading Permit. The plan shall be designed to address erosion and sediment control during all phases of development of the site. The applicant shall notify CDD prior to commencement of grading. **Timing:** Components of the grading plan shall be implemented prior to occupancy clearance. Erosion and sediment control measures shall be in place throughout grading and construction activities and shall remain in place until disturbed areas are permanently stabilized. **Monitoring:** CDD shall inspect revegetation and ensure compliance with plan. Grading inspector shall monitor installation and maintenance of erosion control measures throughout the grading and construction activities.

Geo-3 The applicant shall limit excavation and grading to the dry season of the year (April 15 to November 1) unless an approved erosion and sediment control plan is in place and all measures therein are in effect. Areas disturbed by grading shall be planted with temporary ground cover vegetation to minimize erosion. **Plan Requirements:** This requirement shall be noted on all grading and building plans. Graded surfaces shall be replanted within three weeks of grading completion, with the exception of surfaces graded for the placement of structures. Those surfaces shall be reseeded if construction of structures does not commence within three weeks of grading completion. **Monitoring:** CDD shall site inspect during grading and three weeks after grading to verify reseeding and to verify the construction has commenced in areas graded for placement ofstructures.

Geo-4 Drainage of all be consistent with approved drainage plans. **Plan Requirements:** Prior to issuance of a Grading Permit, a drainage plan shall be submitted to CDD and Public Works for review and approval. The plan shall include the locations of all proposed pipelines, the entire length of all proposed pipelines, lines located within fifteen feet of the pipeline, pipe diameters, and amount of water that would flow from each pipeline. **Timing:** The components of the drainage plan shall be implemented prior to commencement of construction of structures. **Monitoring:** CDD shall site inspect during grading.

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Page 10

Geo-5 Development shall be undertaken in accordance with conditions and requirements of the State of California Regional Water Quality Control Board. Project Grading and Storm Drain Improvements shall be designed to meet Best Management Practices (BMP's) appropriate to the uses conducted on site and during construction to effectively control storm water pollution.

Geo-6 Prior construction and grading shall comply with all recommendations outlined in the Geotechnical Engineering Report dated March 17, 2005, prepared by Earth Systems Southern California to the satisfaction of the City Engineer. **Plan Requirements:** Grading and building plans shall include all required measures as determined by the CityEngineer **Monitoring:** The City Engineer shall site inspect during grading. The City Building Inspector shall ensure that all recommendations are implemented during construction, by conducting periodic site inspections during and at the completion of construction.

HazMat-1 Soil in the vicinity of the barn is shown to be contaminated with lead, petroleum hydrocarbons, and dieldrin at concentrations exceeding Santa Barbara County Fire Department Investigative Levels and residential cleanup goals. Based on the contamination discovered thus far, the Fire Department is likely to require elimination by removal and legal offsite disposal of the contaminated soil. **Plan Requirements/Timing:** Grading or building permits shall not be approved until remediation of the site has been completed and Fire Department has issued a closure letter for the contamination site. **Monitoring:** CDD shall check plans and verify that the applicant has obtained the Hazardous Materials Division of the Fire Department before approving grading or building permits for residential development.

HazMat-2 In the event any contaminated, odorous or discolored soil or groundwater/surface water is encountered during grading, work shall be stopped immediately and the Hazardous Materials Division of the County Fire Department shall be called at (805) 681-5500. **Plan Requirements/Timing:** This condition shall be printed on all building and grading plans. **Monitoring:** CDD shall check plans prior to issuance of a Grading or Building Permit and shall spot check in the field.

Noise-1 Construction activity for any construction equipment or activity shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction shall occur on State holidays (e.g. Thanksgiving, Labor Day). Construction equipment maintenance shall be limited to the same hours. Non-noise generating construction activities such as interior painting are not subject to these restrictions. **Plan Requirements:** Two signs stating these restrictions shall be provided by the applicant and posted on site. **Timing:** Signs shall be in place prior to the beginning of and throughout all grading and construction activities. Violations may result in suspension of permits. **Monitoring:** CDD shall site inspect and respond to complaints.

Noise-2 Stationary construction equipment that generates noise which exceeds 65 dBA at the project boundaries shall be shielded to CDD's satisfaction and shall be located a minimum of 60 feet from occupied residences. **Plan Requirements:** Prior to issuance of a Grading Permit, the applicant shall submit a plan showing the location of all construction equipment and shielding and showing that shielding will be placed around the equipment in accordance with this measure. **Monitoring:** CDD shall perform site inspections to ensure compliance.

Wat-1 The project had been designed to provide for on site retention of storm water (runoff, infiltration, and recharge utilizing an environmentally enhanced onsite pond. The pond shall be maintained for the life of the project by the Homeowners' Association. Recharge systems shall be designed in compliance with Public Works and CDD. **Plan Requirements:** A Final Drainage Plan showing the location and design of the pond/retention basin and site infrastructure shall be submitted to CDD and Public Works

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08-1239-TEX Green Heron Spring Time Extension
Page 10

Wat-2 The applicant shall submit proof of exemption or a copy of the Notice of Intent to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System issued by the California Regional Water Quality Control Board. **Plan Requirements and Timing:** Prior to issuance of a Building Permit, the applicant shall submit proof of exemption or a copy of the Notice of Intent and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to CDD. A copy of the SWPPP must be maintained on the project site during grading and construction activities. **Monitoring:** CDD shall review the documentation prior to issuance of a Building Permit. CDD shall site inspect during construction for compliance with the SWPPP.

Wat-3 To prevent illegal discharges to storm drains, all on-site storm drain inlets, whether new or existing, shall be labeled to advise the public that the storm drain discharges to the ocean and that dumping waste is prohibited (e.g., "Don't Dump - Drains to Ocean"). The information shall be provided in English and Spanish. **Plan Requirements and Timing:** Location of storm drain inlets shall be shown on site, building and grading plans prior to approval of grading permits. Labels shall be installed prior to occupancy clearance. Standard labels are available from Public Works or other label designs shall be shown on the plans and submitted to CDD prior to approval of grading permits. **Monitoring:** CDD shall site inspect prior to occupancy clearance.

Wat-4 The project has been designed to provide for on-site permanent biofiltration/bioswale system intended to treat storm water runoff from the site. The biofilter/bioswale system shall be designed by a registered civil engineer specializing in water quality or other qualified professions to ensure that the retention time of water and the plants selected are adequate to reduce concentrations of the target pollutants. Local plants sources (i.e., collected from the watershed or propagated from cuttings or seed collected from the watershed) shall be used in the biofilter unless determined by CDD to be infeasible. Invasive plants shall not be used in the biofilter. Biofilters shall not replace existing riparian vegetation or native vegetation unless otherwise approved by CDD. **Plan Requirements and Timing:** The applicant shall include the biofilter design, including the plant palette and the source of plant material, on the grading and drainage and landscape plans, and depict it graphically. The applicant shall submit a maintenance plan for the biofilter to CDD for review and approval. A performance security shall be required to ensure installation and five-year maintenance. Long-term maintenance shall be the responsibility of the Homeowners' Association. Maintenance requirements shall be specified in the CC&Rs. The plans and a copy of the long-term maintenance program shall be submitted to CDD and Public Works for review prior to approval of a Building Permit. **Monitoring:** CDD shall site inspect for installation and periodically inspect for maintenance throughout the five-year performance period. Performance security release requires CDD approval.

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08-1239-TEX Green Heron Spring Time Extension
Page 11

Wat-5 To reduce runoff from impervious areas and allow for infiltration, the applicant shall incorporate pervious materials or surfaces (e.g., porous pavement or unit pavers on sand) into the project design. **Plan Requirements and Timing:** Pervious surfaces shall be described and depicted graphically on the site, building, grading and landscape plans. The plans shall be submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect for installation.

Wat-6 A Homeowners' Association shall be responsible for the long-term maintenance of the water quality conditions of approval. **Plan Requirements and Timing:** The proposed maintenance responsibilities and schedule shall be included in the CC&Rs. The CC&Rs shall be submitted for review by CDD and Public Works prior to recordation of the Final Map. Annual records of the maintenance activities shall be maintained by the HOA and submitted to CDD upon request. **Monitoring:** CDD shall review the maintenance records or site inspect, as needed. Costs shall be borne by the Homeowners Association.

Wat-7 Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities.

ENGINEERING CONDITIONS

GENERAL ENGINEERING CONDITIONS

Eng-1 The applicant shall submit grading, drainage and street improvement plans prepared by a California Registered Civil Engineer in conformance with City Standards. Said plans shall include but not be limited to street, utility, and storm drain improvements and shall be submitted to the Community Development Department for review and approval prior to recordation of the Tract or Parcel Map, and prior to issuance of a building permit.

Eng-2 Prior to issuance of Engineering Permits, an Engineering Cost Estimate shall be submitted with the Grading and Improvement Plans. Each page of the Cost Estimate shall be signed and stamped by the applicant's engineer.

Eng-3 Prior to or issuance of building permits, faithful performance and labor and material bonds (each to be 100% of the City Engineer's estimate) shall be filed with the City to cover all public improvements and any on-site grading and retaining walls. A cash deposit in the amount of 10% of the bond amount shall be submitted with each bond.

Eng-4 Prior to issuance of a Building Permit, the applicant shall submit plans and calculations, as required, largely for all necessary Engineering permits. Said permits include, but are not limited to, Street Construction, Excavation in the public right of way, Grading and/or Encroachment.

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Eng-5 Development shall be undertaken in accordance with conditions and requirements of the State of California Regional Water Quality Control Board. Project Grading and Storm Drain Improvements shall be designed to meet Best Management Practices (BMP's) appropriate to the uses conducted on site and during construction to effectively control storm water pollution.

Eng-6 At the time of acceptance of public improvements, the applicant shall submit a set of "Record Drawings" showing any and all changes made to the design plans during the construction period. The "Record Drawings" shall be the original construction tracings or permanent stylar copies of a quality acceptable to the City Engineer.

UTILITIES

Eng-7 Prior to occupancy of the project, all new and existing utility services shall be placed underground and completed prior to any paving required for the project. No new utility poles shall be installed.

Eng-8 Existing overhead transmission and distribution lines located along the edges o the property shall be placed underground. The undergrounding shall extend along he project street frontage to the nearest utility pole(s) outside of the project limits. Field joints shall be approved by the City Engineer. All costs of undergrounding existing utility lines and service laterals shall be borne by the applicant.

Eng-9 Existing and proposed easements for all utilities shall be located and described on the engineering plans or the architectural drawings prior to issuance of building permits.

Eng-10 Separate electric meters shall be installed for each unit unless a 'gang' meter is approved by SCE. Electric meters shall be shown on plans submitted for building permits to be checked by the City building permit plan checker.

STREET IMPROVEMENTS

Eng-11 Plans shall be submitted for frontage improvements prior to issuance of building permits for review by the City Engineer. Frontage improvements, including monolithic 6" curb, 18" or 24" gutter, 5' wide sidewalk, handicap ramps, driveway aprons, paving, street lights, fire hydrants, street signs, street trees, and other facilities as determined by the Planning Commission, are to be installed in conformance with the standards, specifications, and policies of the City at the locations shown on the improvement plans. Unless otherwise specified, the City utilizes the County of Santa Barbara Engineering Standards.

Eng-12 Paving and curbs and gutters shall transition into existing public improvements as required by the City Engineer. Transition plans shall be submitted prior to issuance of building permits for review by the City Engineer and shall include all needed striping, signing and guardrail. Construction shall be completed prior to issuance of Certificate of Occupancy.

Eng-13 All streetlights shall be installed behind the sidewalk unless authorized by the City Engineer. Plans shall be submitted prior to issuance of building permits for review by the City Engineer. Construction shall be completed prior to issuance of Certificate of Occupancy.

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Page 13

Eng-14 A Street Construction and/or Excavation Permit shall be obtained from the City Engineer prior to any construction within the street right-of-way.

Eng-15 All improvements in the public right of way shall be completed to the satisfaction of the City Engineer prior to the issuance of a Certificate of Occupancy by the Community Development Department.

Eng-16 Prior to the release of any securities, a Notice of Completion for all public improvements shall be presented to and accepted by the City Council.

GRADING

Eng-17 A Soils Report (2 copies) shall be submitted with Improvement Plans and Grading/Drainage Plans for review and approval by the City Engineer. The Soils Report shall be prepared by a California Registered Geologist or Soils Engineer and submitted to the Community Development Department. The Report shall address soils engineering and composition requirements, R-values, and other soils and geology related issues including liquefaction and shall contain recommendations as to foundation design, retaining wall design, and paving sections, where applicable for the project.

Eng-18 At the time that Improvement and/or Grading and Drainage Plans are submitted for review and approval by the City Engineer, hydrology/hydraulic calculations shall be submitted by the applicant's engineer determining the adequacy of the proposed drainage system and the adequacy of the existing downstream system. A rain fall frequency of twenty-five (25) years shall be used for sizing piping and inlet structures. If no overland escape is available, 100 year flows shall be used as the basis of design. Santa Barbara County Engineering Design Standards shall be used. Storm drainage run-on shall be conducted to the public street in a safe and adequate manner per Santa Barbara County Standards. Easements required for drainage shall be described and shown on the Improvement Plans.

Eng-19 Prior to performing any grading, the developer shall obtain a Grading Permit from the City Engineer, in accordance with Chapter 8.36 of the Carpinteria Municipal Code, and pay the required grading permit deposit. For all projects over 1 acre in size, a separate grading permit is required to be obtained from the State Water Resources Control Board.

Eng-20 An Erosion and Sediment Control Plan must be prepared and submitted to obtain the necessary Grading Permit from the City Engineer prior to any grading activity.

SUBDIVISION / MAP

Eng-21 The Tract Map shall be subject to the Subdivision Ordinance of the City of Carpinteria and to the State Subdivision Map Act. The map shall be prepared by a qualified California Registered Civil Engineer or Licensed Land Surveyor. Closure calculations shall be submitted along with adequate reference data and a current title report. Two copies of the map and one copy of the calculations shall be submitted. Within thirty (30) days after the recordation of the Final Map, the applicant shall deliver one set of reproducible mylar copies of the recorded map to the Community Development Department.

Attachment A, Conditions of Approval February 27, 2012
08-1239-TEX Green Heron

any parcels created by the project, each set of plans accompanying a Building Permit application shall contain these conditions.

Map-2 Prior to recordation of the map, applicant shall pay applicable Quimby fees.

Map-3 Title to the common open space shall be held by a non-profit association of homeowners or by any other non-profit group on such reasonable terms and conditions as the City may prescribe. If the common open space is conveyed to a group other than the homeowners association, the rights to develop such property with anything except open space or noncommercial recreation shall be conveyed to the City of Carpinteria.

Map-4 The Tentative Tract Map shall be subject to the Subdivision Ordinance of the City of Carpinteria and the Subdivision Map Act.

Map-5 The applicant shall pay all engineering fees, CDD permit processing fees and all other applicable fees and deposits prior to City Council approval of the Final Map.

Hous-1 Prior to final map clearance the applicant shall enter into and record an *Agreement to Provide Affordable Housing*, which shall include a model *Restrictive Covenant and Preemptive Right*. The *Covenant* shall be executed and recorded by each purchaser of an affordable unit. The *Agreement* and *Covenant* shall be based on the City's model documents, as they may be amended from time to time, and subject to the review and approval of CDD and the City Attorney. These shall specify affordability terms described in condition # Des-1. In addition, the *Agreement* and *Covenant* shall include provisions describing marketing and lottery requirements for the initial sale of units; requiring income eligibility of prospective buyers to be determined by the City or its designee; requiring prospective buyers of the affordable units to sign an *Intent to Resale Statement* [illegible] Covenant, be recorded with the original and all subsequent deeds, and stating that the maximum sales rate for the affordable units shall not exceed the maximum levels established by the City Council, consistent with the provisions of the Housing Element and state law.

Hous-2 Affordable units shall be constructed concurrent with the construction of the market rate units in each phase of development. Occupancy clearance for no more than 50% of the market rate units in a given phase shall be allowed prior to occupancy clearance for all the affordable units for that same phase of development. **Plan Requirements & Timing:** Prior to final map clearance, this requirement shall be included in the *Agreement to Provide Affordable Housing* and shall be printed on all grading and building plans. **Monitoring:** CDD shall ensure compliance during construction.

OTHER DEPARTMENT/AGENCY CONDITIONS

Dept-1 Compliance with Departmental letters required as follows:
a. Carpinteria Sanitary District letters dated August 29, 2005 and March 26, 2007
b. Carpinteria – Summerland Fire Protection District letter dated April 9, 2007
c. Carpinteria Valley Water District letters dated Oct. 19, 2005 and April 17, 2007
d. SB County Air Pollution Control District letter dated August 18, 2005.

Sch-1 The applicant shall pay the statutory school fees in effect at the time of issuance of building permits to the Carpinteria Unified School District. **Plan Requirements and Timing:** The applicant shall submit final square footage calculations and a copy of the fee payment to the school district prior to issuance of building permits. **Monitoring:** CDD shall ensure payment is made prior to issuance of a Building Permit.

CITY RULES AND REGULATIONS

Rules-1 Approval of this project is expressly contingent on the California Coastal Commission's ("Commission") final certification of the LCP Amendment to Rezone the parcel to Planned Unit Development (PUD) and the General Plan/Local Coastal Plan Program Amendment to modify the language of to Implementation Policy 12 of the Wetlands discussion within the Open Space, Recreation & Conservation Element of the City's General Plan/Coastal Plan and Policy 9-4 of the City's Coastal Plan (January 1980) and to create a new site specific Overlay (Ellinwood Parcel (APN 004-013-026) Overlay District) is inserted in the City's Municipal Code, Title 14, Zoning. Approval of the project is also contingent upon the Annexation of the parcel to the City of Carpinteria and the Carpinteria Sanitary District.

Rules-2 Before using any land or structure, or commencing any work pertaining to the erection, moving, alteration, enlarging, or rebuilding of any building, structure, or improvement, the applicant shall obtain a Building Permit. These Permits are required by ordinance and are necessary to ensure implementation of the conditions required by the Planning Commission. Before any Permit will be issued by Community Development, the applicant must obtain written clearance from all departments having conditions; such clearance shall indicate that the applicant has satisfied all pre-construction conditions. A form for such clearance is available from Community Development.

Rules-3 Prior to the issuance of any Building Permits, the applicant shall post a landscape security bond of $2,500.00 and:
a. The landscaping shall be maintained in good condition for three years, at which time the security will be released.
b. Landscaping shall be drought resistant, low water-use species.
c. Where feasible, locally adapted native plants shall be required.
d. Prior to occupancy all landscaping and planting shall be installed, and
e. Specimen trees shall be appropriate to the site and shall be maintained in good condition so as to attain a full and healthy mature appearance.

Rules-4 Landscaping shall be maintained for the life of the project.

Rules-5 All applicable final conditions of approval shall be printed in their entirety on applicable pages of grading/construction or building plans submitted to CDD. These shall be graphically illustrated where feasible.

Rules-6 Applicant/Owner/Developer/Permittee hereby agrees to defend, indemnify, and hold harmless the City, its officers, employees, agents, consultants and independent contractors ("City's Agents") from any claim, action or proceeding (collectively "Claims") against the City and the City's Agents to attack, review, set aside, void or annul, in whole or in part, the City's approval of the Time Extension for the Green Heron Spring project

(05-1239-DP/TM/CDP/LCPA), or any condition attached thereto, or any proceedings, acts, or determinations taken, done, or made prior to the approval that were part of the approval process. Applicant/Owner/Developer/Permittee further agrees to indemnify and hold harmless the City and the City's Agents from any award of attorneys' fees or court costs made in connection with any Claim. Applicant/Owner/Developer/Permittee further agrees to pay any and all City costs, permits, attorneys' fees, engineering fees, license fees and taxes arising out of or concerning the Project, whether incurred prior to or subsequent to the date of approval and that the City's costs shall be reimbursed prior to this approval becoming valid.

Applicant/Owner/Developer/Permittee shall execute a written agreement, in a form approved by the City Attorney, evidencing the foregoing commitments of defense and indemnification within thirty (30) days of being notified of a lawsuit regarding the Project. These commitments of defense and indemnification are material conditions of the approval of the Project. If Applicant/Owner/Developer/Permittee fails to execute the required defense and indemnification agreement within the time allotted, the Project approval shall become null and void absent subsequent acceptance of the agreement by the City, which acceptance shall be within the City's sole and absolute discretion. Nothing contained in this condition shall prevent the City or the City's Agents from independently defending any Claim. If the City or the City's Agents decide to independently defend a Claim, the City and the City's Agents shall bear their own attorneys' fees, expenses, and costs of that independent defense.

Rules-7 In the event that any Condition of Approval imposing a fee, exaction, dedication or other mitigation measure is challenged by Applicant/Owner/Developer/Permittee in an action filed in a court of law or threatened to be filed therein which action is brought within the time period provided by law, this approval shall be suspended pending dismissal of such action, the expiration of the limitation period applicable to such action, or final resolution of such action. If any Condition of Approval is invalidated by a court of law, the entire project shall be reviewed by the City and substitute Conditions of Approval may be imposed.

End of Conditions

Carpinteria Sanitary District
5300 Sixth Street, Carpinteria, CA 93013
(805) 684-7214 • Admin Fax (805) 684-7213 • Plant Fax (805) 566-6599

August 29, 2005

RECEIVED
AUG 3 1 2005
COMMUNITY DEVELOPMENT DEPT

Steve Goggia
Senior Planner
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: **1300 & 1326 CRAVENS LANE**
APN: 004-013-026

Dear Mr. Goggia:

The general conditions of the Carpinteria Sanitary District (District) to provide sewer service for the proposed project are as follows:

1. The Developer shall file an application for annexation to the District. The application will be presented to the District Board of Directors for approval and then forwarded to Santa Barbara LAFCO for consideration.

2. The Developer shall contact the District to initiate planning and compliance on these issues:
   1. The Construction Process.
   2. Construction Standards and Agreement.
   3. Performance and Maintenance Bond Requirements.
   4. Sewer Easement Dedication.
   5. Sewer Facility Dedication.
   6. As-built Requirements.

3. The Developer shall pay all required fees, including; Development Impact Fee, plan check fee, inspection fee and prorated Sewer Service Charge.

4. A sewer main extension will be required to serve this project. All costs and expenses associated with the installation of the sewer facilities are the sole responsibility of the developer. As listed in Item No. 2, the developer shall enter into an agreement with the District that guarantees the construction of the sewer main extension. The mainline extension in Cravens Lane shall extend to the northern property boundary.

Steve Goggia
August 29, 2005
Page two

5. Sewer facilities to be dedicated to the District shall be designed and constructed in accordance with District's Design Standards and Specifications.

We formally request that these conditions be made as part of the general conditions imposed by the City of Carpinteria and that neither a final tract map be recorded nor a building permit issued until these conditions are satisfied.

If you have any questions, please call me at (805) 684-7214 extension 13.

Sincerely,

Katharina Hustekamp
Katharina Hustekamp
Program Coordinator/Inspector

[illegible]

Carpinteria Sanitary District
5300 Sixth Street, Carpinteria, CA 93013
(805) 684-7214 • Admin Fax (805) 684-7213 • Plant Fax (805) 566-6599

March 26, 2007

RECEIVED
MAR 2 8 2007
COMMUNITY DEVELOPMENT DEPARTMENT

Steve Goggia
Senior Planner
Community Development Department
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: **Project No. 05-1239-DP/TM/GP/LCPA/RZ/CDP**
1300 & 1326 Cravens Lane (APN: 004-013-026)
Applicant: David Scott Ellinwood
Agent: Scott Ellinwood & Associates, Inc.

Dear Mr. Goggia:

Thank you for the opportunity to provide comments on the subject project. The Carpinteria Sanitary District (District) has reviewed the Draft Mitigated Negative Declaration received on January 15, 2007 and offers the following comments to provide the applicant with direction and information related to the provision of sanitary sewer service for the proposed development:

1. An Annexation and Sphere of Influence application packet has been submitted to LAFCO by the District to fulfill the annexation and boundary change requirements so that sanitary sewer services can be provided for the proposed project. Annexation is also required by the City of Carpinteria (City) and we understand that the District's application is being coordinated with annexation to the City.

2. A public sewer main extension will be required to serve the proposed project. All costs and expenses associated with the installation and dedication of required sewer facilities will be the sole responsibility of the developer. The developer will be required to enter into an agreement with the District that guarantees the construction of the necessary sewer infrastructure. The mainline extension shall extend to the northern property boundary in Cravens Lane.

3. A Development Impact Fee (DIF) shall be paid to the District at the time of permitting for each newly constructed "equivalent dwelling unit" (EDU). Currently, the impact fee is $2,400 per EDU, but impact fees will be based on the Board approved fees at the time a permit is issued.

4. A sewer construction permit will be required before construction commences. Permit fees, persuant to District Ordinance No. 9, shall be paid in full prior to permit issuance.

City of Carpinteria
Re No. 05-1239-DP/TM/GP/LCPA/RZ/CDP
March 26, 2007
Page 2

5. In addition to the DIF and permit fees, a Performance Bond in the amount of 100% of the cost of the public improvements will be required before a sewer construction permit is issued. The bond shall guarantee faithful performance of the required sewer improvements per District standards and specifications and per approved construction plans.

6. All sanitary sewer facilities shall be designed and constructed in accordance with the District's Design Standards and Specifications.

If you have any questions or comments regarding any of the above project conditions required by the District, please contact Vickie Margadonna at (805) 684-7214, ext. 13.

Sincerely,

Craig M. Murray, P.E.
General Manager

cc: Scott Ellinwood & Associates, 1300 Cravens Lane, Ste. 100, Carpinteria, CA 93013

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CARPINTERIA – SUMMERLAND
FIRE PROTECTION DISTRICT

April 9, 2007

RECEIVED
APR 1 2 2007
COMMUNITY DEVELOPMENT DEPARTMENT

Steve Goggia
Senior Planner
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: Green Heron Springs Condominium
Project No. 05-1239-DP/TM/GP/LCPA/CDP
APN 004-013-026

Dear Steve Goggia:

The following items are necessary for fire protection:

1. Visible street address must be posted at the driveway and on the buildings. Numbers shall be a minimum 4 inches high on a contrasting background.

2. Roof access must meet the requirements stated in the Carpinteria Municipal Code.

3. Access to all structures shall conform to the requirements for private roads and driveways set forth in the Santa Barbara County Private Roads & Driveway Standards, Section 8. Minimum paved roadway width of twenty-five feet shall be provided for two way traffic and 20 feet of paved roadway surface shall be provided for the one way loop section.

4. A secondary means of access shall be provided. Such access roadway shall conform to the requirements for private roads and driveways set forth in the Santa Barbara County Private Road & Driveway Standards, Section8.

5. Approved signs and markings shall be provided for fire apparatus access roads. Roadway clearance shall be maintained in accordance with the provisions of Vehicle Code 22500.

911 Walnut Avenue, Carpinteria, California 93013
(805) 684-4591 Fax (805) 684-8241

6. When access ways are gated, a Fire District approved key box shall be installed in an accessible location. Prior to installation, the Fire District shall approve the location and type.

7. Public fire hydrants supplying the required fire flow within the required driving distance from the structures shall be provided. Both the Fire District and the applicable Water District shall approve the type of hydrant and the exact location. The new fire hydrant(s) shall be installed and in-service prior to any construction.

8. All new buildings structures shall be protected by an approved automatic fire sprinkler system. Prior to installation, plans for the proposed fire sprinkler system shall be designed by a qualified person and submitted to the prevention bureau for approval.

9. Any future changes, including further division, intensification of use, or increase in hazard classification, may require additional conditions in order to comply with applicable fire district development standards.

10. Per Carpinteria-Summerland Fire District Ordinance No. 2003-01 pertaining to fees and service charges, a permit application fee is assessed on all plans reviews.

11. Pursuant to C.S.F.P.D. Ordinance No. 92-02 and Carpinteria City Ordinance No. 599, prior to issuance of a "Certificate of Occupancy", the Carpinteria-Summerland Fire Protection District mitigation fee must be paid.

If you need additional information on Fire District conditions, please contact me at 566-2451.

Sincerely,

Ed Foster
Fire Prevention Officer
Fire Prevention Bureau

Carpinteria Valley Water District
1301 Santa Ynez Avenue • P.O. Box 578 • Carpinteria, CA 93014
Phone (805) 684-2816 • Fax (805) 684-3170

BOARD OF DIRECTORS
Frederick Lemere, President
June Van Wingerden, Vice President
Robert R. Lieberknecht
Matthew T. Roberts
James W. Stein
GENERAL MANAGER
Charles B. Hamilton

October 19, 2005

Mr. Scott Ellinwood
1300 Cravens Lane
Carpinteria, CA. 93013

SUBJECT: 1300 - 1326 CRAVENS LANE; APN 004-013-026

Dear Mr. Ellinwood,

Upon review of the preliminary plans for the mixed use development consisting of 34 new condominium units and one existing residential unit, the following are the conditions of approval from the Carpinteria Valley Water District:

1. The Developer shall agree to the conditions of a "Construction of Water Facilities Agreement" prior to approval of a building permit.
2. Separate meters will be required for each unit. The District will determine the size of the meters.
3. If a fire sprinkler system will be required, a set of calculations shall be submitted to the District, by a licensed engineer, providing maximum demand and pressure required for the sprinkler system.
4. All fire lines shall be equipped with a District approved backflow device.
5. All irrigation meters shall be equipped with a District approved backflow device.
6. Submittal of proposed irrigation demand will be required.
7. Submittal of plumbing fixture count will be required.
8. All meters shall be installed within public right-of-way, clear of driveways, within parkways or behind sidewalks.
9. The owner shall pay a Capital Cost Recovery Fee for each water meter and fire line required.
10. The owner shall also deposit a fee at the District to cover the cost in connection with the construction. These costs will include plan checking, engineering, inspections, tie-in, as-built plans, overhead and miscellaneous items as determined by the District. If the amount deposited exceeds actual costs, the District shall refund the unused portion. If the amount deposited does not cover actual cost, the District shall bill the owner for the remaining balance due.
11. All fees required shall be received by the District prior to any signing of route sheets or the issuing of work orders.
12. Fixtures shall be water conserving per plumbing code.

If you should have any questions concerning this matter, please do not hesitate to call me at this office.

Very truly yours,
CARPINTERIA VALLEY WATER DISTRICT

Robert T Mc Donald, PE
District Engineer

RTM/rg

C: File Copy

[illegible]

Carpinteria Valley Water District
1301 Santa Ynez Avenue • P.O. Box 578 • Carpinteria, CA 93014
Phone (805) 684-2816 • Fax (805) 684-3170

BOARD OF DIRECTORS
Frederick Lemere, President
June Van Wingerden, Vice President
Robert R. Lieberknecht
Matthew T. Roberts
James W. Stein
GENERAL MANAGER
Charles B. Hamilton

April 17, 2007

Steve Goggia, Senior Planner
Community Development Department
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

Re: **Project No. 05-1239-DP/TM/GP/LCPA/RZ/CDP; 1300 and 1326 Cravens Lane**

Dear Mr. Goggia,

A letter outlining the District's conditions for this project was sent to Mr. Scott Ellinwood, October 19, 2005. I have enclosed a copy of that letter for your convenience.

In addition, the District has comments concerning the following:

1) There are two water mains in Cravens Lane, a 12" (shown on the preliminary utility plan) and a 6" main, not shown on the plans.

2) The minimum separation between the sewer and water mains is 10 feet horizontal. The preliminary plans indicate that the minimum separation between sewer and water mains in Cravens Lane will not be met.

3) The proposed water main needs to make a loop through the property.

If you should have any questions concerning this matter, please do not hesitate to call me at this office.

Very truly yours,
CARPINTERIA VALLEY WATER DISTRICT

Robert T Mc Donald PE
District Engineer

RTM/rg

C: File Copy

Santa Barbara County
Air Pollution Control District

RECEIVED
AUG 2 2 2005
COMMUNITY DEVELOPMENT DEPT

TO: City of Carpinteria, Community Development Department
ATTN: Steve Goggia
FROM: Vijaya Jammalamadaka
DATE: August 18, 2005
CASE #: Carp 05-1239-DP/CDP/GP 1300 & 1326 Cravens Lane (APN 004-013-026)

The Air Pollution Control District has reviewed the referenced case and offers the following:

___ The APCD has no comment on this project at this time.
___ Applicant must be issued an APCD permit prior to construction or operation of this project.
___ Applicant must apply for an APCD permit exemption prior to land use clearance.
X The applicant should determine whether the structure(s) proposed for demolition contains asbestos that is friable or has the potential to become friable during demolition or disposal. If the structure does contain friable asbestos, the asbestos should be removed by a contractor that is state certified for asbestos removal.
___ Applicant is required to complete the attached "Asbestos Demolition/Renovation Notification" form. This completed form should be mailed to the Santa Barbara APCD and EPA Region IX no later than the date specified in number 3 of the instructions.
X Standard dust mitigation measures (dated September 1996) are recommended for all construction and/or grading activities. The name and telephone number of an on-site contact person must be provided to the APCD prior to issuance of land use clearance.

cc: David Ellinwood, Agent
Project File
TEA Chron File

Terence E. Dressler   Air Pollution Control Officer
260 North San Antonio Road, Suite A   Santa Barbara, CA 93110 • www.sbcapcd.org • 805.961.8800 • 805.961.8801 (fax)

SANTA BARBARA COUNTY
AIR POLLUTION CONTROL DISTRICT
STANDARD DUST CONTROL REQUIREMENTS

1. Dust generated by the development activities shall be retained onsite and kept to a minimum by following the dust control measures listed below. Reclaimed water shall be used whenever possible.
   a. During clearing, grading, earth moving or excavation, water trucks or sprinkler systems are to be used in sufficient quantities, after each day's activities cease, to prevent dust from leaving the site and to create a crust.
   b. After clearing, grading, earth moving or excavation is completed the disturbed area must be treated by watering or revegetating; or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
   c. During construction, water trucks or sprinkler systems are to be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum this will include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency will be required whenever the wind speed exceeds 15 mph.

2. Importation, Exportation and Stockpiling of Fill Material:

   Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.

   Trucks transporting fill material to and from the site shall be tarped from the point of origin.

   If the construction site is greater than five acres, gravel pads must be installed at all access points to minimize tracking of mud on to public roads.

3. Activation of Increased Dust Control Measures:

   The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.

4. Recordation of Mitigation Measures:

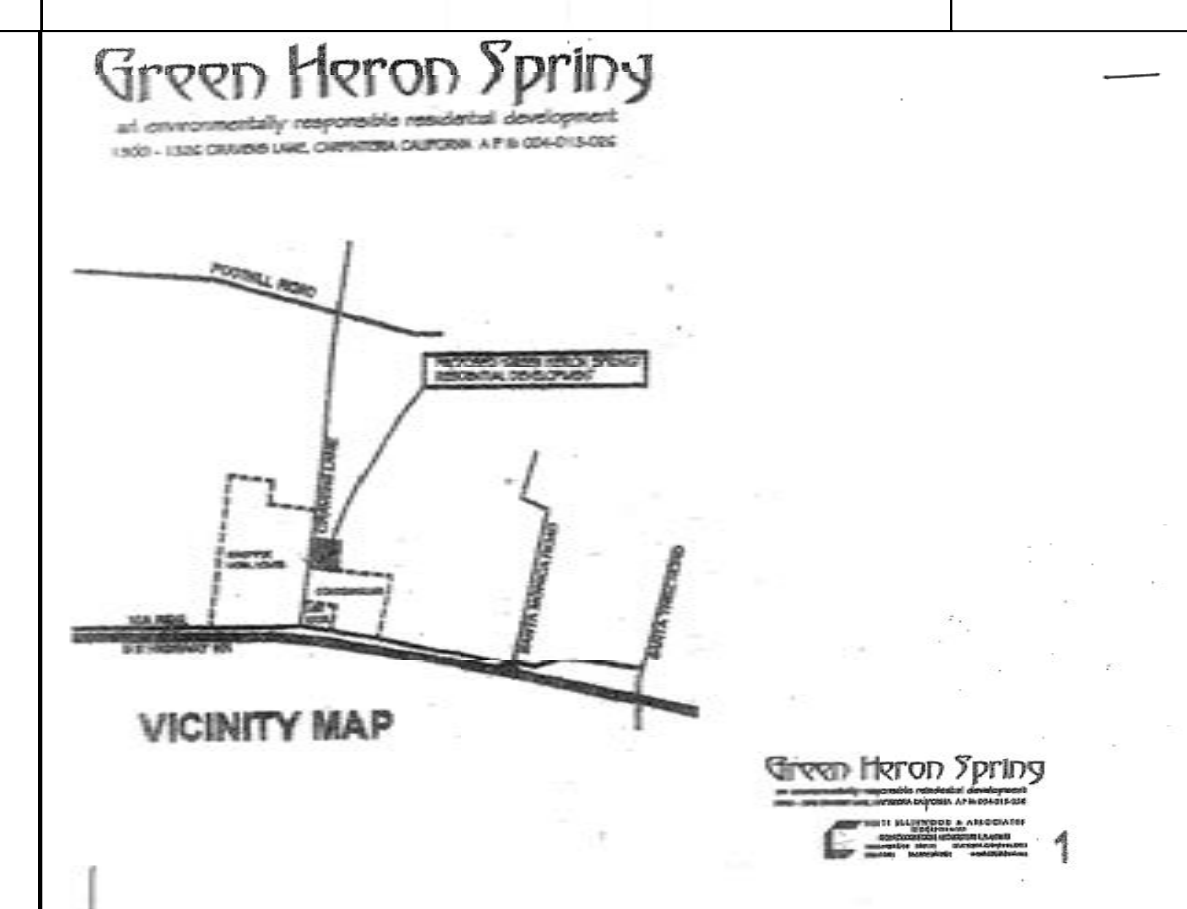
   Prior to land use clearance the applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans.

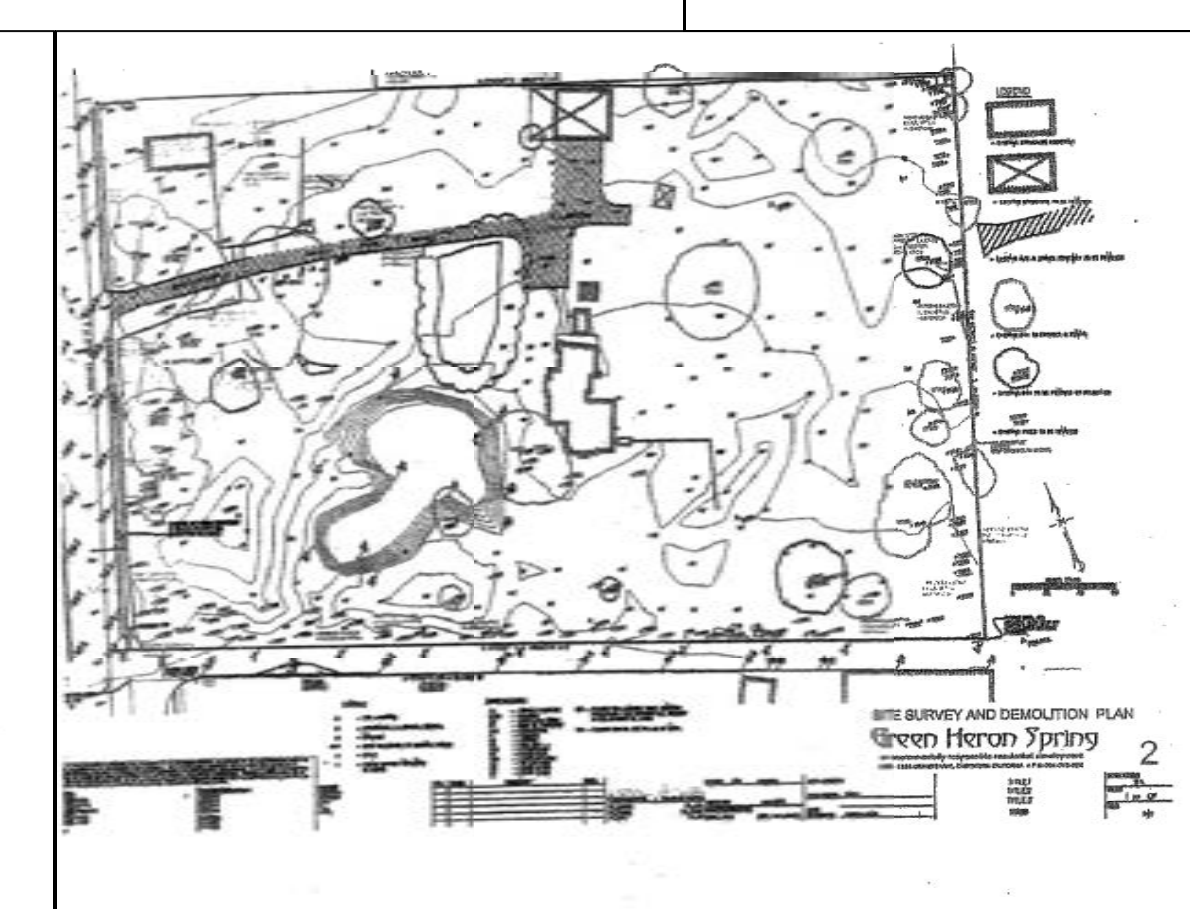
ATTACHMENT B

Reduced copy of Vicinity Map and Project Plans

February 27, 2012

PROJECT NO. 05-1239-TEX
GREEN HERON SPRING TIME EXTENSION
1300 and 1326 Cravens Lane (APN 004-013-026)





NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649
PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER · SIEW HUAT NG · NO.46026 · CIVIL · STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CA 91302
TEL: (818) 222-2530

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-21-17

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

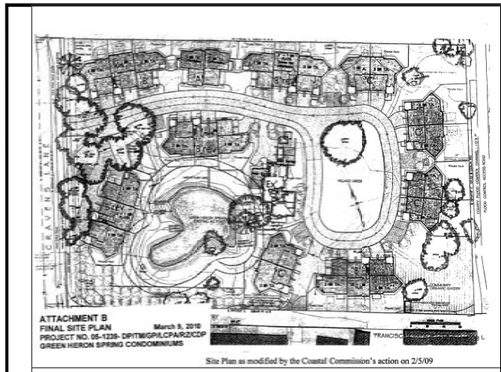
CONDITIONS

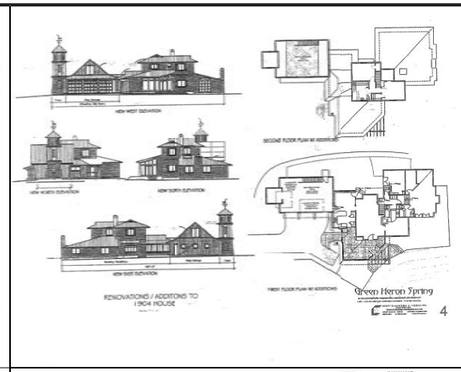
SCALE

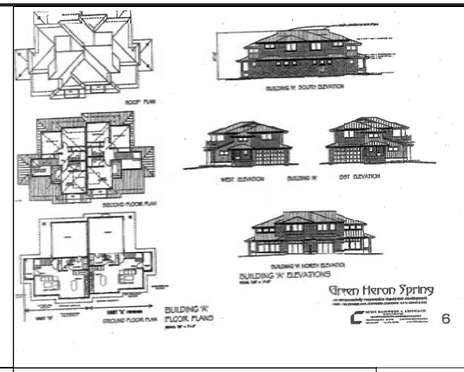
PROJECT NUMBER 1323

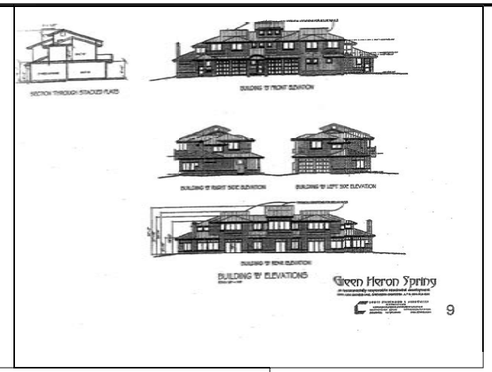
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

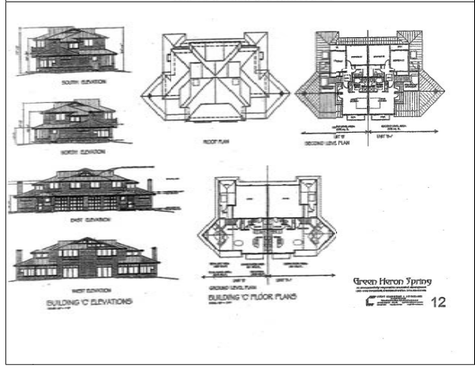
Sheet 7 of 8 Sheets











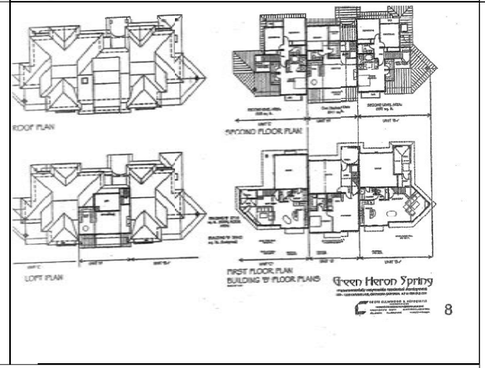


EXHIBIT 2

Time Extension Request Letter from Applicant

Green Heron Spring Time Extension City Council Staff Report
February 27, 2012

Green Heron Spring, LLC

RECEIVED
JAN 25 2012
COMMUNITY DEVELOPMENT
DEPARTMENT

January 24, 2012

City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

Attention: Steve Goggia
Principal Planner

Dear Steve,
This letter is in support of our application for a three year time extension o the development plan approvals for Green Heron Spring – case number 05-1239.

Due to housing and banking market conditions, financing has not been available to complete the Construction Documents and secure Construction Financing for this project to date. Market conditions are improving, as evidenced by the initiation of construction for the residential portion of Loquitita.

We anticipate securing funding in the near future and are excited that Southern California Edison has selected Green Heron Spring as a showcase project for their Sustainable Communities program. They are currently working with us to help make Green Heron Spring a near Zero Net Energy development. They have also committed to helping with marketing promotion.

The time extension will allow Green Heron Spring to move forward as resources are secured. We are committed to make Green Heron Spring a showcase of environmentally responsible development and a delightful place to live.

Thanks for your assistance in processing this request.

Scott Ellinwood, FAIA, LEED AP
Green Heron Spring, LLC

1800 Craven Lane Carpinteria California 93013 805-684-0993 Fax: 684-0834

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 CIVIL STATE OF CALIFORNIA

PREPARED FOR:
CRAVENS LANE, LLC
23622 CALABASAS ROAD, SUITE 220
CALABASAS, CA 91302
TEL: (818) 222-2530

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

TM 25178 PRECISE GRADING PLANS

CONDITIONS

DESIGNED BY: JEFF VAN FLEET DATE
DRAWN BY: JEFF VAN FLEET DATE
CHECKED BY: SIEW HUAT NG R.C.E 46.026 DATE
PROJECT ENGINEER: SIEW HUAT NG R.C.E 46.026 DATE 7-21-17

SCALE

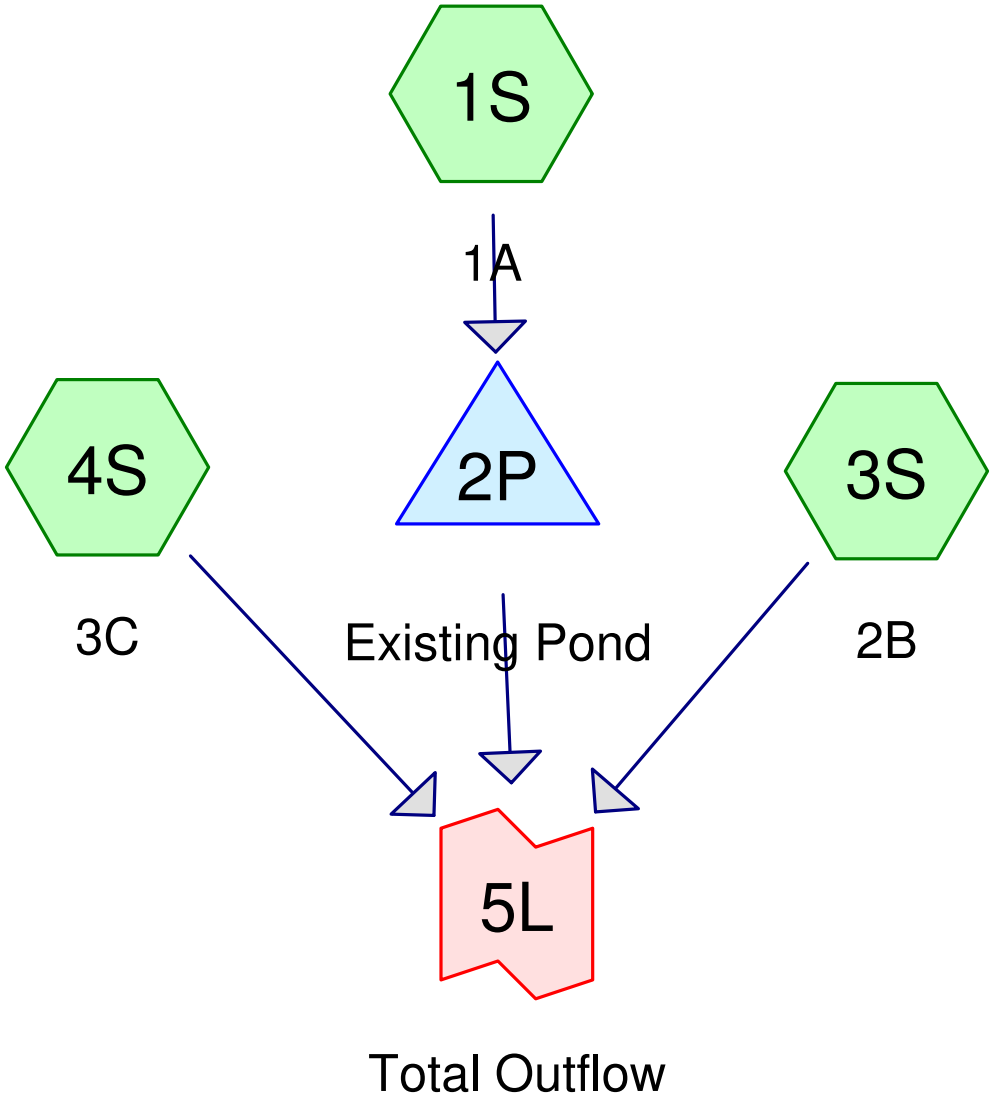
PROJECT NUMBER 1323

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371

Sheet 8 of 8 Sheets

APPENDIX D

HydroCAD Output for Existing Pre-Development Condition



Subcat Reach Pond Link

Routing Diagram for GHS_Ex
Prepared by United Civil, Inc.
HydroCAD® 10.00-19 s/n 06444 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: 1A

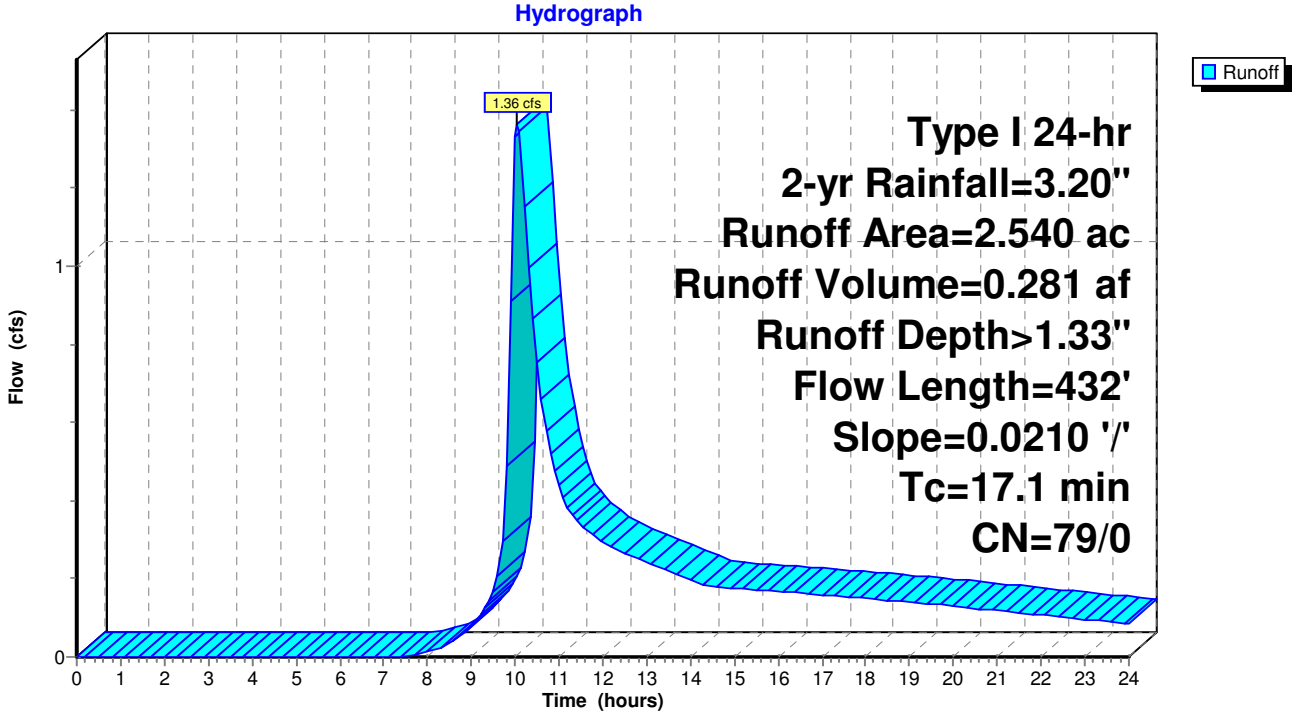
Runoff = 1.36 cfs @ 10.06 hrs, Volume= 0.281 af, Depth> 1.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

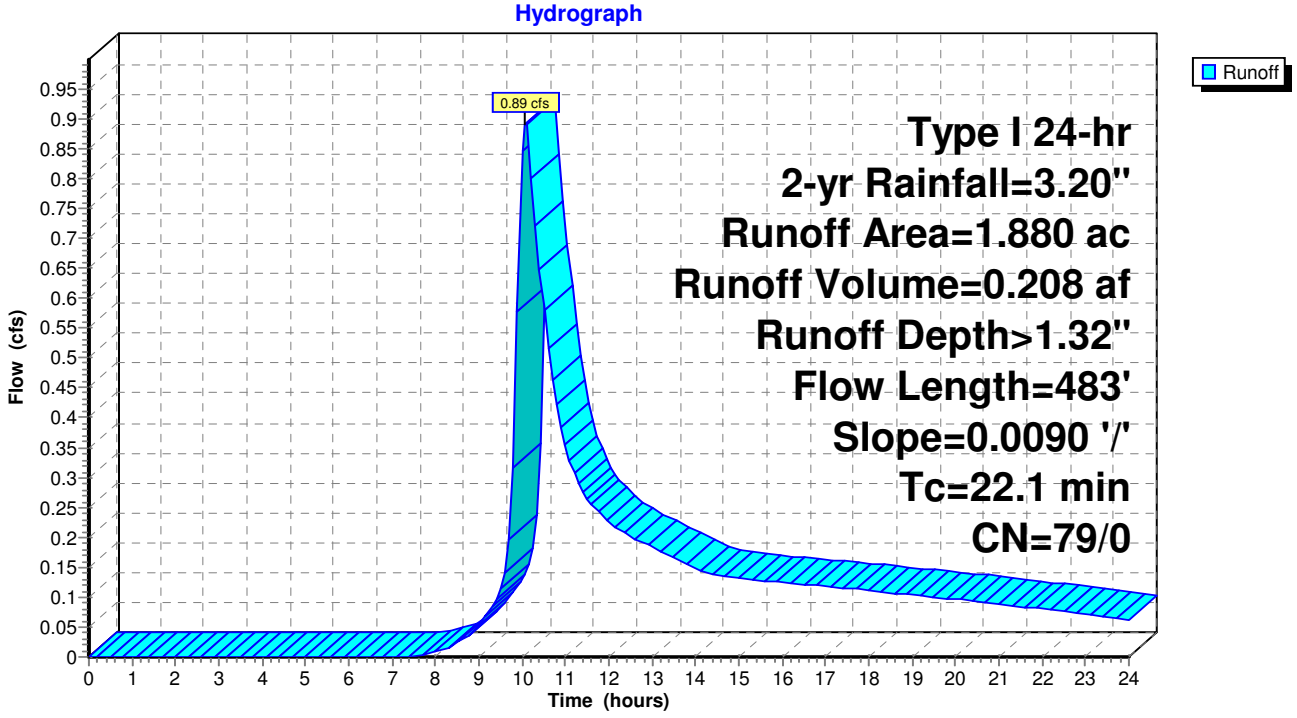
Runoff = 0.89 cfs @ 10.08 hrs, Volume= 0.208 af, Depth> 1.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

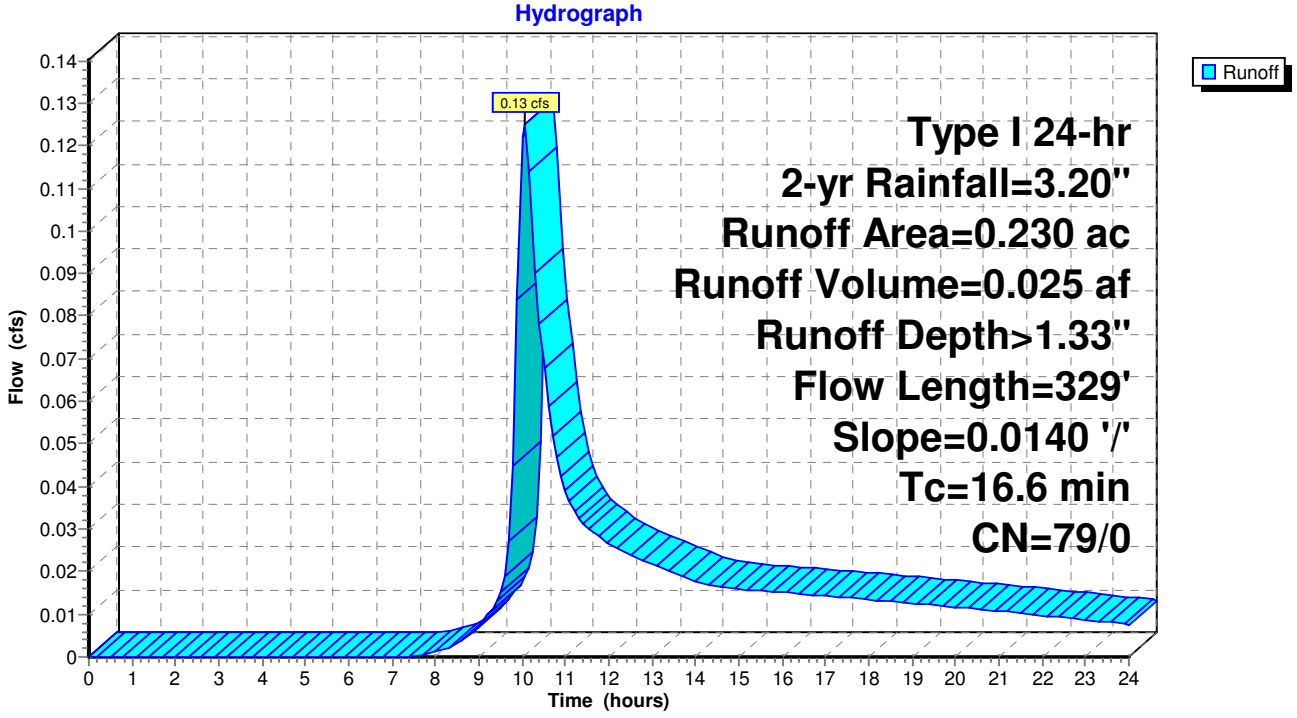
Runoff = 0.13 cfs @ 10.05 hrs, Volume= 0.025 af, Depth> 1.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 1.36 cfs @ 10.06 hrs, Volume= 0.281 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 14.98' @ 24.00 hrs Surf.Area= 0.097 ac Storage= 0.281 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

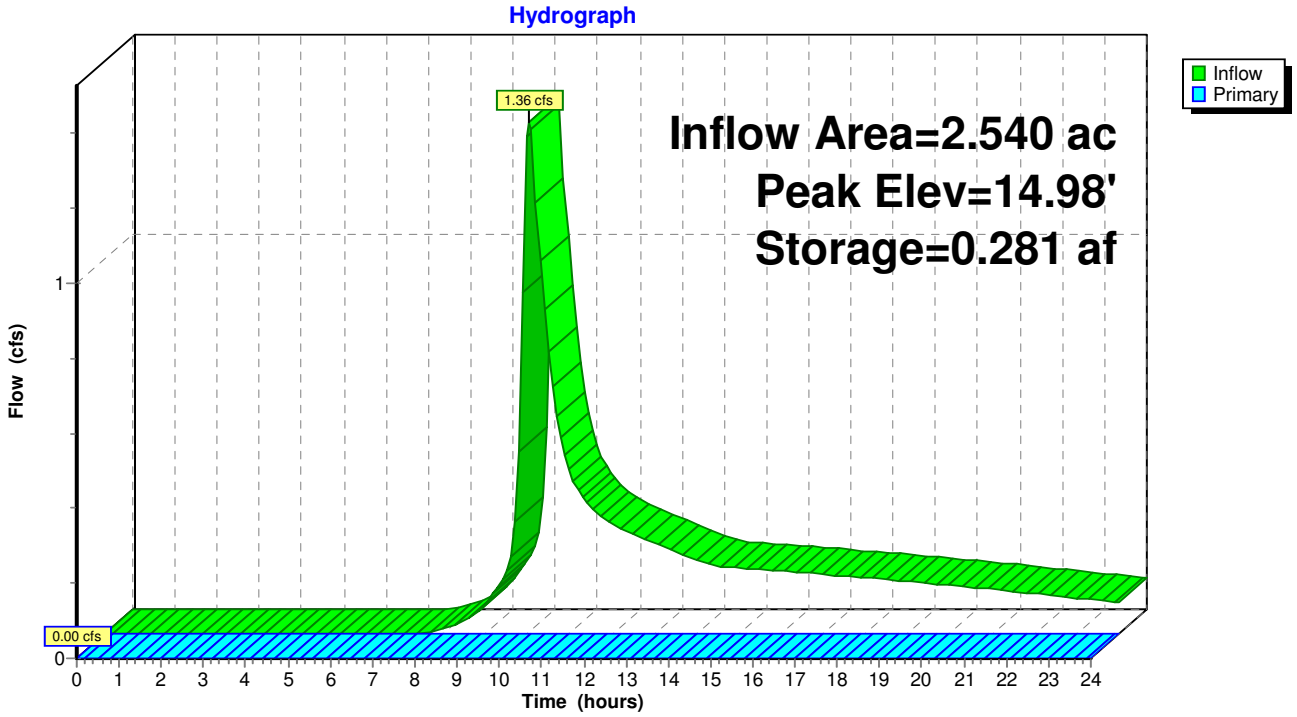
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Existing Pond

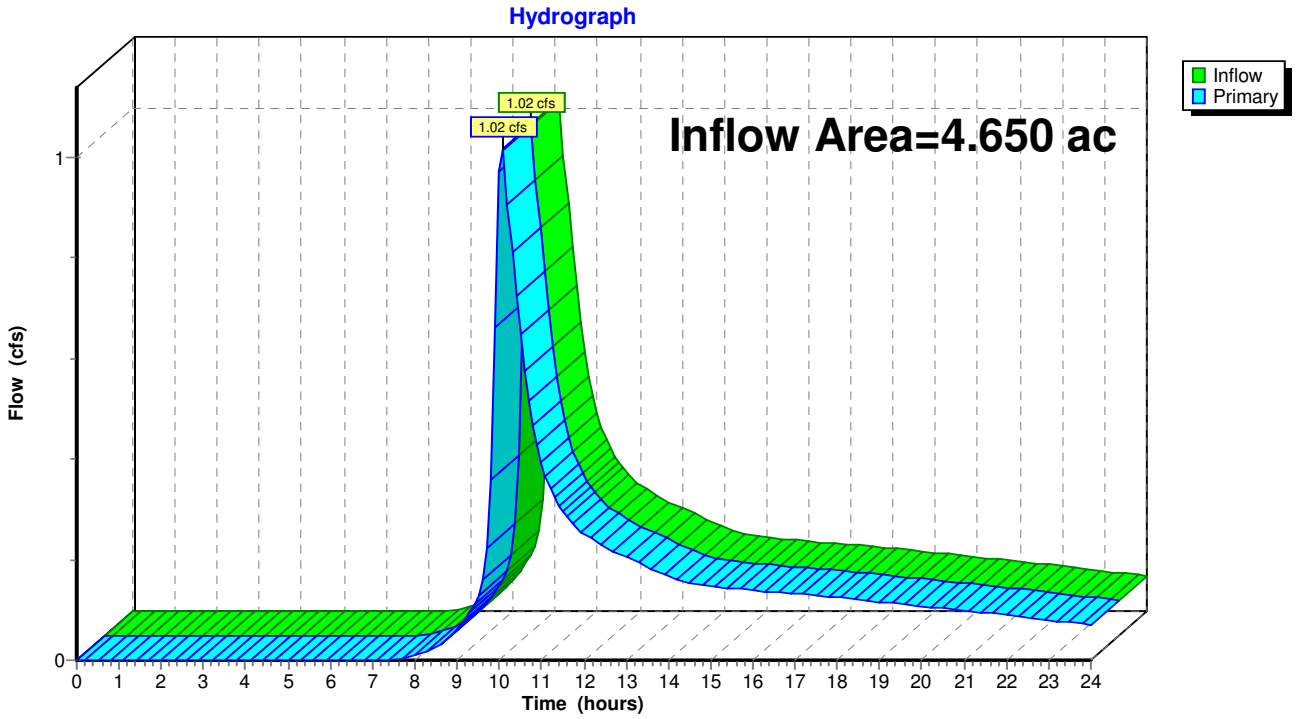


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 0.60" for 2-yr event
Inflow = 1.02 cfs @ 10.08 hrs, Volume= 0.233 af
Primary = 1.02 cfs @ 10.08 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



Summary for Subcatchment 1S: 1A

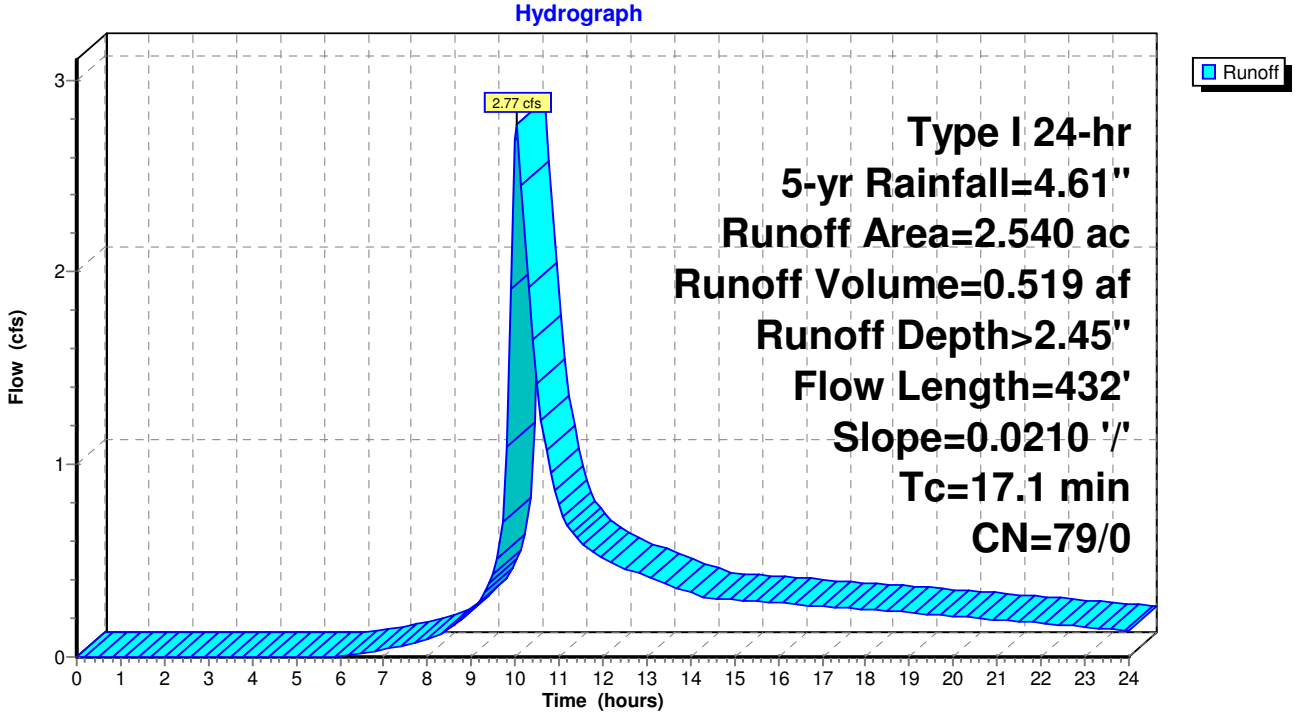
Runoff = 2.77 cfs @ 10.05 hrs, Volume= 0.519 af, Depth> 2.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

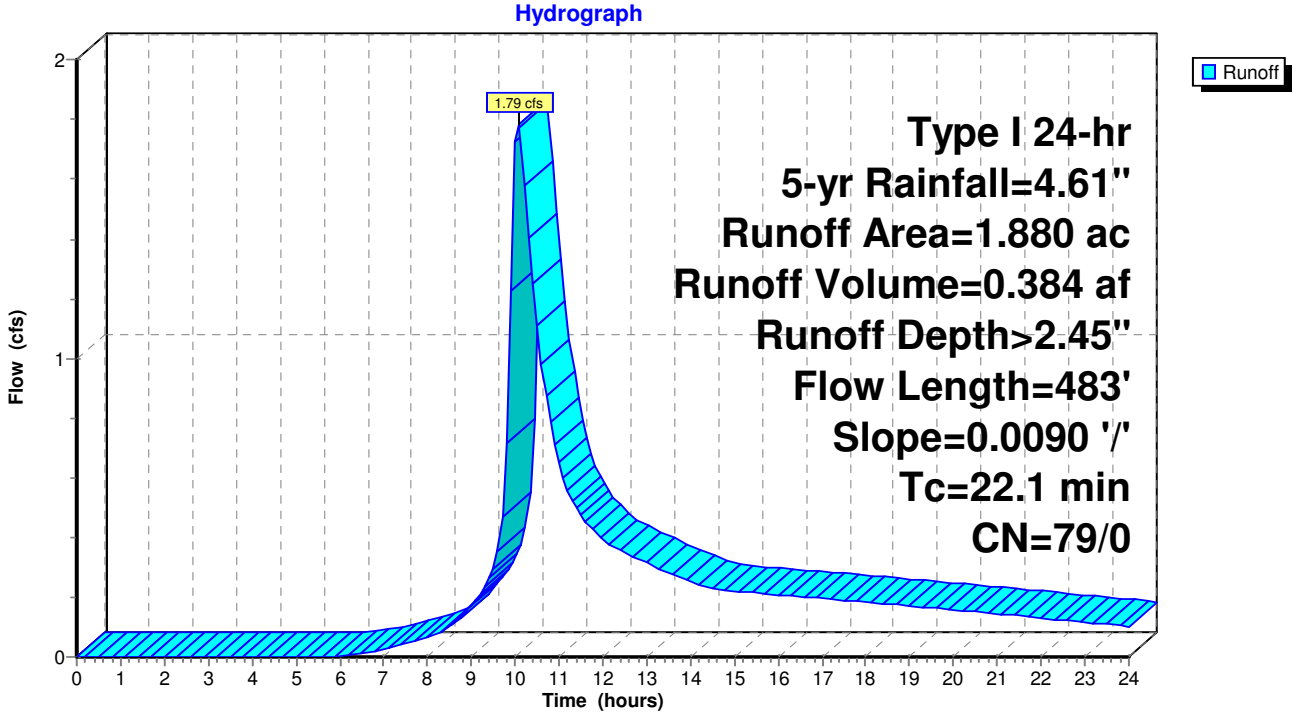
Runoff = 1.79 cfs @ 10.07 hrs, Volume= 0.384 af, Depth> 2.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

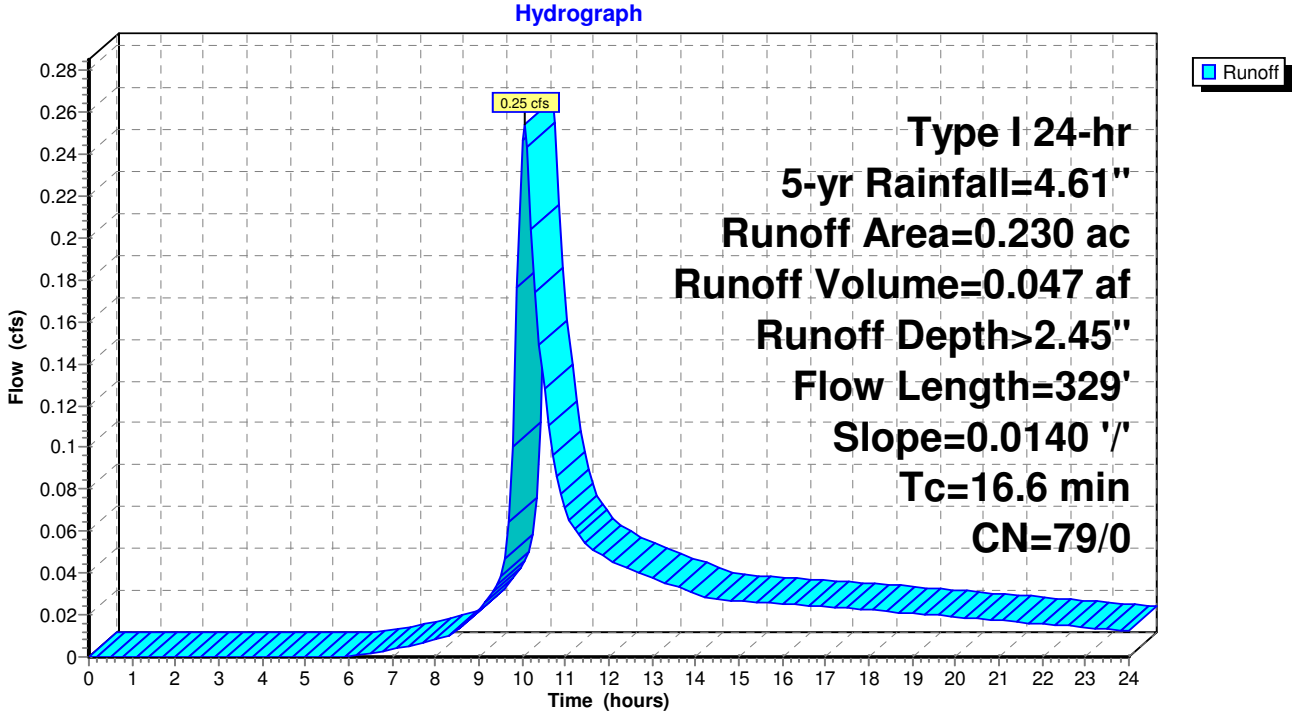
Runoff = 0.25 cfs @ 10.05 hrs, Volume= 0.047 af, Depth> 2.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 2.45" for 5-yr event
Inflow = 2.77 cfs @ 10.05 hrs, Volume= 0.519 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 16.94' @ 24.00 hrs Surf.Area= 0.149 ac Storage= 0.519 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

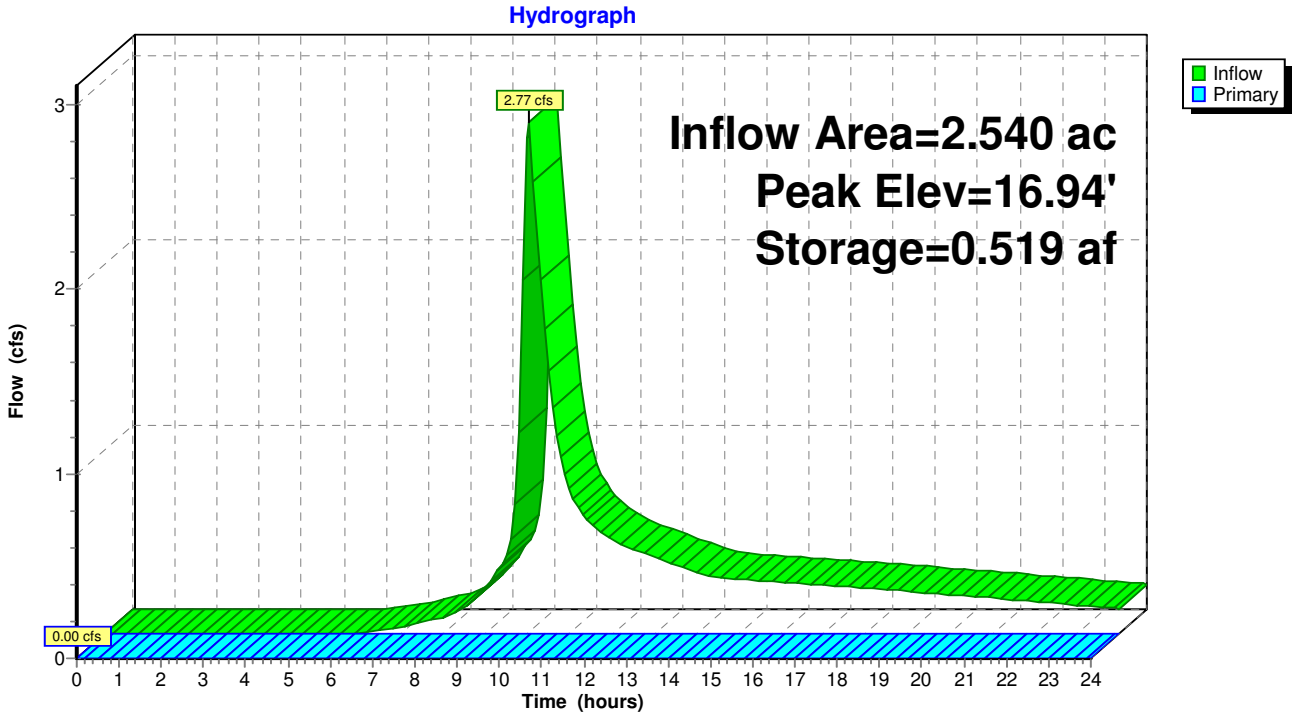
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Existing Pond

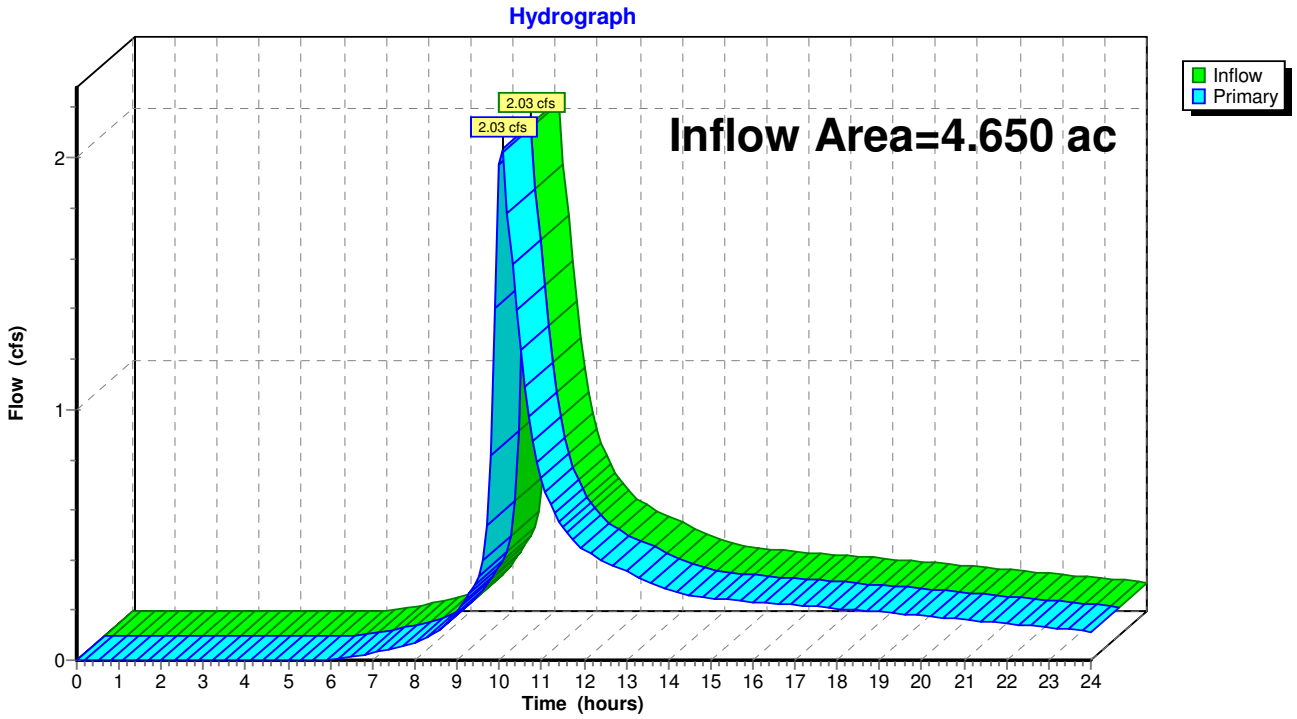


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 1.11" for 5-yr event
Inflow = 2.03 cfs @ 10.07 hrs, Volume= 0.431 af
Primary = 2.03 cfs @ 10.07 hrs, Volume= 0.431 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



Summary for Subcatchment 1S: 1A

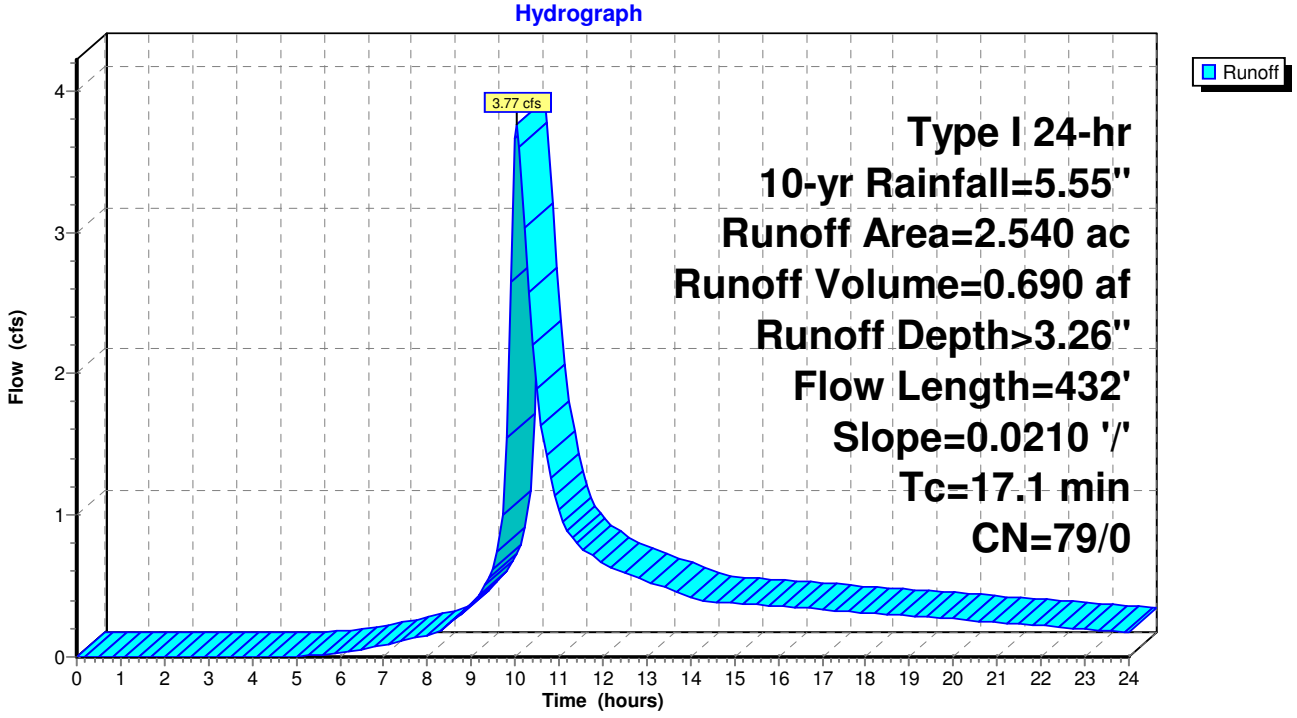
Runoff = 3.77 cfs @ 10.04 hrs, Volume= 0.690 af, Depth> 3.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

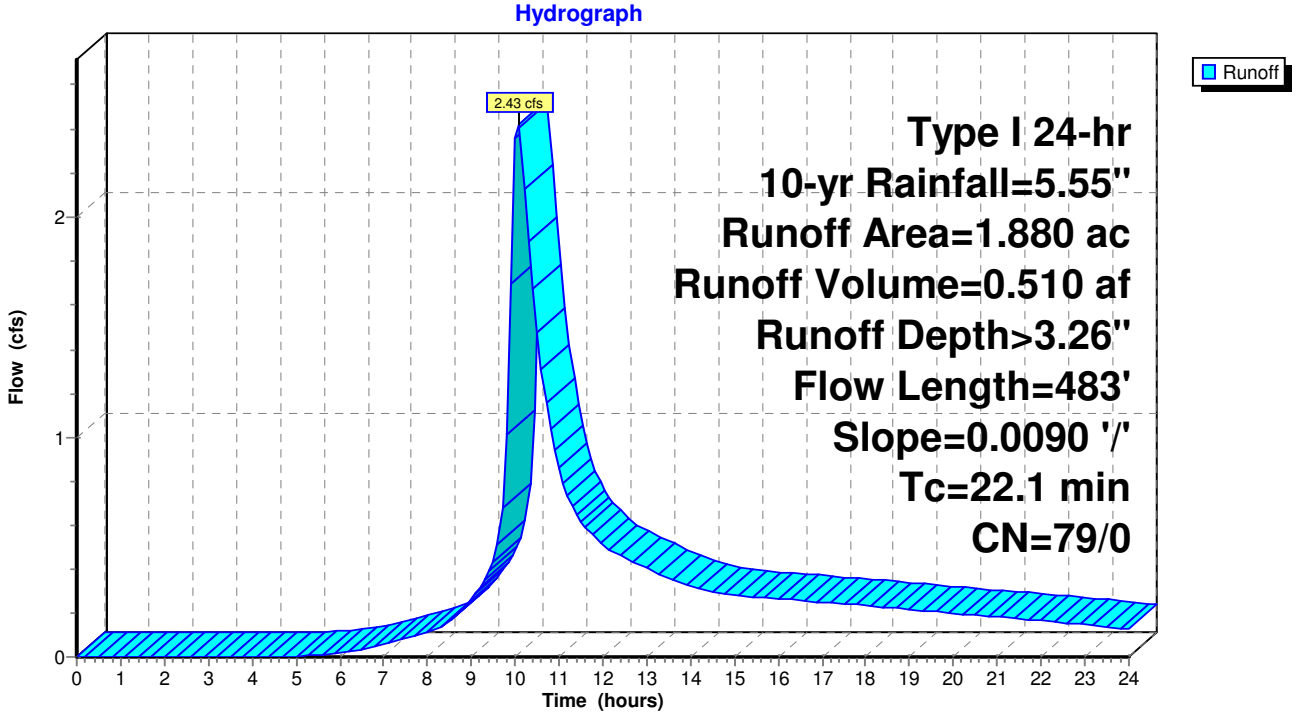
Runoff = 2.43 cfs @ 10.06 hrs, Volume= 0.510 af, Depth> 3.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

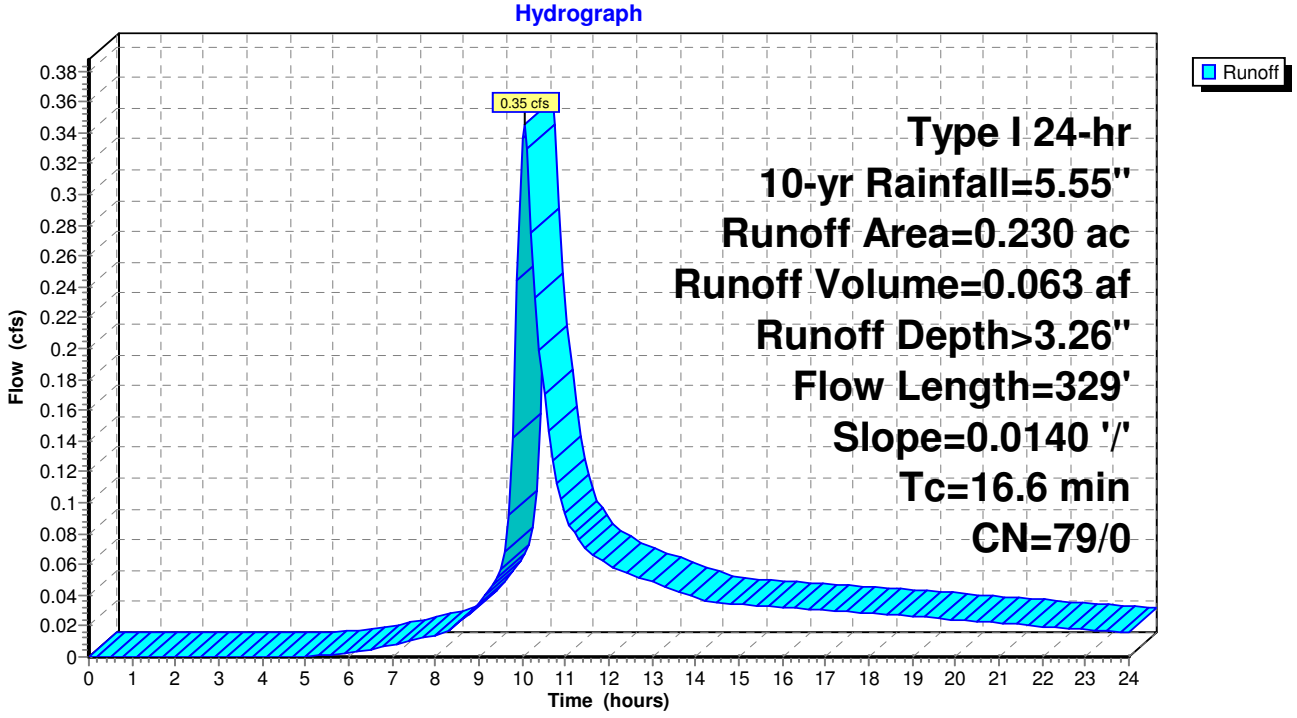
Runoff = 0.35 cfs @ 10.04 hrs, Volume= 0.063 af, Depth> 3.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 3.26" for 10-yr event
Inflow = 3.77 cfs @ 10.04 hrs, Volume= 0.690 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 17.97' @ 24.00 hrs Surf.Area= 0.182 ac Storage= 0.690 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

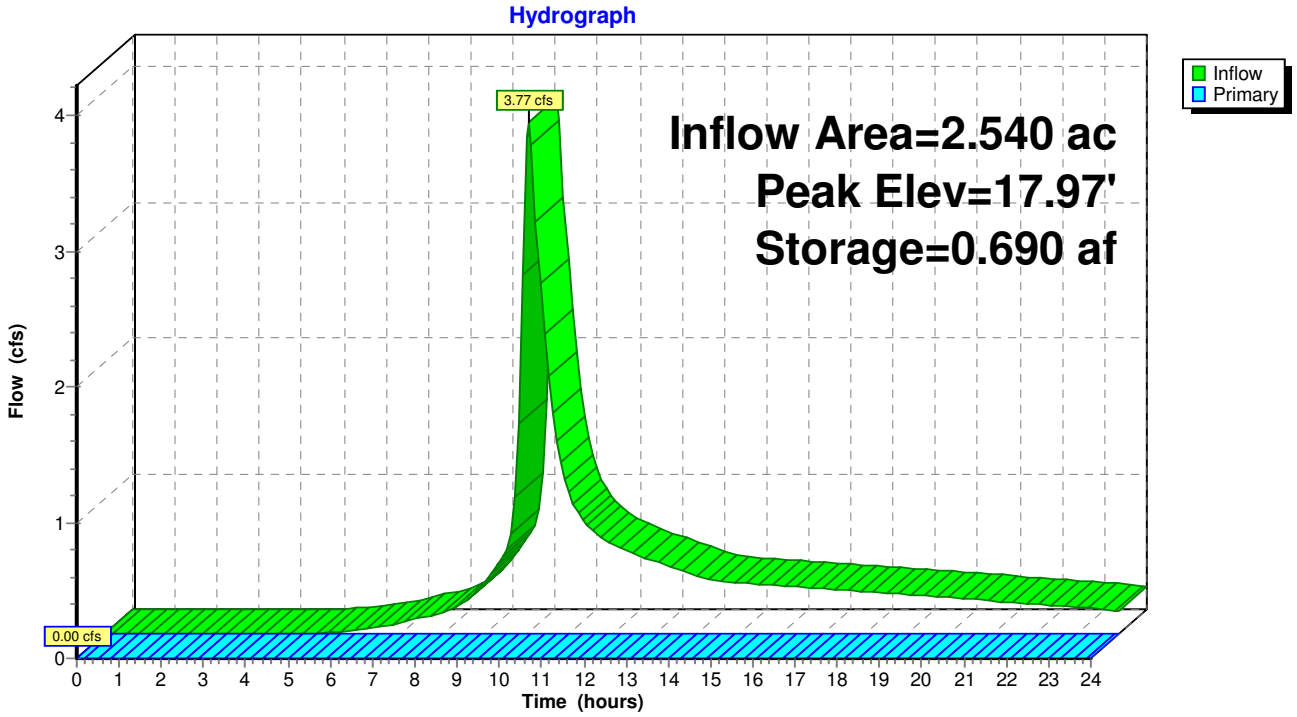
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Existing Pond

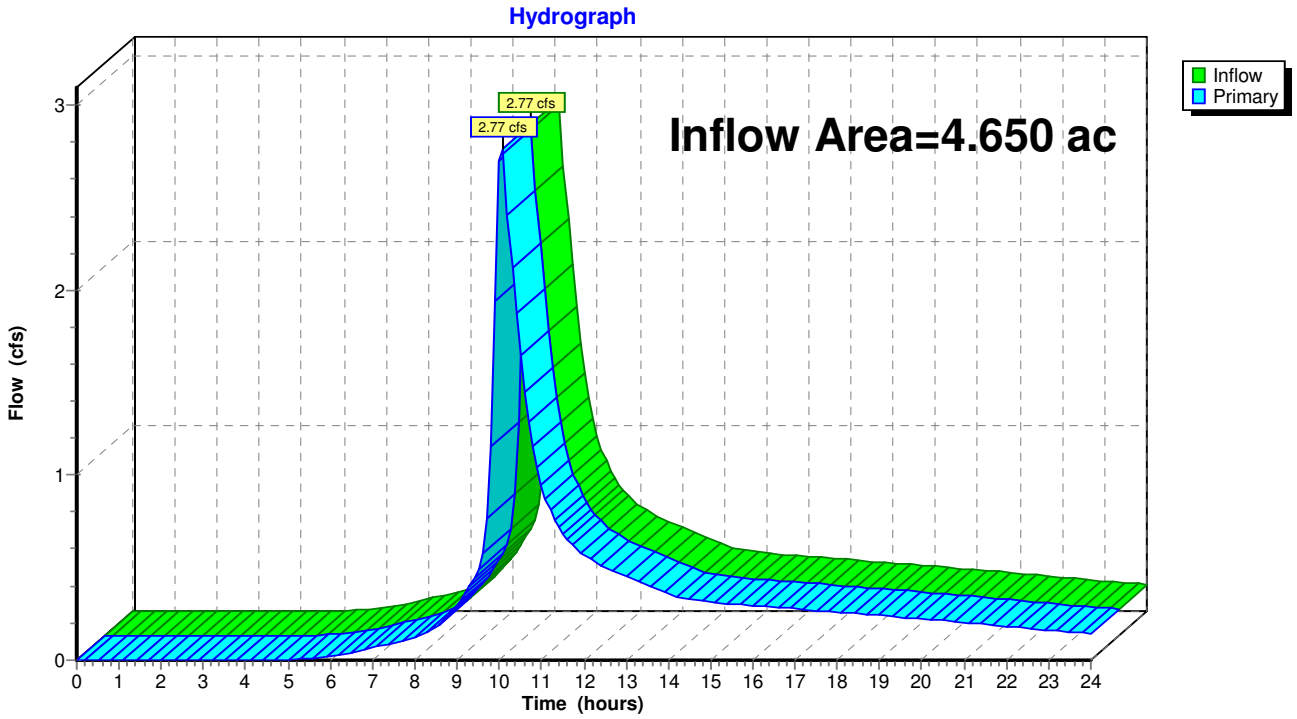


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 1.48" for 10-yr event
Inflow = 2.77 cfs @ 10.06 hrs, Volume= 0.573 af
Primary = 2.77 cfs @ 10.06 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



Summary for Subcatchment 1S: 1A

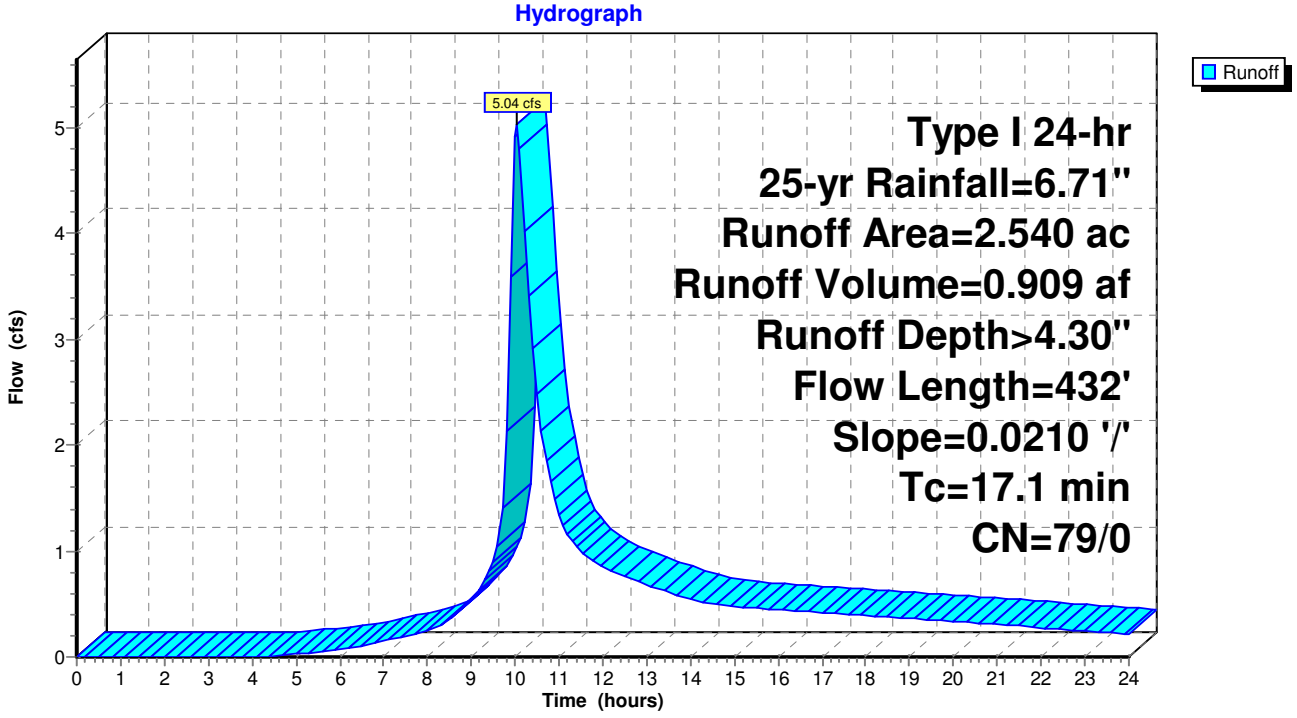
Runoff = 5.04 cfs @ 10.04 hrs, Volume= 0.909 af, Depth> 4.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

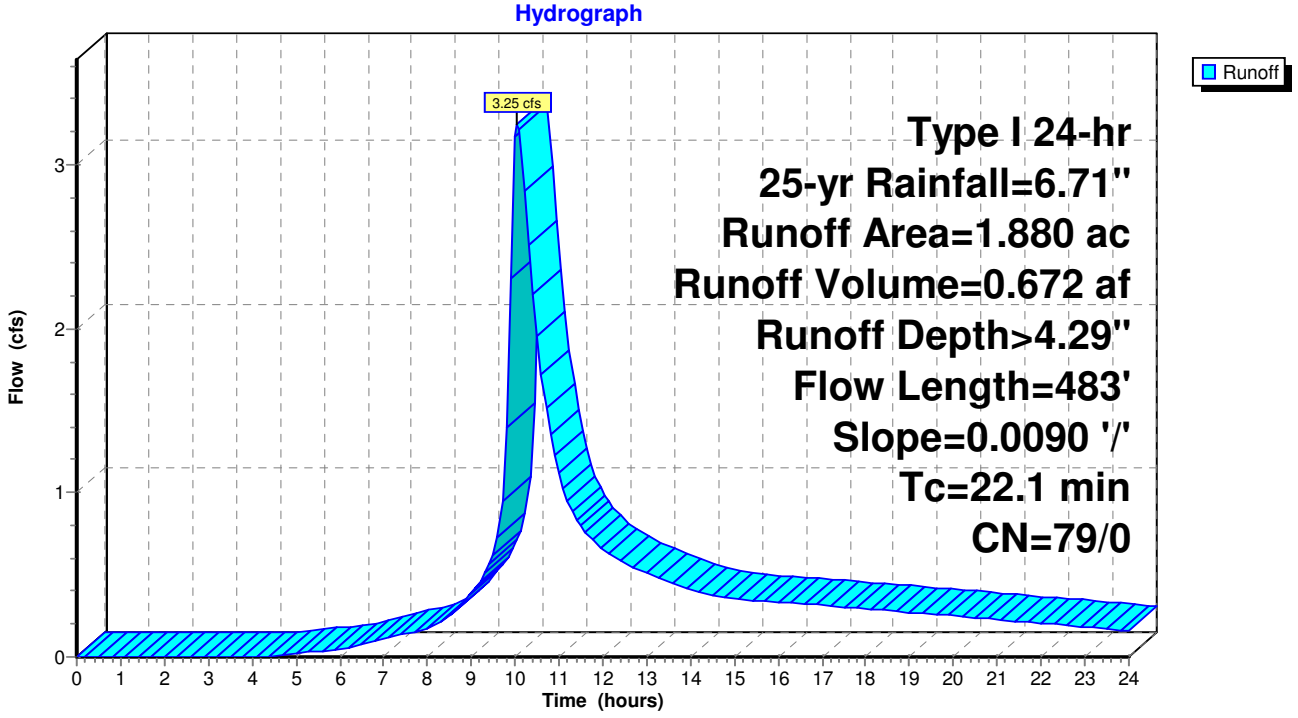
Runoff = 3.25 cfs @ 10.06 hrs, Volume= 0.672 af, Depth> 4.29"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

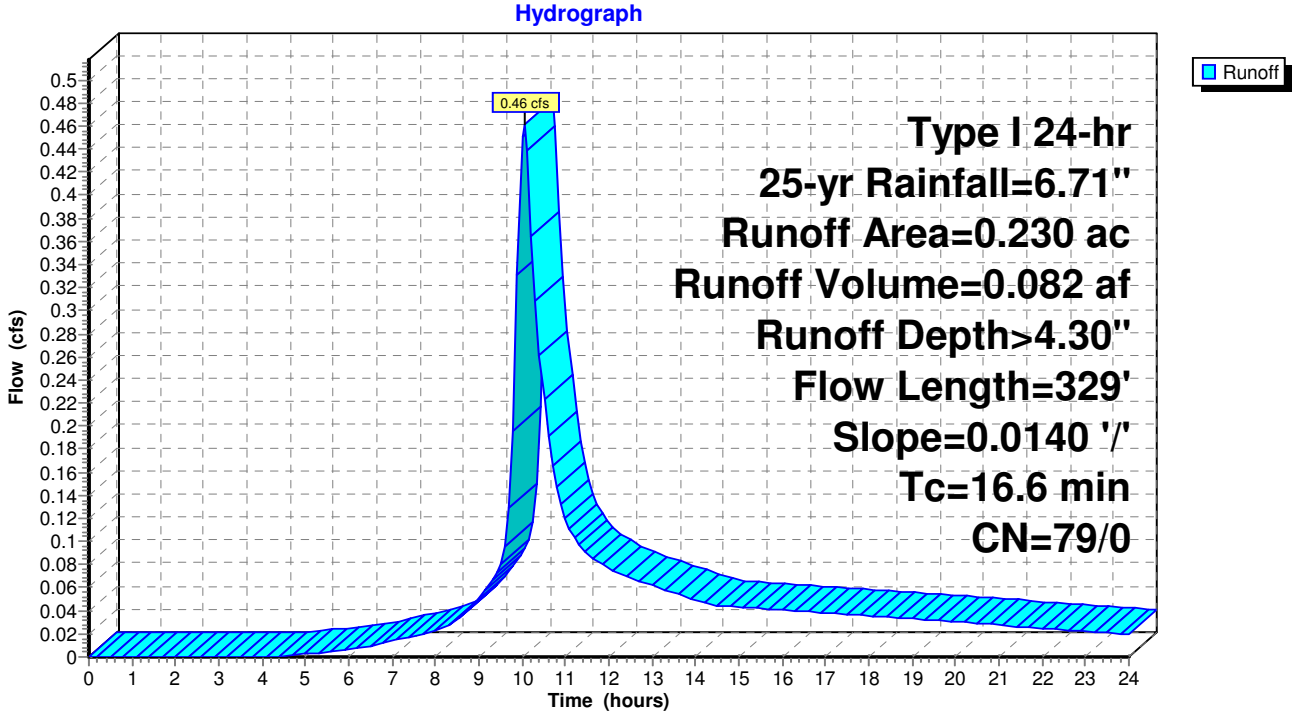
Runoff = 0.46 cfs @ 10.04 hrs, Volume= 0.082 af, Depth> 4.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 4.30" for 25-yr event
Inflow = 5.04 cfs @ 10.04 hrs, Volume= 0.909 af
Outflow = 0.43 cfs @ 16.64 hrs, Volume= 0.212 af, Atten= 91%, Lag= 396.2 min
Primary = 0.43 cfs @ 16.64 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 18.02' @ 16.64 hrs Surf.Area= 0.184 ac Storage= 0.699 af

Plug-Flow detention time= 629.2 min calculated for 0.211 af (23% of inflow)
Center-of-Mass det. time= 393.5 min (1,183.4 - 789.9)

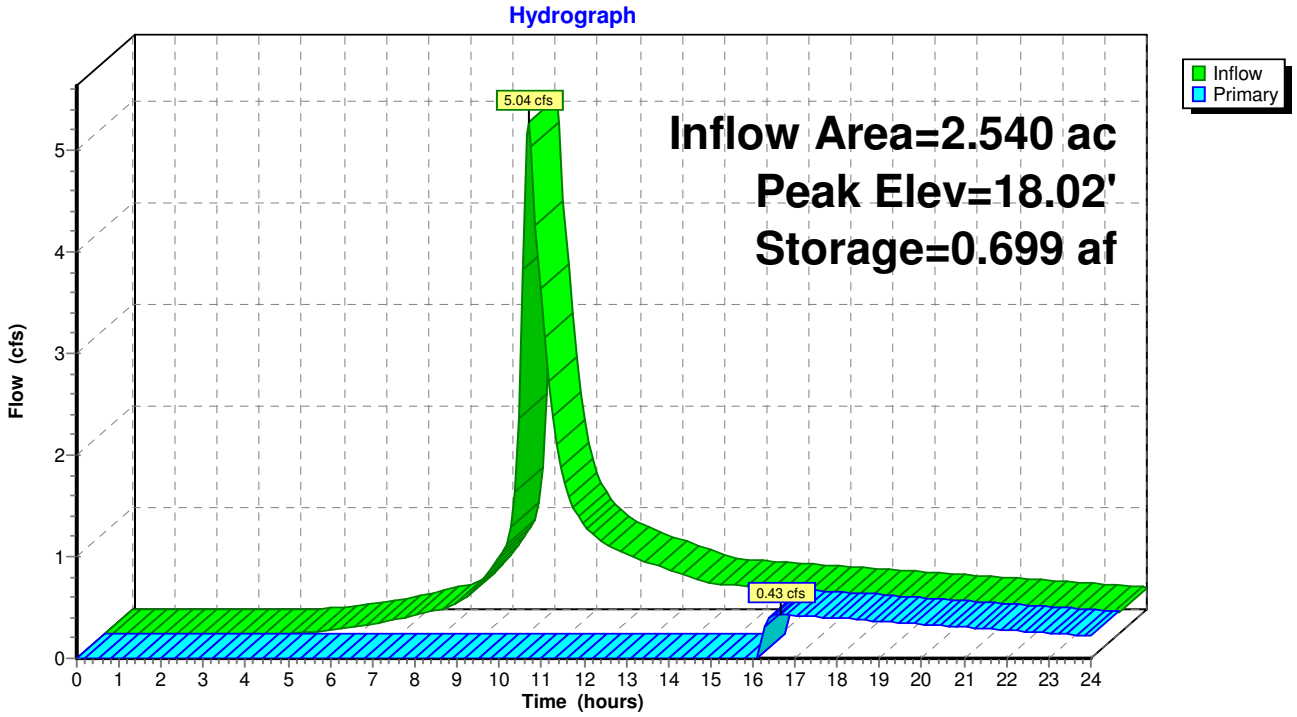
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.21 cfs @ 16.64 hrs HW=18.02' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.21 cfs @ 0.47 fps)

Pond 2P: Existing Pond

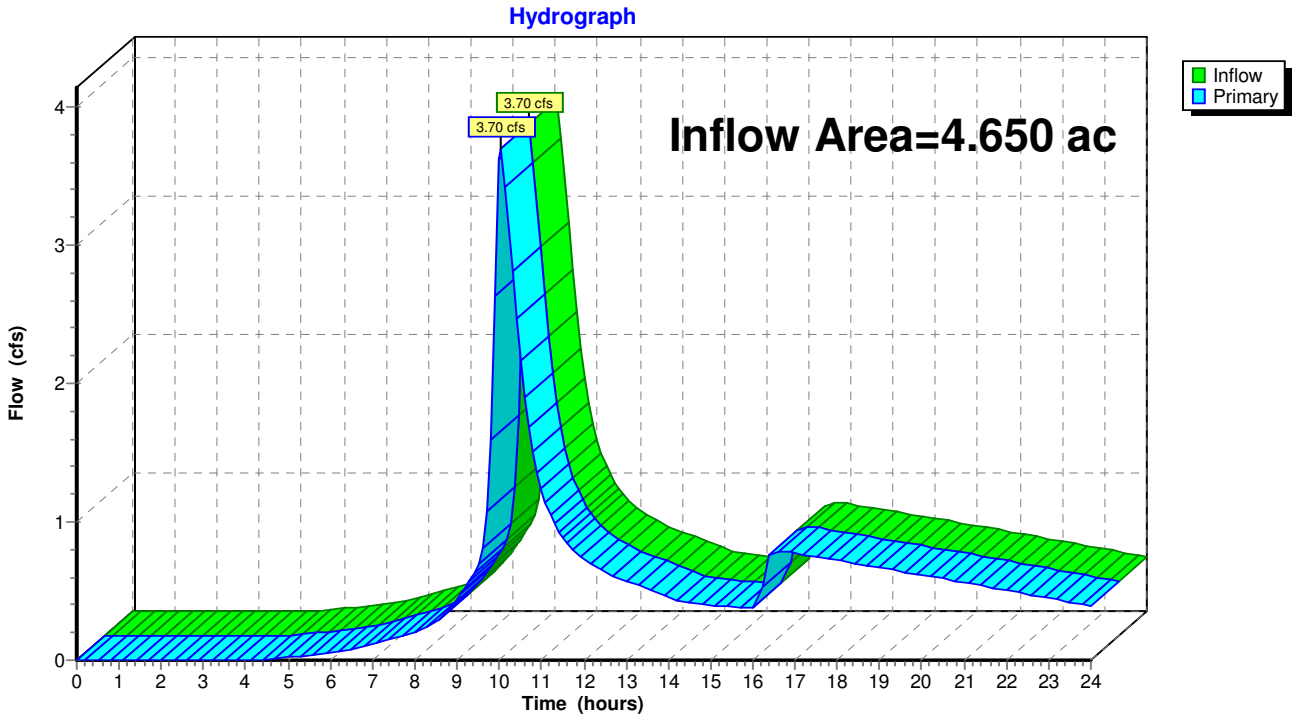


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 2.49" for 25-yr event
Inflow = 3.70 cfs @ 10.06 hrs, Volume= 0.967 af
Primary = 3.70 cfs @ 10.06 hrs, Volume= 0.967 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



Summary for Subcatchment 1S: 1A

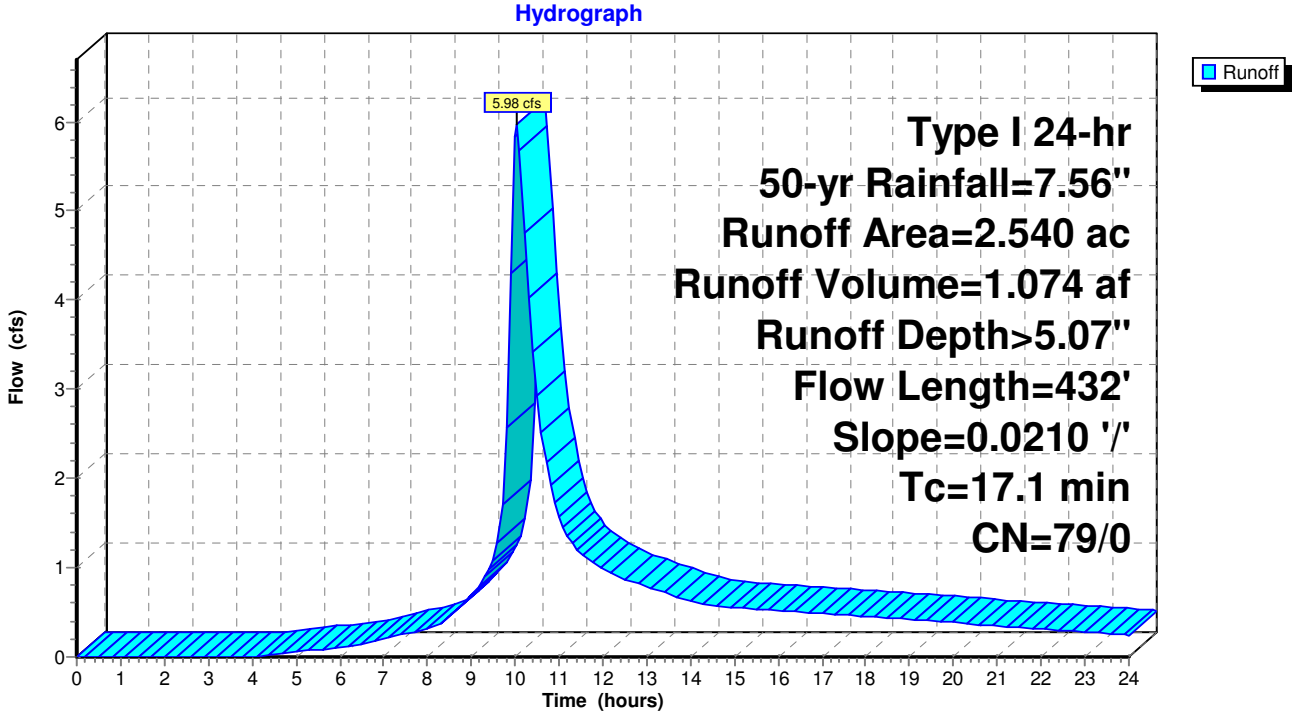
Runoff = 5.98 cfs @ 10.04 hrs, Volume= 1.074 af, Depth> 5.07"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

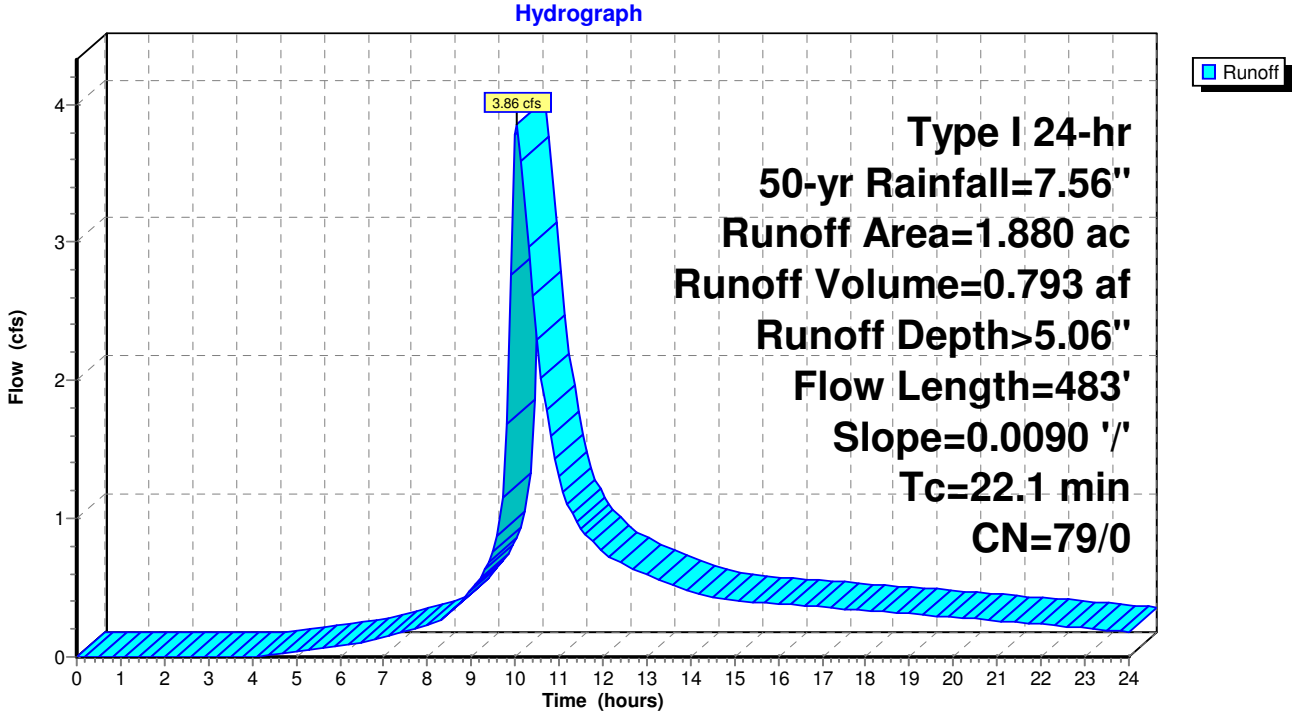
Runoff = 3.86 cfs @ 10.06 hrs, Volume= 0.793 af, Depth> 5.06"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

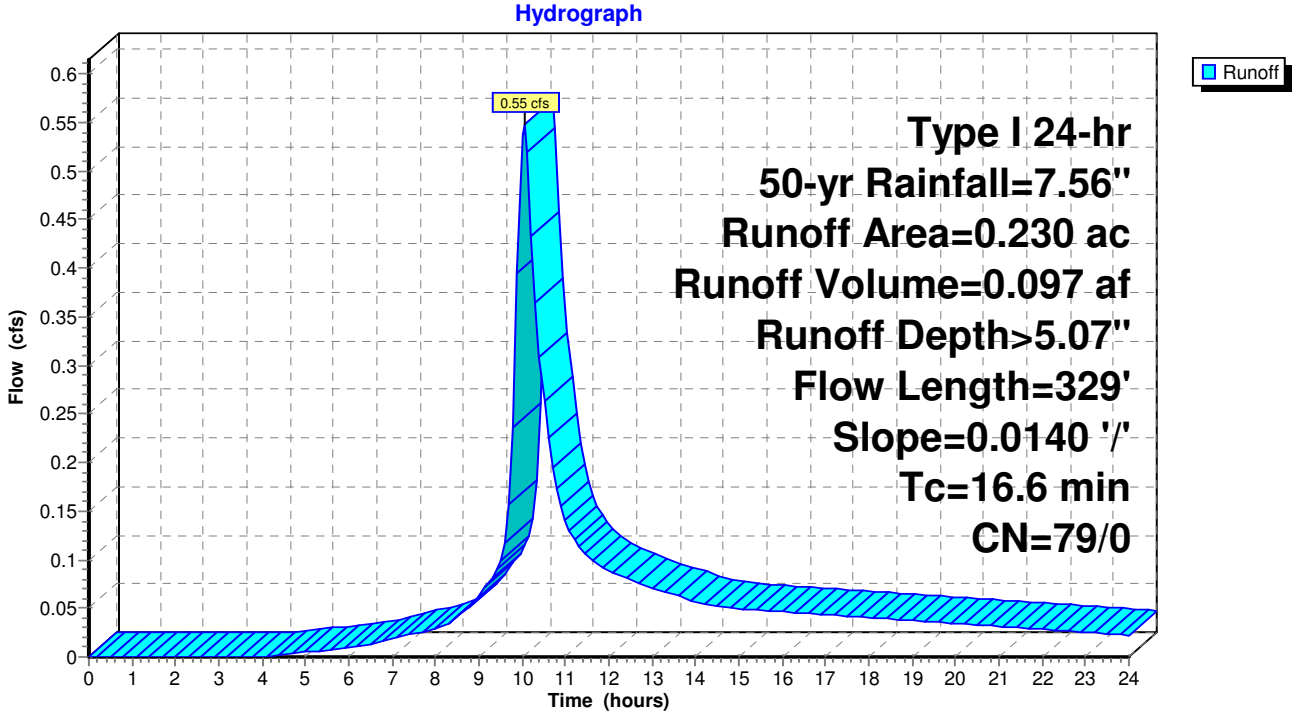
Runoff = 0.55 cfs @ 10.04 hrs, Volume= 0.097 af, Depth> 5.07"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 5.07" for 50-yr event
Inflow = 5.98 cfs @ 10.04 hrs, Volume= 1.074 af
Outflow = 0.67 cfs @ 13.76 hrs, Volume= 0.376 af, Atten= 89%, Lag= 222.9 min
Primary = 0.67 cfs @ 13.76 hrs, Volume= 0.376 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 18.03' @ 13.76 hrs Surf.Area= 0.184 ac Storage= 0.700 af

Plug-Flow detention time= 512.2 min calculated for 0.376 af (35% of inflow)
Center-of-Mass det. time= 296.7 min (1,079.7 - 782.9)

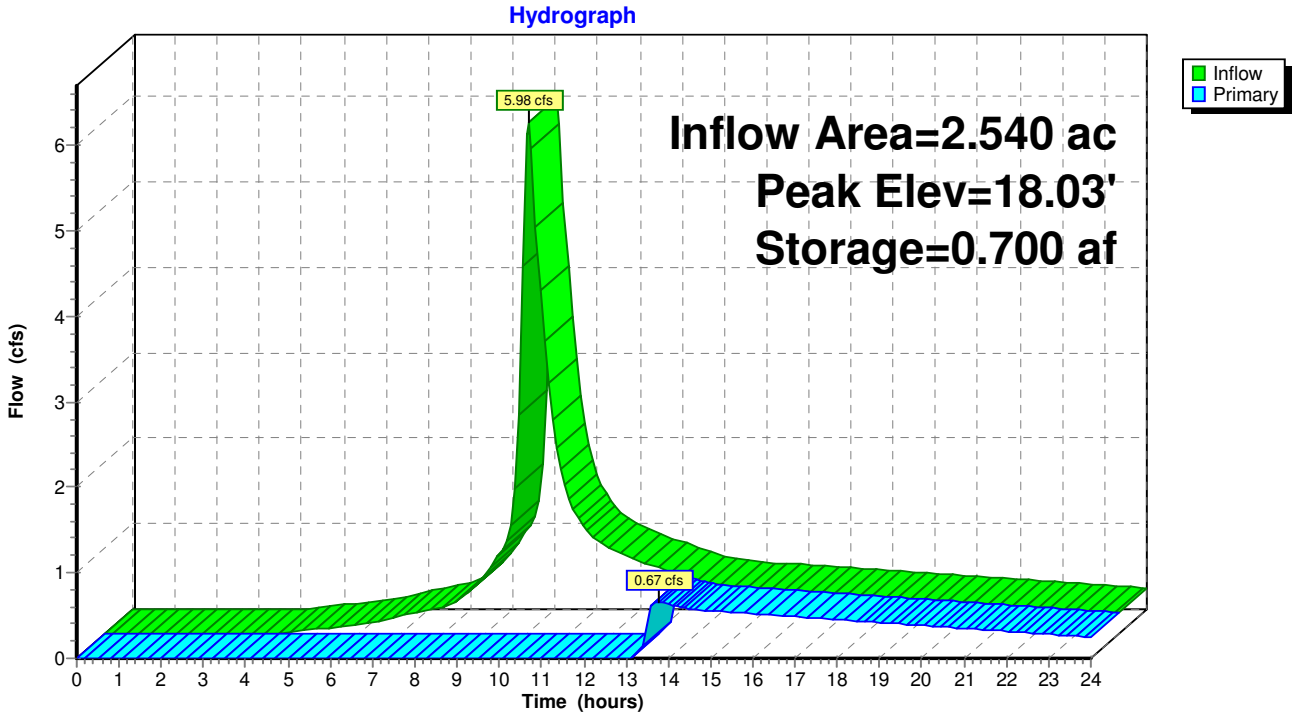
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.40 cfs @ 13.76 hrs HW=18.03' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 0.58 fps)

Pond 2P: Existing Pond

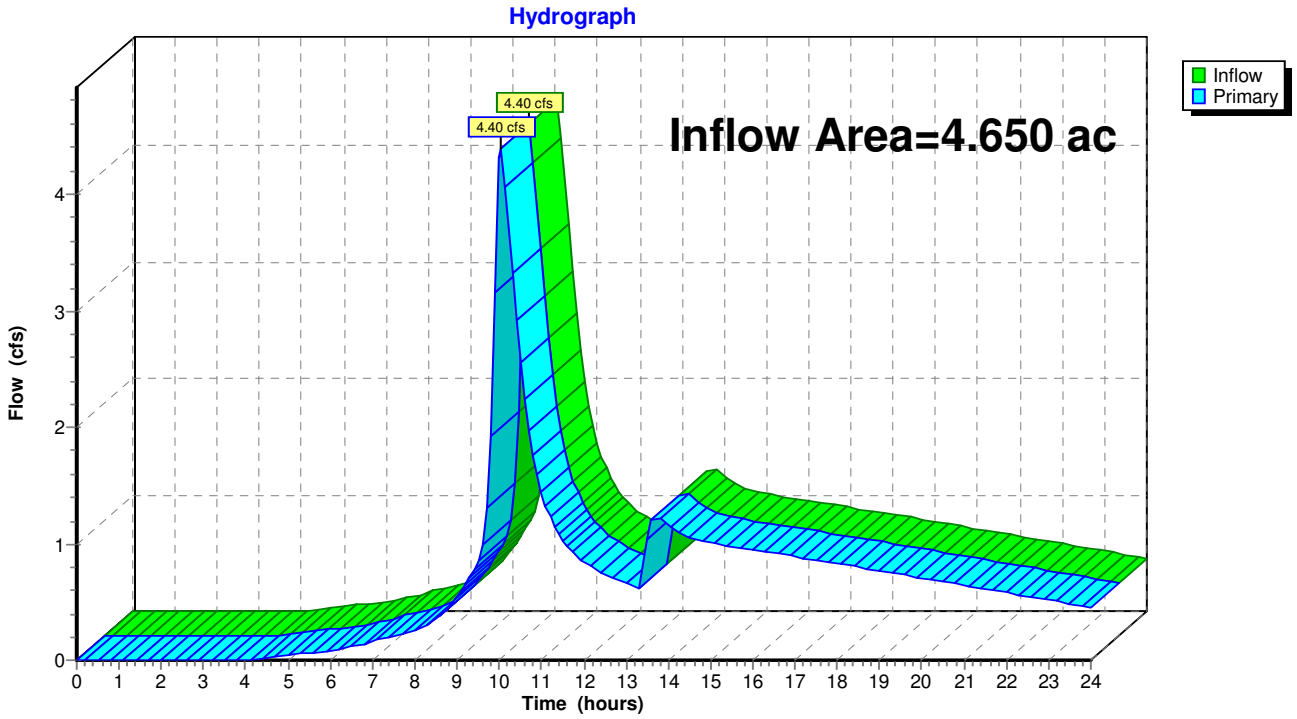


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 3.27" for 50-yr event
Inflow = 4.40 cfs @ 10.05 hrs, Volume= 1.267 af
Primary = 4.40 cfs @ 10.05 hrs, Volume= 1.267 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



Summary for Subcatchment 1S: 1A

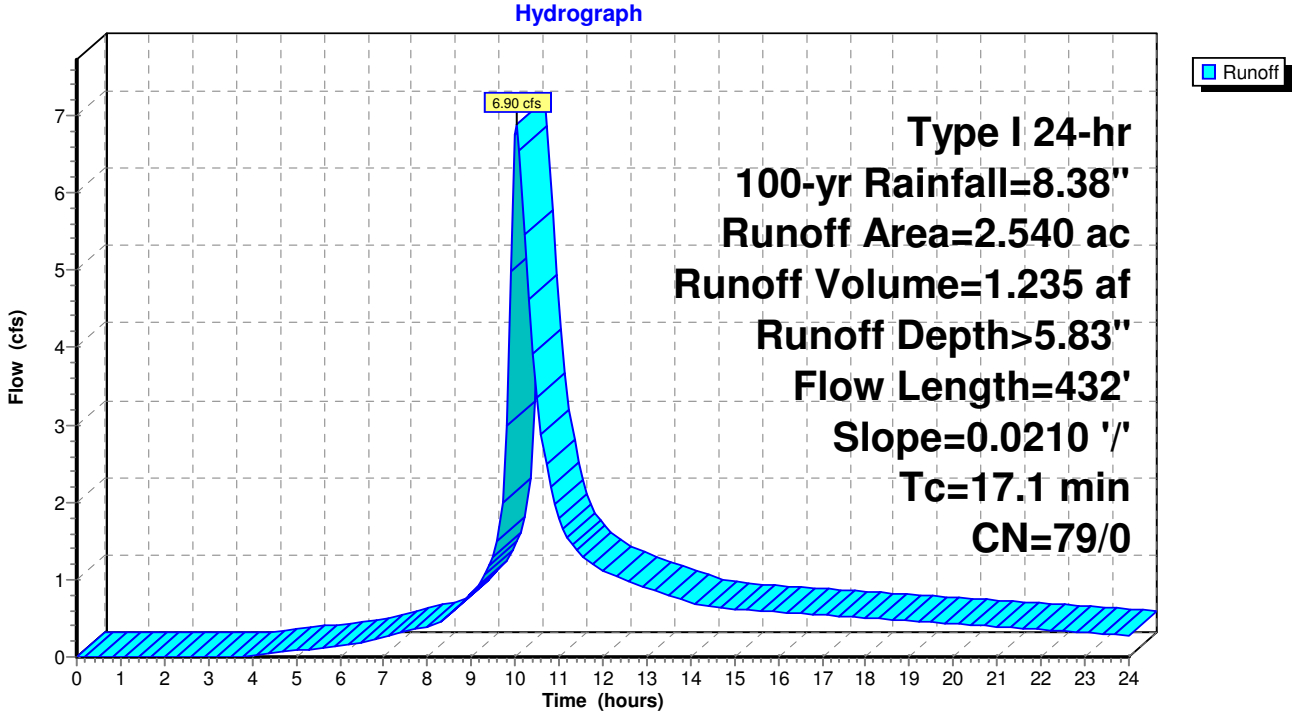
Runoff = 6.90 cfs @ 10.04 hrs, Volume= 1.235 af, Depth> 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
2.540	79	50-75% Grass cover, Fair, HSG C
2.540	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	432	0.0210	1.01		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
17.1	432	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 3S: 2B

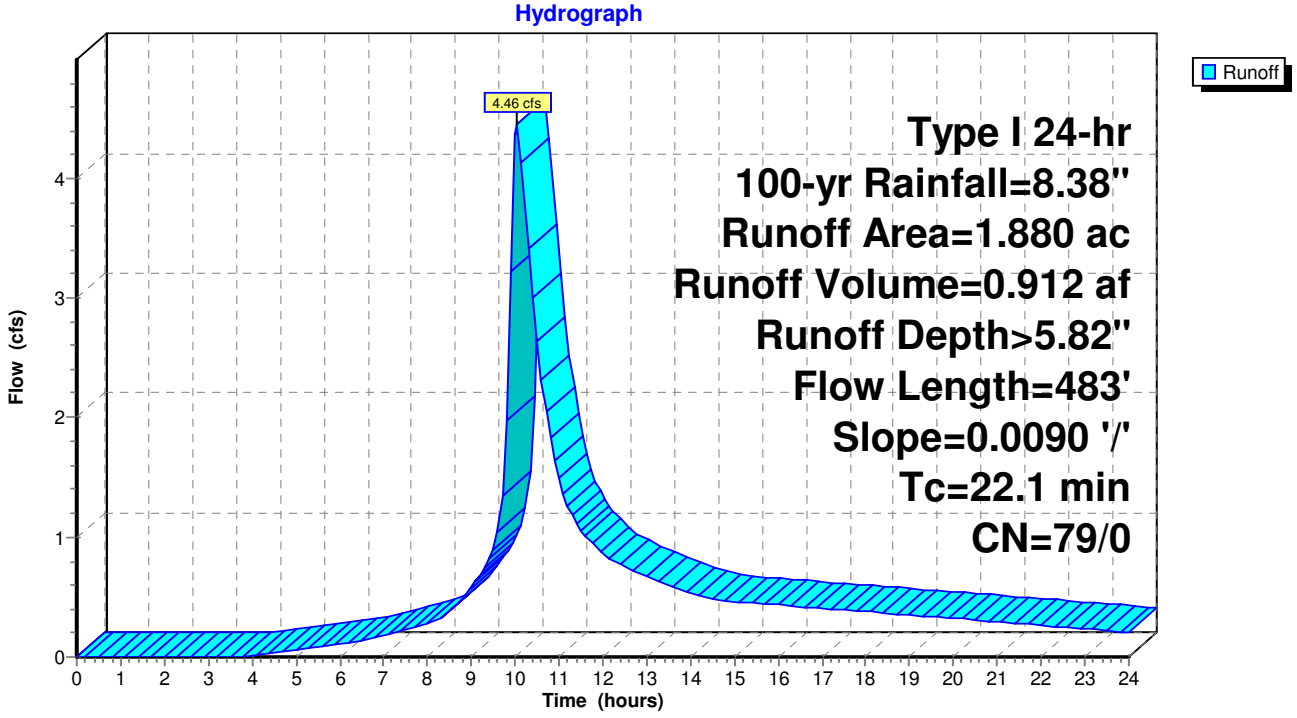
Runoff = 4.46 cfs @ 10.06 hrs, Volume= 0.912 af, Depth> 5.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
1.880	79	50-75% Grass cover, Fair, HSG C
1.880	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	483	0.0090	0.66		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
22.1	483	Total			

Subcatchment 3S: 2B



Summary for Subcatchment 4S: 3C

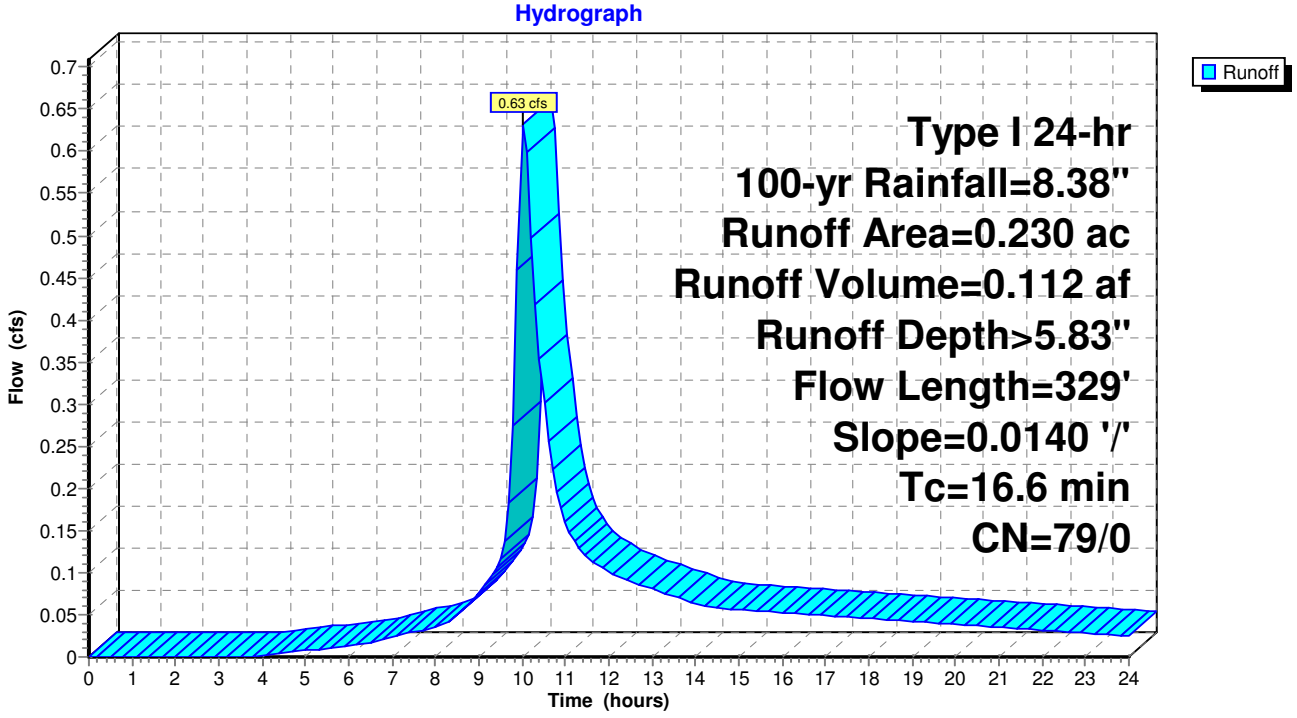
Runoff = 0.63 cfs @ 10.04 hrs, Volume= 0.112 af, Depth> 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
0.230	79	50-75% Grass cover, Fair, HSG C
0.230	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	329	0.0140	0.83		**Shallow Concentrated Flow, Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
16.6	329	Total			

Subcatchment 4S: 3C



Summary for Pond 2P: Existing Pond

Inflow Area = 2.540 ac, 0.00% Impervious, Inflow Depth > 5.83" for 100-yr event
Inflow = 6.90 cfs @ 10.04 hrs, Volume= 1.235 af
Outflow = 1.03 cfs @ 12.33 hrs, Volume= 0.537 af, Atten= 85%, Lag= 137.4 min
Primary = 1.03 cfs @ 12.33 hrs, Volume= 0.537 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 18.04' @ 12.33 hrs Surf.Area= 0.184 ac Storage= 0.703 af

Plug-Flow detention time= 437.6 min calculated for 0.537 af (44% of inflow)
Center-of-Mass det. time= 235.7 min (1,012.9 - 777.2)

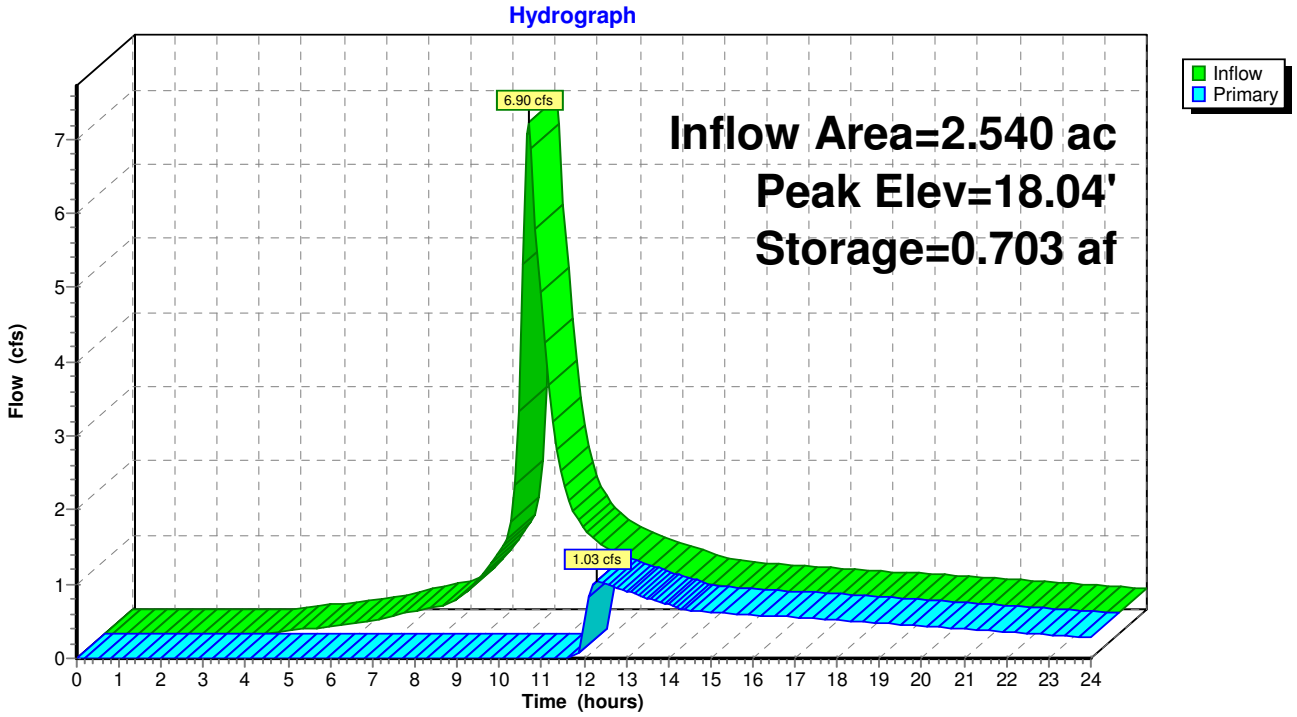
Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	0.791 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
10.00	0.024	135.0	0.000	0.000	0.024
15.00	0.097	239.0	0.282	0.282	0.098
18.50	0.200	365.0	0.509	0.791	0.239

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**25.0' long (Profile 10) Broad-Crested Rectangular Weir** Head (feet) 1.97 2.46 2.95 3.94 4.92 Coef. (English) 3.51 3.48 3.42 3.48 3.57

Primary OutFlow Max=0.78 cfs @ 12.33 hrs HW=18.04' (Free Discharge)
↳**1=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 0.73 fps)

Pond 2P: Existing Pond

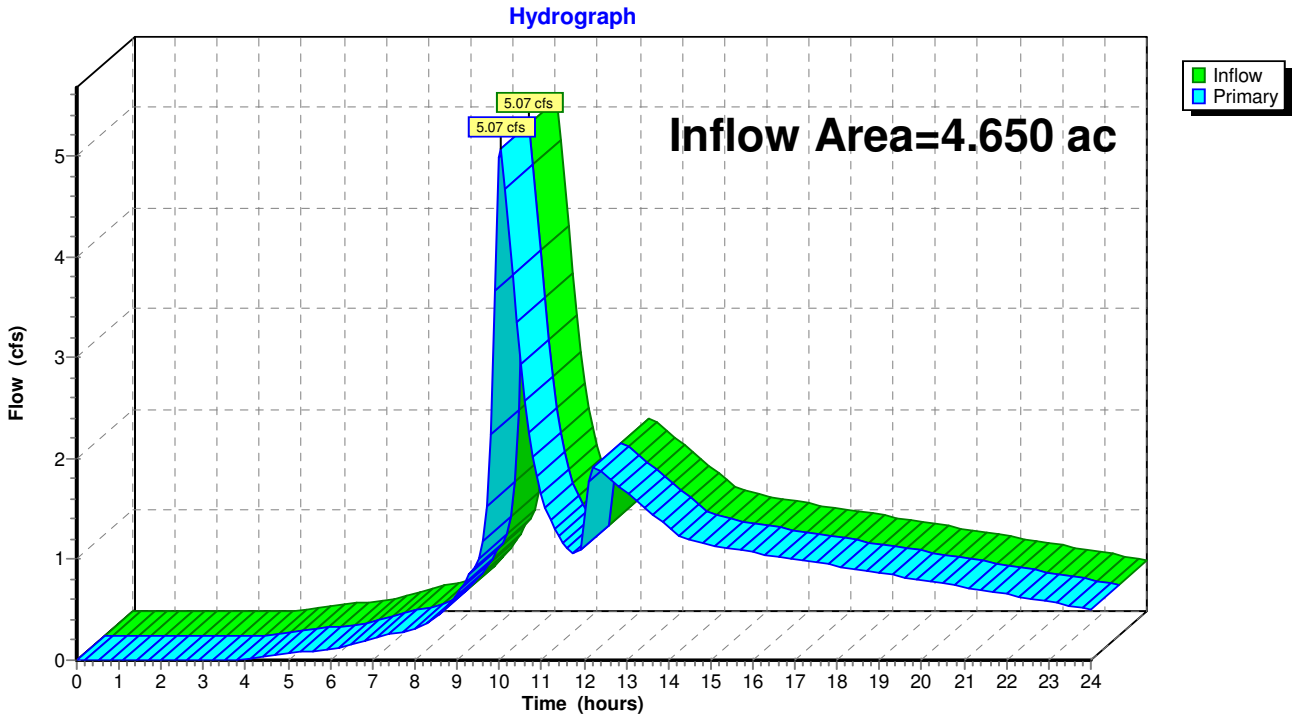


Summary for Link 5L: Total Outflow

Inflow Area = 4.650 ac, 0.00% Impervious, Inflow Depth > 4.03" for 100-yr event
Inflow = 5.07 cfs @ 10.05 hrs, Volume= 1.561 af
Primary = 5.07 cfs @ 10.05 hrs, Volume= 1.561 af, Atten= 0%, Lag= 0.0 min

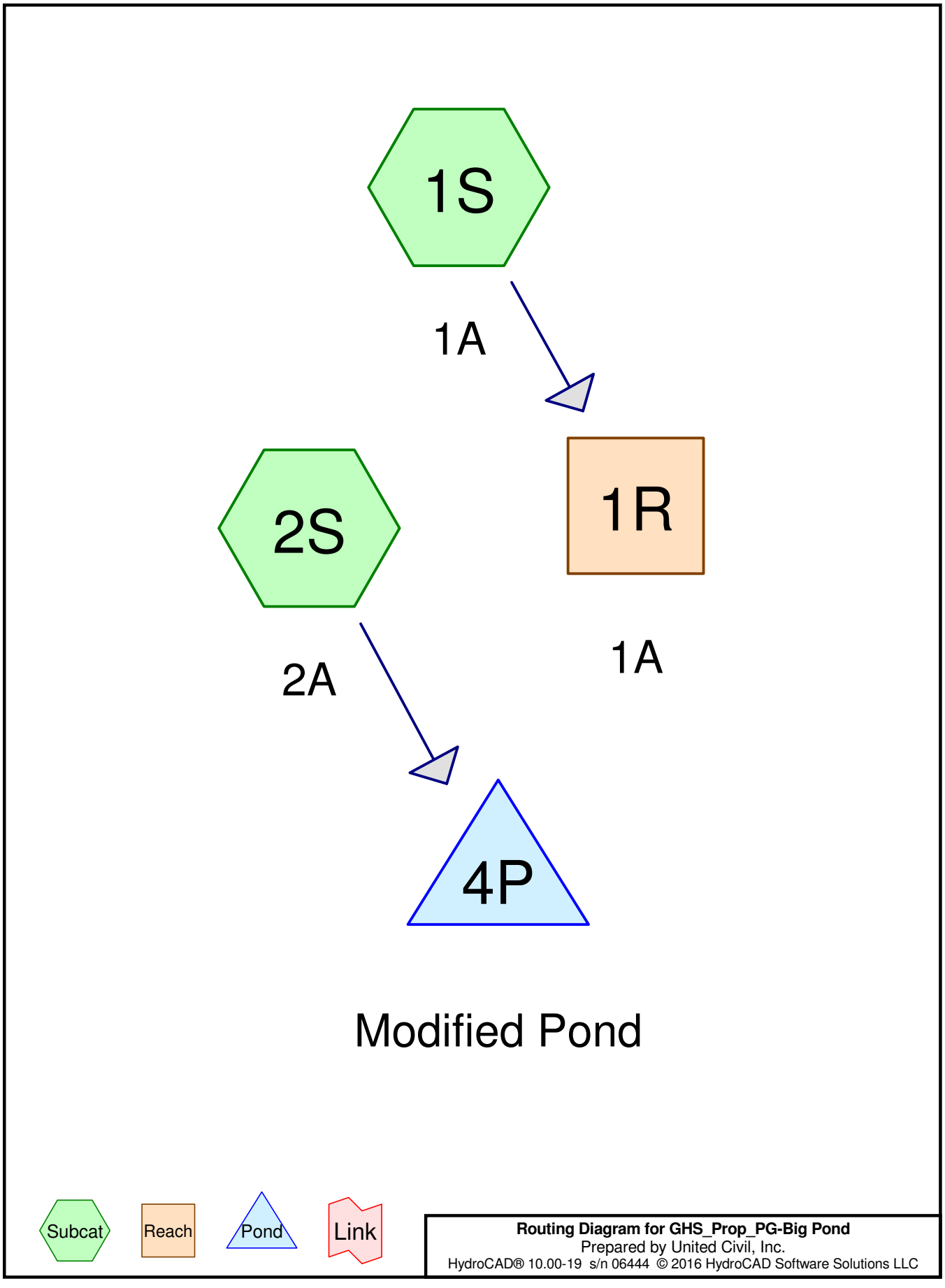
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 5L: Total Outflow



APPENDIX E

HydroCAD Output for Proposed Post-Development Condition


1S
1A
2S
1R
1A
2A
4P
Modified Pond
Subcat
Reach
Pond
Link
Routing Diagram for GHS_Prop_PG-Big Pond
Prepared by United Civil, Inc.
HydroCAD® 10.00-19 s/n 06444 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: 1A

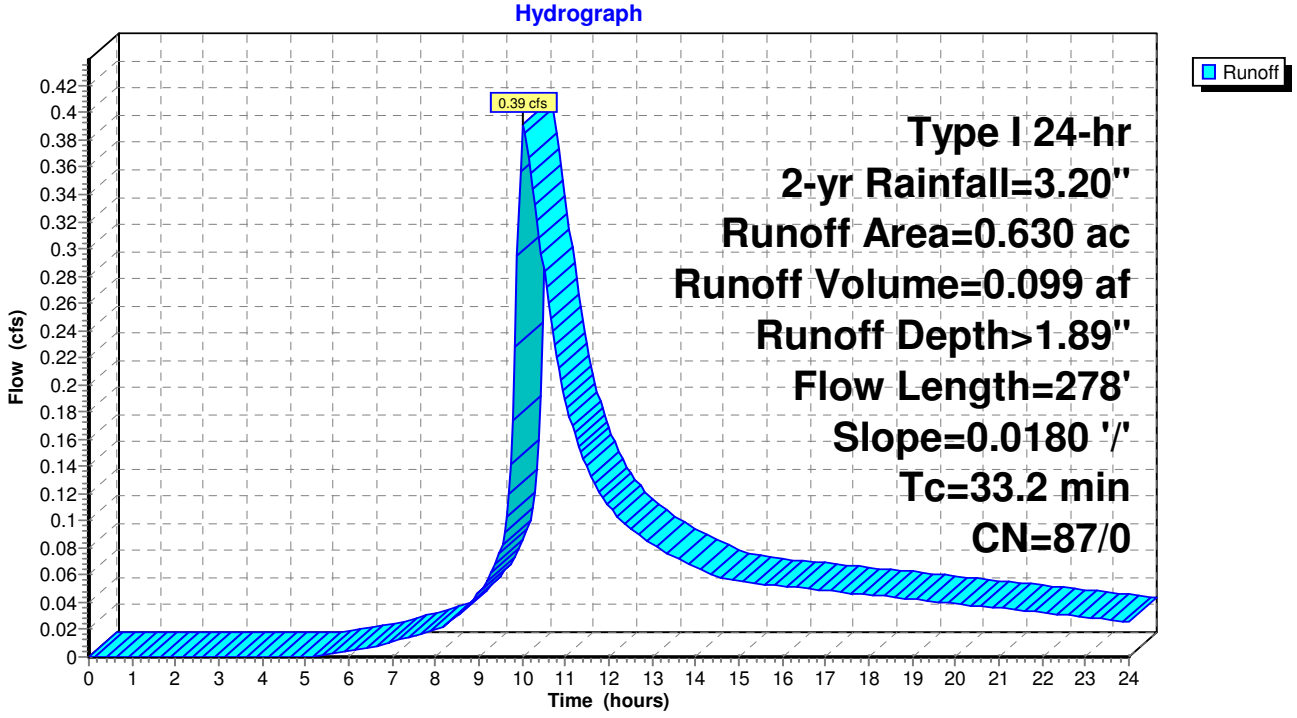
Runoff = 0.39 cfs @ 10.03 hrs, Volume= 0.099 af, Depth> 1.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

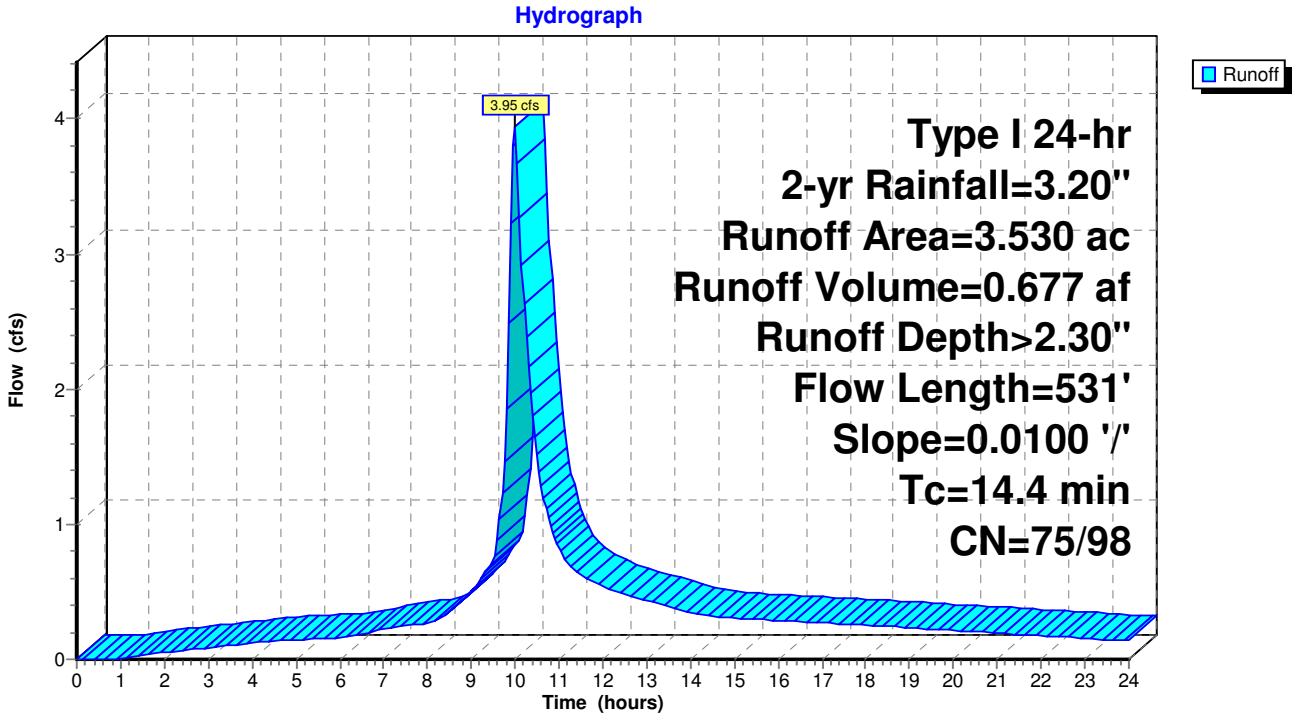
Runoff = 3.95 cfs @ 9.99 hrs, Volume= 0.677 af, Depth> 2.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

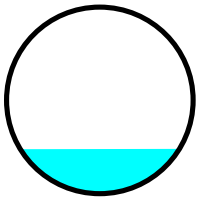
[52] Hint: Inlet/Outlet conditions not evaluated

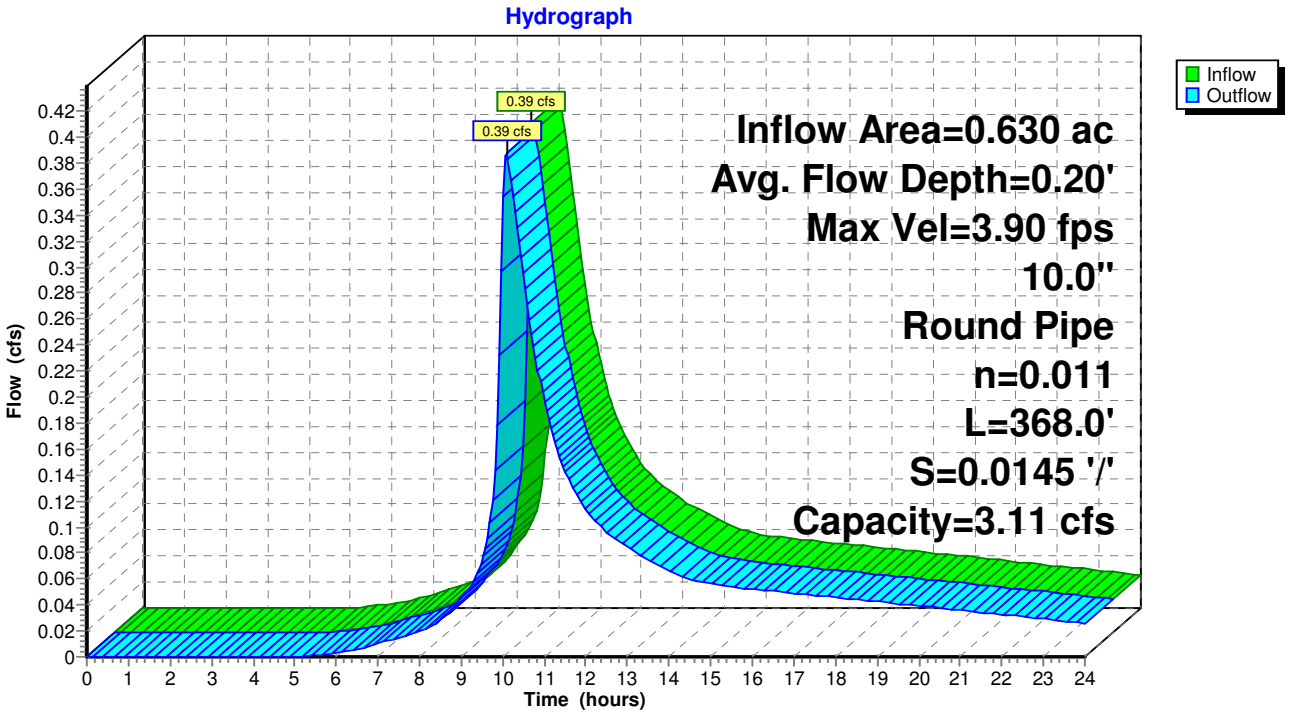
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 1.89" for 2-yr event
Inflow = 0.39 cfs @ 10.03 hrs, Volume= 0.099 af
Outflow = 0.39 cfs @ 10.09 hrs, Volume= 0.099 af, Atten= 1%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.90 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 3.0 min

Peak Storage= 37 cf @ 10.06 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 2.30" for 2-yr event
Inflow = 3.95 cfs @ 9.99 hrs, Volume= 0.677 af
Outflow = 0.32 cfs @ 14.48 hrs, Volume= 0.328 af, Atten= 92%, Lag= 269.3 min
Primary = 0.32 cfs @ 14.48 hrs, Volume= 0.328 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.83' @ 14.48 hrs Surf.Area= 0.186 ac Storage= 0.391 af

Plug-Flow detention time= 470.9 min calculated for 0.328 af (48% of inflow)
Center-of-Mass det. time= 264.8 min (1,000.6 - 735.8)

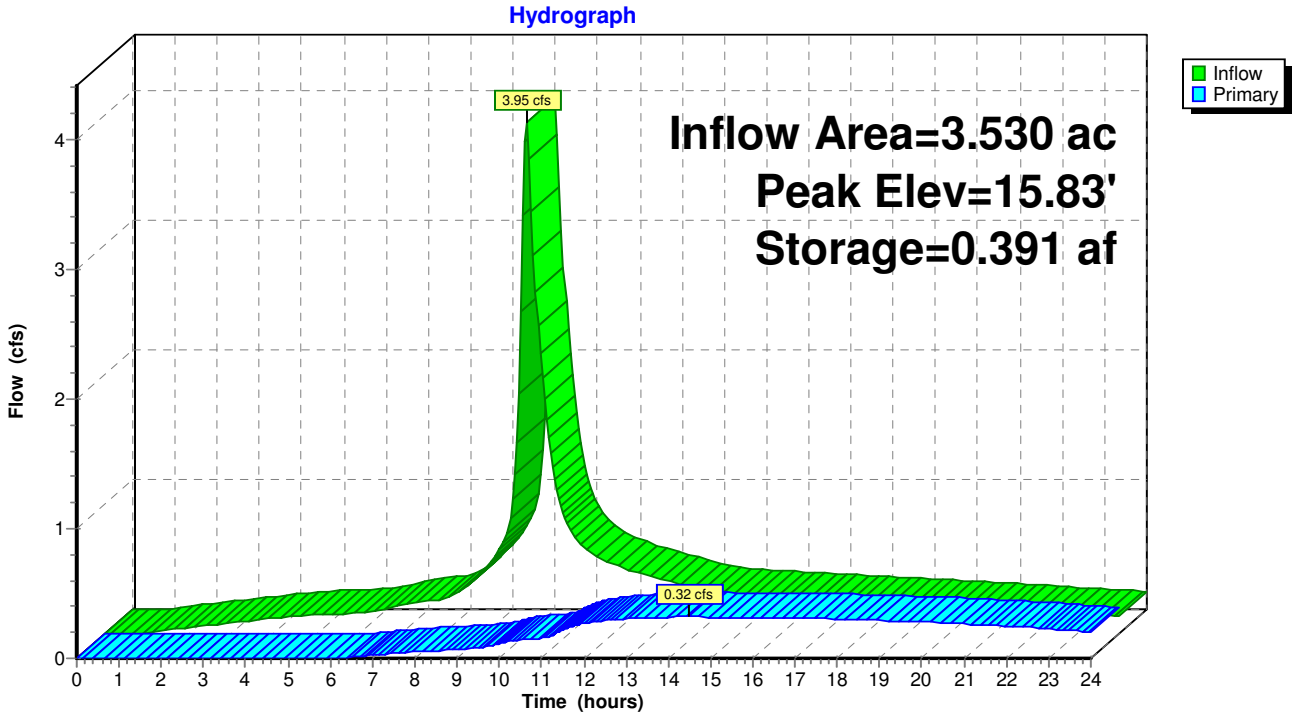
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=0.32 cfs @ 14.48 hrs HW=15.83' (Free Discharge)
└**1=CMP_Round 18"** (Passes 0.32 cfs of 10.23 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 7.38 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.16 cfs @ 2.40 fps)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Pond 4P: Modified Pond



Summary for Subcatchment 1S: 1A

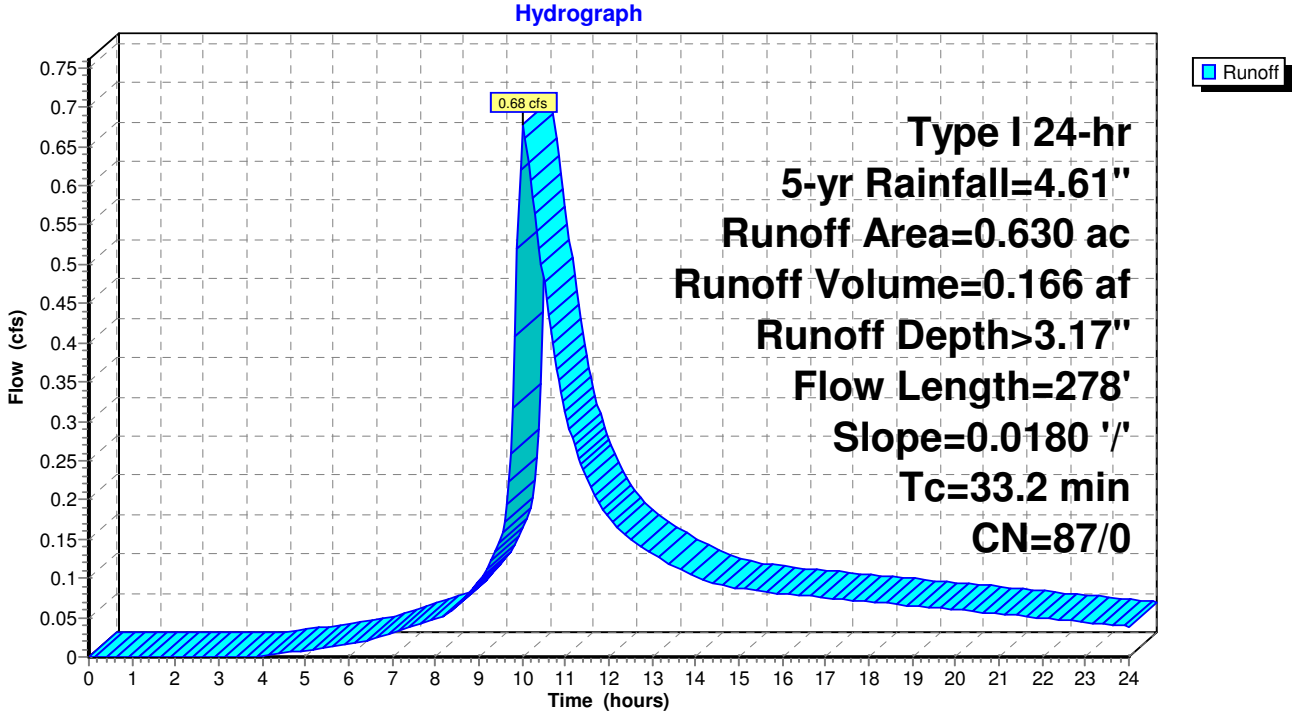
Runoff = 0.68 cfs @ 10.02 hrs, Volume= 0.166 af, Depth> 3.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

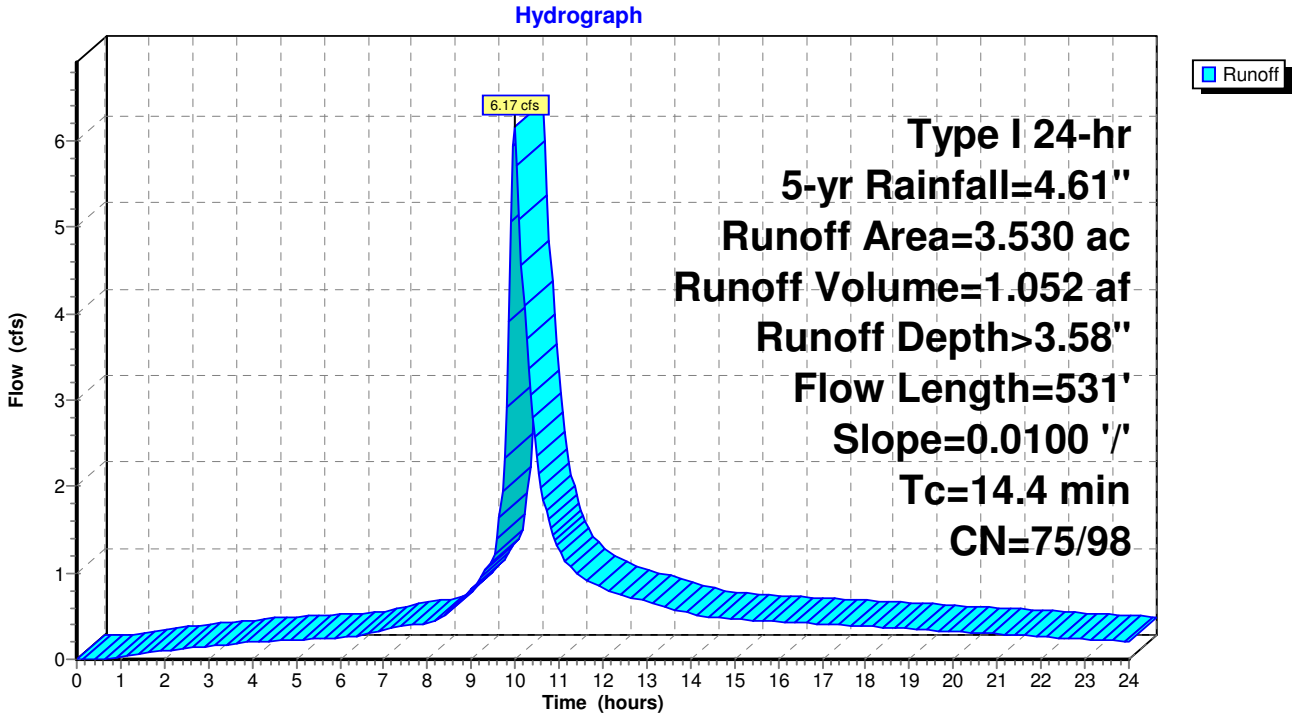
Runoff = 6.17 cfs @ 9.99 hrs, Volume= 1.052 af, Depth> 3.58"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

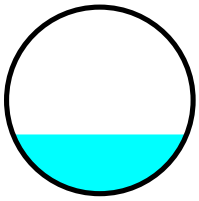
[52] Hint: Inlet/Outlet conditions not evaluated

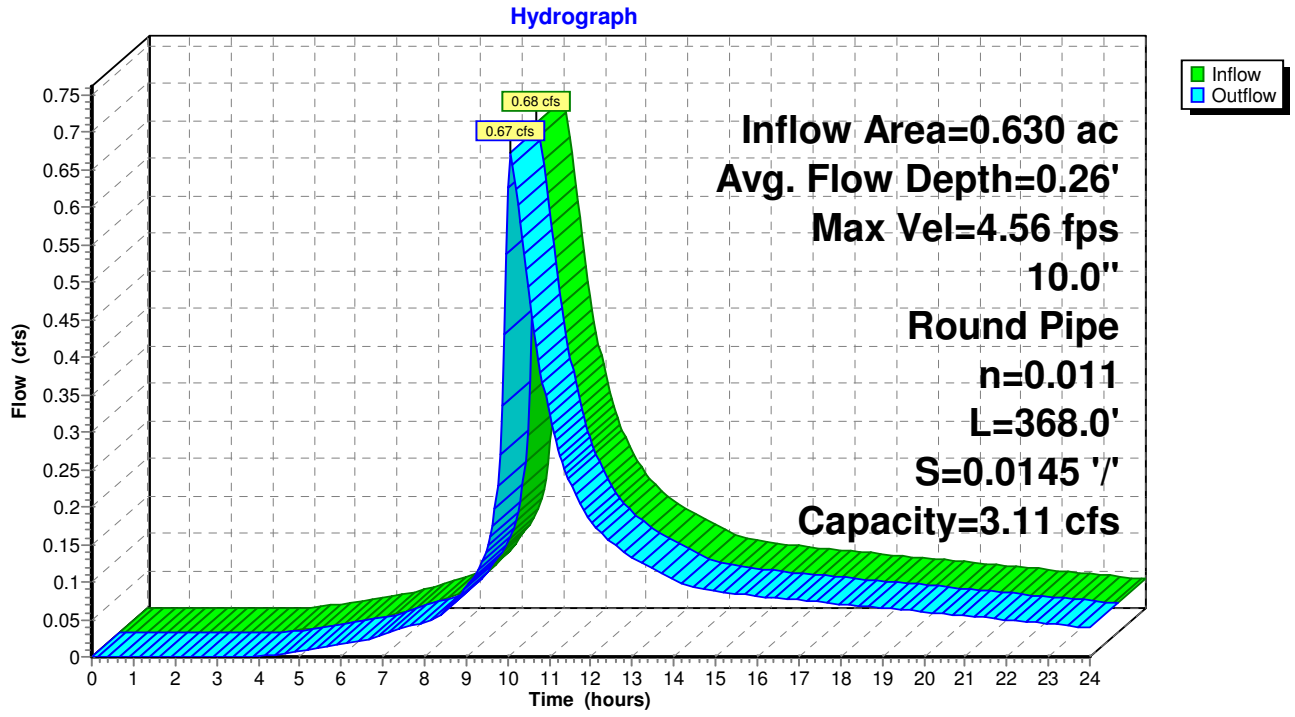
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 3.17" for 5-yr event
Inflow = 0.68 cfs @ 10.02 hrs, Volume= 0.166 af
Outflow = 0.67 cfs @ 10.07 hrs, Volume= 0.166 af, Atten= 1%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.56 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 2.6 min

Peak Storage= 55 cf @ 10.05 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 3.58" for 5-yr event
Inflow = 6.17 cfs @ 9.99 hrs, Volume= 1.052 af
Outflow = 0.71 cfs @ 12.69 hrs, Volume= 0.634 af, Atten= 88%, Lag= 161.8 min
Primary = 0.71 cfs @ 12.69 hrs, Volume= 0.634 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 16.55' @ 12.69 hrs Surf.Area= 0.214 ac Storage= 0.534 af

Plug-Flow detention time= 405.9 min calculated for 0.634 af (60% of inflow)
Center-of-Mass det. time= 228.0 min (957.0 - 729.0)

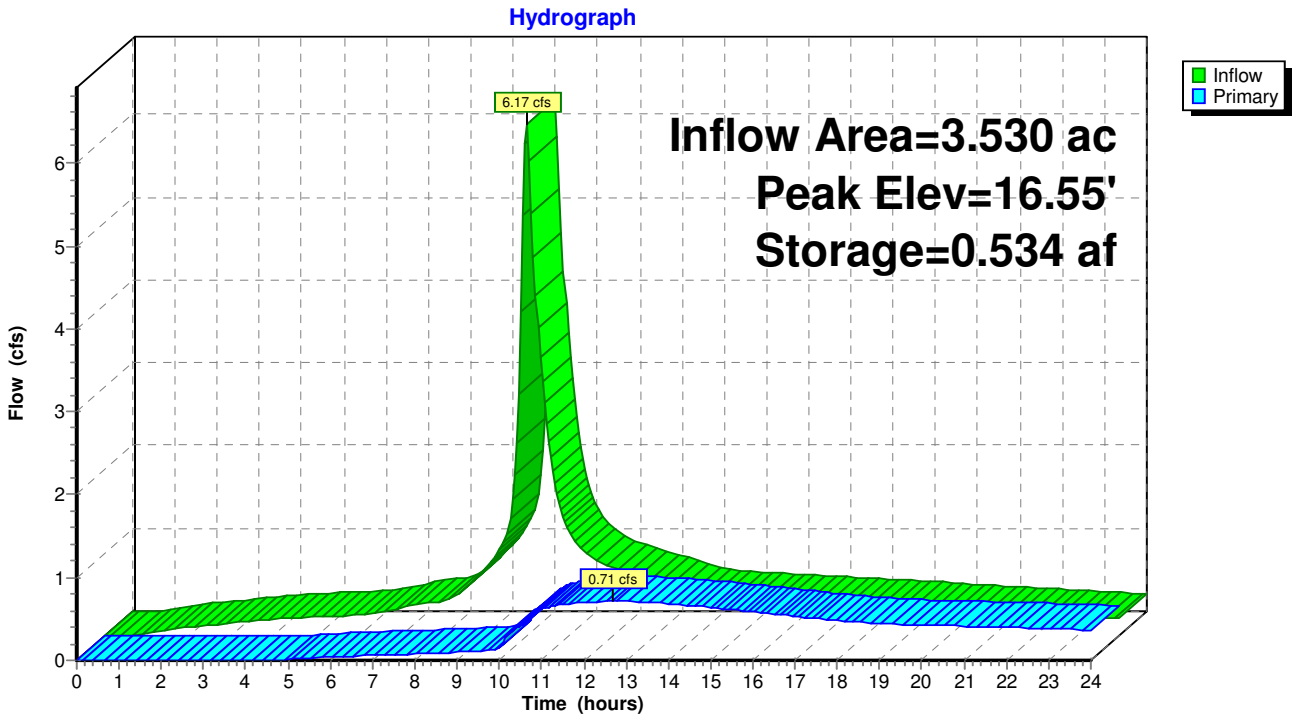
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=0.71 cfs @ 12.69 hrs HW=16.55' (Free Discharge)
└**1=CMP_Round 18"** (Passes 0.71 cfs of 12.17 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.43 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 4.74 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.22 cfs @ 2.49 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Pond 4P: Modified Pond



Summary for Subcatchment 1S: 1A

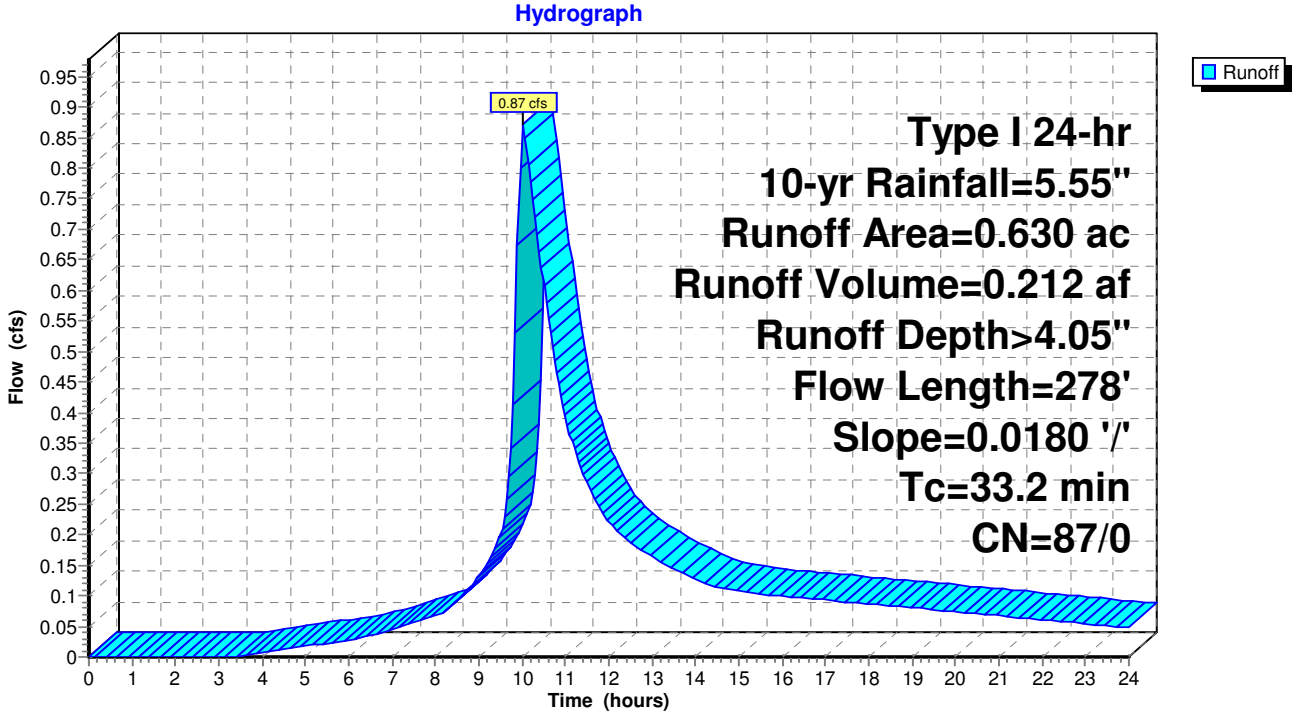
Runoff = 0.87 cfs @ 10.02 hrs, Volume= 0.212 af, Depth> 4.05"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

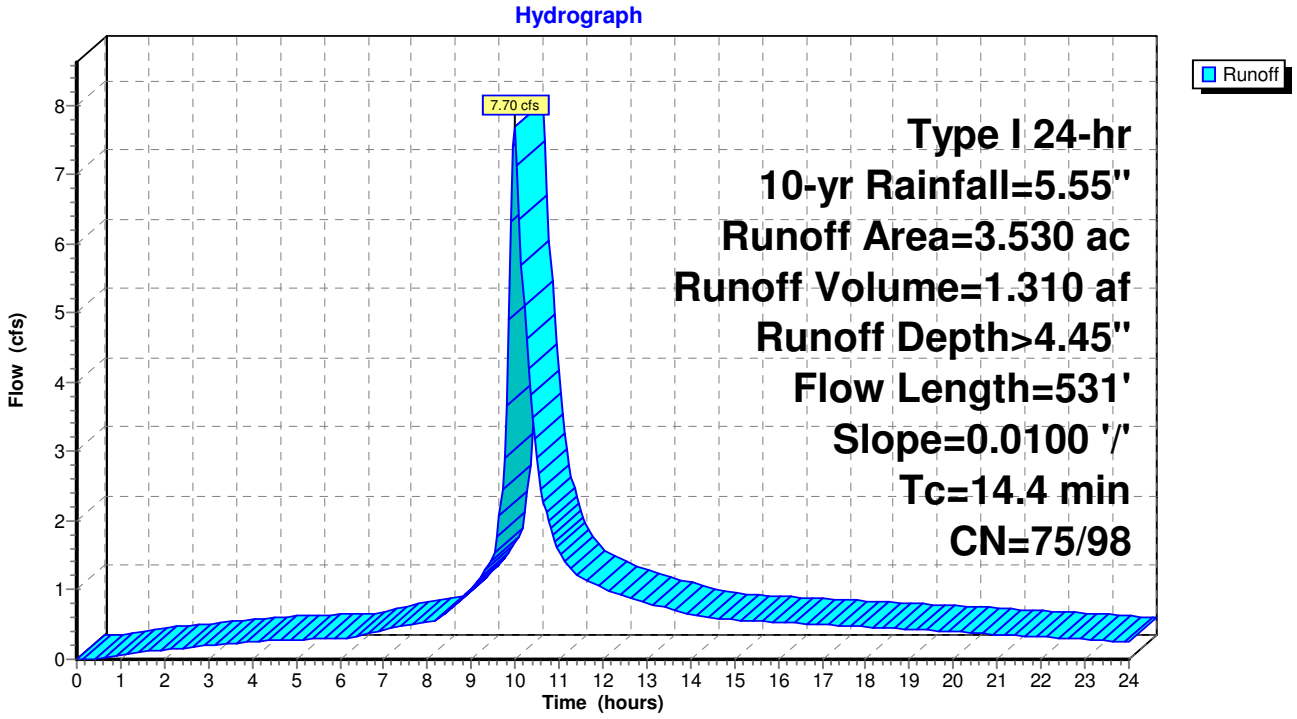
Runoff = 7.70 cfs @ 9.99 hrs, Volume= 1.310 af, Depth> 4.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

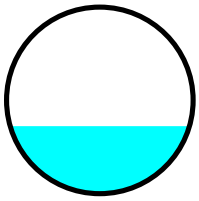
[52] Hint: Inlet/Outlet conditions not evaluated

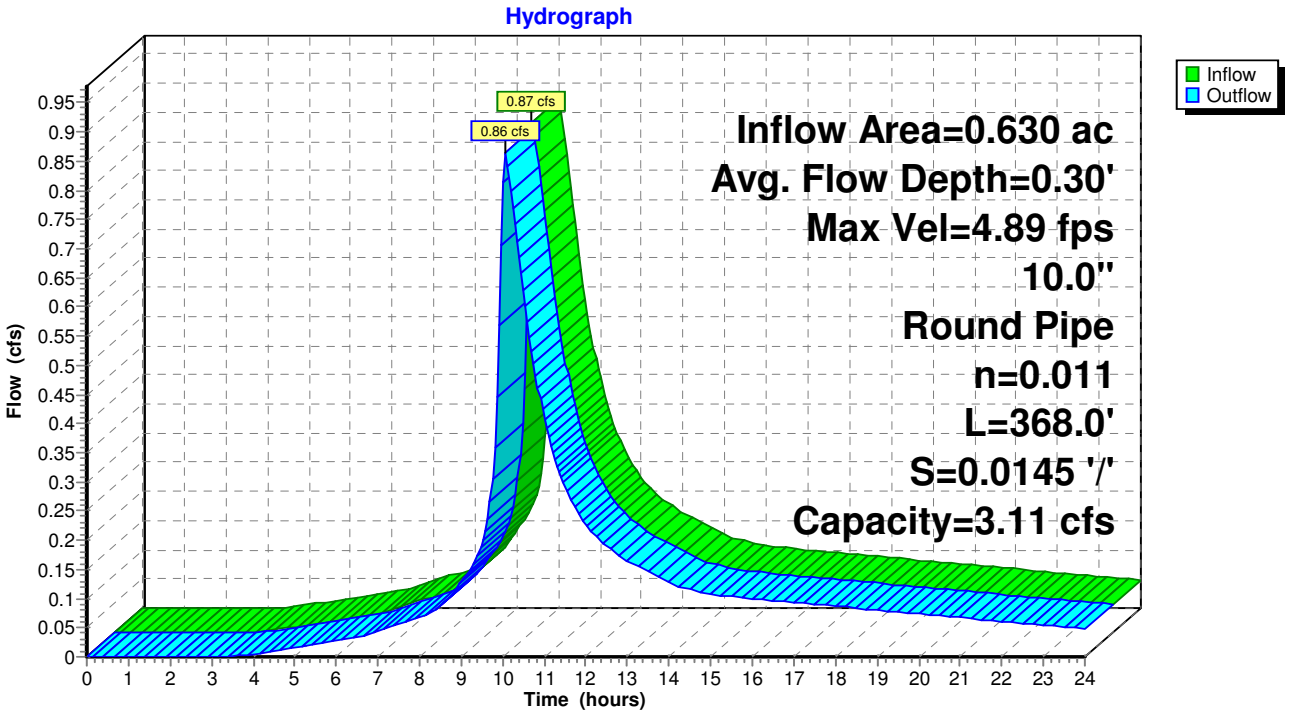
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 4.05" for 10-yr event
Inflow = 0.87 cfs @ 10.02 hrs, Volume= 0.212 af
Outflow = 0.86 cfs @ 10.07 hrs, Volume= 0.212 af, Atten= 1%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.89 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.50 fps, Avg. Travel Time= 2.5 min

Peak Storage= 65 cf @ 10.05 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 4.45" for 10-yr event
Inflow = 7.70 cfs @ 9.99 hrs, Volume= 1.310 af
Outflow = 1.14 cfs @ 11.62 hrs, Volume= 0.862 af, Atten= 85%, Lag= 97.9 min
Primary = 1.14 cfs @ 11.62 hrs, Volume= 0.862 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 16.96' @ 11.62 hrs Surf.Area= 0.231 ac Storage= 0.625 af

Plug-Flow detention time= 370.6 min calculated for 0.862 af (66% of inflow)
Center-of-Mass det. time= 208.4 min (934.0 - 725.6)

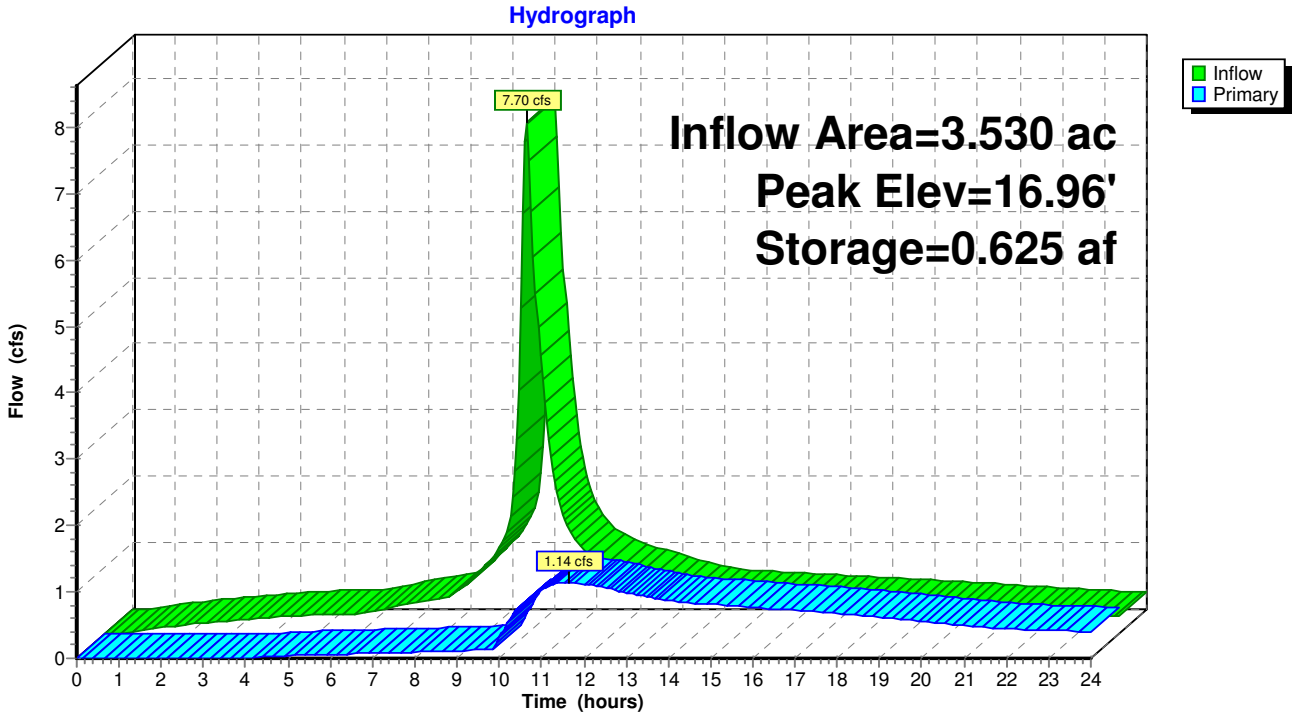
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=1.14 cfs @ 11.62 hrs HW=16.96' (Free Discharge)
└**1=CMP_Round 18"** (Passes 1.14 cfs of 13.15 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 8.98 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.37 cfs @ 5.65 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.35 cfs @ 3.97 fps)
  └**5=Orifice/Grate** (Orifice Controls 0.23 cfs @ 1.37 fps)

Pond 4P: Modified Pond



Summary for Subcatchment 1S: 1A

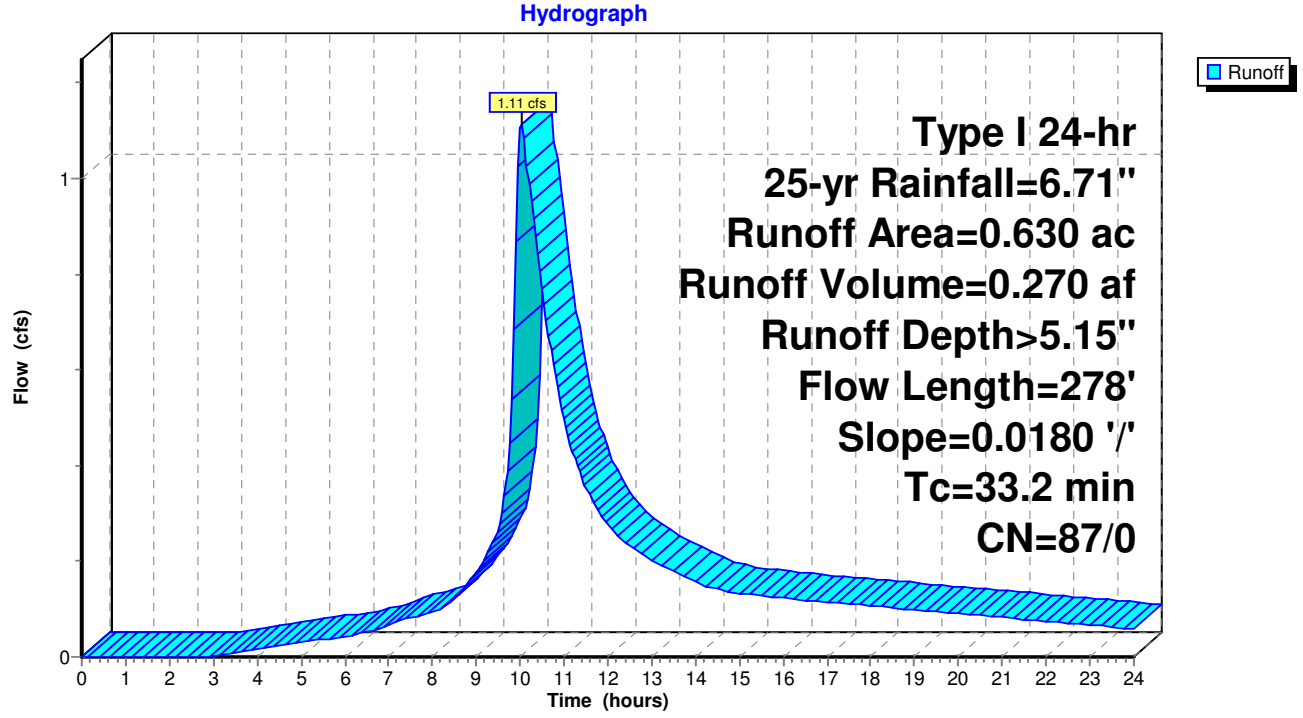
Runoff = 1.11 cfs @ 10.02 hrs, Volume= 0.270 af, Depth> 5.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

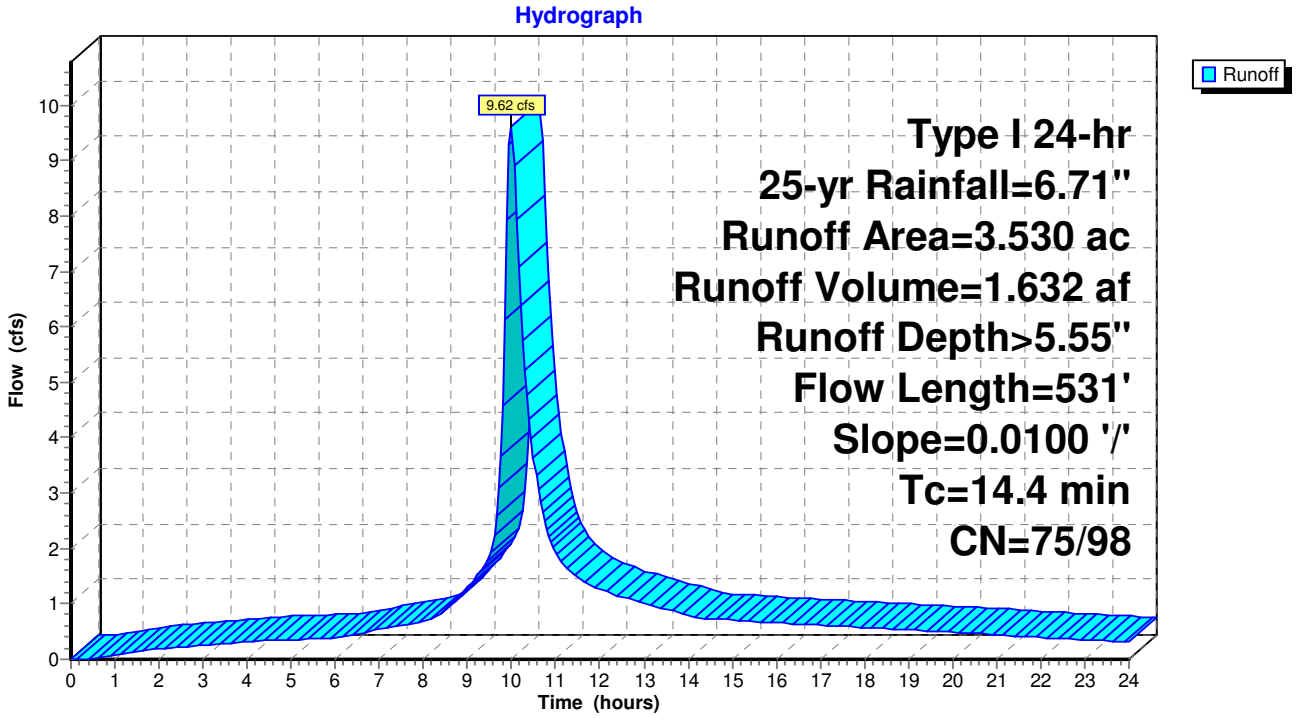
Runoff = 9.62 cfs @ 9.99 hrs, Volume= 1.632 af, Depth> 5.55"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

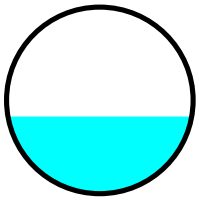
[52] Hint: Inlet/Outlet conditions not evaluated

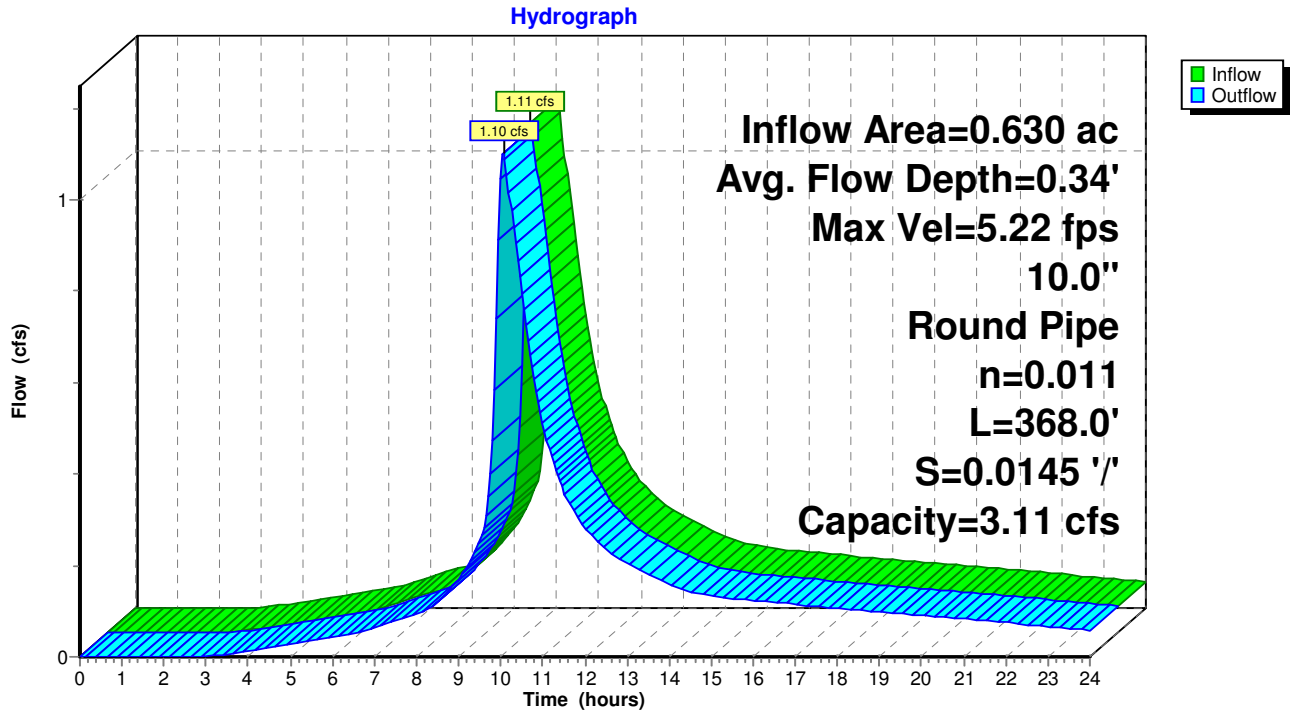
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 5.15" for 25-yr event
Inflow = 1.11 cfs @ 10.02 hrs, Volume= 0.270 af
Outflow = 1.10 cfs @ 10.07 hrs, Volume= 0.270 af, Atten= 1%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.22 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.66 fps, Avg. Travel Time= 2.3 min

Peak Storage= 78 cf @ 10.04 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 5.55" for 25-yr event
Inflow = 9.62 cfs @ 9.99 hrs, Volume= 1.632 af
Outflow = 2.07 cfs @ 10.92 hrs, Volume= 1.163 af, Atten= 78%, Lag= 55.9 min
Primary = 2.07 cfs @ 10.92 hrs, Volume= 1.163 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.33' @ 10.92 hrs Surf.Area= 0.246 ac Storage= 0.714 af

Plug-Flow detention time= 324.1 min calculated for 1.163 af (71% of inflow)
Center-of-Mass det. time= 179.1 min (901.1 - 722.0)

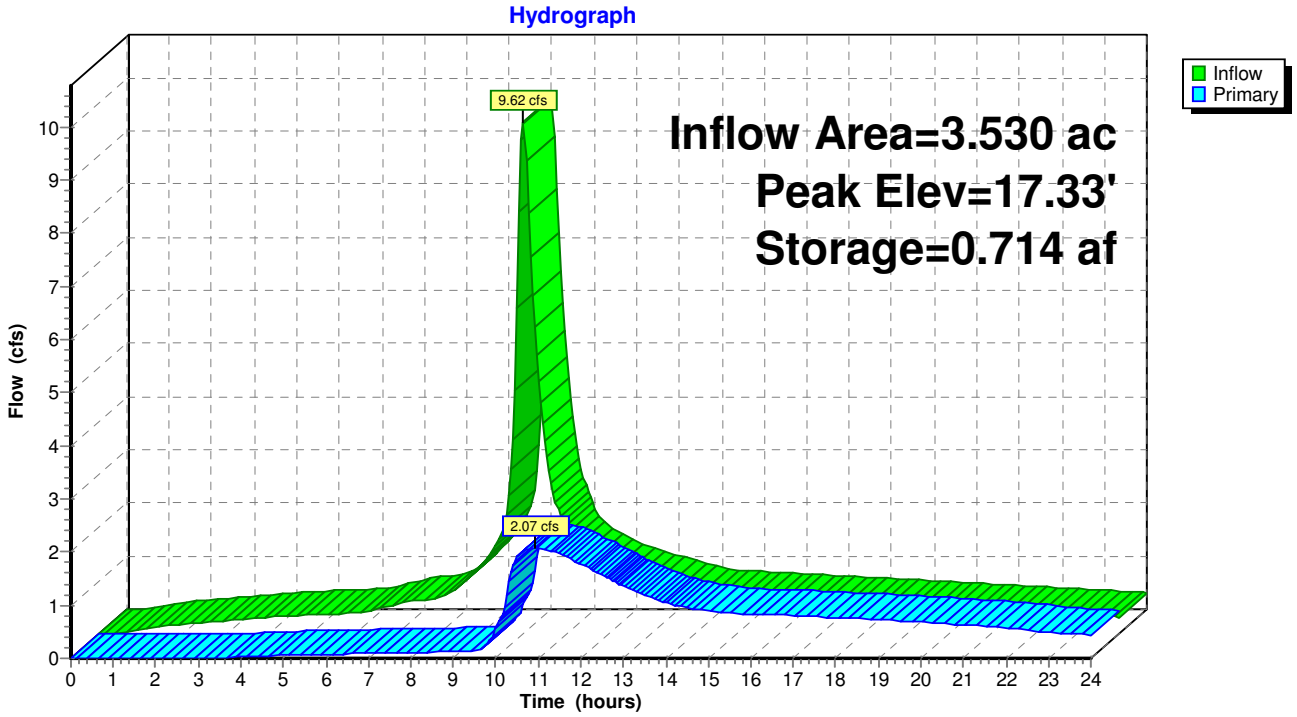
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=2.07 cfs @ 10.92 hrs HW=17.33' (Free Discharge)
└**1=CMP_Round 18"** (Passes 2.07 cfs of 13.98 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 9.45 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.42 cfs @ 6.37 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.43 cfs @ 4.94 fps)
  └**5=Orifice/Grate** (Orifice Controls 1.02 cfs @ 2.92 fps)

Pond 4P: Modified Pond



Summary for Subcatchment 1S: 1A

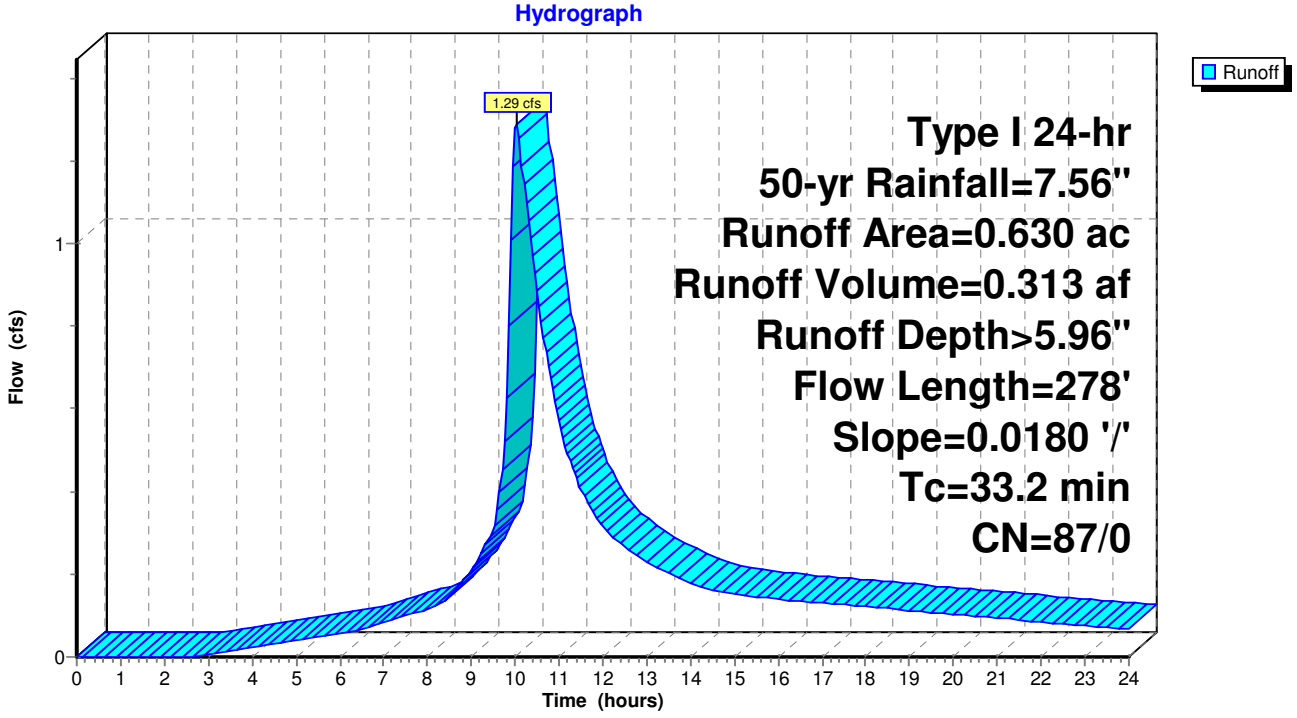
Runoff = 1.29 cfs @ 10.02 hrs, Volume= 0.313 af, Depth> 5.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow**
					Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

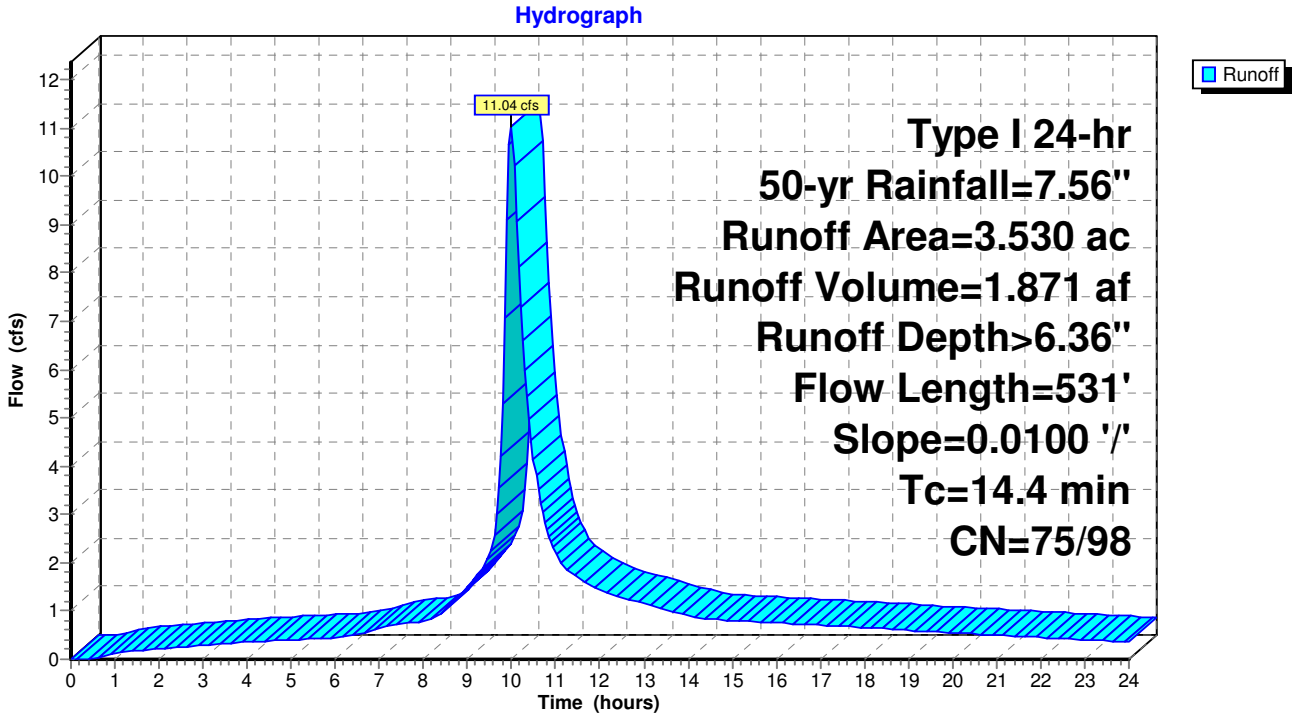
Runoff = 11.04 cfs @ 9.99 hrs, Volume= 1.871 af, Depth> 6.36"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

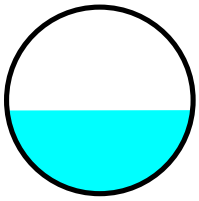
[52] Hint: Inlet/Outlet conditions not evaluated

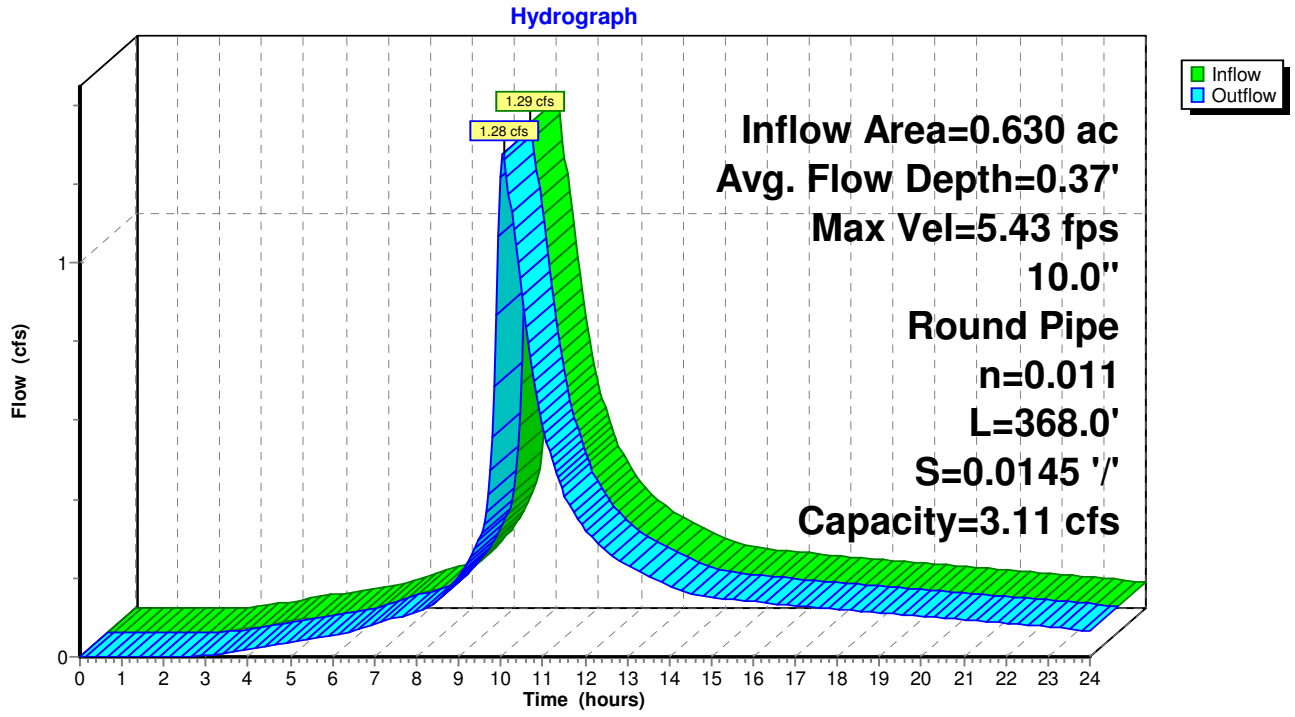
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 5.96" for 50-yr event
Inflow = 1.29 cfs @ 10.02 hrs, Volume= 0.313 af
Outflow = 1.28 cfs @ 10.06 hrs, Volume= 0.313 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.43 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 2.2 min

Peak Storage= 87 cf @ 10.04 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 6.36" for 50-yr event
Inflow = 11.04 cfs @ 9.99 hrs, Volume= 1.871 af
Outflow = 2.55 cfs @ 10.85 hrs, Volume= 1.388 af, Atten= 77%, Lag= 51.5 min
Primary = 2.55 cfs @ 10.85 hrs, Volume= 1.388 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.65' @ 10.85 hrs Surf.Area= 0.260 ac Storage= 0.795 af

Plug-Flow detention time= 302.3 min calculated for 1.388 af (74% of inflow)
Center-of-Mass det. time= 167.4 min (887.2 - 719.8)

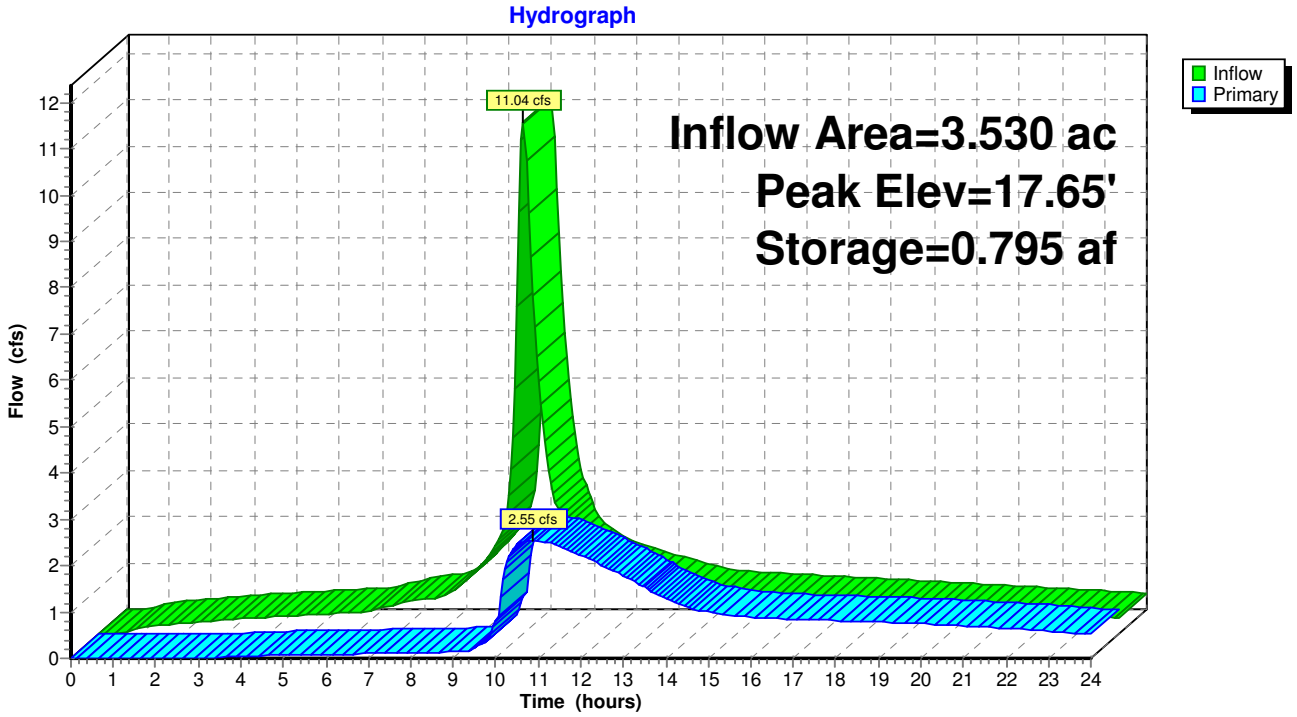
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=2.55 cfs @ 10.85 hrs HW=17.65' (Free Discharge)
└**1=CMP_Round 18"** (Passes 2.55 cfs of 14.65 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 9.83 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.45 cfs @ 6.92 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.49 cfs @ 5.63 fps)
  └**5=Orifice/Grate** (Orifice Controls 1.39 cfs @ 3.98 fps)

Pond 4P: Modified Pond



Summary for Subcatchment 1S: 1A

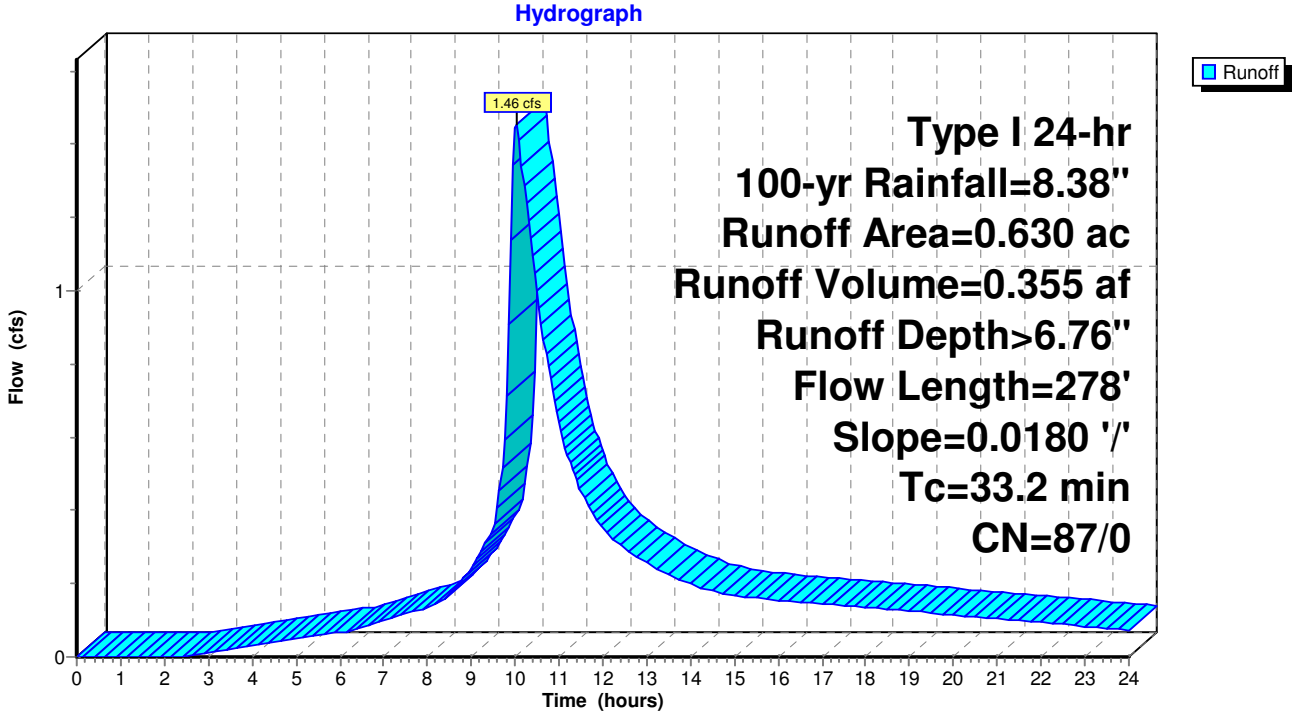
Runoff = 1.46 cfs @ 10.02 hrs, Volume= 0.355 af, Depth> 6.76"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
0.630	87	Dirt roads, HSG C
0.630	87	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, Lot Time**
23.2	278	0.0180	0.20		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.20"
33.2	278	Total			

Subcatchment 1S: 1A



Summary for Subcatchment 2S: 2A

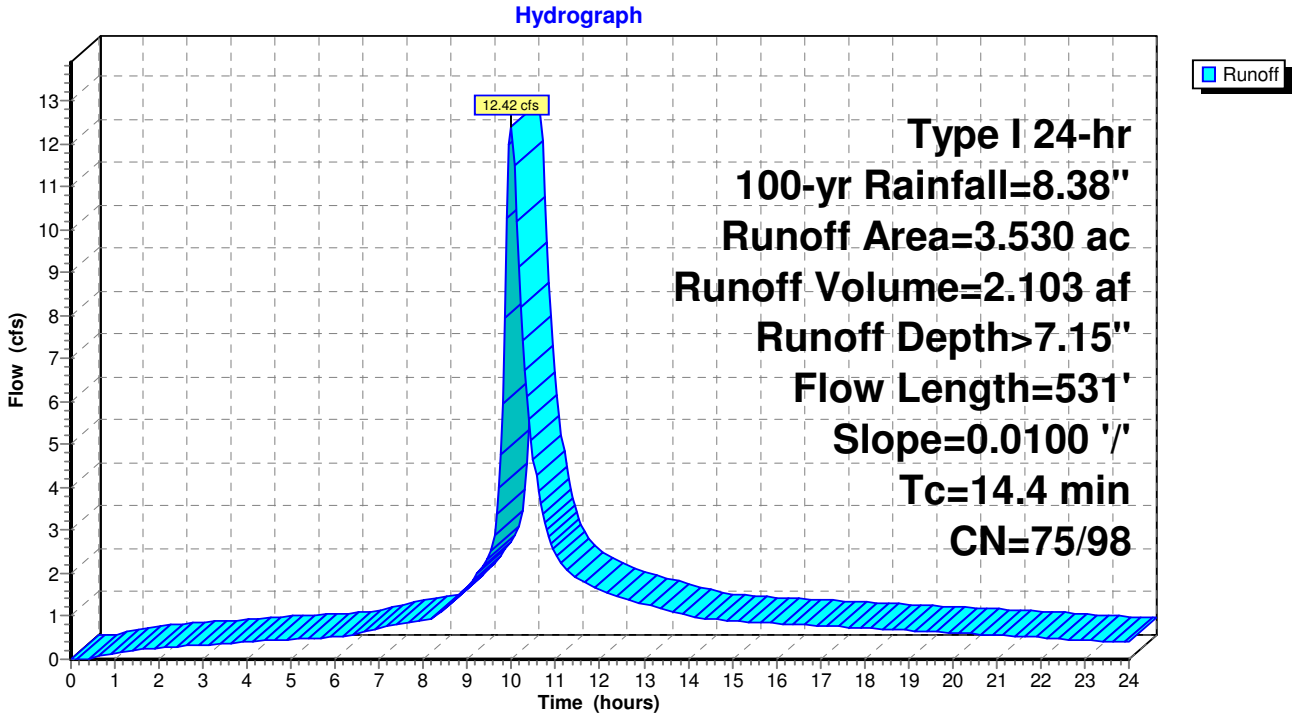
Runoff = 12.42 cfs @ 9.99 hrs, Volume= 2.103 af, Depth> 7.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
3.530	90	1/8 acre lots, 65% imp, HSG C
1.235	75	35.00% Pervious Area
2.294	98	65.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	531	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
14.4	531	Total			

Subcatchment 2S: 2A



Summary for Reach 1R: 1A

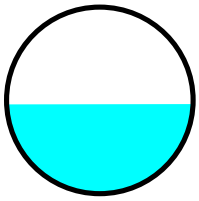
[52] Hint: Inlet/Outlet conditions not evaluated

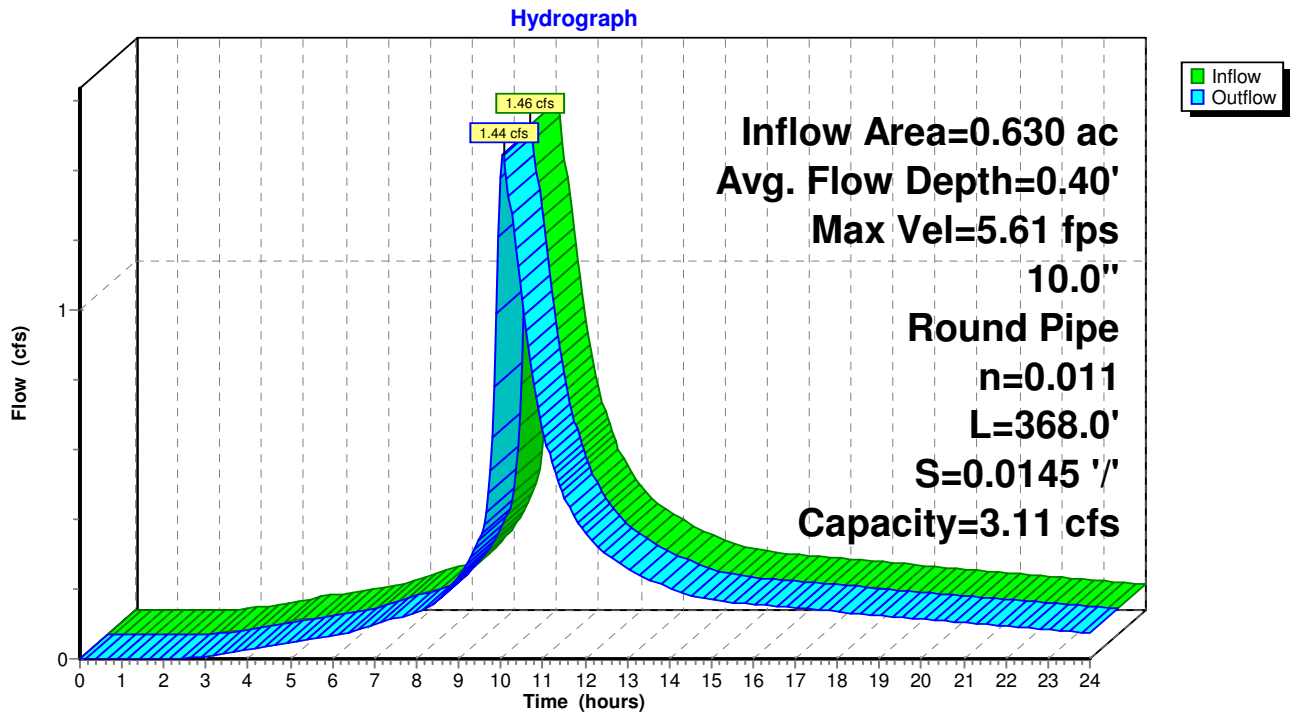
Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 6.76" for 100-yr event
Inflow = 1.46 cfs @ 10.02 hrs, Volume= 0.355 af
Outflow = 1.44 cfs @ 10.06 hrs, Volume= 0.354 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.61 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 2.1 min

Peak Storage= 95 cf @ 10.04 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 3.11 cfs

10.0" Round Pipe
n= 0.011
Length= 368.0' Slope= 0.0145 '/'
Inlet Invert= 18.35', Outlet Invert= 13.03'





Summary for Pond 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 7.15" for 100-yr event
Inflow = 12.42 cfs @ 9.99 hrs, Volume= 2.103 af
Outflow = 2.93 cfs @ 10.82 hrs, Volume= 1.603 af, Atten= 76%, Lag= 50.0 min
Primary = 2.93 cfs @ 10.82 hrs, Volume= 1.603 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.96' @ 10.82 hrs Surf.Area= 0.274 ac Storage= 0.878 af

Plug-Flow detention time= 285.9 min calculated for 1.600 af (76% of inflow)
Center-of-Mass det. time= 159.3 min (877.3 - 717.9)

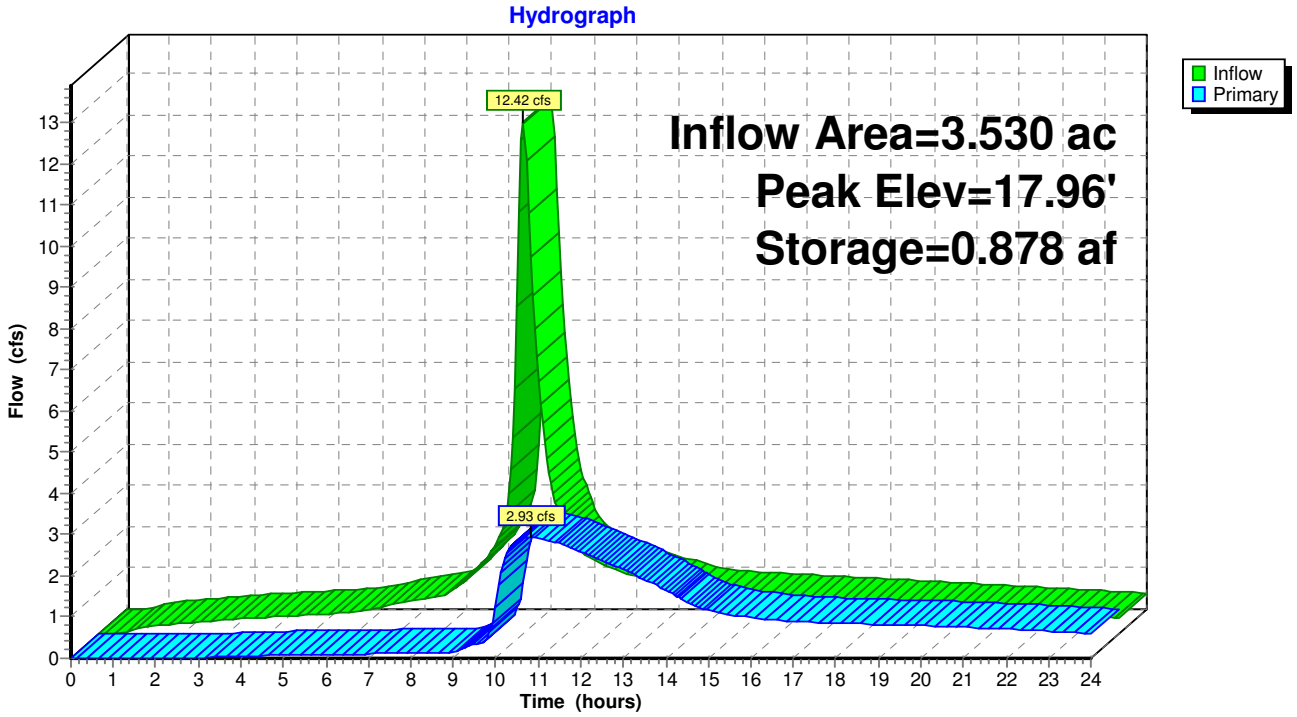
Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	0.888 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

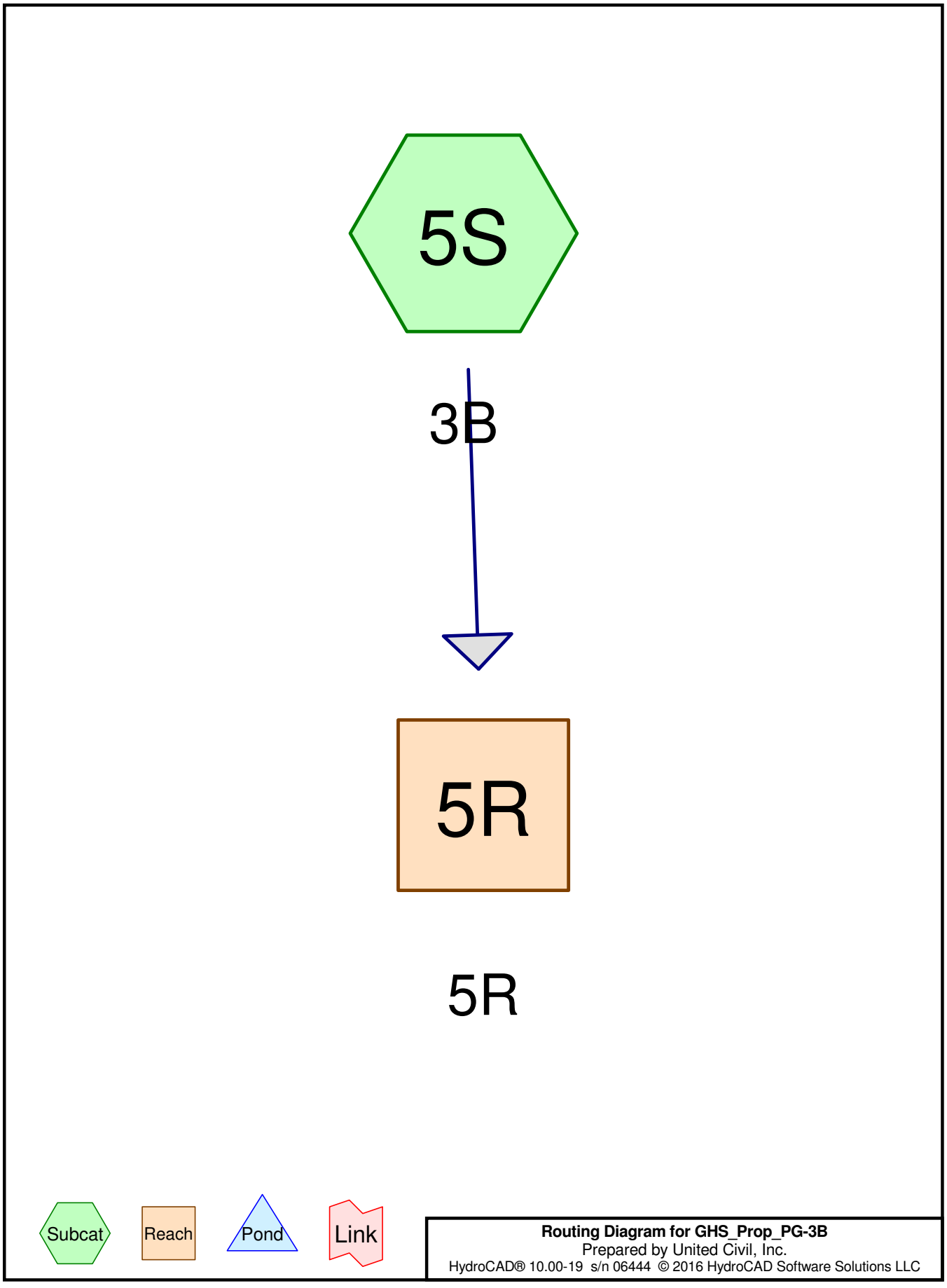
Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
13.00	0.095	332.0	0.000	0.000	0.095
18.00	0.276	466.0	0.888	0.888	0.296

Device	Routing	Invert	Outlet Devices
#1	Primary	13.10'	**18.0" Round CMP_Round 18"** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 13.10' / 12.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	13.40'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	15.50'	**2.0" Vert. Orifice/Grate X 3.00** C= 0.600
#4	Device 1	16.20'	**2.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 1	16.80'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=2.93 cfs @ 10.82 hrs HW=17.96' (Free Discharge)
└**1=CMP_Round 18"** (Passes 2.93 cfs of 15.28 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 10.19 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.49 cfs @ 7.43 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.54 cfs @ 6.24 fps)
  └**5=Orifice/Grate** (Orifice Controls 1.68 cfs @ 4.81 fps)

Pond 4P: Modified Pond





Routing Diagram for GHS_Prop_PG-3B
Prepared by United Civil, Inc.
HydroCAD® 10.00-19 s/n 06444 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 5S: 3B

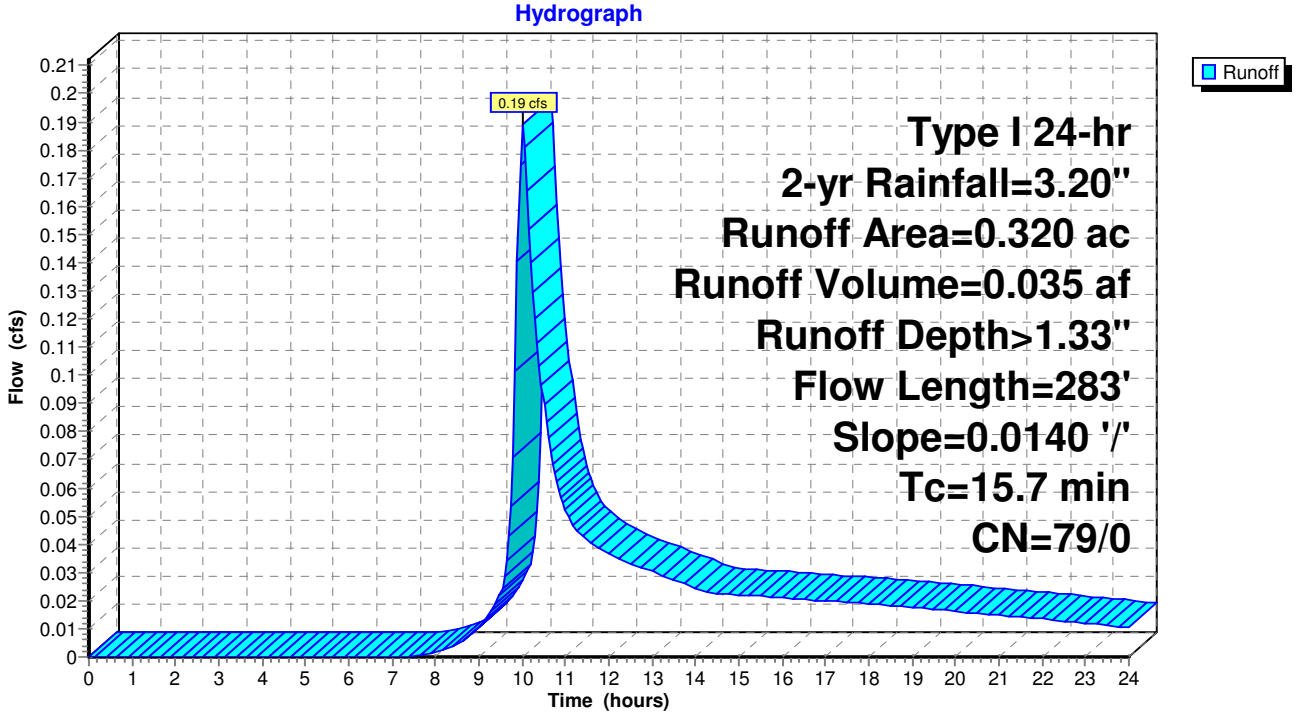
Runoff = 0.19 cfs @ 10.01 hrs, Volume= 0.035 af, Depth> 1.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



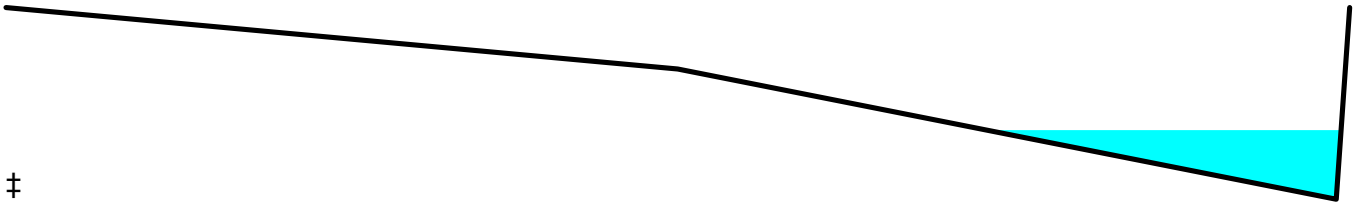
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 1.33" for 2-yr event
Inflow = 0.19 cfs @ 10.01 hrs, Volume= 0.035 af
Outflow = 0.15 cfs @ 10.37 hrs, Volume= 0.035 af, Atten= 22%, Lag= 21.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.62 fps, Min. Travel Time= 12.0 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 20.0 min

Peak Storage= 107 cf @ 10.17 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

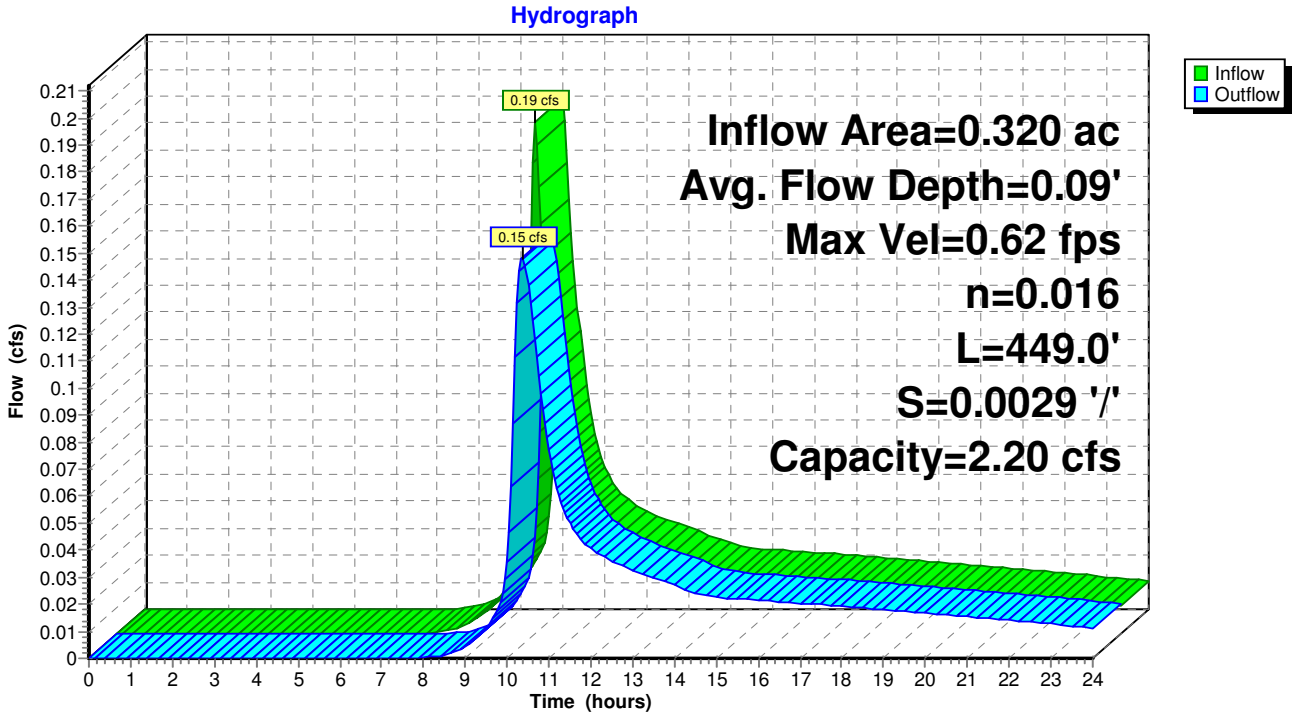


‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.19 cfs
0.15 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.09'
Max Vel=0.62 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
Time (hours)

Summary for Subcatchment 5S: 3B

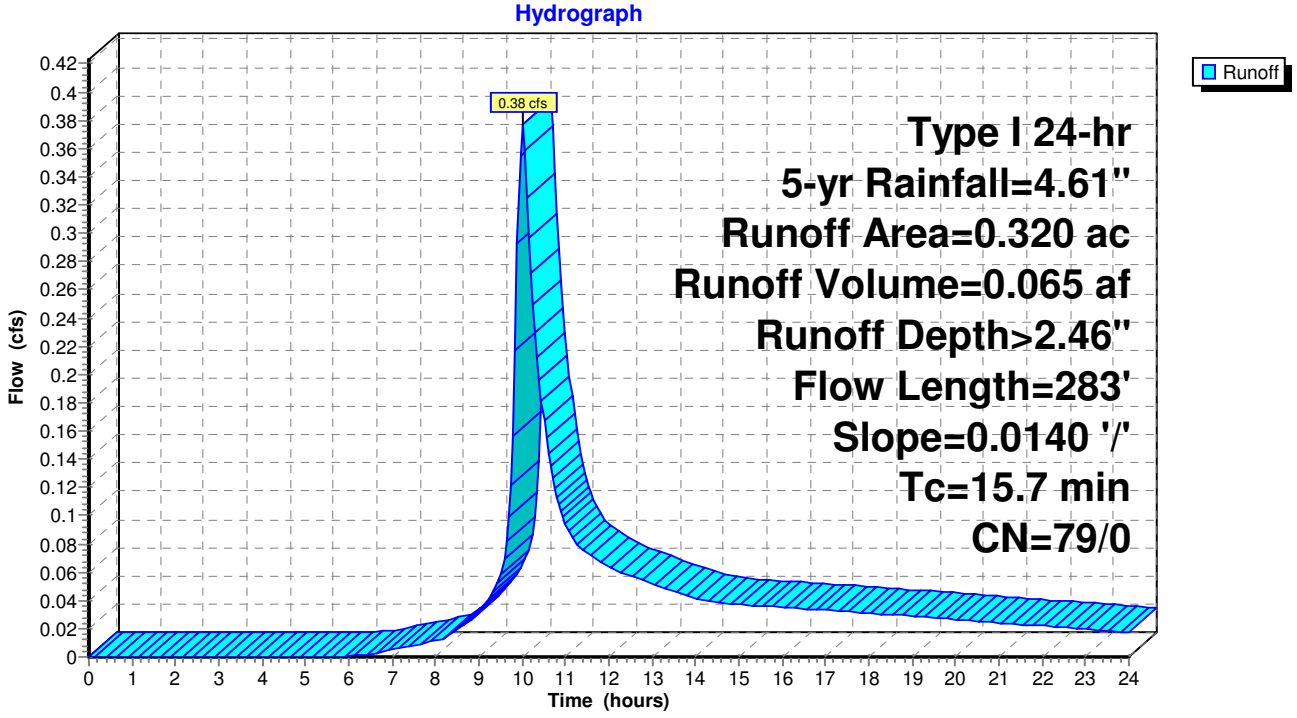
Runoff = 0.38 cfs @ 10.00 hrs, Volume= 0.065 af, Depth> 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



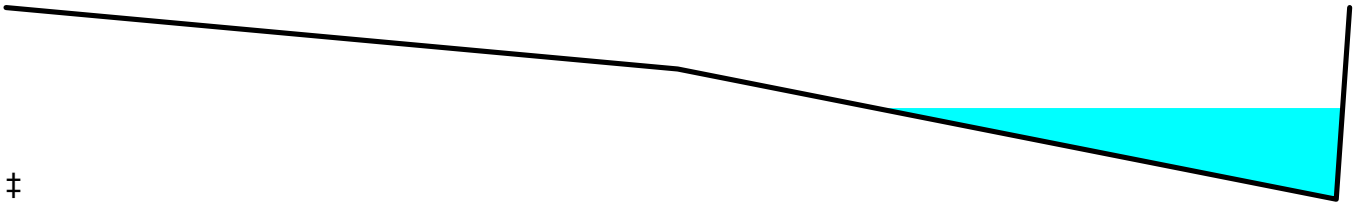
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 2.46" for 5-yr event
Inflow = 0.38 cfs @ 10.00 hrs, Volume= 0.065 af
Outflow = 0.31 cfs @ 10.30 hrs, Volume= 0.065 af, Atten= 18%, Lag= 17.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.75 fps, Min. Travel Time= 10.0 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 17.8 min

Peak Storage= 186 cf @ 10.13 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

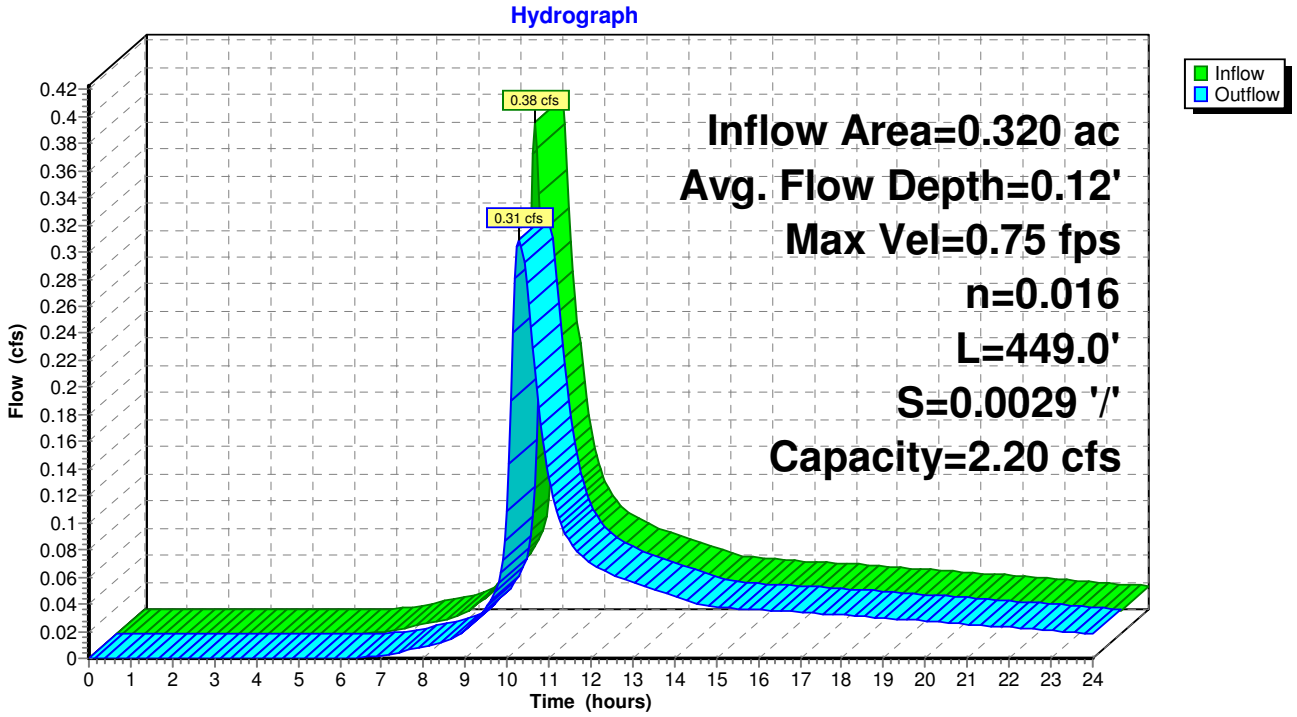


‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.38 cfs
0.31 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.12'
Max Vel=0.75 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
Time (hours)

Summary for Subcatchment 5S: 3B

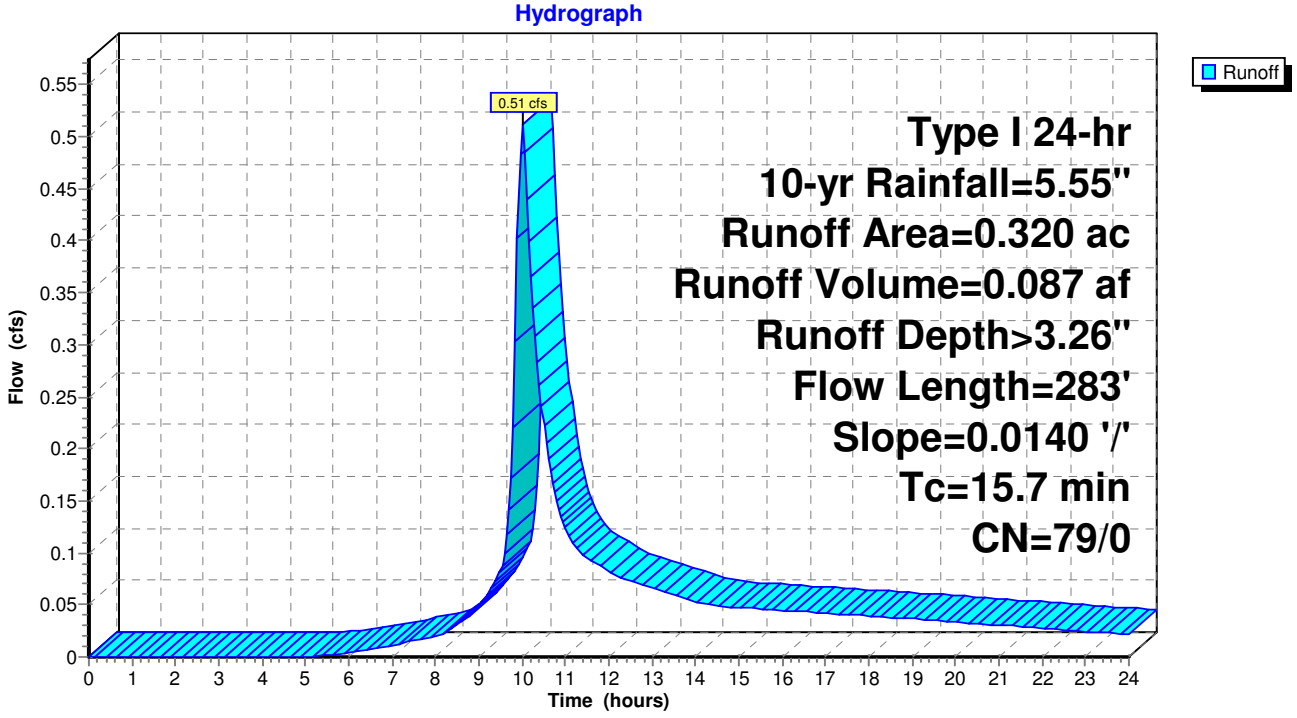
Runoff = 0.51 cfs @ 10.00 hrs, Volume= 0.087 af, Depth> 3.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



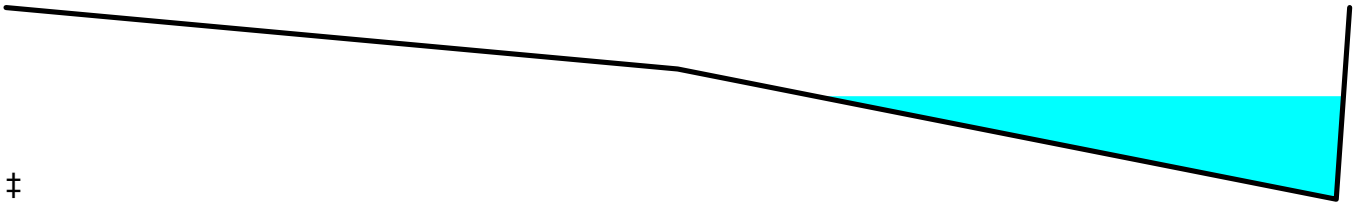
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 3.26" for 10-yr event
Inflow = 0.51 cfs @ 10.00 hrs, Volume= 0.087 af
Outflow = 0.43 cfs @ 10.27 hrs, Volume= 0.086 af, Atten= 16%, Lag= 16.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 9.2 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 16.9 min

Peak Storage= 237 cf @ 10.12 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

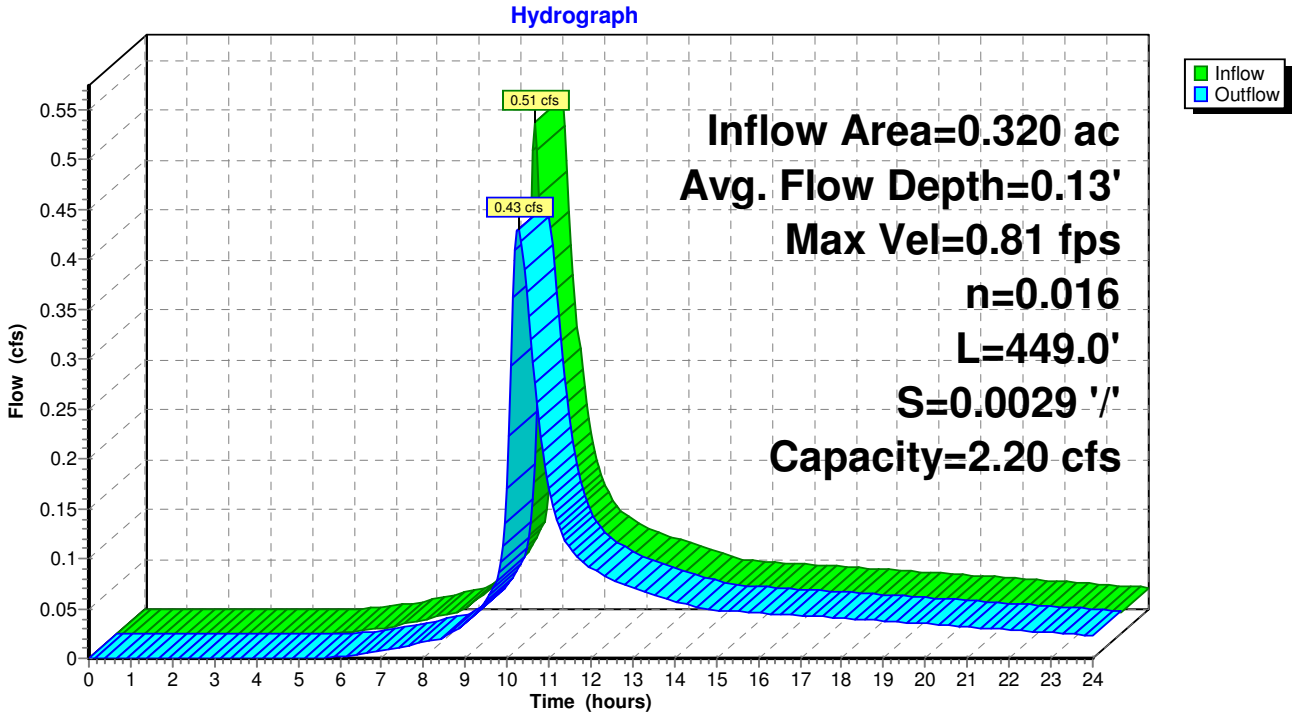


‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.51 cfs
0.43 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.13'
Max Vel=0.81 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 5S: 3B

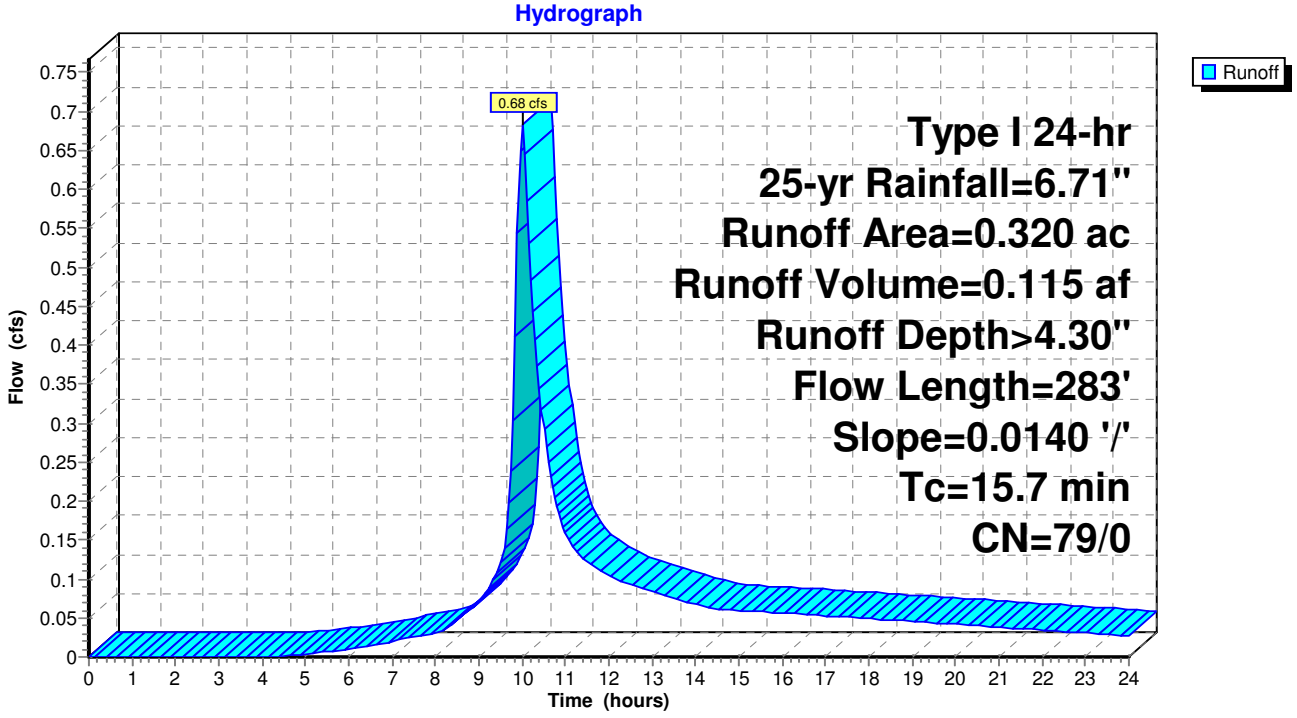
Runoff = 0.68 cfs @ 10.00 hrs, Volume= 0.115 af, Depth> 4.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow** Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



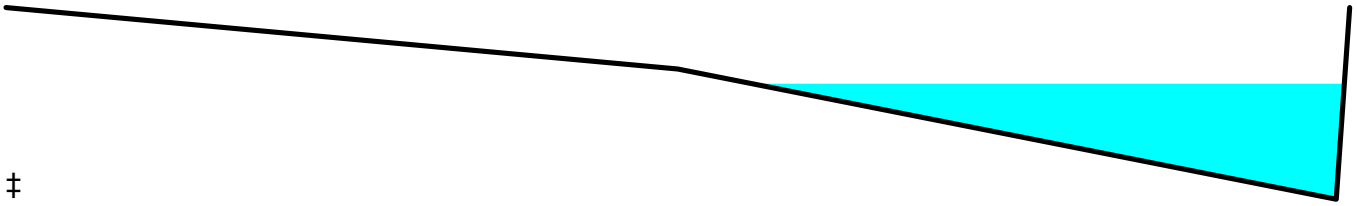
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 4.30" for 25-yr event
Inflow = 0.68 cfs @ 10.00 hrs, Volume= 0.115 af
Outflow = 0.58 cfs @ 10.25 hrs, Volume= 0.114 af, Atten= 15%, Lag= 15.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.88 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 15.9 min

Peak Storage= 298 cf @ 10.11 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

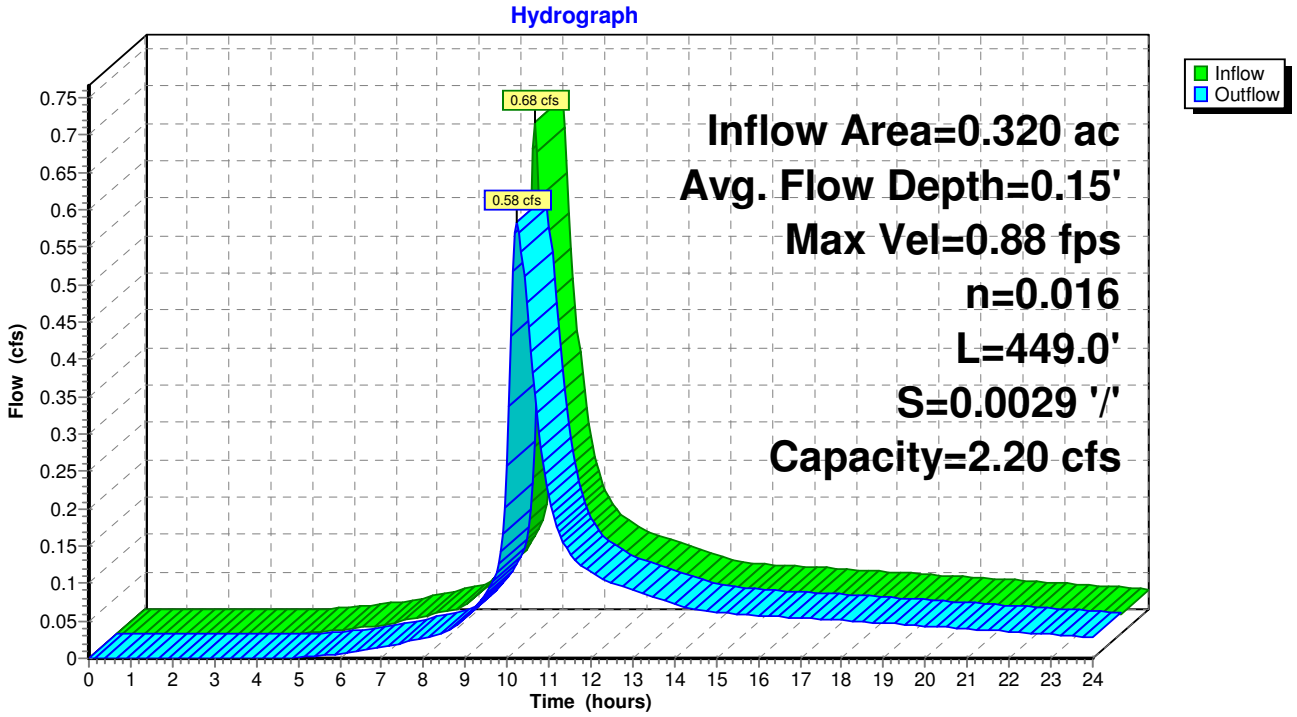


‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.68 cfs
0.58 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.15'
Max Vel=0.88 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 5S: 3B

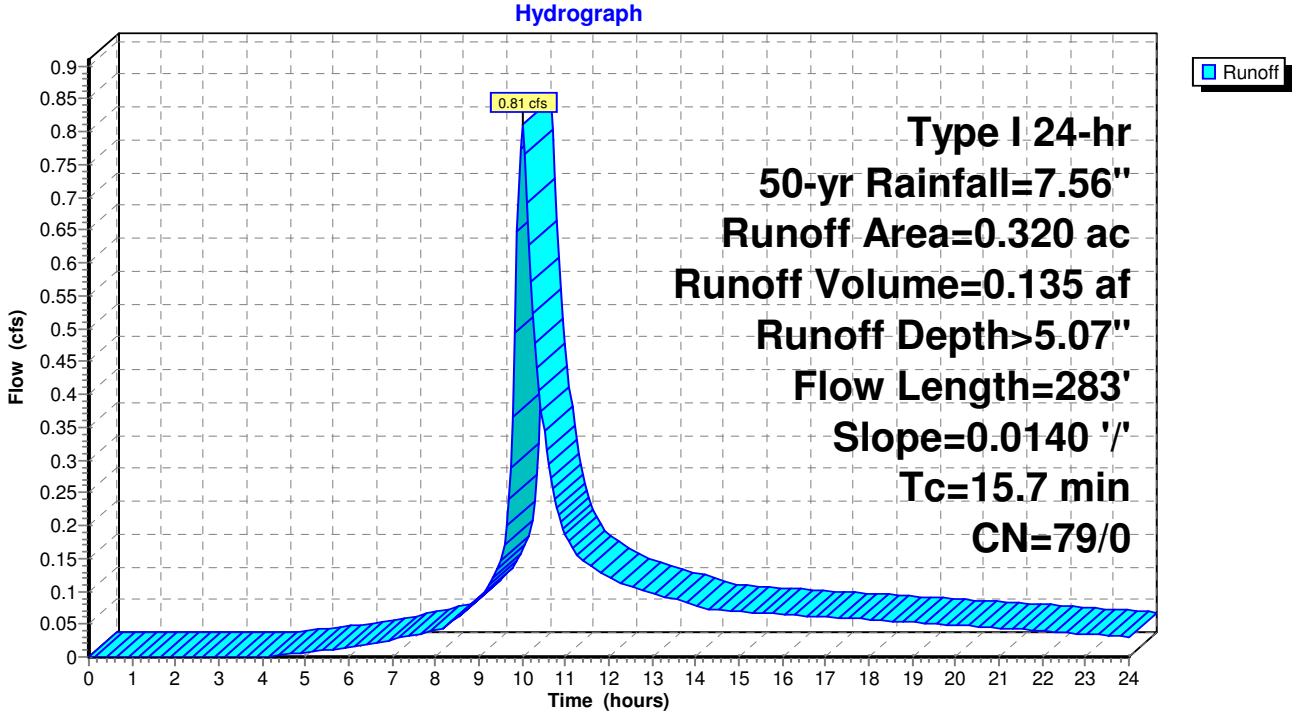
Runoff = 0.81 cfs @ 10.00 hrs, Volume= 0.135 af, Depth> 5.07"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



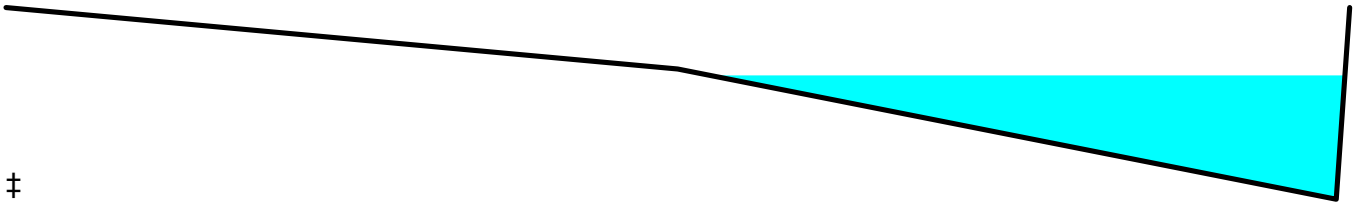
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 5.07" for 50-yr event
Inflow = 0.81 cfs @ 10.00 hrs, Volume= 0.135 af
Outflow = 0.70 cfs @ 10.24 hrs, Volume= 0.134 af, Atten= 14%, Lag= 14.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.92 fps, Min. Travel Time= 8.1 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 15.4 min

Peak Storage= 342 cf @ 10.10 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

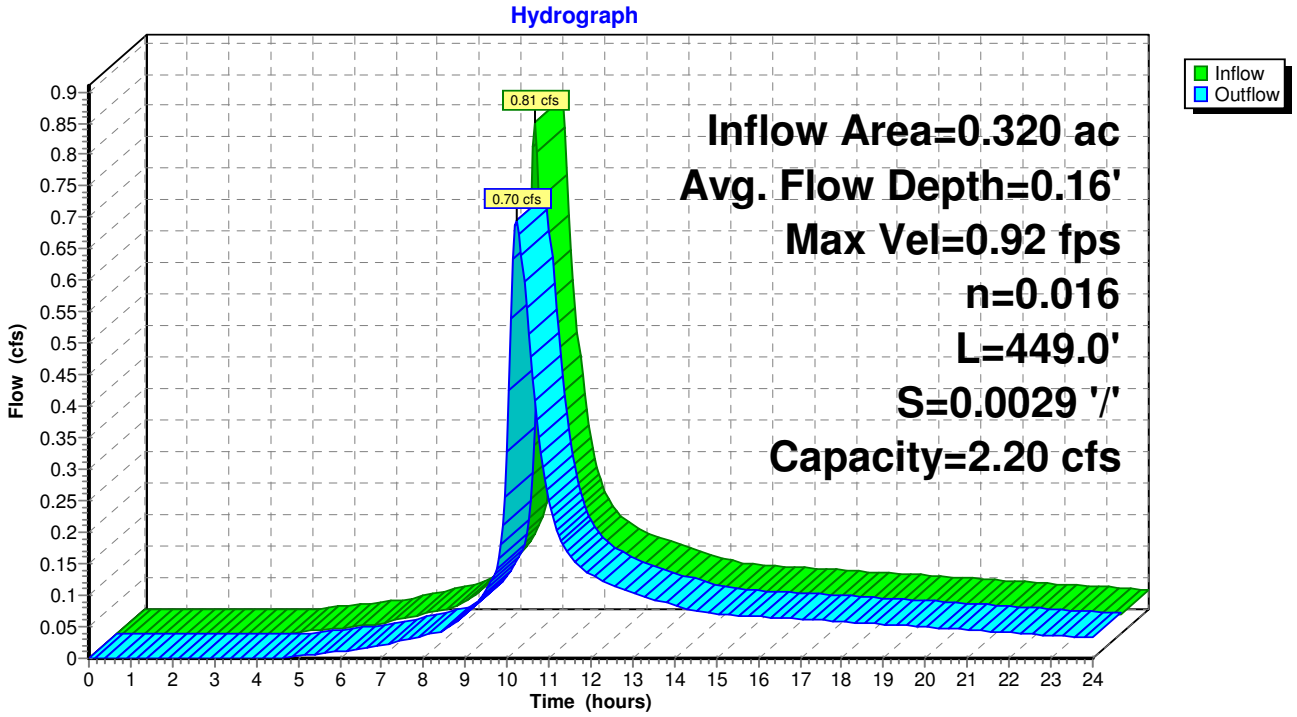


‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.81 cfs
0.70 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.16'
Max Vel=0.92 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
Time (hours)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8 0.85 0.9
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 5S: 3B

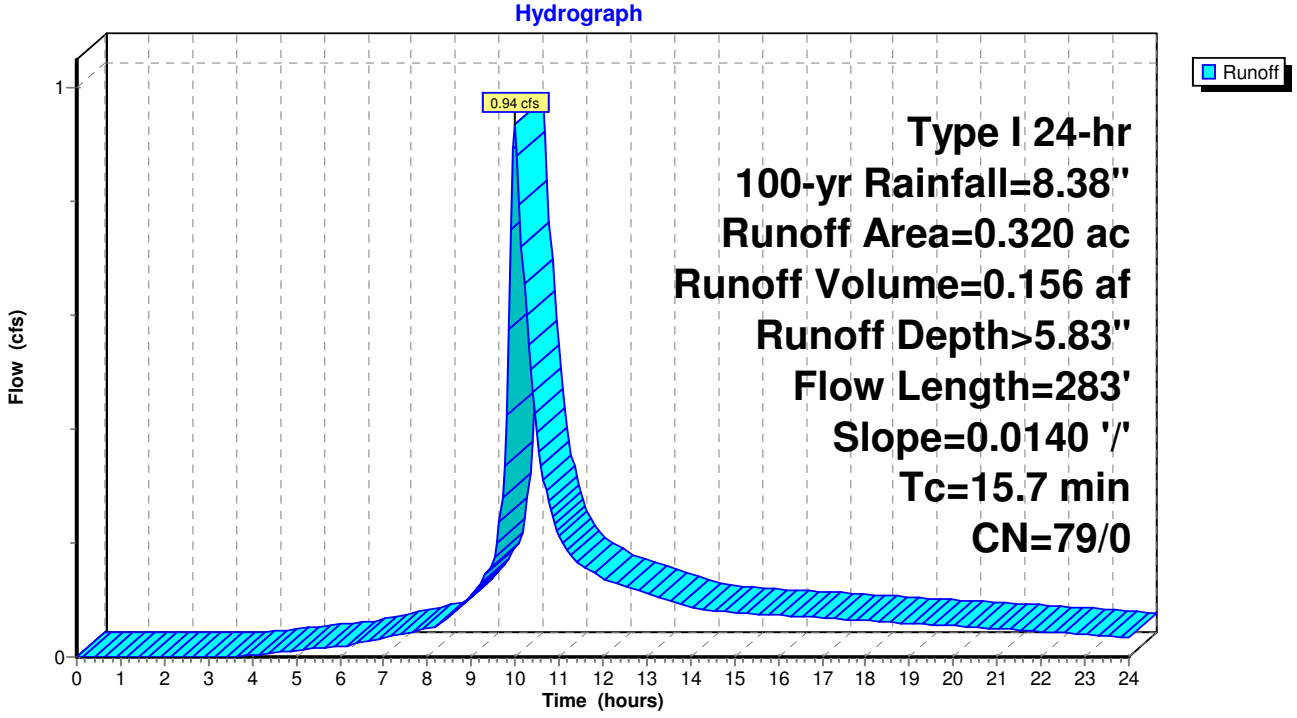
Runoff = 0.94 cfs @ 10.00 hrs, Volume= 0.156 af, Depth> 5.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
0.320	79	50-75% Grass cover, Fair, HSG C
0.320	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	283	0.0140	0.83		**Shallow Concentrated Flow, Shallow Surface Flow**
					Short Grass Pasture Kv= 7.0 fps
10.0					**Direct Entry, Lot Time**
15.7	283	Total			

Subcatchment 5S: 3B



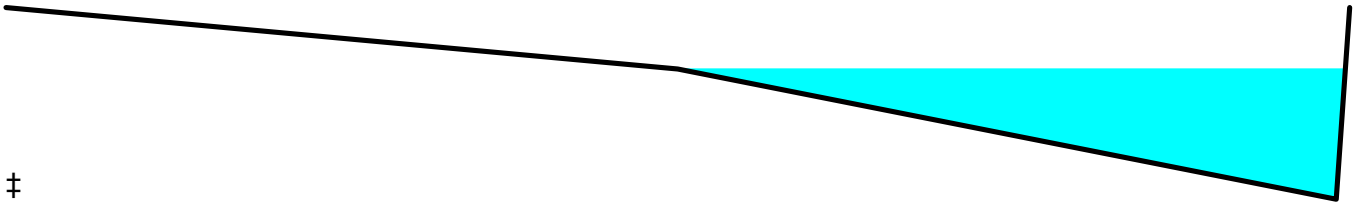
Summary for Reach 5R: 5R

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 5.83" for 100-yr event
Inflow = 0.94 cfs @ 10.00 hrs, Volume= 0.156 af
Outflow = 0.81 cfs @ 10.23 hrs, Volume= 0.154 af, Atten= 14%, Lag= 13.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.95 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 14.9 min

Peak Storage= 382 cf @ 10.10 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.25' Flow Area= 2.0 sf, Capacity= 2.20 cfs

Custom cross-section, Length= 449.0' Slope= 0.0029 '/'
Constant n= 0.016 Asphalt, rough
Inlet Invert= 18.32', Outlet Invert= 17.04'

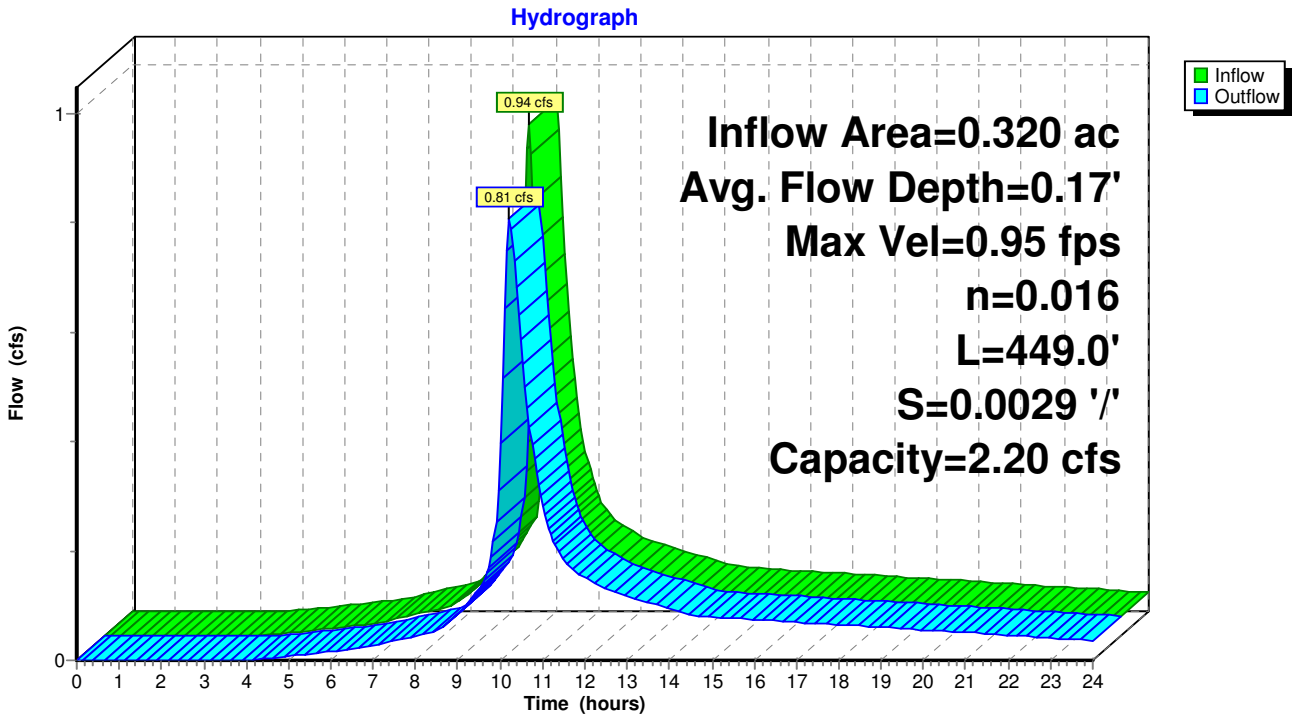


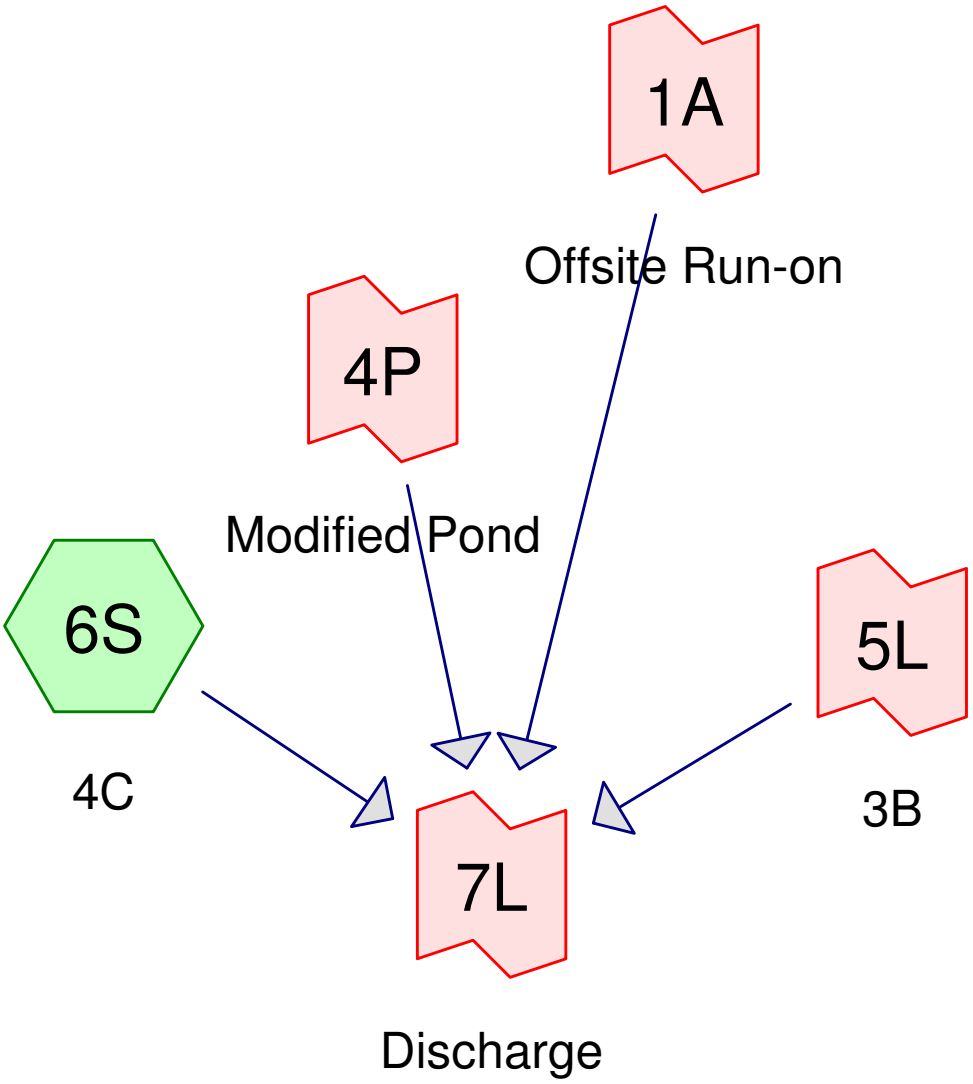
‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	18.57	0.00
10.00	18.49	0.08
19.80	18.32	0.25
20.00	18.57	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
0.17	0.8	10.0	379	0.81
0.25	2.0	20.1	917	2.20

Reach 5R: 5R


Hydrograph
Inflow
Outflow
0.94 cfs
0.81 cfs
Inflow Area=0.320 ac
Avg. Flow Depth=0.17'
Max Vel=0.95 fps
n=0.016
L=449.0'
S=0.0029 '/'
Capacity=2.20 cfs
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time (hours)



Subcat Reach Pond Link

Routing Diagram for GHS_Prop_PG-Discharge
Prepared by United Civil, Inc.
HydroCAD® 10.00-19 s/n 06444 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

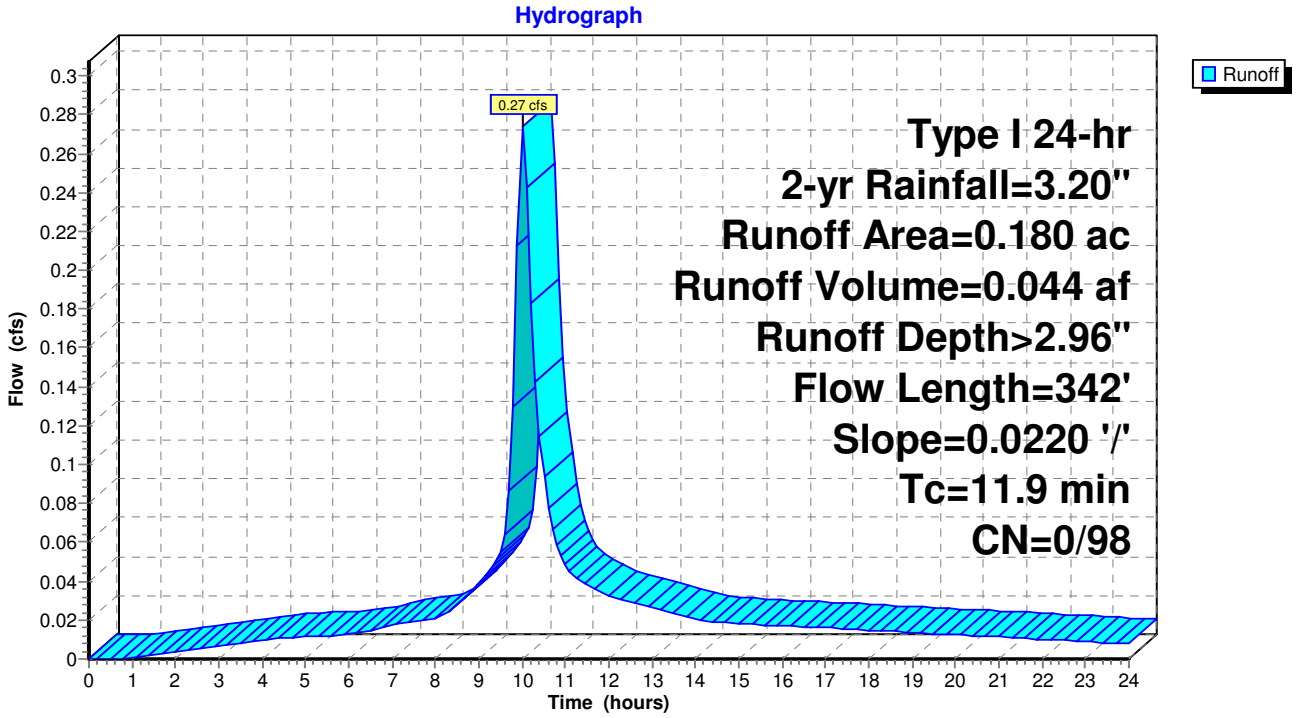
Runoff = 0.27 cfs @ 10.02 hrs, Volume= 0.044 af, Depth> 2.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



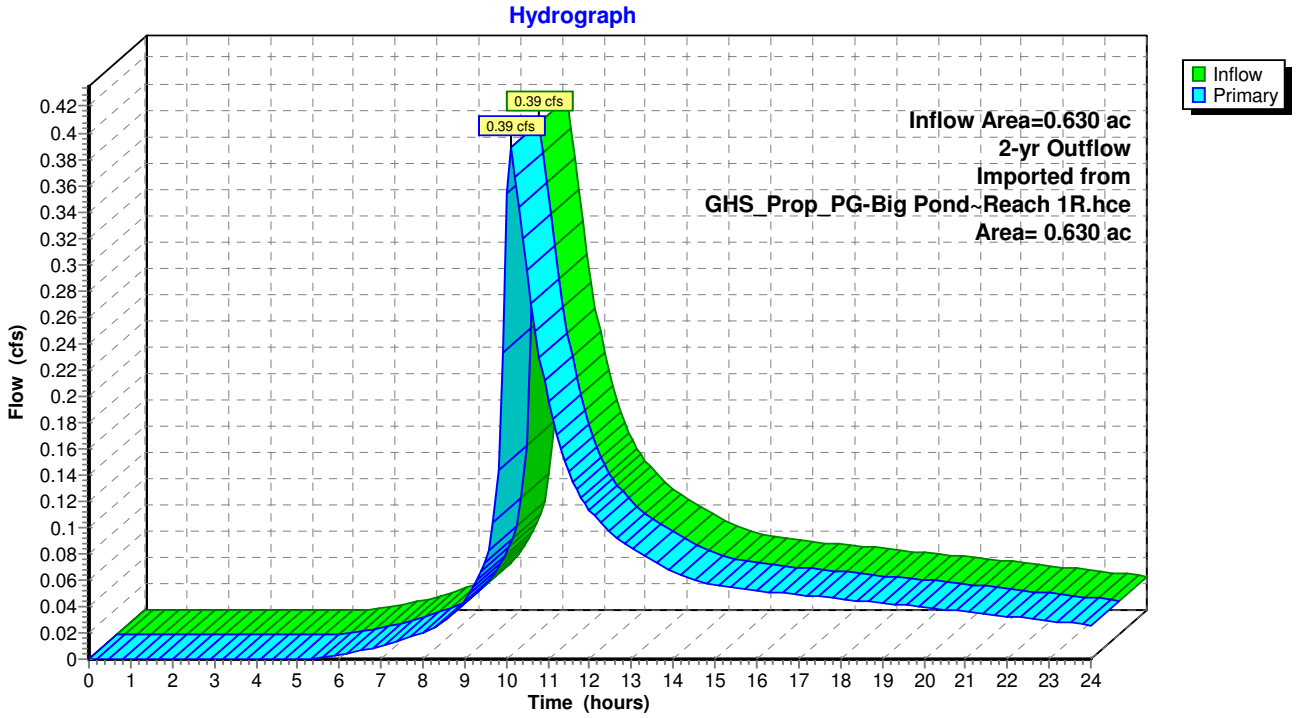
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 1.89" for 2-yr event
Inflow = 0.39 cfs @ 10.11 hrs, Volume= 0.099 af
Primary = 0.39 cfs @ 10.11 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

2-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



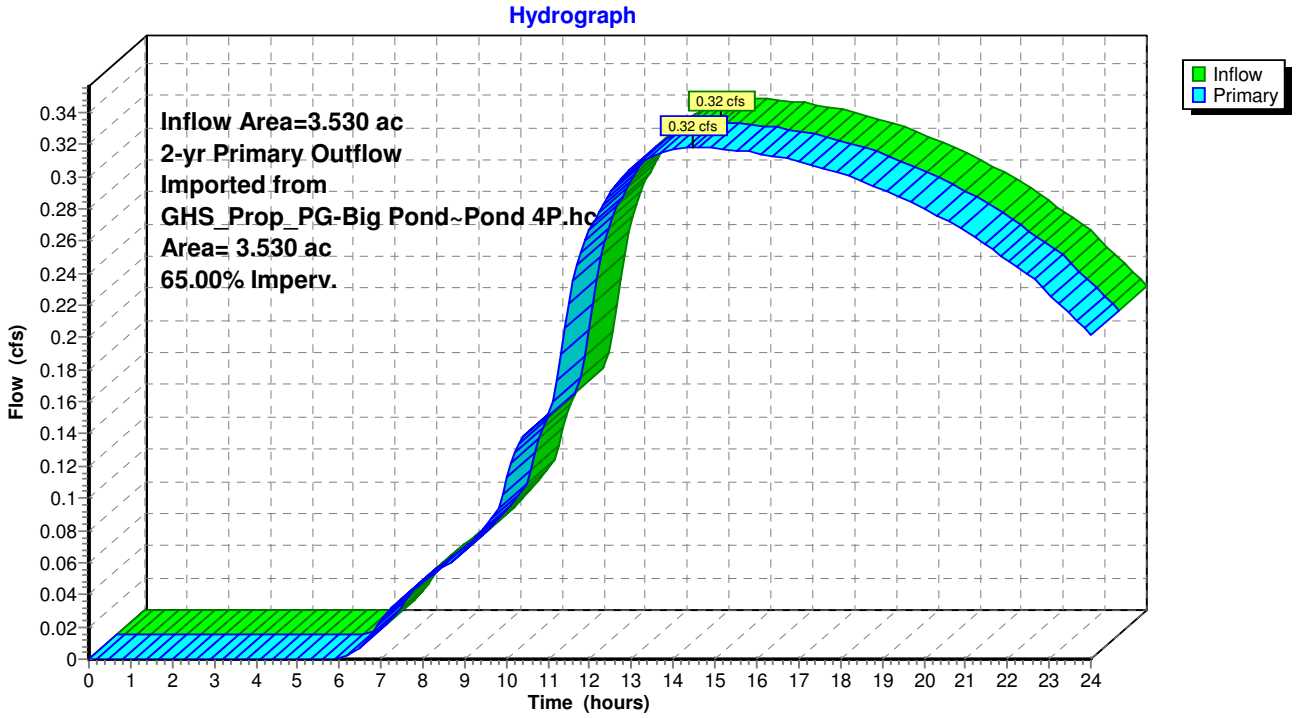
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 1.12" for 2-yr event
Inflow = 0.32 cfs @ 14.48 hrs, Volume= 0.328 af
Primary = 0.32 cfs @ 14.48 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

2-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



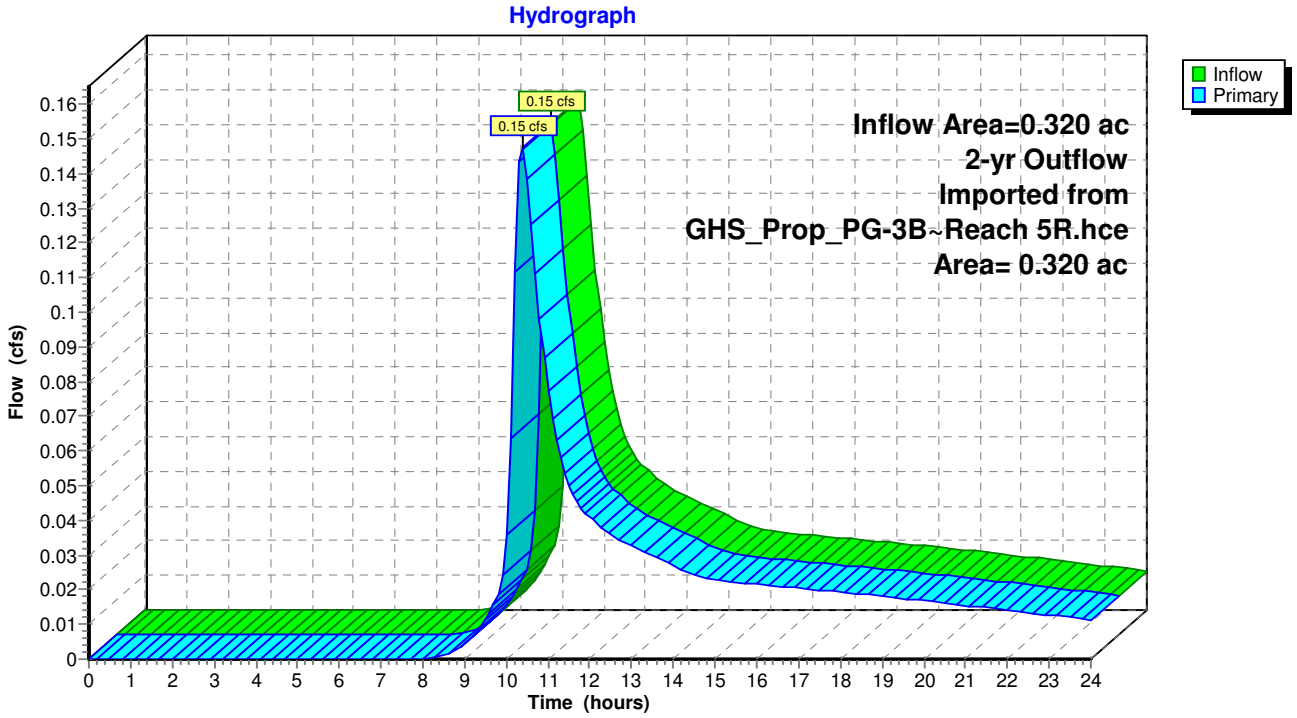
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 1.31" for 2-yr event
Inflow = 0.15 cfs @ 10.38 hrs, Volume= 0.035 af
Primary = 0.15 cfs @ 10.38 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

2-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

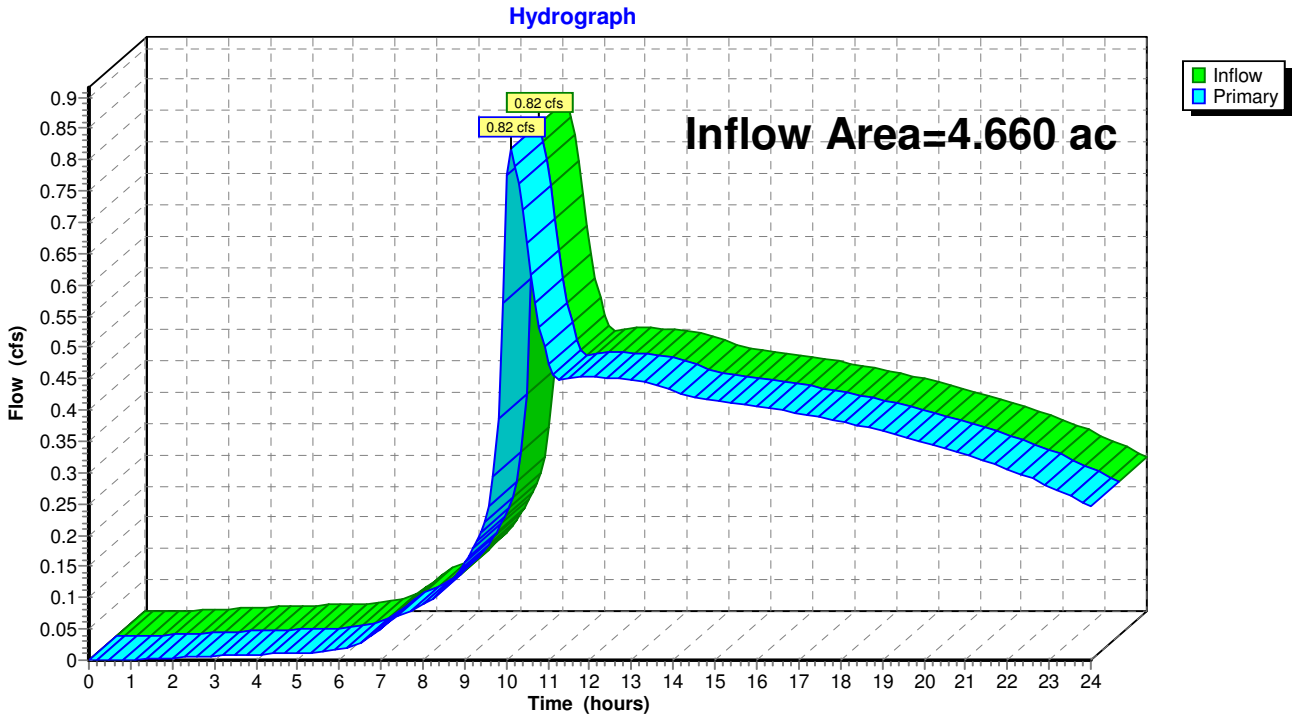


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 1.31" for 2-yr event
Inflow = 0.82 cfs @ 10.11 hrs, Volume= 0.507 af
Primary = 0.82 cfs @ 10.11 hrs, Volume= 0.507 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge



Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

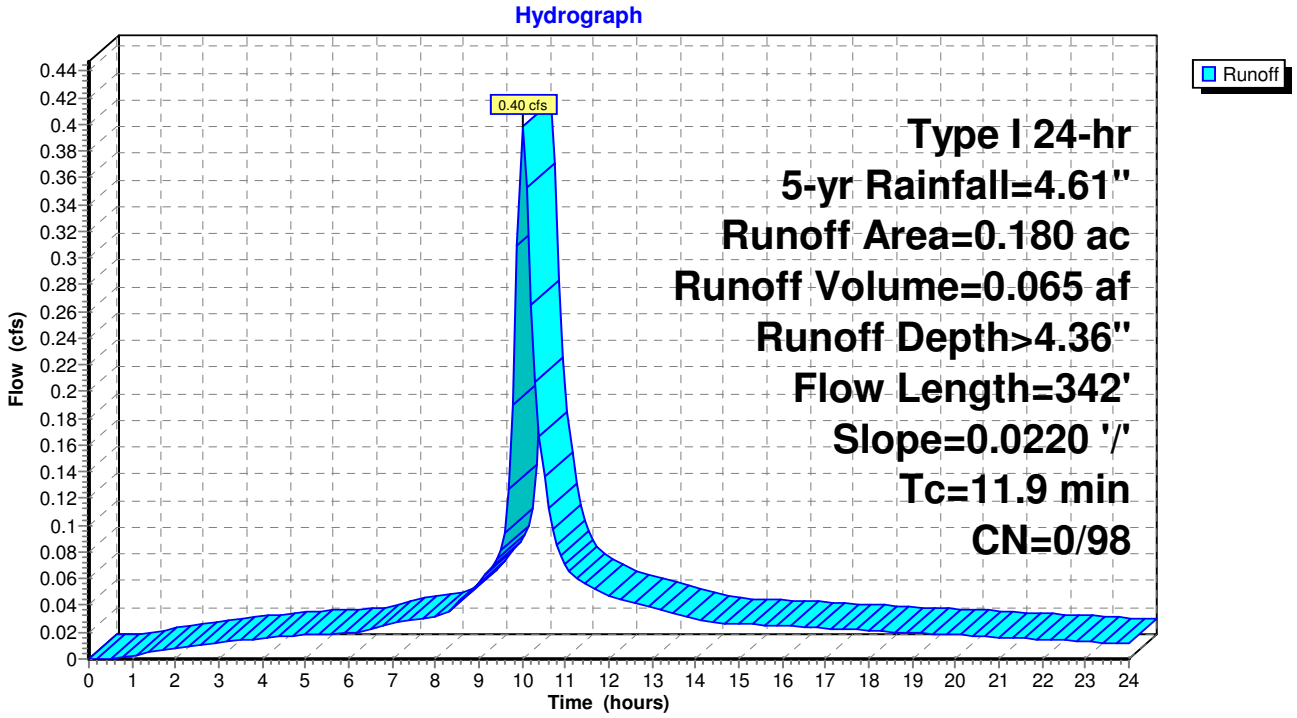
Runoff = 0.40 cfs @ 10.02 hrs, Volume= 0.065 af, Depth> 4.36"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-yr Rainfall=4.61"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



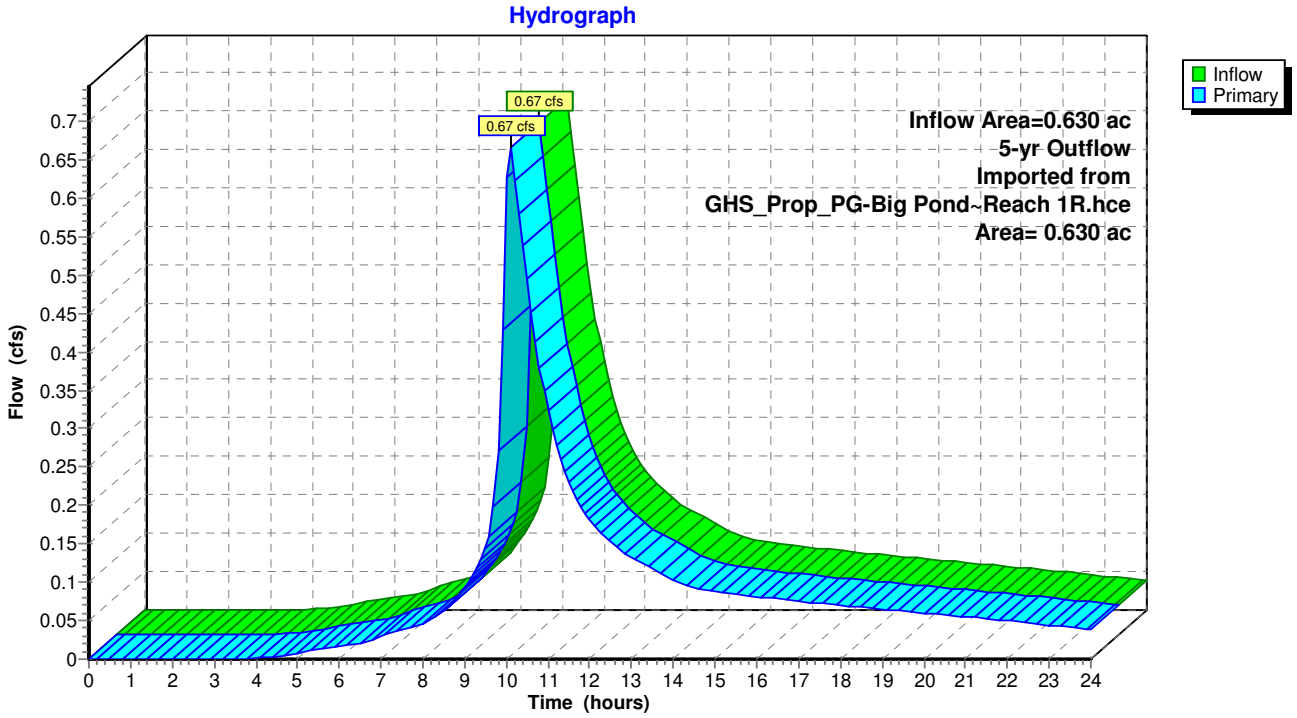
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 3.16" for 5-yr event
Inflow = 0.67 cfs @ 10.10 hrs, Volume= 0.166 af
Primary = 0.67 cfs @ 10.10 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

5-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



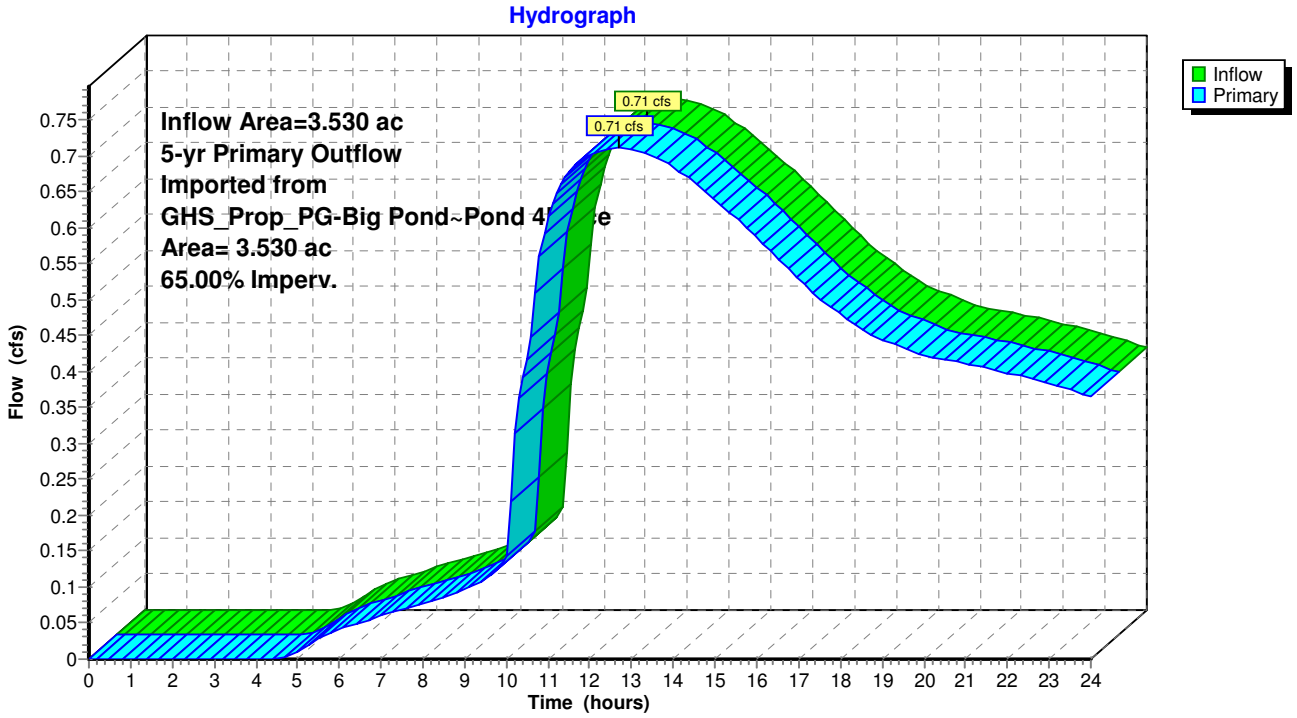
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 2.16" for 5-yr event
Inflow = 0.71 cfs @ 12.69 hrs, Volume= 0.635 af
Primary = 0.71 cfs @ 12.69 hrs, Volume= 0.635 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

5-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



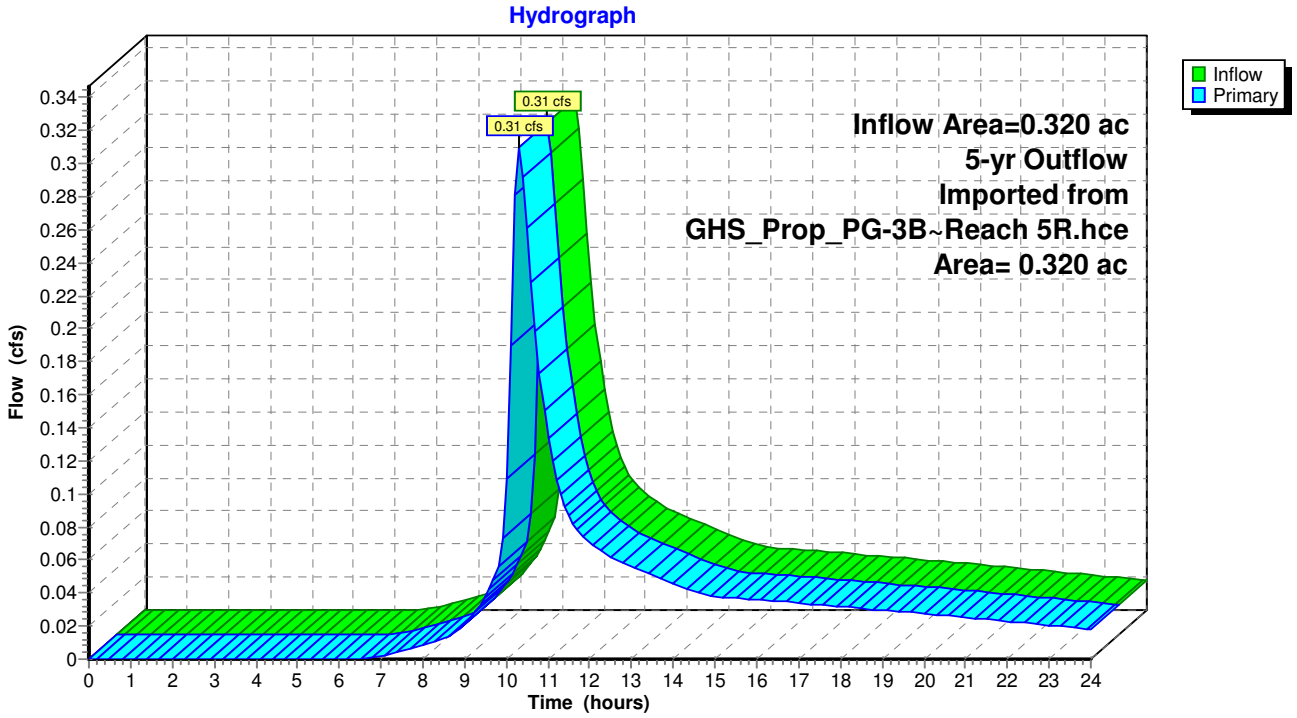
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 2.43" for 5-yr event
Inflow = 0.31 cfs @ 10.31 hrs, Volume= 0.065 af
Primary = 0.31 cfs @ 10.31 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

5-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

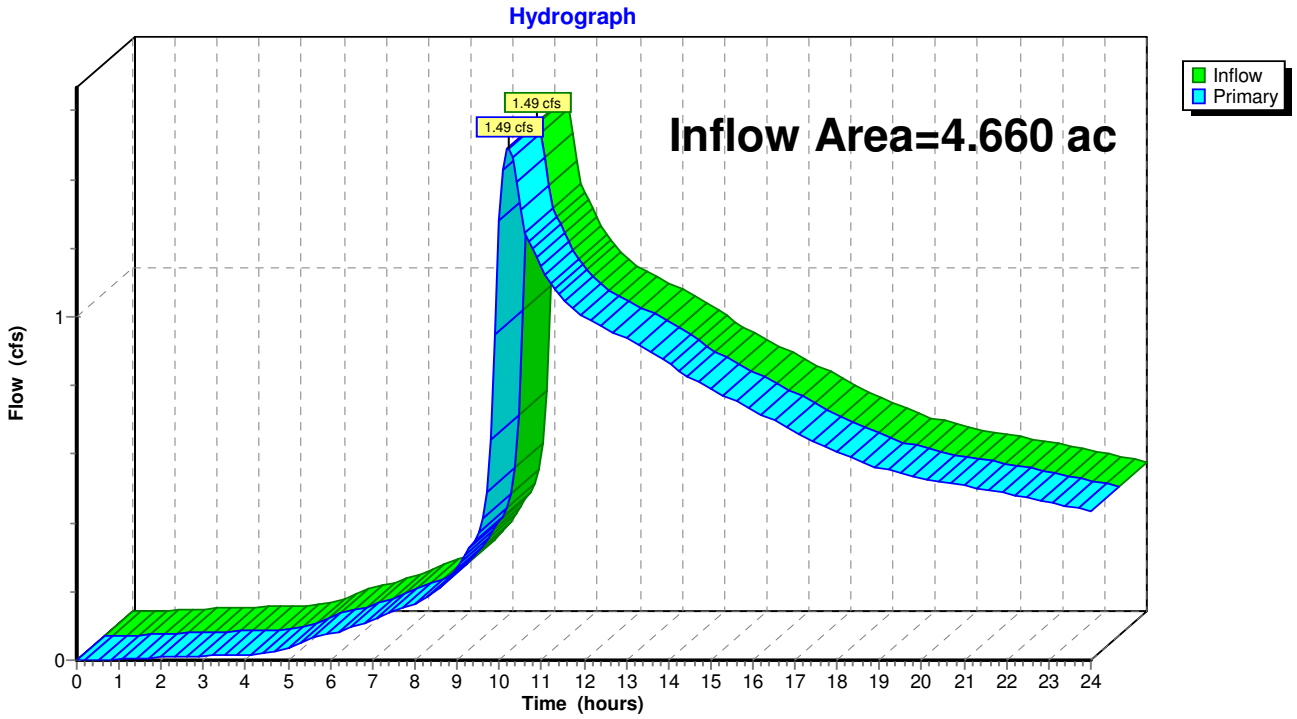


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 2.40" for 5-yr event
Inflow = 1.49 cfs @ 10.22 hrs, Volume= 0.931 af
Primary = 1.49 cfs @ 10.22 hrs, Volume= 0.931 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge



Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

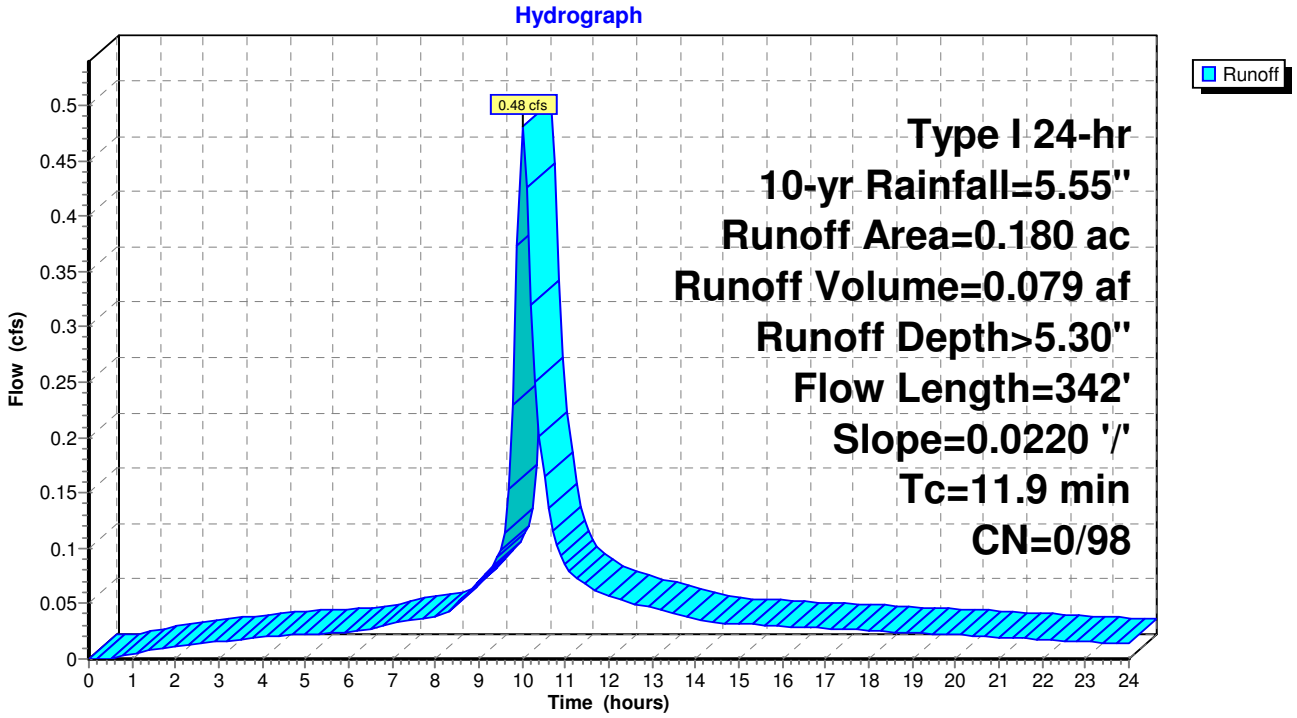
Runoff = 0.48 cfs @ 10.02 hrs, Volume= 0.079 af, Depth> 5.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-yr Rainfall=5.55"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



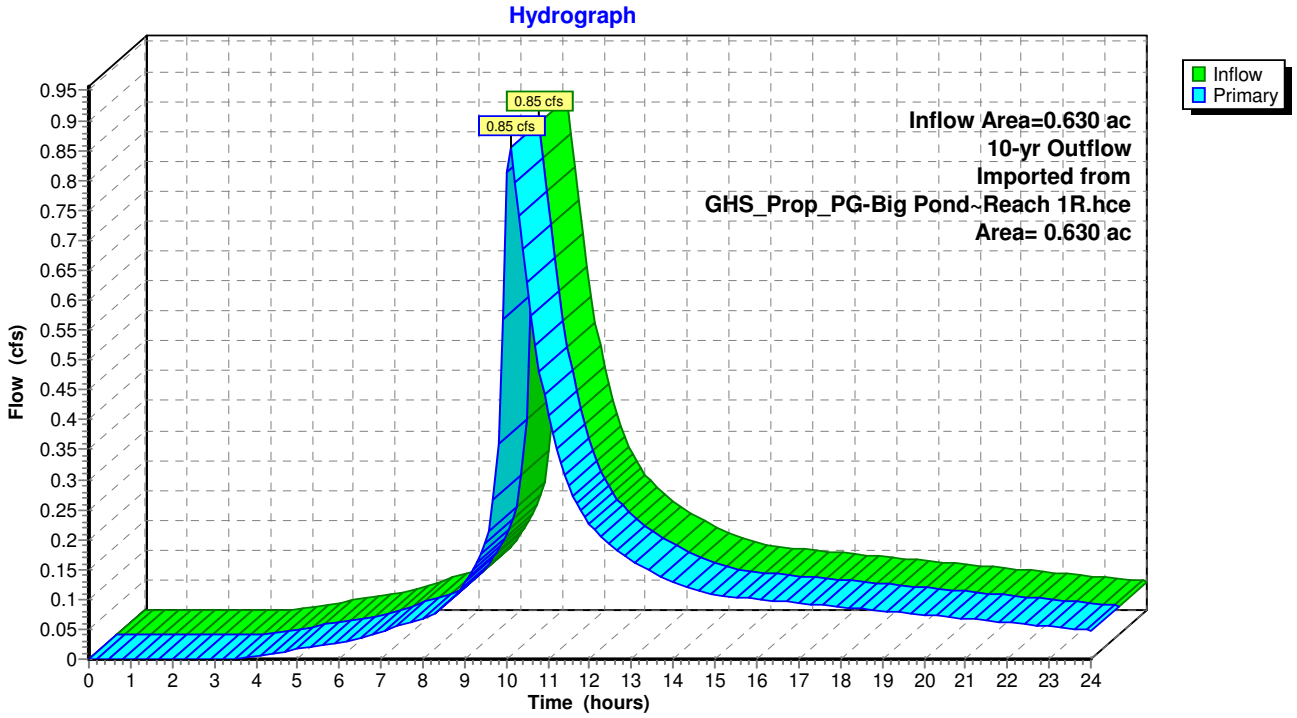
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 4.04" for 10-yr event
Inflow = 0.85 cfs @ 10.09 hrs, Volume= 0.212 af
Primary = 0.85 cfs @ 10.09 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

10-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



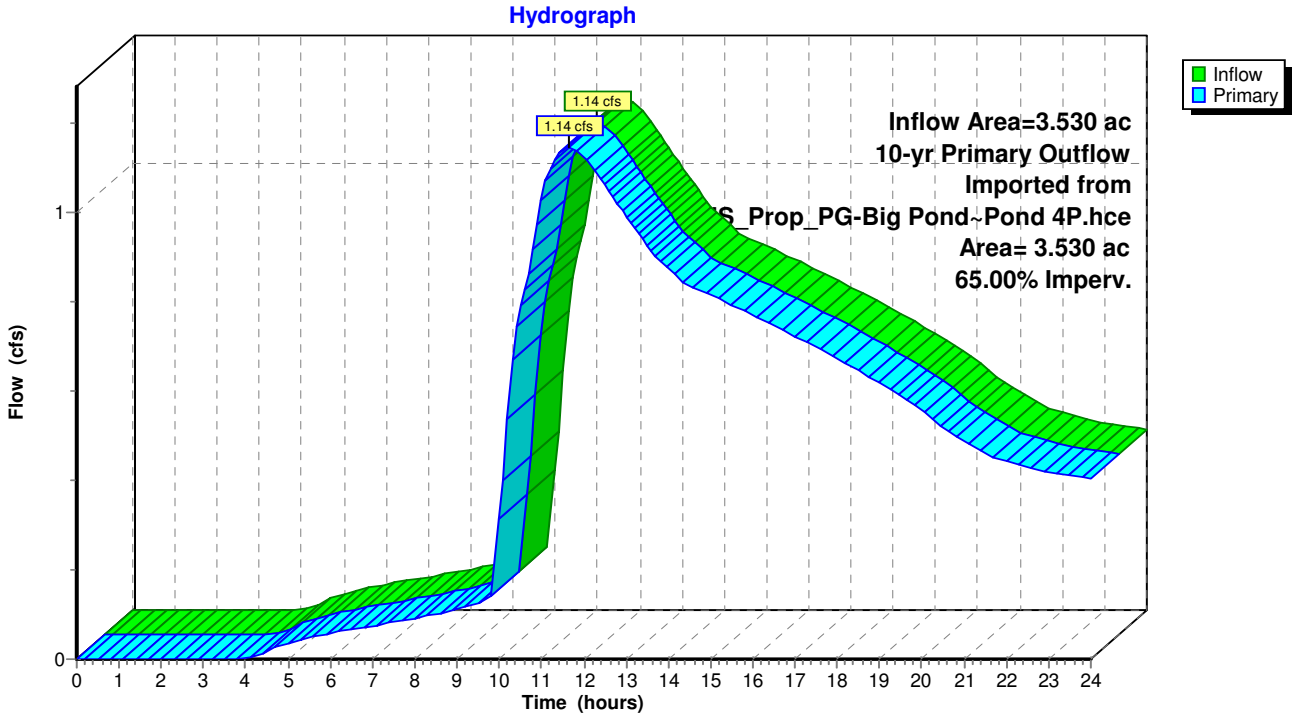
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 2.93" for 10-yr event
Inflow = 1.14 cfs @ 11.63 hrs, Volume= 0.863 af
Primary = 1.14 cfs @ 11.63 hrs, Volume= 0.863 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

10-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



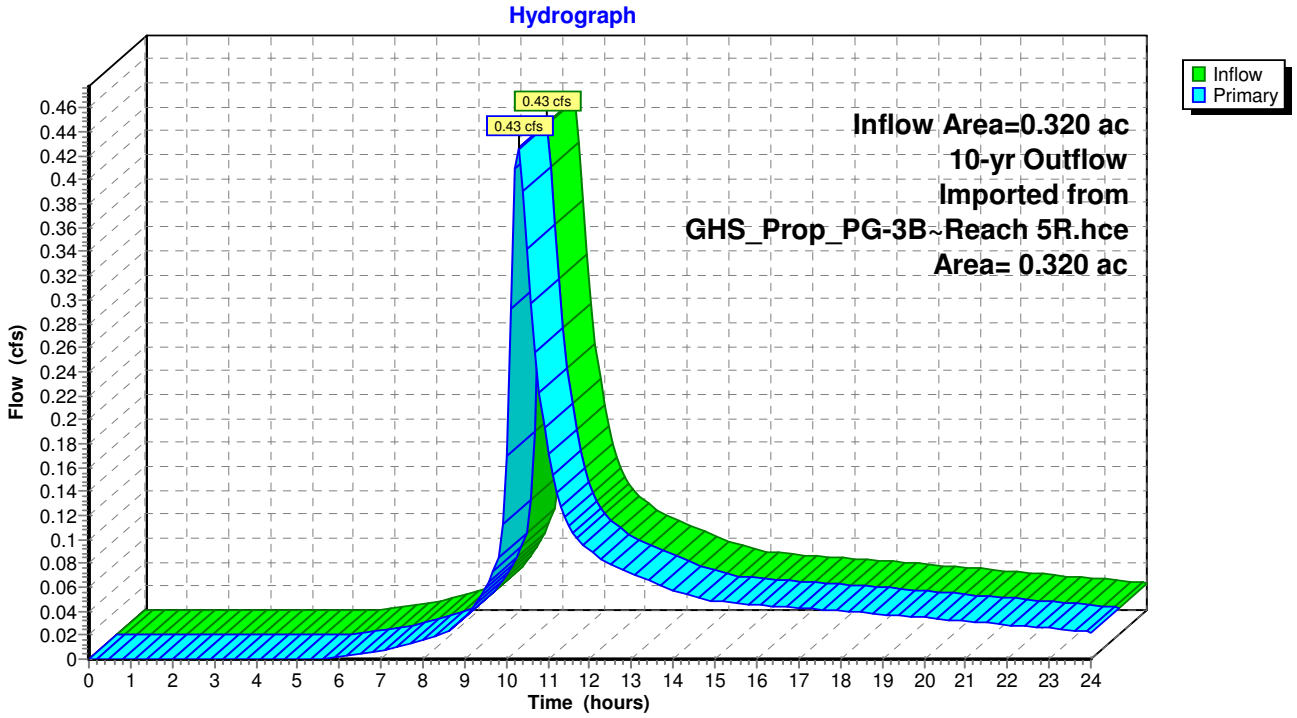
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 3.23" for 10-yr event
Inflow = 0.43 cfs @ 10.28 hrs, Volume= 0.086 af
Primary = 0.43 cfs @ 10.28 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

10-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

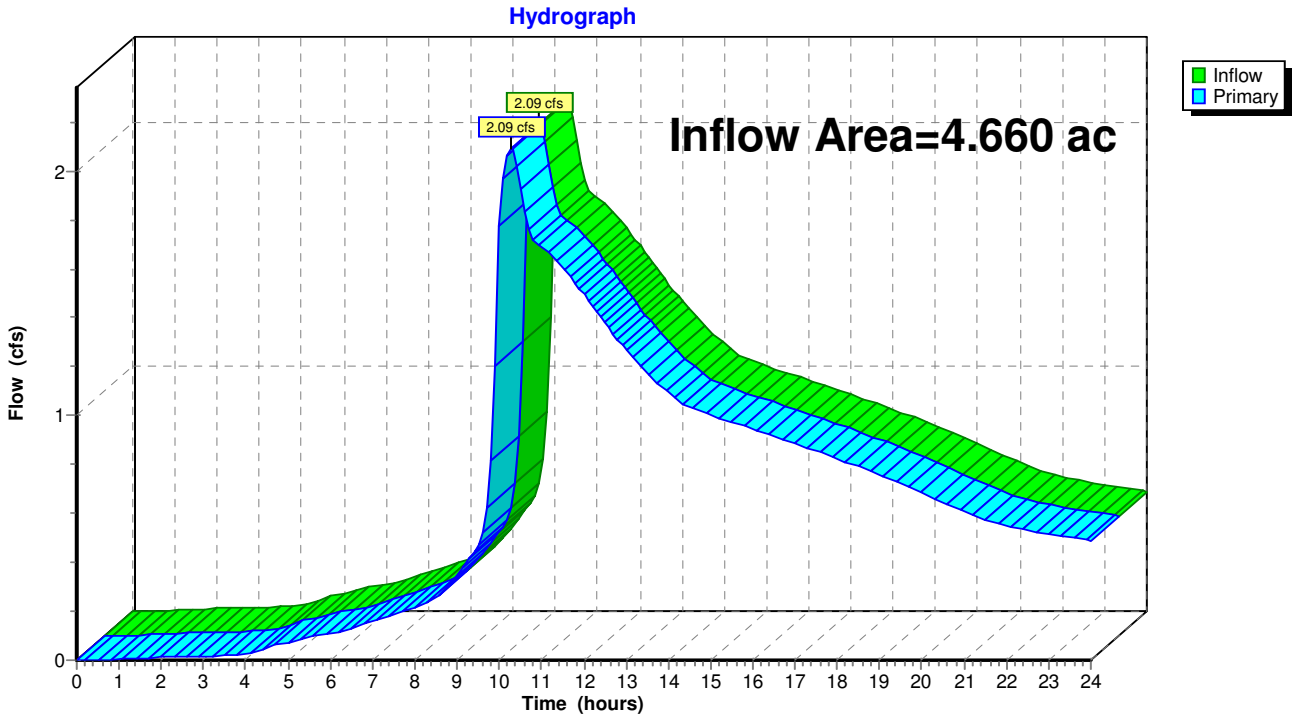


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 3.20" for 10-yr event
Inflow = 2.09 cfs @ 10.28 hrs, Volume= 1.241 af
Primary = 2.09 cfs @ 10.28 hrs, Volume= 1.241 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge



Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

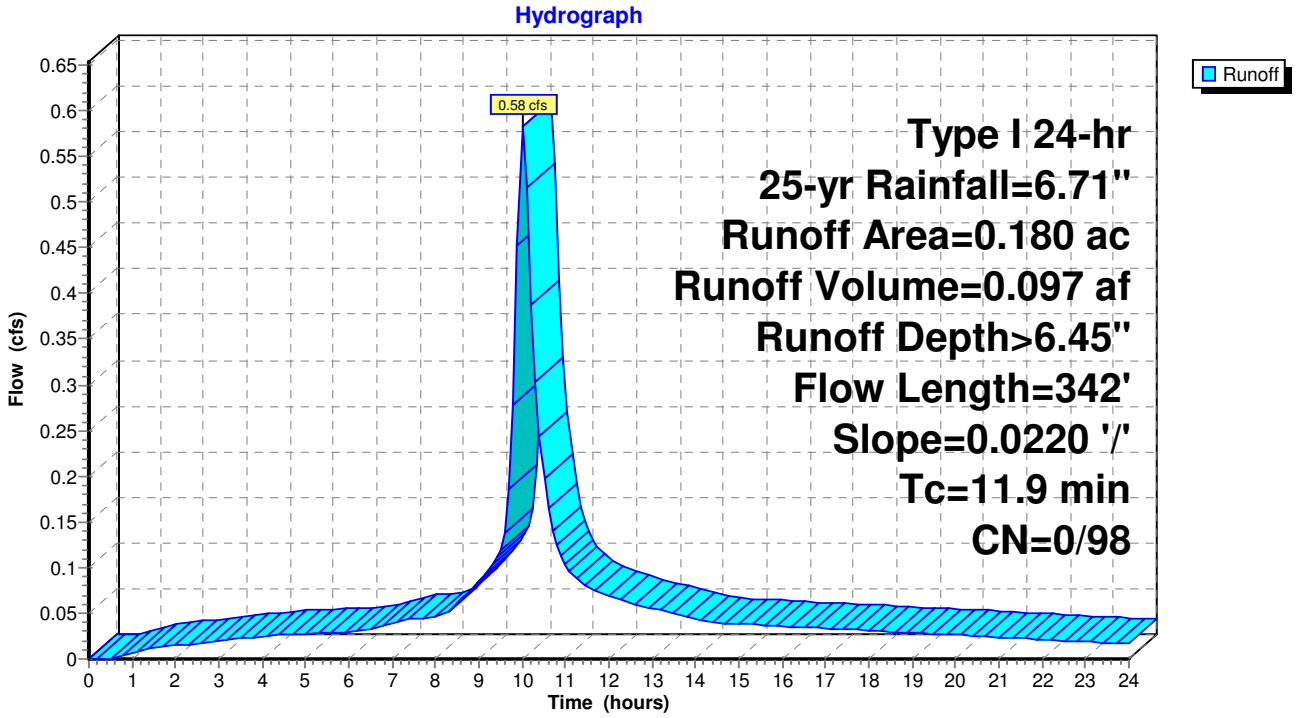
Runoff = 0.58 cfs @ 10.02 hrs, Volume= 0.097 af, Depth> 6.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-yr Rainfall=6.71"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



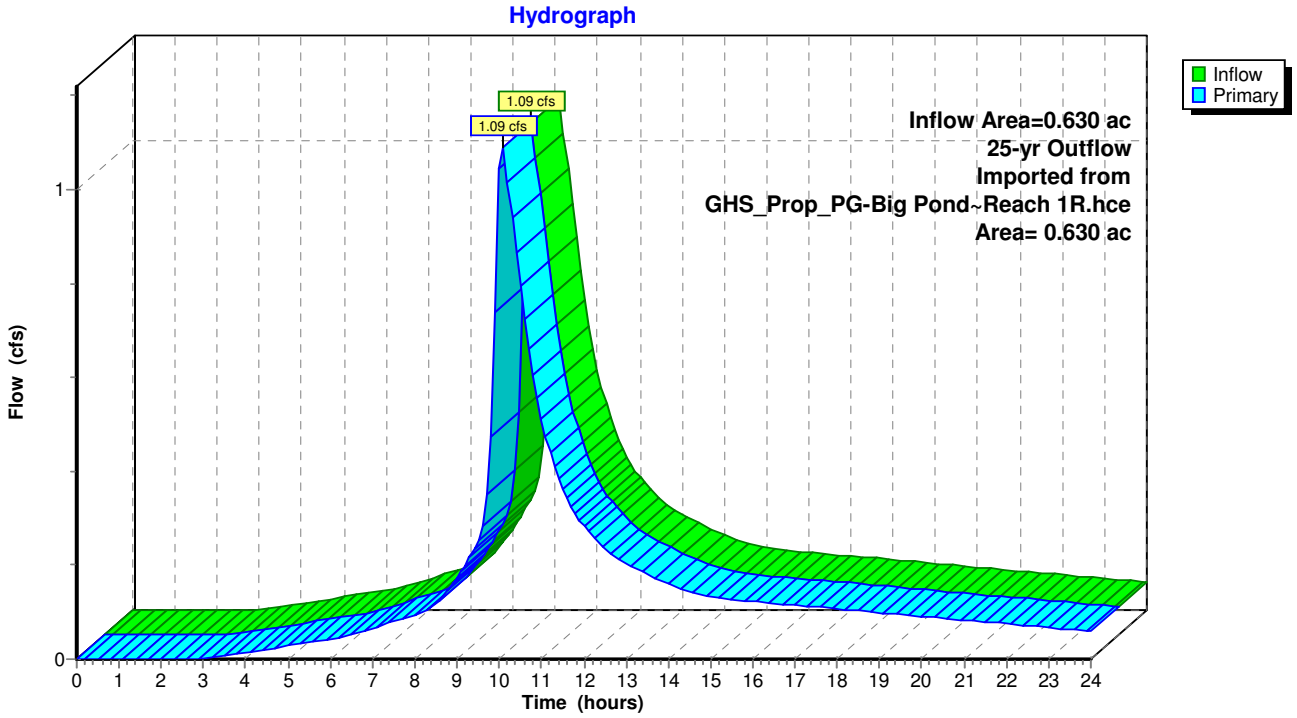
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 5.15" for 25-yr event
Inflow = 1.09 cfs @ 10.09 hrs, Volume= 0.270 af
Primary = 1.09 cfs @ 10.09 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

25-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



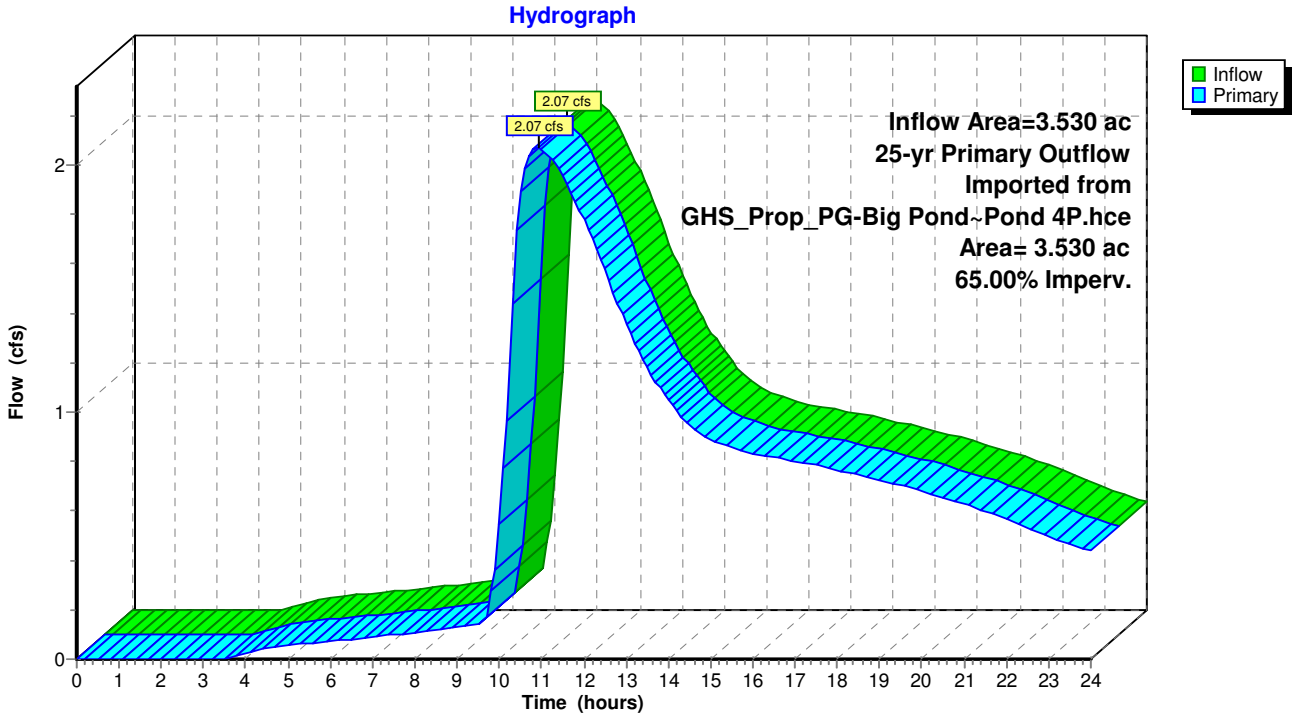
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 3.96" for 25-yr event
Inflow = 2.07 cfs @ 10.93 hrs, Volume= 1.164 af
Primary = 2.07 cfs @ 10.93 hrs, Volume= 1.164 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

25-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



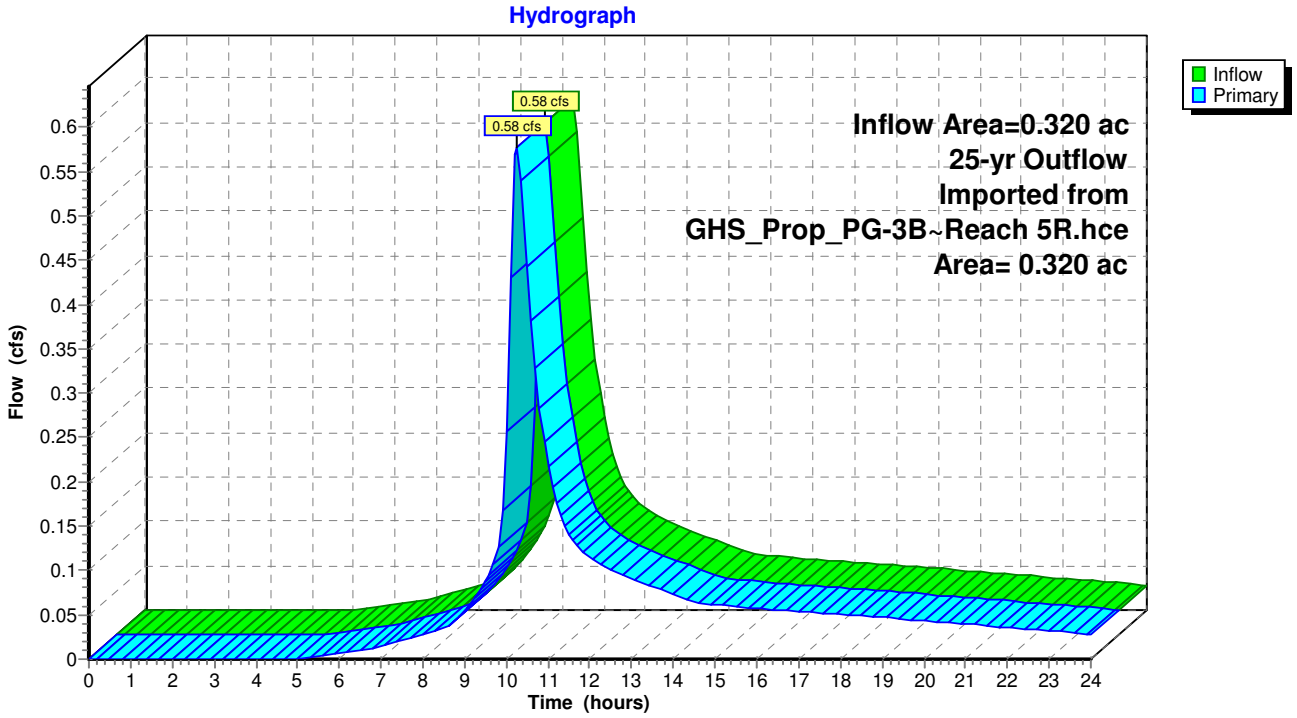
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 4.26" for 25-yr event
Inflow = 0.58 cfs @ 10.25 hrs, Volume= 0.114 af
Primary = 0.58 cfs @ 10.25 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

25-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

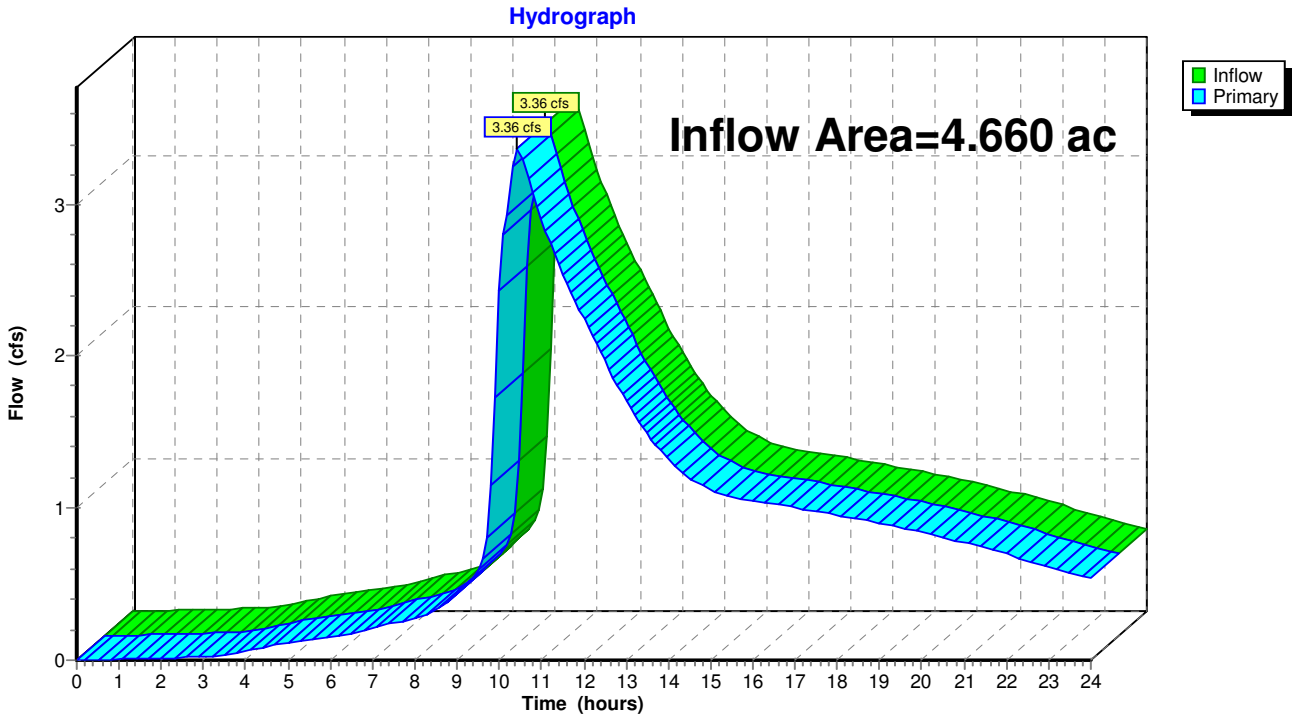


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 4.24" for 25-yr event
Inflow = 3.36 cfs @ 10.43 hrs, Volume= 1.645 af
Primary = 3.36 cfs @ 10.43 hrs, Volume= 1.645 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge



Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

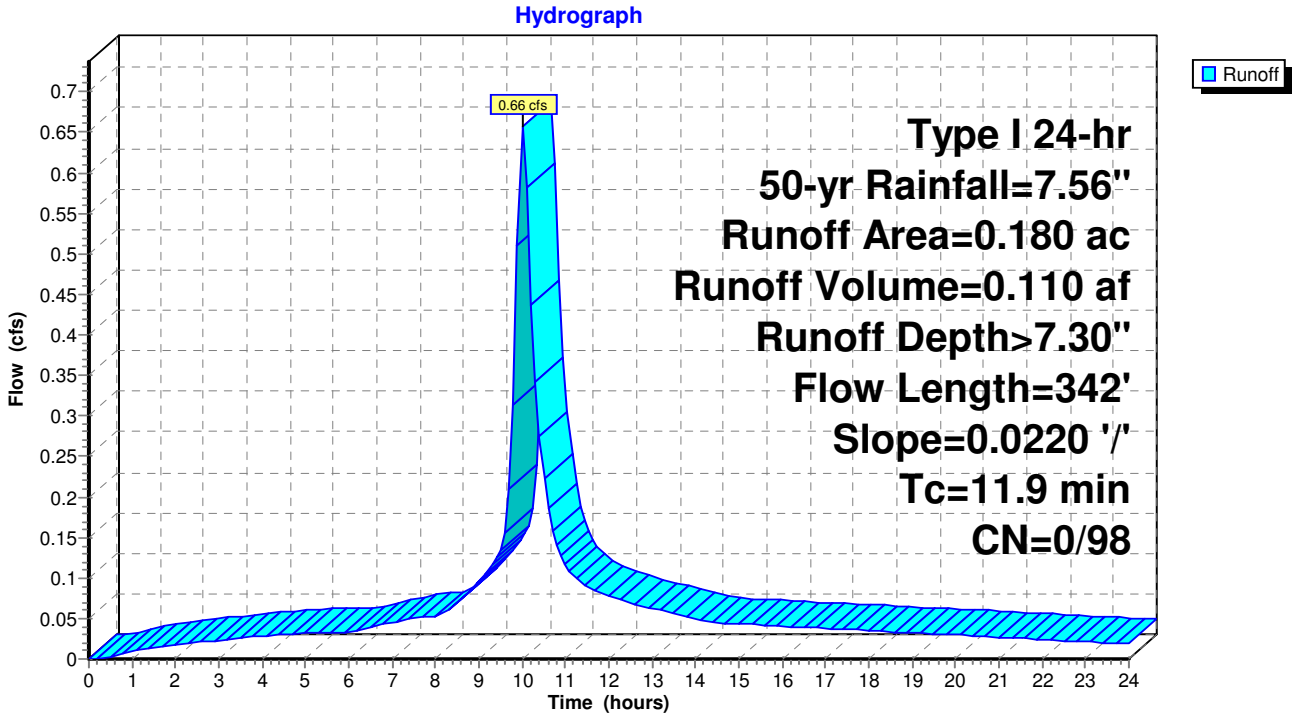
Runoff = 0.66 cfs @ 10.02 hrs, Volume= 0.110 af, Depth> 7.30"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-yr Rainfall=7.56"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



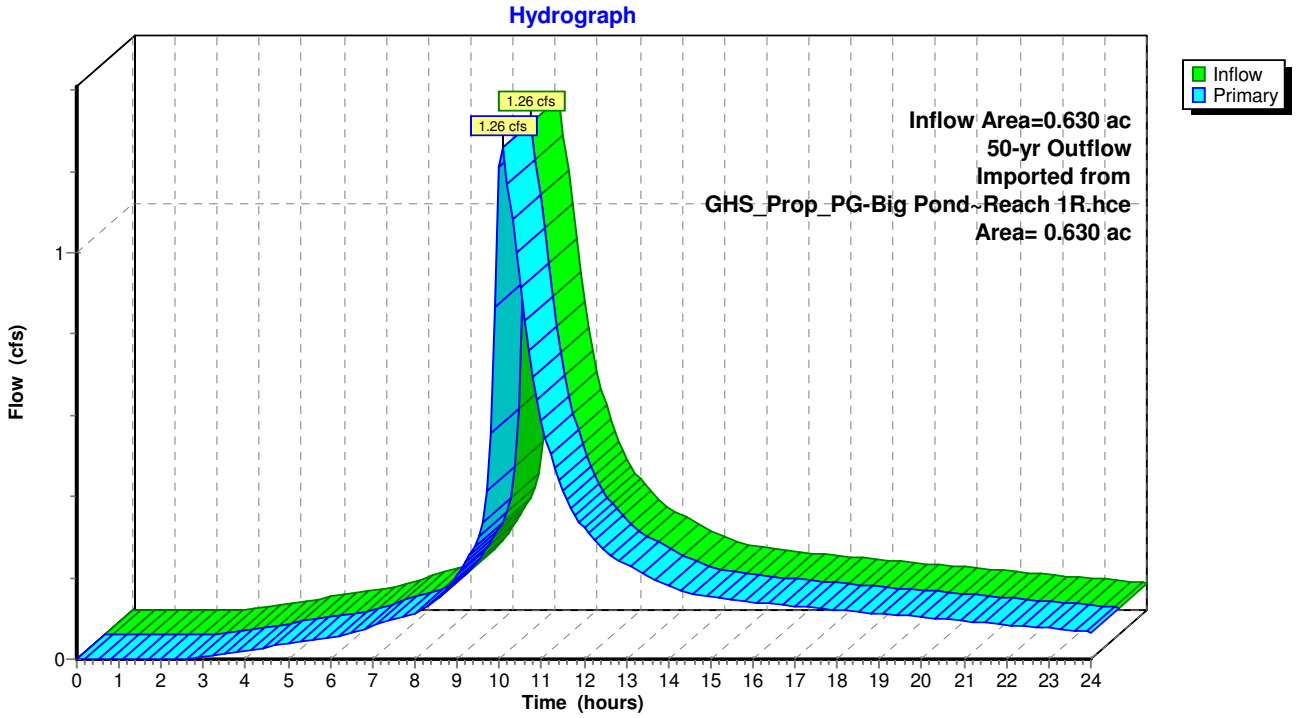
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 5.96" for 50-yr event
Inflow = 1.26 cfs @ 10.08 hrs, Volume= 0.313 af
Primary = 1.26 cfs @ 10.08 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

50-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



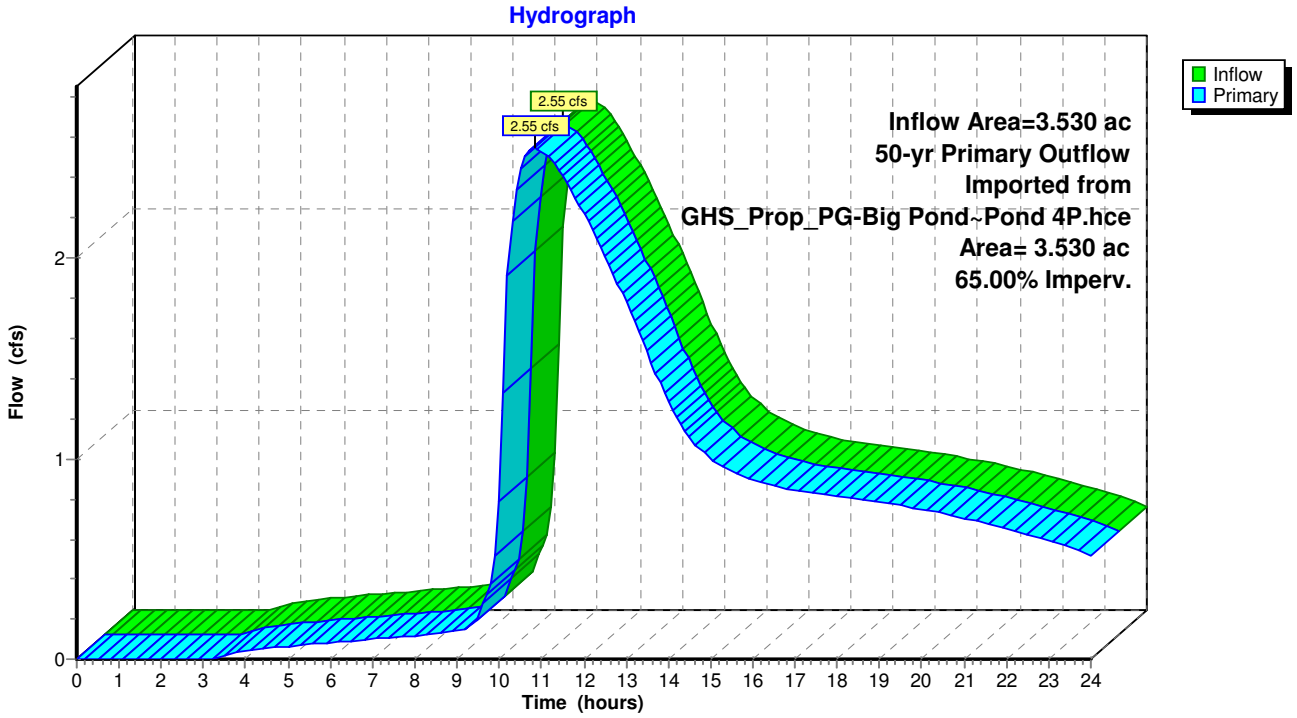
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 4.72" for 50-yr event
Inflow = 2.55 cfs @ 10.85 hrs, Volume= 1.389 af
Primary = 2.55 cfs @ 10.85 hrs, Volume= 1.389 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

50-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



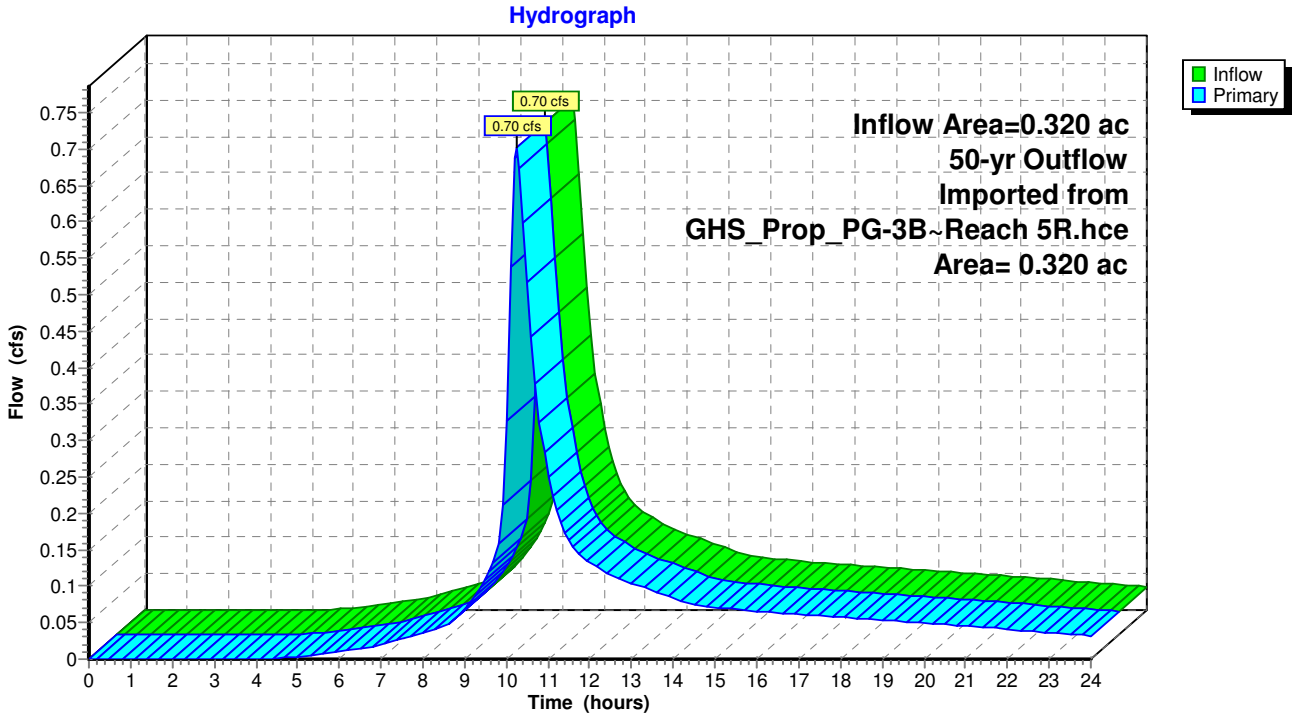
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 5.04" for 50-yr event
Inflow = 0.70 cfs @ 10.24 hrs, Volume= 0.134 af
Primary = 0.70 cfs @ 10.24 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

50-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

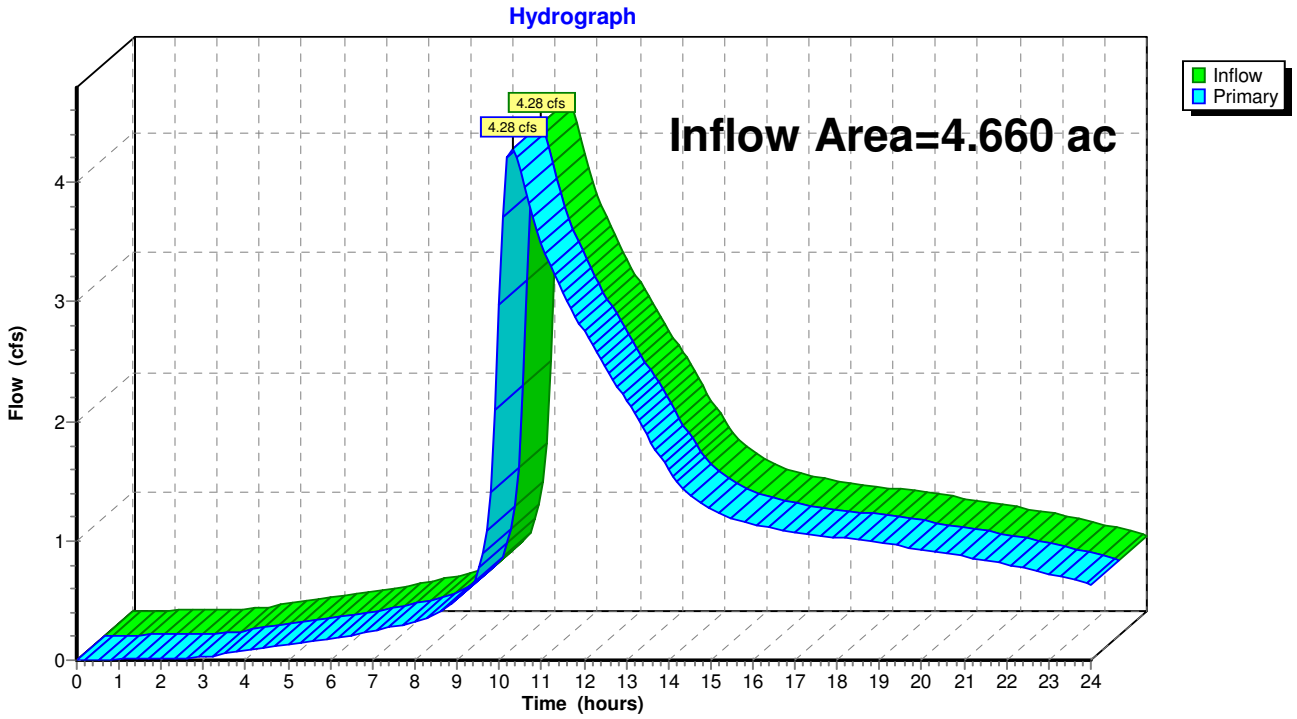


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 5.01" for 50-yr event
Inflow = 4.28 cfs @ 10.30 hrs, Volume= 1.946 af
Primary = 4.28 cfs @ 10.30 hrs, Volume= 1.946 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge



Summary for Subcatchment 6S: 4C

[49] Hint: Tc<2dt may require smaller dt

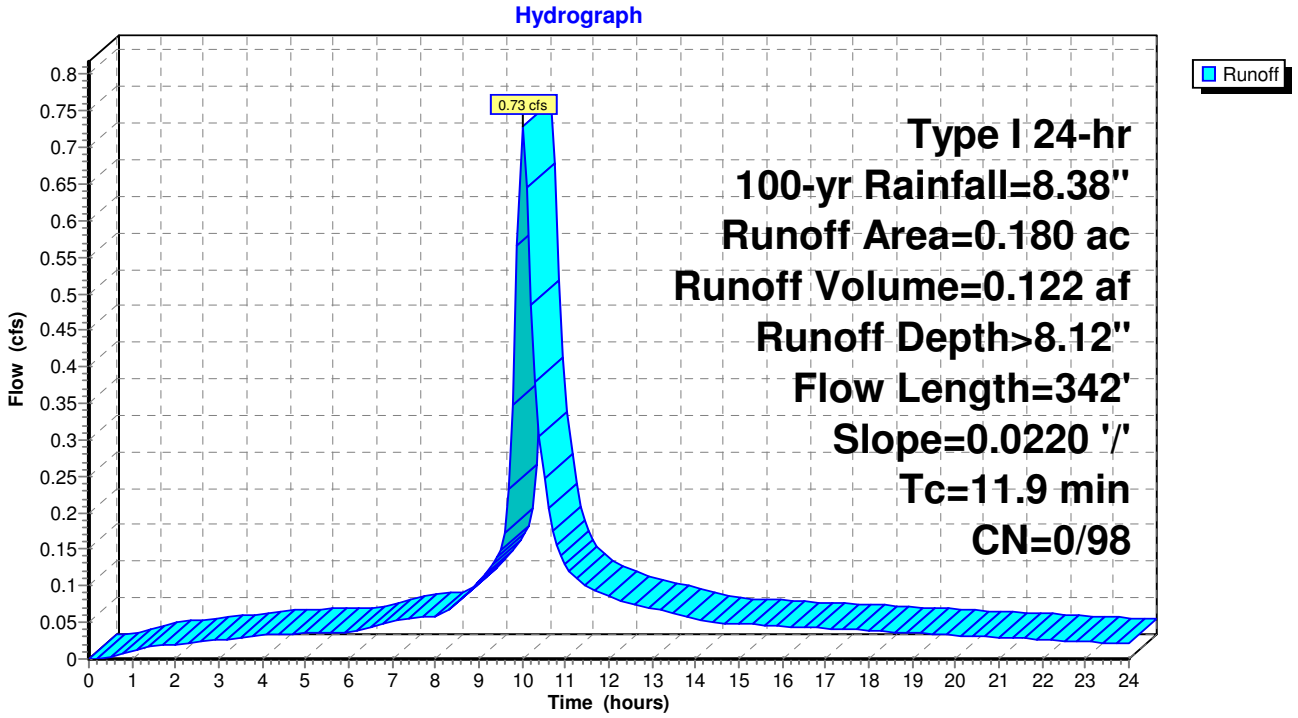
Runoff = 0.73 cfs @ 10.02 hrs, Volume= 0.122 af, Depth> 8.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-yr Rainfall=8.38"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG C
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	342	0.0220	3.01		**Shallow Concentrated Flow, Surface Flow** Paved Kv= 20.3 fps
10.0					**Direct Entry, Lot Time**
11.9	342	Total			

Subcatchment 6S: 4C



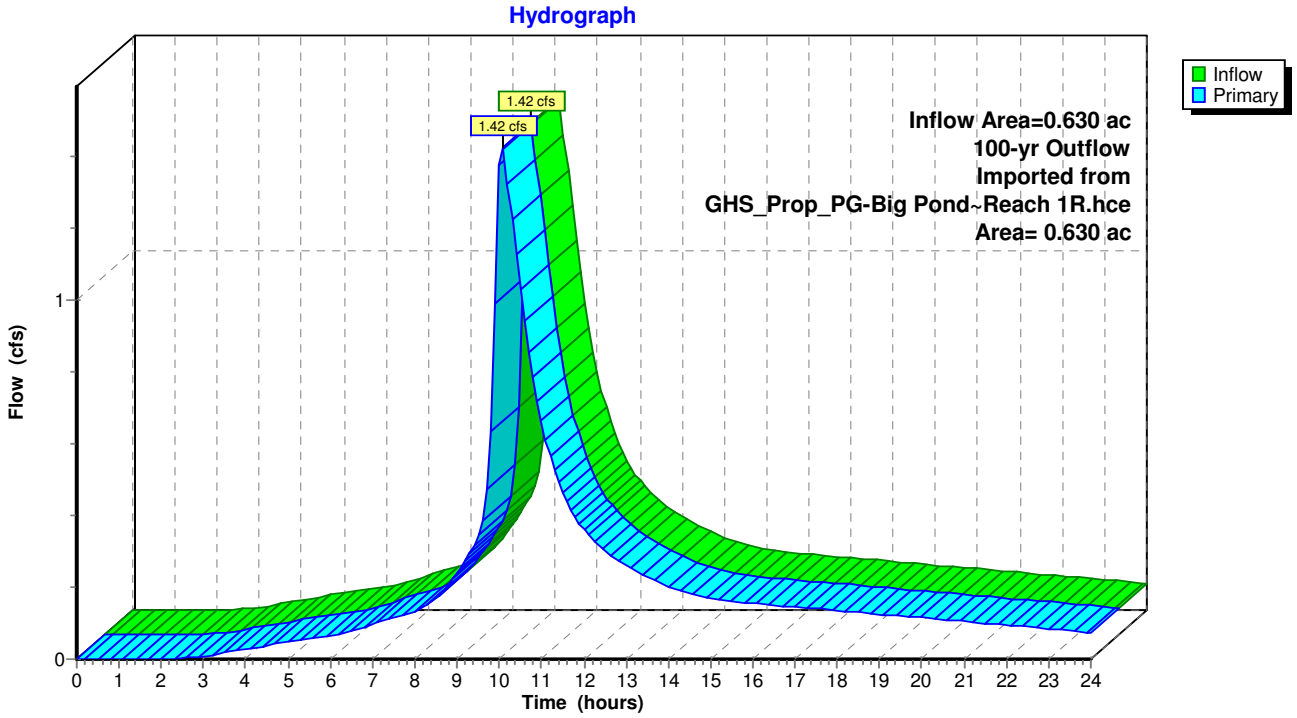
Summary for Link 1A: Offsite Run-on

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth > 6.75" for 100-yr event
Inflow = 1.42 cfs @ 10.08 hrs, Volume= 0.354 af
Primary = 1.42 cfs @ 10.08 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

100-yr Outflow Imported from GHS_Prop_PG-Big Pond~Reach 1R.hce

Link 1A: Offsite Run-on



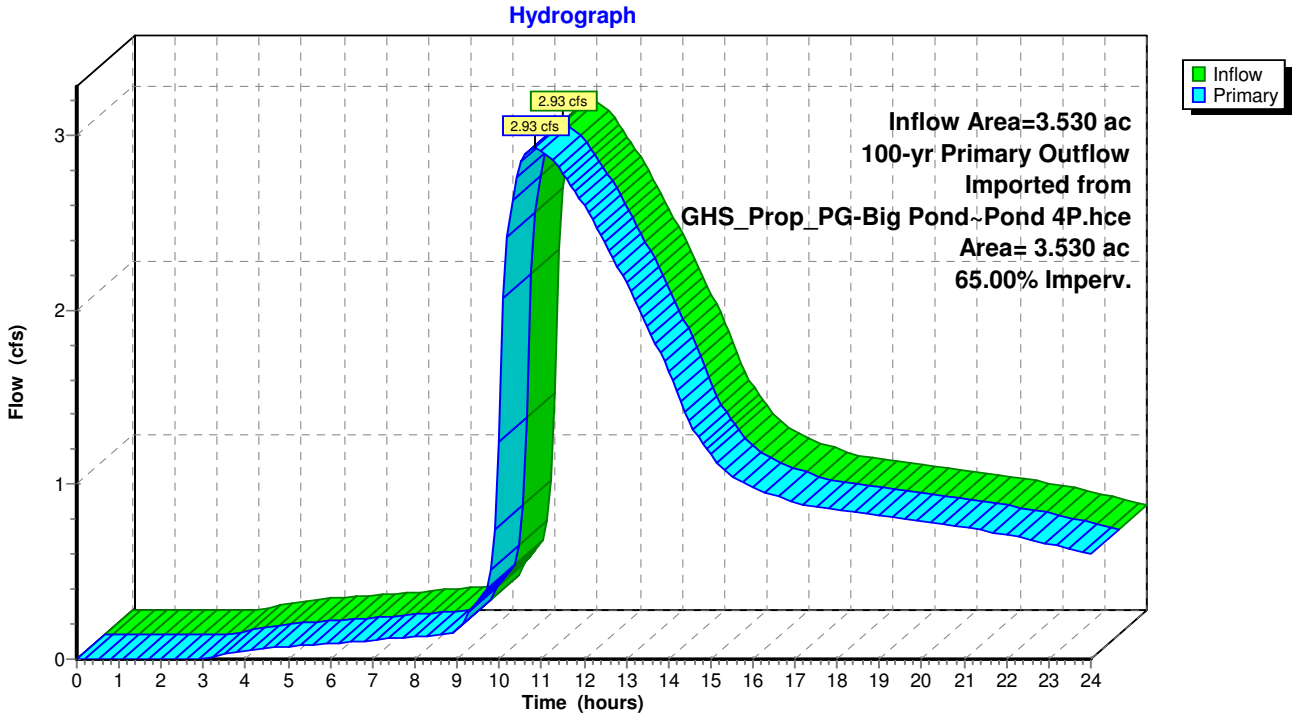
Summary for Link 4P: Modified Pond

Inflow Area = 3.530 ac, 65.00% Impervious, Inflow Depth > 5.46" for 100-yr event
Inflow = 2.93 cfs @ 10.83 hrs, Volume= 1.605 af
Primary = 2.93 cfs @ 10.83 hrs, Volume= 1.605 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

100-yr Primary Outflow Imported from GHS_Prop_PG-Big Pond~Pond 4P.hce

Link 4P: Modified Pond



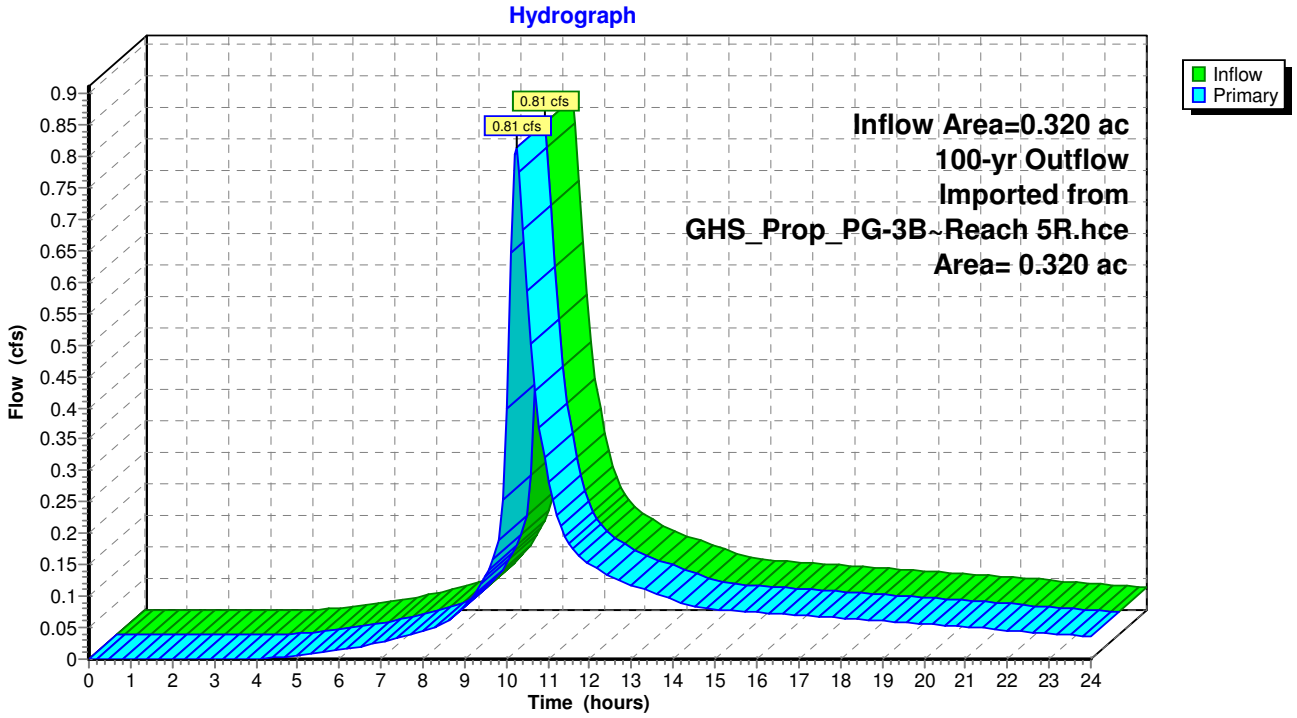
Summary for Link 5L: 3B

Inflow Area = 0.320 ac, 0.00% Impervious, Inflow Depth > 5.79" for 100-yr event
Inflow = 0.81 cfs @ 10.24 hrs, Volume= 0.154 af
Primary = 0.81 cfs @ 10.24 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

100-yr Outflow Imported from GHS_Prop_PG-3B~Reach 5R.hce

Link 5L: 3B

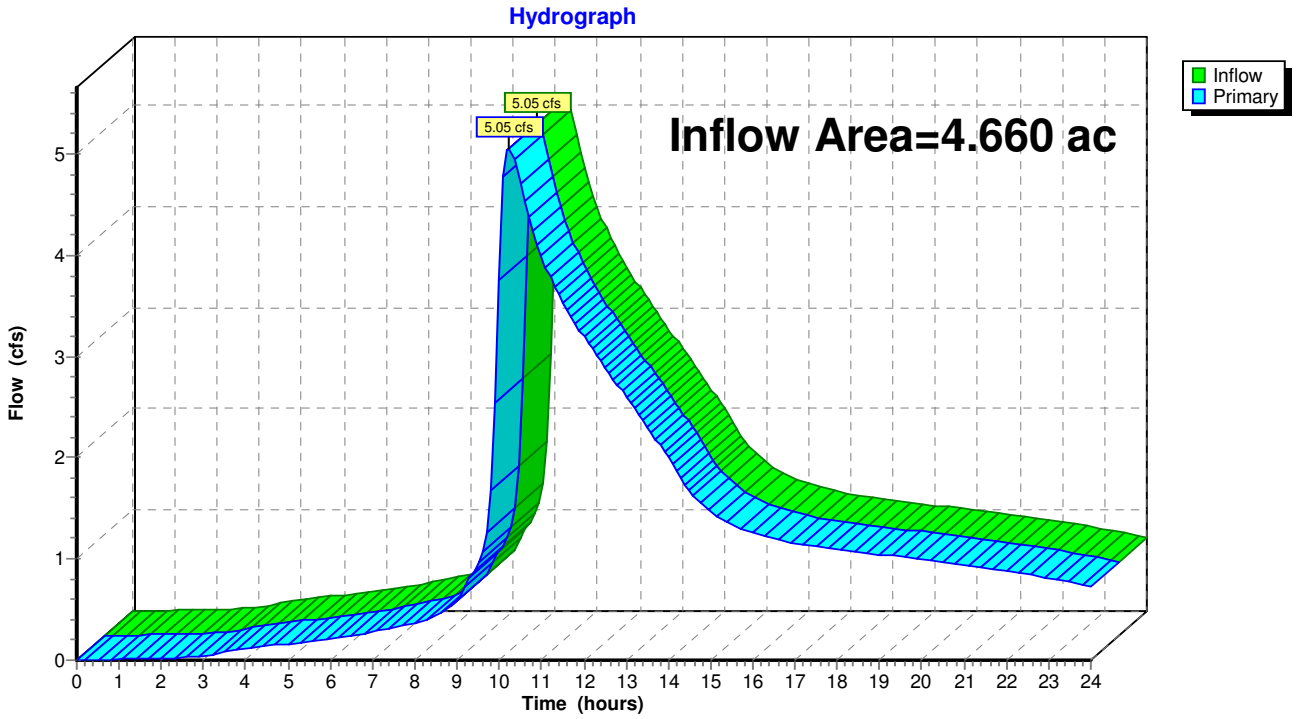


Summary for Link 7L: Discharge

Inflow Area = 4.660 ac, 53.10% Impervious, Inflow Depth > 5.76" for 100-yr event
Inflow = 5.05 cfs @ 10.24 hrs, Volume= 2.235 af
Primary = 5.05 cfs @ 10.24 hrs, Volume= 2.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Link 7L: Discharge

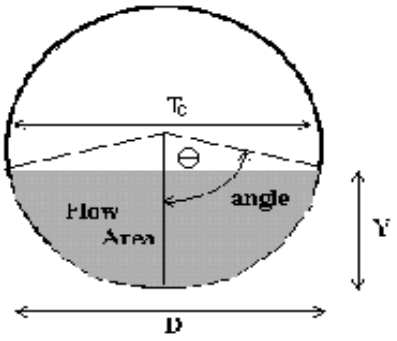


APPENDIX F

Hydraulic Calculations

Circular Pipe Flow

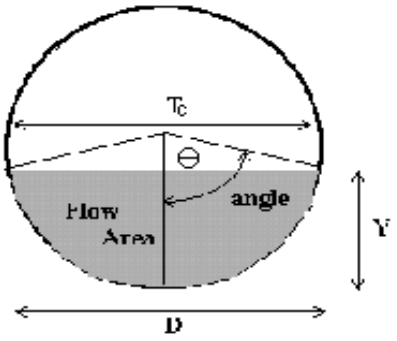
Project: Green Heron Spring
Pipe ID: 8" PVC Pipe



Design Information (Input)			
Pipe Invert Slope	So =	0.0100	ft/ft
Pipe Manning's n-value	n =	0.0110	
Pipe Diameter	D =	8.00	inches
Design discharge	**Q =**	**0.80**	**cfs**
Full-flow Capacity (Calculated)			
Full-flow area	Af =	0.35	sq ft
Full-flow wetted perimeter	Pf =	2.09	ft
Half Central Angle	Theta =	3.14	rad
Full-flow capacity	**Qf =**	**1.4**	cfs
Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	1.64	rad
Flow area	An =	0.19	sq ft
Top width	Tn =	0.67	ft
Wetted perimeter	Pn =	1.09	ft
Flow depth	Yn =	0.36	ft
Flow velocity	Vn =	4.21	fps
Discharge	**Qn =**	**0.8**	**cfs**
Normal Depth Froude Number	**Fr_n =**	**1.39**	
Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	1.84	rad
Critical flow area	Ac =	0.23	sq ft
Critical top width	Tc =	0.64	ft
Critical flow depth	Yc =	0.42	ft
Critical flow velocity	Vc =	3.42	fps
Critical Depth Froude Number	**Fr_c =**	**1.00**	

Circular Pipe Flow

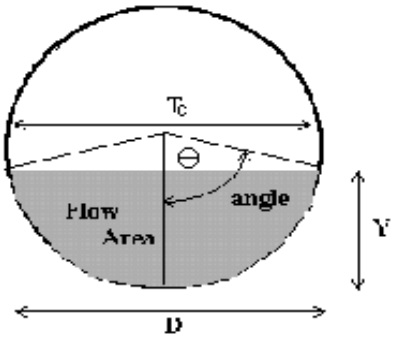
Project: Green Heron Spring
Pipe ID: 12" PVC Pipe



Design Information (Input)			
Pipe Invert Slope	So =	0.0100	ft/ft
Pipe Manning's n-value	n =	0.0110	
Pipe Diameter	D =	12.00	inches
Design discharge	**Q =**	**1.90**	**cfs**
Full-flow Capacity (Calculated)			
Full-flow area	Af =	0.79	sq ft
Full-flow wetted perimeter	Pf =	3.14	ft
Half Central Angle	Theta =	3.14	rad
Full-flow capacity	**Qf =**	**4.2**	cfs
Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	1.51	rad
Flow area	An =	0.36	sq ft
Top width	Tn =	1.00	ft
Wetted perimeter	Pn =	1.51	ft
Flow depth	Yn =	0.47	ft
Flow velocity	Vn =	5.23	fps
Discharge	**Qn =**	**1.9**	**cfs**
Normal Depth Froude Number	**Fr_n =**	**1.53**	
Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	1.75	rad
Critical flow area	Ac =	0.48	sq ft
Critical top width	Tc =	0.98	ft
Critical flow depth	Yc =	0.59	ft
Critical flow velocity	Vc =	3.96	fps
Critical Depth Froude Number	**Fr_c =**	**1.00**	

Circular Pipe Flow

Project: Green Heron Spring
Pipe ID: 18" PVC Pipe



Design Information (Input)			
Pipe Invert Slope	So =	0.0100	ft/ft
Pipe Manning's n-value	n =	0.0110	
Pipe Diameter	D =	18.00	inches
Design discharge	**Q =**	**12.42**	**cfs**
Full-flow Capacity (Calculated)			
Full-flow area	Af =	1.77	sq ft
Full-flow wetted perimeter	Pf =	4.71	ft
Half Central Angle	Theta =	3.14	rad
Full-flow capacity	**Qf =**	**12.5**	cfs
Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	2.26	rad
Flow area	An =	1.55	sq ft
Top width	Tn =	1.16	ft
Wetted perimeter	Pn =	3.39	ft
Flow depth	Yn =	1.23	ft
Flow velocity	Vn =	8.03	fps
Discharge	**Qn =**	**12.4**	**cfs**
Normal Depth Froude Number	**Fr_n =**	**1.22**	
Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	2.46	rad
Critical flow area	Ac =	1.66	sq ft
Critical top width	Tc =	0.95	ft
Critical flow depth	Yc =	1.33	ft
Critical flow velocity	Vc =	7.49	fps
Critical Depth Froude Number	**Fr_c =**	**1.00**	

GRATED DROP INLET INTERCEPTION CAPACITY CALCULATION FOR PROPOSED 24"x24" GRATED INLET ON PROPOSED DRIVEWAY

The Calculation below Used Maximum Ponding Depth at the Inlet of 2 Inch Deep.

Proposed Use of 24"x24" Grated Drop Inlet

For Shallow Ponding Depth, Grate Perimeter controls over Grate Area

Q = Discharge (cfs) = 100-Year Q of 0.8 cfs

(prorated by subdrainage area from the total 100-Year Q of 12.42 cfs for Subarea 2A)

Apply 50% Clogging Factor to the Calculated Perimeter Length

P = L = Inlet Opening Perimeter (ft)

a = Length of Opening (ft)

b = Width of Opening (ft)

Use Weir Equation, $Q = CLH^{1.5}$ where C=3.0 , L = Perimeter of Grate , and H = 1" depth

Hence, $Q = 3.0 \times P \times (0.17)^{1.5}$ or $P = Q / [\, 3.0 \times (0.17)^{1.5}\,]$

					CALCULATED		PROPOSED SIZES	
Hydrology Node No.	Size of Grated Drop Inlet	DESIGN Q (cfs)	P (ft)	P effective (ft)	min. a (ft)	min. b (ft)	a (ft)	b (ft)
Grated Drop Inlet on Driveway	24" x 24"	0.80	3.80	7.61 (Applied 50% Clogging Factor)	1.90	1.90	2.00	2.00
							(Proposed 24" x 24" Grated Drop Inlet can Intercept the 0.8 cfs Runoff)	

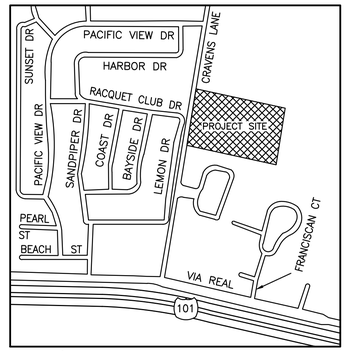
APPENDIX G

Hydrology Maps



LEGENDS:

	DRAINAGE BOUNDARY
	FLOW DIRECTION
	DRAINAGE FLOW PATH
FS / FL / INV	FINISHED SURFACE / FLOW LINE / INVERT
L	LONGEST LENGTH OF FLOW PATH (Feet)
S	SLOPE OF LONGEST FLOW PATH
Tc	TIME OF CONCENTRATION (Minutes)
0.83 AC.	SUBAREA ACREAGE (AC.)
5L 7.6 MIN.	TIME OF CONCENTRATION (MIN.)
3.62 CFS	DESIGN PEAK 100-YR. FLOW (CFS)
	HYDROCAD NODE & CONCENTRATION POINT



VICINITY MAP
NTS

NOTES:

1) COMPLIANCE OF ALL STREET DRAINAGE REQUIREMENTS WILL BE MET TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
2) SITE NOT WITHIN COUNTY ADOPTED FLOODWAY.
3) PORTION OF SITE WITHIN FEMA ZONE "A". SEPARATE CLOMR WILL BE FILED TO REVISE BASE FLOOD ELEVATIONS (BFEs) OR FLOOD DEPTHS.

HYDROLOGIC CHARACTERISTICS SUMMARY

DESIGN RAINFALL FREQUENCY: 2- THROUGH 100-YEAR STORM

24-HOUR RAINFALL AMOUNTS (INCHES):

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
SOUTH COAST	3.20	4.61	5.55	6.71	7.56	8.38

95TH PERCENTILE RAINFALL DEPTH: 2.3 INCHES

SOIL TYPE: SOIL TYPE C

EXISTING LAND USE: SINGLE-FAMILY RESIDENTIAL CN = 79

PROPOSED LAND USE: 31-UNIT MULTI-FAMILY RESIDENTIAL CN = 90 (PRECISE GRADING PHASE)

SUMMARY OF SANTA BARBARA UNIT HYDROGRAPH (SBUH) METHOD HYDROLOGY CALCULATIONS FOR EXISTING PRE-DEVELOPMENT CONDITION:

SUBAREA LOCATION	HYDROCAD NODE	Tc (min.)	AREA (AC)	DESIGN PEAK Q100 (CFS)	RUNOFF VOLUME (AF)	COMMENTS
1A	1S	17	2.54	6.90	1.24	Offsite run-on and majority of the project site flows southerly into the existing pond near the center of the site.
–	2P	–	–	1.03	0.54	Existing pond near the center of the site. Accepts runoff from subarea 1A. Runoff overflows onto driveway along the southerly boundary of the site.
2B	3S	22	1.88	4.46	0.91	Easterly and southerly portion of the site. Runoff surface flows southerly onto driveway along the southerly boundary of the site.
3C	4S	17	0.23	0.63	0.11	Westerly portion of the site. Runoff surface flows southerly onto driveway along the southerly boundary of the site.
–	5L	–	–	5.07	1.56	The southwest corner of the site. Combined runoff from the project site discharges downstream onto Cravens Lane.
		TOTAL:	4.65			

SCALE: 1"=30'
0 15 30 60

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

HYDROLOGY MAP - EXISTING PRE-DEVELOPMENT CONDITION

GREEN HERON SPRING

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
UNITED CIVIL, INC.
30141 AGOURA ROAD, SUITE 215
AGOURA HILLS, CA 91301
PH: (818) 707-8648
FAX: (818) 707-8649

PLANS PREPARED UNDER THE DIRECTION OF:
SIEW HUAT NG R.C.E. 46026 DATE

REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
PROJECT ENGINEER: DATE

SCALE
PROJECT NUMBER

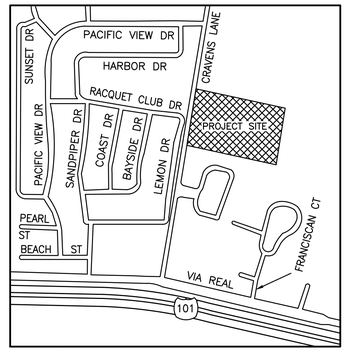
REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2017

Sheet 1 of 1 Sheet



LEGENDS:

- DRAINAGE BOUNDARY
- FLOW DIRECTION
- DRAINAGE FLOW PATH
- FS / FL / INV — FINISHED SURFACE / FLOW LINE / INVERT
- L — LONGEST LENGTH OF FLOW PATH (Feet)
- S — SLOPE OF LONGEST FLOW PATH
- Tc — TIME OF CONCENTRATION (Minutes)
- 0.83 AC. — SUBAREA ACREAGE (AC.)
- 5L / 7.6 MIN. — TIME OF CONCENTRATION (MIN.)
- 3.62 CFS — DESIGN PEAK 100-YR. FLOW (CFS)
- HYDROCAD NODE & CONCENTRATION POINT



VICINITY MAP
NTS

NOTES:

1) COMPLIANCE OF ALL STREET DRAINAGE REQUIREMENTS WILL BE MET TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS.
2) SITE NOT WITHIN COUNTY ADOPTED FLOODWAY.
3) PORTION OF SITE WITHIN FEMA ZONE "A". SEPARATE CLOMR WILL BE FILED TO REVISE BASE FLOOD ELEVATIONS (BFEs) OR FLOOD DEPTHS.

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24-HOUR RAINFALL AMOUNTS (INCHES):

	2-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
SOUTH COAST	3.20	4.61	5.55	6.71	7.56	8.38

95TH PERCENTILE RAINFALL DEPTH: 2.3 INCHES

SOIL TYPE: SOIL TYPE C

EXISTING LAND USE: SINGLE-FAMILY RESIDENTIAL CN = 79

PROPOSED LAND USE: 31-UNIT MULTI-FAMILY RESIDENTIAL CN = 90 (PRECISE GRADING PHASE)

SUMMARY OF SANTA BARBARA UNIT HYDROGRAPH (SBUH) METHOD HYDROLOGY CALCULATIONS FOR PROPOSED POST-DEVELOPMENT CONDITION:

SUBAREA LOCATION	HYDROCAD NODE	Tc (min.)	AREA (AC)	DESIGN PEAK Q100 (CFS)	RUNOFF VOLUME (AF)	COMMENTS
1A	1S	33	0.63	1.46	0.36	Offsite run-on flows southerly onto project site and intercepted by proposed grated inlet.
–	1R	–	–	1.44	0.36	Offsite run-on conveyed by separate underground storm drain pipe and discharge into the proposed 18" RCP outlet south of the modified pond.
2A	2S	14	3.53	12.42	2.10	Majority of the project site. Onsite surface runoff is intercepted by grated inlets and infiltrates thru permeable pavement. Runoff conveyed by proposed underground storm drain pipes and flows southerly into the modified pond near the center of the site.
–	4P	–	–	2.93	1.60	Proposed modified pond at the location of the existing pond. Runoff discharges thru an outlet riser southerly into the proposed 18" RCP outlet. Emergency overflow is provided south of the pond and discharges onto the existing driveway along the southerly project boundary.
3B	5S	16	0.32	0.94	0.16	Easterly and southerly portion of the site. Runoff surface flows southerly onto driveway along the southerly boundary of the site.
–	5R	–	–	0.81	0.15	Runoff surface flows westerly along the driveway to the point of confluence at the southwest corner of the site.
4C	6S	12	0.27	1.10	0.18	Westerly portion of the site. Runoff surface flows southerly onto driveway along the southerly boundary of the site.
–	7L	–	–	5.05	2.24	The southwest corner of the site. Combined runoff from the project site, including surface runoff from Subarea 3B and 4C, and runoffs in the 18" RCP outlet with flows from Subarea 1A (offsite) and Subarea 2A.
		TOTAL:	4.65			

SCALE: 1"=30'
0 15 30 60

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

HYDROLOGY MAP - PROPOSED POST-DEVELOPMENT CONDITION

GREEN HERON SPRING

NO.	REVISION	BY	CHKD.	DATE

CONSULTANT INFORMATION:
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REGISTERED PROFESSIONAL ENGINEER SIEW HUAT NG NO.46026 EXP.12-31-18 CIVIL STATE OF CALIFORNIA

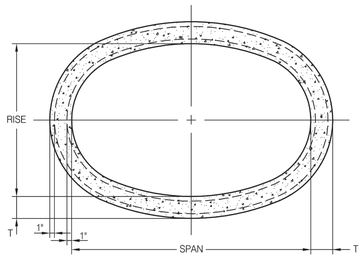
DESIGNED BY: DATE
DRAWN BY: DATE
CHECKED BY: DATE
PROJECT ENGINEER: DATE

SCALE
PROJECT NUMBER

REVIEWED BY: DATE
CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2017

Sheet 1 of 2 Sheet

CONCRETE ELLIPTICAL PIPE DESIGN



TYPICAL CROSS SECTION

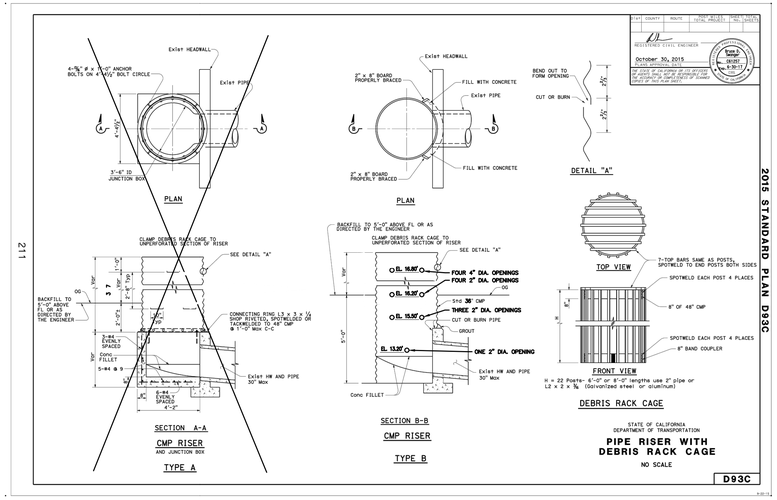
EQUIVALENT SIZE	RISE	SPAN	WATER AREA	WALL T	WT./FT.
INCHES	INCHES	INCHES	SQ. FT.	INCHES	LBS.
18	14	23	1.8	2 3/4	200
24	19	30	3.3	3 1/4	310
30	24	38	5.1	3 3/4	450
36	29	45	7.4	4 1/2	645
42	34	53	10.2	5	835
48	38	60	12.9	5 1/2	1050
54	43	68	16.6	6	1285
60	48	76	20.5	6 1/2	1550
66	53	83	24.8	7	1830
72	58	91	29.5	7 1/2	2130
78	63	98	34.6	8	2475
84	68	106	40.1	8 1/2	2830
90	72	113	46.1	9	3210
96	77	121	52.4	9 1/2	3615
102	82	128	59.2	9 3/4	3930
108	87	136	66.4	10	4265
114	92	143	74.0	10 1/2	4725
132	106	166	99.2	12	5965
144	116	180	118	13	7050

Elliptical pipe is manufactured to standard or special strengths in accordance with ASTM Specifications C507.
Flexible compounds may be used for joint sealant.

Cretex Concrete Products
the shape of solutions

(A) ELLIPTICAL RCP SPECIFICATION

NOT TO SCALE



(B) MODIFIED 36"ø CMP STANDPIPE STRUCTURE

NOT TO SCALE

NO.	REVISION	BY	CHKD.	DATE

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CHARLES W. EBELING, P.E.,
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE NO. 64371 EXP. 6/30/2017

CITY OF CARPINTERIA
DEPARTMENT OF PUBLIC WORKS

DETAILS

GREEN HERON SPRING

Sheet 2 of 2 Sheet

Appendix K

Noise Study

Green Heron Condominium Project
NOISE STUDY

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Green Heron Spring Project
Noise Study

This study is an analysis of the potential noise impacts of a proposed residential development project located at 1300 and 1326 Cravens Lane in the City of Carpinteria. This report has been prepared by Rincon Consultants, Inc. under contract to Green Heron Spring, LLC for use by the City of Carpinteria, in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA). The purpose of this study is to analyze the proposed project's temporary noise impacts associated with construction activity and long-term noise impacts associated with project operation, including the project's potential exposure to roadway noise.

PROJECT DESCRIPTION

The project involves the remodel one existing single family home and construction of 30 new residences on 3.89 acres located at 1300 and 1326 Cravens Lane (Assessor Parcel Number, [APN] 004-013-026). Figure 1 shows the project site location. The 30 residences include 10 flats, 13 new townhouses, and 7 single family homes. The proposed buildings would have a footprint of approximately 37,767 square feet with heights less than 30 feet. Figure 2 shows the layout of the project site.

Proposed parking includes 21 head-in parking spaces and 53 garage parking spaces. Vehicular access to the project site would be provided by an entrance located along Cravens Lane.

Outdoor use areas would include a pavilion, village green, and enhancement of an existing agricultural pond as open space. General landscaping would include trees, grassy areas and bushes.

Construction of the project would take approximately 24 months. Site work, including grading, utilities, and street improvements would take approximately four months. Construction of the buildings would take approximately 20 months, with three separate, but overlapping, phases of 10 units each. Grading of the project would include approximately 1,100 cubic yards (cy) of cut and 3,605 cy of fill, with an anticipated 2,505 cy of imported fill.

The project site is bordered by agriculture (flower packing warehouse, agriculture, and greenhouses) to the north and east and residential uses to the south and west.

SETTING

Overview of Sound Measurement

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Figure 1 Project Location

Figure 2 Project Site Plan

Sound pressure level is measured on a logarithmic scale with the 0 dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the ambient noise level to be judged as twice as loud. In general, a 3 dBA change in the ambient noise level is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while areas adjacent to arterial streets are typically in the 50-60+ dBA range. Normal conversational levels are usually in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA (Federal Transit Administration [FTA] 2006). The manner in which homes in California are constructed generally provides a reduction of exterior-to-interior noise levels of about 25 dBA with closed windows (FTA 2006).

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10 PM to 7 AM) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7 PM to 10 PM and a 10 dBA penalty for noise occurring from 10 PM to 7 AM. Noise levels described by Ldn and CNEL usually do not differ by more than 1 dBA. In practice, CNEL and Ldn are often used interchangeably.

The relationship between peak hourly Leq values and associated Ldn values depends on the distribution of traffic over the entire day. There is no precise way to convert a peak hourly Leq to Ldn. However, in urban areas near heavy traffic, the peak hourly Leq is typically 2-4 dBA lower than the daily Ldn. In less heavily developed areas, such as suburban areas, the peak hourly Leq is often roughly equal to the daily Ldn. For rural areas with little nighttime traffic, the peak hourly Leq will often be 3-4 dBA greater than the daily Ldn value (California State

Water Resources Control Board [CSWRCB] 1999). The project site is located in a suburban area; therefore, the peak hourly Leq at the project site is representative of the daily Ldn value.

Existing Project Area Noise Levels

To determine ambient noise levels at and near the project site, two 15-minute noise measurements were taken during the AM peak hour, between 7:00 AM and 9:00 AM, on August 12, 2016 using an ANSI Type II integrating sound level meter (refer to Appendix A for noise measurement data). See Figure 3 for the locations of these measurements. Table 1 lists the ambient noise levels measured at the locations. The measured noise levels at the project site are consistent with the General Plan noise contours.

Table 1
Project Vicinity Noise Monitoring Results

Measurement Number	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	Leq[15] (dBA)[1]	Lmin (dBA)	Lmax (dBA)
1	Cravens Lane-northwest corner of the project site	7:53 AM – 8:08 AM	Cravens Lane-12 feet	63.5	37.8	90.3
2	Cravens Lane-southwest corner of the project site	8:13 AM – 8:28 AM	Cravens Lane-12 feet	63.3	41.9	82.7

Source: Rincon Consultants, field visit on August 12, 2016 using ANSI Type 2 Integrating sound level meter.
See Appendix A for noise monitoring data
See Figure 3 for a map of Noise Measurement Locations

[1] The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For this measurement the Leq was over a 15-minute period (Leq[15]).

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. The City of Carpinteria General Plan defines noise-sensitive receptors to be land uses that are typically considered sensitive to noise, with the most sensitive uses generally considered residences, schools, churches, hospitals, and convalescent care facilities (City of Carpinteria 2003). These uses are considered sensitive because the presence of excessive noise may interrupt normal activities typically associated with their use. Sensitive receptors in the vicinity of the project site include residential development. The nearest residences are multi-family development to the east and south of the project site. Multi-family development is located approximately 25 feet south of the project site and a mobile home park approximately 100 feet west of the site, across Cravens Lane.

Figure 3 Noise Measurement and Sensitive Receptor Locations

Regulatory Setting

City of Carpinteria General Plan Noise Element

The Noise Element of the Carpinteria General Plan establishes policies to meet noise objectives, including:

Policy N-1a: The City will plan noise-compatible land uses or design developments with noise attenuation features near Highway 101.

Policy N-3a The City will encourage site planning and traffic control measures that minimize the effects of traffic noise.

Per the General Plan, any development that would occur in an area where noise exceeds the normally acceptable level, as shown in Table 2, requires an acoustical study to show the ability of the project to meet state noise insulation standards. The City has adopted the California Noise Insulation Standards (Title 25 California Administrative Code) to ensure an acceptable interior noise level of 45 dBA CNEL in habitable rooms.

Table 2
Acceptable Noise Levels for Residential Land Uses

Land Use	Community Noise Exposure, Ldn or CNEL			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential: Low-Density Single Family, Duplex, Mobile Homes	< 55 dBA	55-70 dBA	70-75 dBA	>75 dBA
Residential: Multiple Family	< 60 dBA	60-70 dBA	70-75 dBA	>75 dBA

Source: City of Carpinteria, 2003.

City of Carpinteria Municipal Code

The City has not adopted quantitative standards for construction noise, roadway, and freeway noise, or point sources. However, Chapter 15.16.170 of the Municipal Code establishes construction hours within the City of Carpinteria to between 7 AM and 8 PM Monday through Friday, between 8 AM and 8 PM on Saturdays, and between 10 AM and 8 PM on Sundays. This prevents the generation of construction noise during regular sleep hours.

IMPACT ANALYSIS

Methodology and Significance Thresholds

The analysis of noise impacts considers the effects of both temporary construction-related noise and long-term noise associated with operation of the project. Impacts would be significant if they would exceed the following thresholds of significance, based on Appendix G of the State CEQA Guidelines:

1. *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;*
2. *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;*
3. *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;*

4. *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;*
5. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or*
6. *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.*

The scope of this study is limited to project related noise impacts. As such, impacts from vibration (CEQA Threshold 2) are not covered in this report. Additionally, the project is located over 15 miles from the nearest airport, Santa Barbara Municipal Airport, therefore noise impacts related to airports (CEQA Thresholds 5 and 6) are not discussed herein. Impacts related to CEQA thresholds 1, 3, and 4 are further discussed below.

Environmental Thresholds Manual

The City of Carpinteria *Environmental Thresholds Manual* (1994) establishes noise thresholds for sensitive uses. Outdoor living areas of noise sensitive uses that are subject to noise levels in excess of 65 dBA Ldn would generally be presumed to be significantly impacted by ambient noise. A significant impact would also occur where interior noise levels cannot be reduced to 45 dBA Ldn or less. The following planning policies also address potential community noise impacts (City of Carpinteria 1994):

- *In the planning of land use, 65 dBA Ldn is regarded as the maximum exterior noise exposure compatible with noise sensitive uses unless mitigation features are included in the project designs.*
- *Noise-sensitive uses proposed in areas where the Ldn is 65 dBA or more should be designed so that interior noise levels attributable to exterior sources do not exceed 45 dBA Ldn when doors and windows are closed. An analysis of the noise insulation effectiveness of proposed construction should be required, showing that the building design and construction specifications are adequate to meet the prescribed interior noise standard.*
- *Residential uses proposed in areas where the Ldn is 65 dBA or more should be designed so that noise levels in exterior living spaces will be less than 65 dBA Ldn. An analysis of proposed projects should be required, indicating the feasibility of noise barriers, site design, building orientation, etc. to meet the prescribed exterior noise standard.*

On-Site Noise (Threshold 1)

In order to determine ambient noise levels at the project site and at nearby sensitive receptors, Rincon Consultants, Inc. took two 15-minute noise measurements (see Figure 3 for noise measurement locations relative to the project site and Table 1, for noise measurement results; see Appendix A for noise measurement data). At each location, consideration was given to site-specific characteristics and the sound level meter was placed away from walls and topographic features. The noise measurements recorded the Leq at each location. As discussed above, in a suburban setting, peak hourly Leq is representative of daily CNEL.

For residences, ambient noise of less than 55 dBA CNEL is clearly acceptable and noise levels of 55-70 dBA CNEL are conditionally acceptable, meaning that the noise environment is acceptable with implementation of appropriate noise controls.

Roadway Noise (Threshold 3)

Noise levels associated with existing and future traffic along area roadways were calculated using the U.S. Department of Transportation Federal Highway Administration's (FHWA) Traffic Noise Model 2.5 (TNM2.5) (FHWA 2004) (noise model data is provided in Appendix B). The analysis of anticipated noise levels from traffic generated by the project is based off of the Traffic and Circulation Study prepared for the project by Associated Traffic Engineers (2016), included in Appendix C. Traffic levels for U.S. 101 were obtained from the CalTrans Traffic Census Program (CalTrans 2015a). The percentage of truck traffic was obtained from traffic counts taken during noise measurements for Via Real and Cravens Lane. Truck traffic percentages for U.S 101 were obtained from the CalTrans Traffic Census Program (CalTrans 2015b).

The FTA has recommended noise criteria related to traffic generated noise. Recommendations contained in the FTA's *Transit Noise and Vibration Impact Assessment* (2006) can be used as guidance to determine whether or not a change in traffic would result in a substantial permanent increase in noise. Under FTA criteria, the allowable noise exposure increase is reduced with increasing existing ambient noise exposure, such that higher ambient noise levels have a lower allowable noise exposure increase. Table 3 shows the recommended allowable increase in traffic related noise levels. Traffic-related noise would have a significant impact if noise levels increased by greater than the FTA recommendation.

Table 3
Significance of Changes in Operational Roadway Noise Exposure

Existing Noise Exposure (dBA Ldn or Leq)	Allowable Noise Exposure Increase (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

Source: Federal Transit Administration. Transit Noise and Vibration Impact Assessment. May 2006

Construction Noise (Threshold 4)

Construction noise estimates are based upon noise levels reported by the FTA, Office of Planning and Environment (FTA 2006), the distance to nearby sensitive receptors, and equipment to be used during each phase of construction. Reference noise levels from that document were then used to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dBA per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Equipment used during construction was obtained from the California Emissions Model (CalEMod) run prepared for the project and divided by stage of construction. Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual construction noise. Construction noise would be significant if it

exceeds 75 dBA CNEL for 12 hours within a 24-hour time period at nearby residences (City of Carpinteria 1994).

Exposure of Project Site to Noise

The most common source of noise in the project site vicinity is traffic on surrounding roads. Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create sustained noise levels. Ambient noise levels would be expected to be highest during the daytime and rush hour unless congestion slows speeds substantially. Existing noise sources within the project vicinity are primarily traffic related. As shown in Figure 1, the project is located on Cravens Lane, approximately 0.17 mile north of U.S. 101. In addition, the Union Pacific Railroad (UPRR) runs approximately 0.2 mile south of the project site. The UPRR generates intermittent noise. Existing train traffic includes both freight and passenger trains.

In addition, the Westland Floral Company, Inc./J&C Farms operates a commercial cut-flower growing and shipping business immediately to the east and north of the project site. Immediately to the south of the project site is a driveway that serves the greenhouses and packing shed to the east. The commercial shipping associated with the agricultural use creates noise through use of the loading docks and heavy trucks traveling to and from the packing house.

Development at the project site would primarily be exposed to traffic noise from Cravens Lane, Via Real and U.S. 101. Additional noise would be created by trucks traveling to and from the cut-flower packing house and during loading and unloading of trucks at the loading docks. Train traffic on the UPRR is not a significant source of noise at the project site due to the distance from the site, the infrequency of train events, and the presence of the highly traveled U.S. 101.

The City of Carpinteria General Plan (2003) provides noise contours in the City, which represent lines of equal noise exposure associated with transportation related noise sources (U.S. 101 and the UPRR) and provide a visualization of sound level estimates. As shown in Figure 4 and Figure 5, the project site is within the 65 dBA noise contour for both 1997 and 2020 noise levels.

To determine ambient noise levels at and near the project site, two 15-minute noise measurements were taken during the AM peak hour, between 7:00 AM and 9:00 AM, on August 12, 2016 using an ANSI Type II integrating sound level meter (refer to Appendix A for noise measurement data). See Figure 3 for the locations of these measurements. Table 4 lists the ambient noise levels measured at the locations. The measured noise levels at the project site are consistent with the General Plan noise contours.

Table 4
Project Vicinity Noise Monitoring Results

Measurement Number	Measurement Location	Sample Times	Distance to Primary Noise Source	Leq[15] (dBA)[1]	Lmin (dBA)	Lmax (dBA)
1	Cravens Lane- northwest corner of the project site	7:53 AM – 8:08 AM	Cravens Lane-12 feet	63.5	37.8	90.3
2	Cravens Lane- southwest corner of the project site	8:13 AM – 8:28 AM	Cravens Lane-12 feet	63.3	41.9	82.7

Source: Rincon Consultants, field visit on August 12, 2016 using ANSI Type 2 Integrating sound level meter.
See Appendix A for noise monitoring data
See Figure 3 for a map of Noise Measurement Locations

[1] The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For this measurement the Leq was over a 15-minute period (Leq[15]).

Figure 4 Existing (1997) Noise Contour

Figure 5 Future (2020) Noise Contour

Ambient exterior noise levels during the peak hour range from 63.3 to 63.5 dBA Leq at the project site. Per the City Carpinteria General Plan, such levels are conditionally acceptable for single and multiple family residences. The project would not expose residents to noise levels that exceed the threshold for outdoor living areas of noise sensitive receptors of 65 dBA Ldn, defined in the City's *Environmental Thresholds Manual* (1994).

Because the Westland Floral Company, Inc./J&C Farms would continue to operate a commercial cut-flower growing and shipping business immediately to the east and north of the project site, with trucks traveling via the driveway immediately south of the project site, residences would periodically be exposed to noise generated by these operations. The nearest residence to the packing house would be setback from the property line by a minimum of 30 feet. This setback, in combination with the County of Santa Barbara Flood Control channel and access road (25 feet), would create an approximately 75 foot separation between the nearest residence and commercial shipping activities, allowing noise to dissipate. In addition, the Conditional Use Permit (CUP) for the commercial shipping operation limits loading dock hours, requires refrigeration units on trucks to be shut down upon entering the property, and prohibits the use of audible radio noise, loudspeakers, or other unnecessary noise from the packing house facility. These conditions would reduce impacts on the project site from the adjacent agricultural and commercial shipping use. Additionally, the project would include a 6 foot high masonry wall along the eastern borders, further reducing noise from trucks and loading dock activities. The combination of distance, CUP conditions, and masonry wall would ensure that periodic noise from agricultural operations does not increase noise levels at the project site above 65 dBA Ldn.

Based on an estimated 25 dBA reduction due to exterior-to-interior attenuation associated with modern residential construction materials and techniques (FTA 2006), the interior noise level at the residences would be about 38 dBA Leq, which is equivalent to 38 dBA CNEL given the suburban nature of the project site vicinity. Therefore, interior noise levels in project site residences would not exceed the 45 dBA CNEL interior standard.

Temporary Construction Noise Impacts

Project construction would last approximately 24 months, with site preparation, utilities, and street improvements taking approximately four months and building construction taking approximately 20 months. Construction would occur in three overlapping phases of 10 units each. Throughout construction, peak noise levels would depend on the types of equipment in operation at any given time and phase of construction. Table 5 shows typical peak noise levels associated with various types of heavy construction equipment expected during each construction phase. Noise levels are based on the FHWA *Highway Construction Noise Handbook* (2006). Peak noise levels associated with the use of individual pieces of heavy equipment can range from about 70 to 89 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FHWA 2006).

Noise sensitive uses near the project site include residences located 50 feet and 100 feet to the west and south. These sensitive land uses may experience a temporary increase in noise during construction activities on the project site. Table 6 shows the maximum expected noise levels at the nearest sensitive receptors, including the specific distances to nearby sensitive receptors described above (50 feet and 100 feet), during different phases of construction. This analysis is representative of worst case conditions because it assumes that all equipment contained on site would operate simultaneously and continuously for at least 70 percent of the workday. While

residences to the south are located approximately 25 feet from the edge of the project site, the majority of construction would occur at 50 feet or more from the adjacent residences. Noise levels are based on a standard noise attenuation rate of 6 dBA per doubling of distance from the highest-volume individual pieces of equipment shown in Table 5.

Construction noise levels could exceed 75 dBA CNEL at the nearest receptors during all phases except architectural coating and would result in a noise increase of more than 5 dBA over the 63.5 dBA Leq ambient noise level during all phases. Construction noise levels would be the greatest during demolition and paving. During these phases, noise levels could reach up to 85 dBA at the residences to the south of the project site and up to 79 dBA at the residences west of the project site. Project construction would conform to construction hours of 7 AM to 8 PM Monday through Friday, 8 AM to 8 PM on Saturdays, and 10 AM to 8 PM on Sundays, thus avoiding the generation of construction noise during regular sleep hours. Nevertheless, mitigation is recommended to minimize construction noise.

Table 5
Typical Noise Levels Generated by Construction Equipment

Equipment	Type	Typical Lmax (dBA) 50 Feet from the Source
Air Compressor	Stationary	81
Augur Drill Rig	Stationary	84
Backhoe	Mobile	80
Compactor (ground)	Mobile	83
Concrete Mixer	Stationary	85
Dozer	Mobile	82
Dump Truck	Mobile	76
Excavator	Mobile	81
Flat Bed Truck	Mobile	74
Front End Loader	Mobile	79
Generator	Stationary	81
Grader	Mobile	83
Jack Hammer	Mobile	88
Paver	Mobile	89
Pickup Truck	Mobile	75
Pneumatic Tools	Stationary	85
Roller	Mobile	80
Saw	Stationary	70
Scraper	Mobile	89
Truck	Mobile	88
Warning Horn	Stationary	83
Welder/Torch	Stationary	74

Source: FHWA, 2006.

Table 6
Construction Noise Levels at Various Distances from Project Construction

Construction Phase	Equipment	Estimated CNEL	
		50 feet	100 feet
Demolition	Concrete Industrial Saw, Excavators, Dozers	85	79
Site Preparation	Dozers, Backhoes	84	78
Grading	Excavator, Dozer, Backhoes, Grader	83	77
Building Construction	Crane, Forklifts, Generator Set, Welder	82	76
Architectural Coating	Air Compressor	72	66
Paving	Cement Mixers, Paver, Paving Equipment, Rollers, Backhoe	85	79

Source: FHWA, 2006

Long-Term Operational Noise Impacts

The project would introduce new residential development on the project site. Existing residences near the project site may periodically be subjected to noise associated with on-site and off-site noise generation. Off-site noise would be generated from increased traffic on area roadways, including Cravens Lane, Via Real, and U.S. 101. On-site noise generation would be typical noise from residential development and would be consistent with nearby development.

Offsite Roadway Noise Impacts

The project would generate traffic on area roadways, thereby increasing vehicle trips as a result of the project. Traffic generated by the project was estimated by Associated Traffic Engineers in the Traffic and Circulation Study prepared for the project (ATE 2016), see Appendix C. Based on the traffic study, the project would generate 201 average daily trips (ADT), including 15 AM peak hour trips and 19 PM peak hour trips. Project generated trips would be distributed amongst area roadways, including Via Real, U.S. 101, and Cravens Lane. As discussed in Methodology, TNM 2.5 was utilized to model noise levels generated by traffic on area roadways. Existing roadway traffic noise levels at the noise measurement locations and sensitive receptors along Via Real and Cravens Lane (see Figure 3) are shown in Table 7.

Table 7
Existing Noise Levels - Modeled

Receptor	Modeled Noise Level (dBA CNEL)
1	64.0
2	65.7
3	64.7
4	78.9
5	78.1

See Appendix A for Noise Measurement Data

See Appendix B for Model Data

See Figure 3 for Noise Measurement and Sensitive Receptor Locations

Noise levels were modeled at the project site, nearby residences, and at measurement locations. Because model-predicted noise is within 2.0 dBA of the measured sound level, it is considered to be representative of noise levels in the area. The project generation of 201 ADT increase traffic on Via Real and Cravens Lane, thereby increasing noise levels. The increase would be considered significant if, as discussed above, the noise increase is in excess of the FTA recommended guideline. Table 8 shows the increase in sound levels due to project generated traffic. Project-generated traffic would marginally increase noise levels at three of the five receptor locations; however the increase would be less than the significance threshold.

Table 8
Existing Plus Project Noise Levels

Receptor	Existing Noise Level (dBA CNEL)	Existing Plus Project Noise Level (dBA CNEL)	Project Increase	Significance Threshold	Significant?
1	64.0	64.9	0.9	2	No
2	65.7	66.5	0.8	1	No
3	64.7	65.2	0.5	1	No
4	78.9	78.9	0.0	0	No
5	78.1	78.1	0.0	0	No

See Appendix B for Model Data

Cumulative development in the project area would incrementally increase noise levels along area roadways. Cumulative noise levels were modeled with and without project-generated traffic, as shown in Table 9. In order for the project to cause a significant cumulative impact, the project would have to cause a significant portion of the increase. As shown in Table 9, development under the cumulative plus project scenario would cause a 0.1 dBA CNEL increase. However, without the project, the cumulative development would still cause the 0.1 dBA CNEL increase. Therefore the project's contribution to the cumulative impact would be less than significant.

Table 9
Cumulative Plus Project Noise Levels

Receptor	Existing Noise Level (dBA CNEL)	Cumulative Noise Level (dBA CNEL)	Cumulative Plus Project Noise Level (dBA CNEL)	Project Increase (Cumulative plus Project – Existing)	Significance Threshold	Significant?
1	64.0	64.0	65.0	1.0	2	No
2	65.7	65.7	66.5	0.8	1	No
3	64.7	64.8	65.2	0.5	1	No
4	78.9	78.9	78.9	0.0	0	No
5	78.1	78.2	78.2	0.1	0	No

See Appendix B for Model Data

On-Site Operational Noise Impacts

On-site operational noise would be similar to the surrounding residential environment. Noise would be generated by human voices in outdoor spaces and car doors slamming. This would be consistent with noise generated at the residences to the south and west of the project site.

Project Noise Recommendations

The project would not expose residents or nearby sensitive receptors to noise levels in excess of City standards. Noise generated by the project would not significantly increase noise levels in the area. No measures are needed to reduce project noise impacts.

Construction Noise Recommendations

Residences on the southern and western sides of the project site could be exposed to noise levels in excess of 74 dBA CNEL during construction. The following are recommendations that would reduce construction noise levels.

- **Construction Hours.** The project should adhere to construction hours between 7:00 AM and 5:00 PM Monday through Friday.
- **Sound Curtains.** A sound curtain should be installed along the southern property line throughout construction in order to reduce noise levels at residences to the south of the project site.
- **Construction Equipment.** Construction equipment should be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. Equipment engine shrouds should be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer should require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions.
- **Vehicle and Equipment Idling.** Construction vehicles and equipment should not be left idling for longer than five minutes when not in use.
- **Acoustical Shielding.** The equipment area with appropriate acoustical shielding should be designated on building and grading plans for each phase. Equipment and shielding should remain in the designated location throughout construction activities. This can change location for each phase of development.
- **Workers Radios.** All noise from workers' radios should be controlled to a point that they are not audible at sensitive receptors near construction activity.

- **Disturbance Coordinator.** A disturbance coordinator should be designated by the contractor. The noise disturbance coordinator should be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator should determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and should require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator should be conspicuously posted at the construction site.

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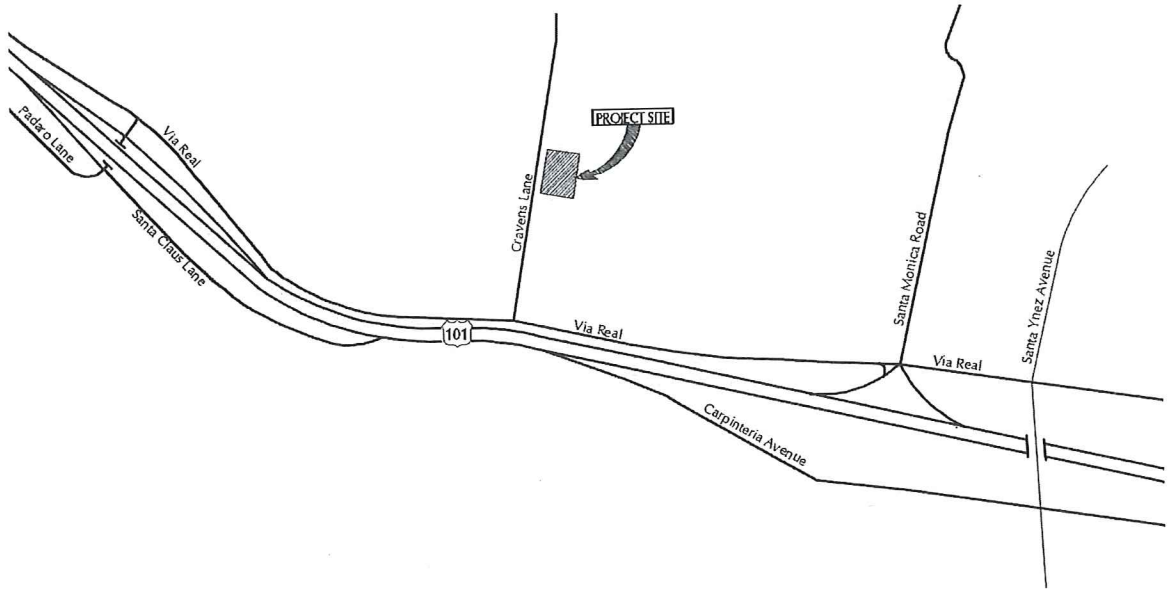
Appendix L

Traffic Study

GREEEN HERON SPRING RESIDENTIAL PROJECT
CITY OF CARPINTERIA, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY



May 26, 2017

ATE Project #16058

Prepared for:

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16058R02

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TRAFFIC AND CIRCULATION STUDY
FOR THE GREEN HERON SPRING RESIDENTIAL PROJECT - CITY OF CARPINTERIA, CA

Associated Transportation Engineers (ATE) has prepared the following Traffic and Circulation study for the Green Heron Spring Residential Project proposed on Cravens Lane in the City of Carpinteria. The study evaluates the potential traffic and circulation impacts associated with the project and identifies improvements where required.

Associated Transportation Engineers

Scott A. Schell, AICP, PTP
Principal Transportation Planner

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INTRODUCTION

The following report contains an analysis of the potential traffic impacts associated with the Green Heron Spring Residential Project (the "Project"). The report provides information regarding existing and future traffic conditions within the Project study-area. The report also contains an evaluation of the proposed site access and circulation plan.

PROJECT DESCRIPTION

The Project is proposing to develop 30 residential units, including 7 single-family dwellings and 23 townhomes on Cravens Lane in the City of Carpinteria. Figure 1 presents the location of the project site within the City. The existing residence that occupies the site would be retained as part of the Project. Access to the site would be provided via an internal road connection to Cravens Lane. Parking for the Project would be provided with 53 spaces in garages and 21 uncovered parking spaces for a total of 74 spaces. Figure 2 presents the project site plan.

EXISTING CONDITIONS

Street Network

The project site is served by a network of highways, arterial roadways, and collector streets, as illustrated on Figure 1. The following text briefly describes the major components of the street network.

U.S. Highway 101, located south of the site, connects the City of Carpinteria with the Santa Barbara-Goleta area to the north and the Ventura-Oxnard area to the south. U.S. 101 is generally a north-south facility within California, however, the segment within the study-area extends in an east-west direction. U.S. 101 provides regional access to the project site via the U.S. 101 northbound on- and off-ramps at Santa Monica Road, and the U.S. 101 southbound on- and off-ramps at Padaro Lane.

Via Real, located south of the project site, is a 2-lane primary road paralleling the freeway as a frontage road. The street extends between Carpinteria and Summerland along the north side of U.S. 101.

Santa Monica Road, located east of the project site, is a 2-lane north-south collector street that extends north from Via Real and the US 101 NB ramps. Santa Monica Road is controlled by a stop-sign at the Via Real intersection. The road serves residential and rural land uses north of the city.



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EXISTING STREET NETWORK AND PROJECT LOCATION

FIGURE 1

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Project Summary

Total Site Area:	± 3.89 Acres
Total Units:	31 Homes • (10) Flats • (13) Townhomes • (7) Single Family Detached Homes • (1) Existing SFD to be Remodeled
Density:	8.0 Homes per Acre
Parking:	
Required:	73 Spaces (2.35 spaces per home) • (24) 2+ Bdrm TH x 2.0 Spaces = 48 Spaces • (7) 2+ Bdrm SFD x 2.0 Spaces = 14 Spaces • (31) Guest x 0.33 Spaces = 11 Spaces
Provided:	74 Spaces (2.39 spaces per home) • Garage: 53 Spaces • Head In: 21 Spaces (9' x 18')
Bedrooms:	81 Total Bedrooms • Plan 1 2 Bdrm x 4=8 • Plan 1X 2 Bdrm x 4=8 • Plan 2 3 Bdrm x 4=12 • Plan 3 3 Bdrm x 5=15 • Plan 4 3 Bdrm x 6=18 • Plan 5 3 Bdrm x 4=12 • Plan 6 4 Bdrm x 1=4 • Plan 7 0 Bdrm (Pavillion) • Plan 8 2 Bdrm x 1=2 • Plan 8X 2 Bdrm x 1=2
Building Footprint Area:	43,636 SF
Total Livable Area:	57,926 SF
Total Gross Area:	69,929 SF (Livable+Garages)
Gross Area- Previous Plan:	66,436 SF
Oak Trees to Remain:	◎
Accessible Units:	ADA
Affordable Units:	(Aff.)

Notes:
1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information.
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

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PROJECT SITE PLAN

FIGURE 2

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Cravens Lane located just west of the project site, is a 2-lane north-south secondary roadway that extends about 1 mile north from Via Real to Foothill Road. The roadway provides access to the Project site.

Padaro Lane, located southwest of the project site, is a 2-lane secondary roadway that extends 2 miles from Via Real to Lillie Avenue. The roadway provides access to the only connection between the northwestern and southwestern areas of the City of Carpinteria.

Santa Claus Lane is a two lane primary roadway that extends about half-a-mile from Padaro Lane to the U.S. 101 southbound on-ramp.

Roadway Operations

Figure 3 shows the Existing average daily traffic (ADT) volumes for the key study-area roadway segments. Existing roadway volumes were obtained from count data collected by ATE in July 2016 and May 2013 (count data contained in the Technical Appendix for reference). The operational characteristics of the study-area roadways were analyzed based on the County of Santa Barbara's "Acceptable Capacity" rating system for the Toro Canyon Plan (roadway capacities are summarized in the Technical Appendix for reference). Table 1 shows the Existing ADT volumes and the County's Acceptable Capacity thresholds for study-area roadways.

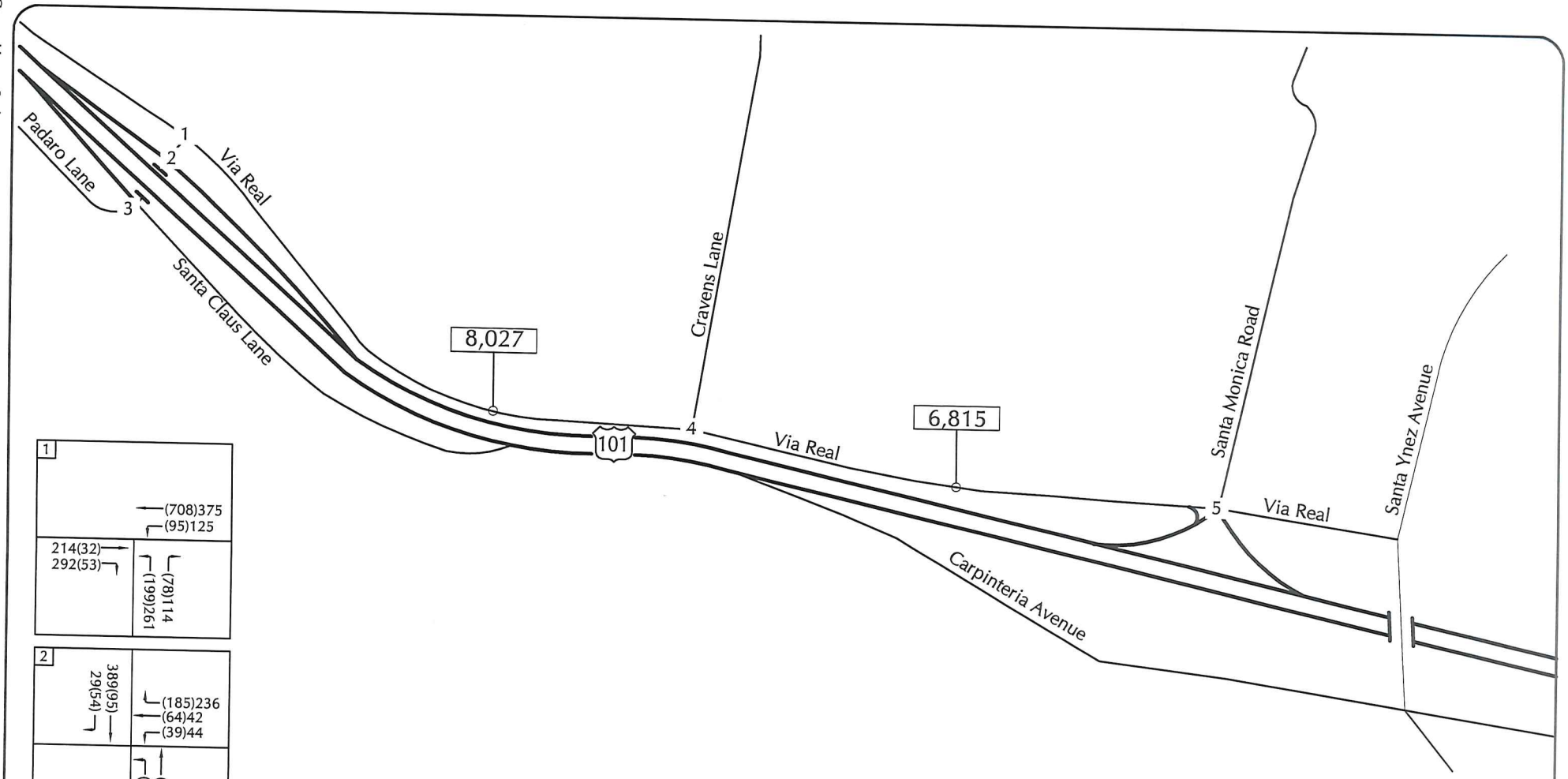
Table 1
Existing Roadway Operations

Intersection	Roadway Classification	Geometry	Acceptable Capacity	Existing ADT
Via Real w/o Cravens Lane	Primary Arterial	2 Lanes	10,990	8,027
Via Real e/o Cravens Lane	Primary Arterial	2 Lanes	10,990	6,815

The data presented in Table 1 show that the study-area roadway segments currently carry traffic volumes within the County of Santa Barbara's Acceptable Capacity ratings.

Intersection Operations

Because traffic flow on urban arterials is most constrained at intersections, detailed traffic flow analyses focus on the operating conditions of critical intersections during peak travel periods. "Levels of Service" (LOS) A through F are used to evaluate intersection operations, with LOS A indicating free flow conditions and LOS F indicating severe congestion (complete LOS definitions contained in Technical Appendix). The City of Carpinteria has adopted LOS C as the minimum acceptable operating standard for intersections.



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EXISTING TRAFFIC VOLUMES

FIGURE 3

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Existing A.M. and P.M. peak hour turning movement counts were conducted at the study-area intersections in January and July 2016 for this study (traffic count data contained in the Technical appendix for reference). Figure 3 presents the Existing traffic volumes. Figure 4 shows the Existing lane geometries and traffic controls for the study-area intersections.

Levels of service were calculated for the study-area intersections using the methodologies outlined in the Highway Capacity Manual (HCM) for signalized and unsignalized intersections.[1] The level of service worksheets are contained in the Technical Appendix for reference. It is noted that City staff requested that the operational analyses of the intersections be based on the peak 15 minutes within the each of the peak hour periods. A Peak Hour Factor (PHF) was therefore applied to the hourly volumes to simulate traffic flows, vehicle delays, and operations experienced during the busiest 15-minute period within each peak hour. City staff also requested that a detailed Synchro analysis be completed for the U.S. 101 NB Ramps-Santa Monica/Via Real intersection. Table 2 presents the existing levels of service for the study-area intersections.

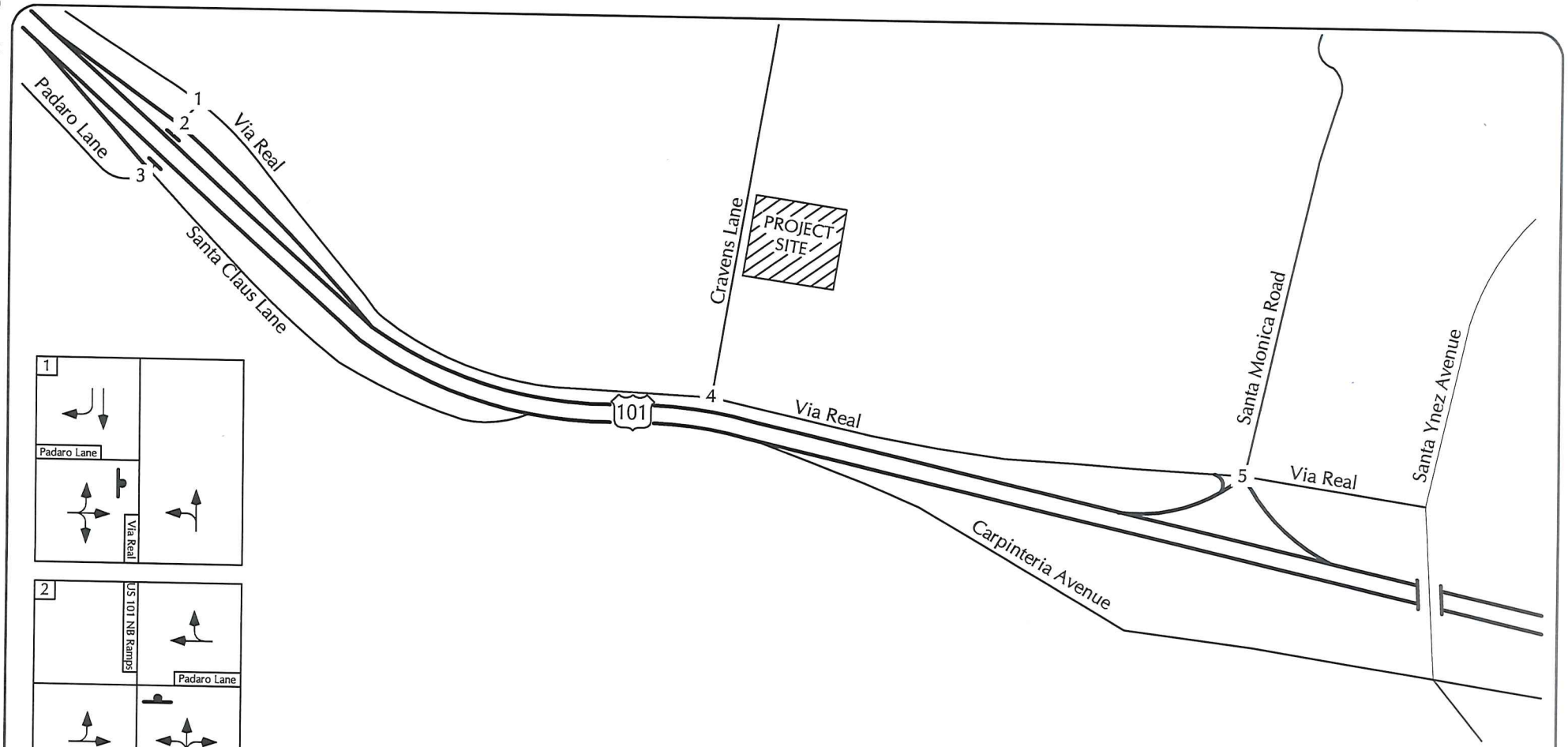
Table 2
Existing Levels of Service

Intersection	Control	A.M. Peak		P.M. Peak	
		Delay	LOS	Delay	LOS
#1 - Padaro Lane/Via Real	Two-Way Stop	17.5 Sec.	C	16.1 Sec.	C
#2 - U.S. 101 NB Ramps/Padaro Lane	Two-Way Stop	7.1 Sec.	A	9.0 Sec.	A
#3 - U.S. 101 SB Ramps-Santa Claus Lane/Padaro Lane	Two-Way Stop	8.3 Sec.	A	8.9 Sec.	A
#4 - Cravens Lane/Via Real	All-Way Stop	16.0 Sec.	C	10.4 Sec.	B
#5 - U.S. 101 NB Ramps-Santa Monica Road/Via Real	All-Way Stop	**40.1 Sec.**	**E**	15.2 Sec.	C

Bolded values exceed City of Carpinteria LOS C operating standard.

The data presented in Table 2 show that most of the study-area intersections currently operate at LOS C or better during the A.M. and P.M. peak hour periods. The all-way stop sign controlled intersection at U.S. 101 NB Ramps-Santa Monica Road/Via Real operates at LOS E during the A.M. peak hour period, which exceeds the City's LOS operating standard. It is noted that the U.S. 101 northbound experiences congestion during the A.M. peak period due to the heavy Ventura to Santa Barbara commute. During this period, vehicles regularly use Santa Monica Road interchange to divert from the freeway to surface streets.

[1] Highway Capacity Manual, Transportation Research Board, 2010.



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EXISTING LANE GEOMETRY AND TRAFFIC CONTROLS

FIGURE 4

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THRESHOLDS OF SIGNIFICANCE

The City of Carpinteria's traffic impact thresholds were used to assess the significance of the traffic additions generated by the proposed project. These thresholds are outlined below.

Project-Specific Impact Threshold

If the addition of project traffic to an intersection increases the volume to capacity (V/C) ratio, the seconds of delay, or the number of trips by more than the values provided in the table below, the impact is considered potentially significant.

Significant Changes in Levels of Service	
Intersection Level of Service (Including Project)	**Increase Greater Than**
LOS A	0.20 V/C Ratio or 10.0 Seconds of Delay
LOS B	0.15 V/C Ratio or 7.5 Seconds of Delay
LOS C	0.10 V/C Ratio or 5.0 Seconds of Delay
LOS D	15 Trips
LOS E	10 Trips
LOS F	5 Trips

Cumulative Impact Threshold

A significant cumulative impact would occur if a development's traffic would utilize a substantial portion of an intersection's capacity where the intersection is currently operating at acceptable levels of service (A-C) but with cumulative traffic would degrade to or approach LOS D or lower. Substantial is defined as a minimum change of 3 seconds of delay for an intersection forecast to operate at LOS D, a minimum change of 2 seconds of delay for an intersection forecast to operate at LOS E, and a minimum change of 1.5 seconds of delay for an intersection forecast to operate at LOS F.

PROJECT-SPECIFIC ANALYSIS

Project Trip Generation

Trip generation estimates were developed for the proposed project using the rates presented in the Institute of Transportation Engineers (ITE) Trip Generation manual for Single-Family Detached Housing (Land-Use #210) and Residential Condominium/ Townhouse (Land-Use #230).[2] Table 3 presents the trip generation forecasts for the project.

[2] Trip Generation, Institute of Transportation Engineers, 9th Edition, 2012.

Table 3
Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips (In/Out)	Rate	Trips(In/Out)
Single-Family	7 Units	9.52	67	0.75	5 (1/4)	1.00	7 (4/3)
Condominium	23 Units	5.81	134	0.44	10 (2/8)	0.52	12 (8/4)
Total	**30 Units**		**201**		**15 (3/12)**		**19 (12/7)**

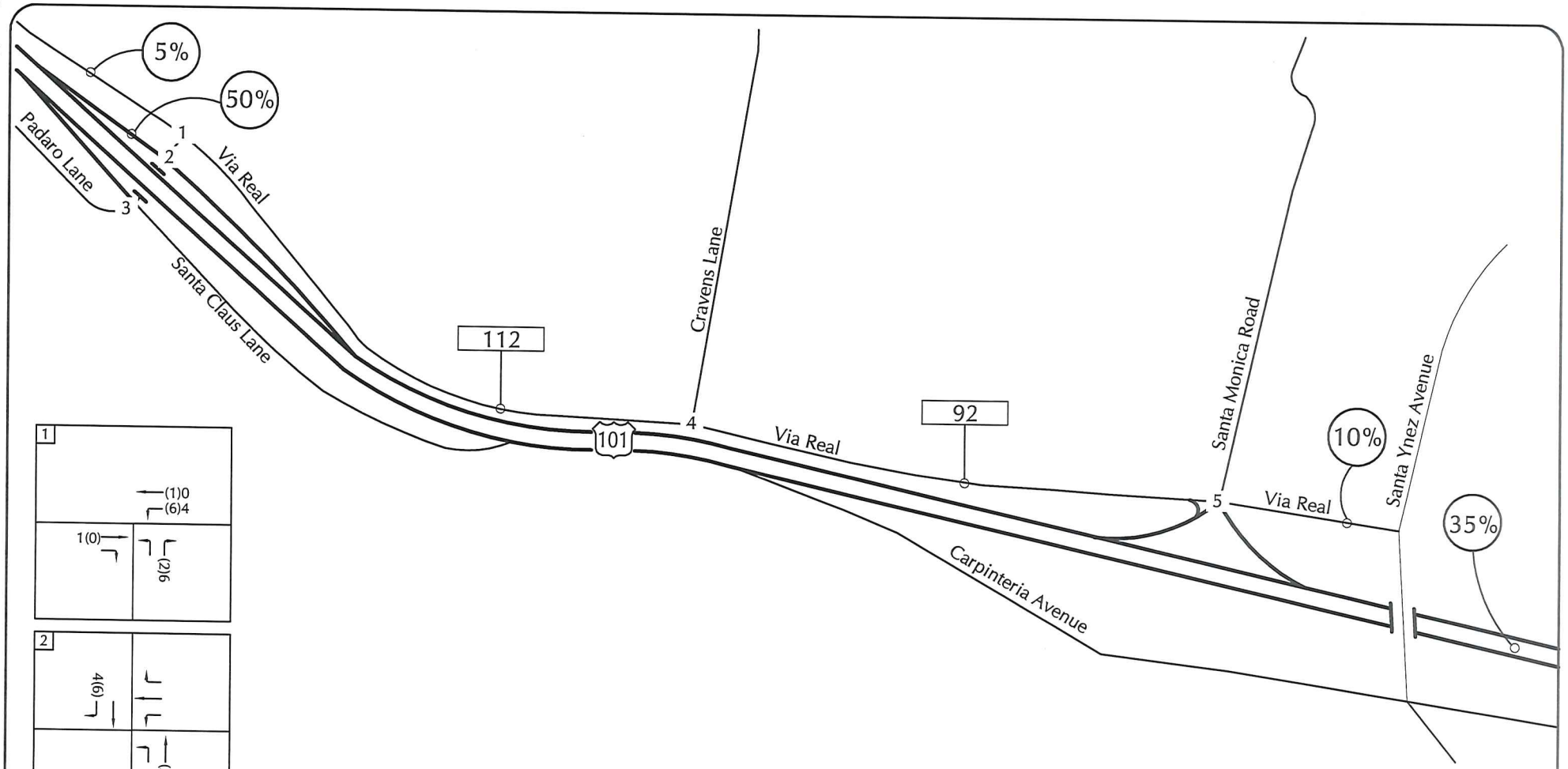
As shown in Table 3, the project is forecast to generate 201 average daily trips, with 15 trips occurring during the A.M. peak hour and 19 trips occurring during the P.M. peak hour. It is noted that the following impact analysis is based on a slightly different mix of units (8 SFD & 22 Condos), which resulted in an increase in 3 ADT and 1 AM peak hour trip. The previous scenario was determined to be more conservative than the final trip generation estimates and is used for the study.

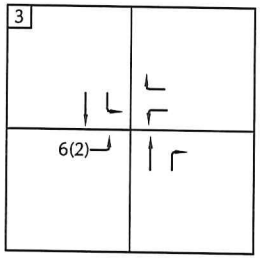
Project Trip Distribution

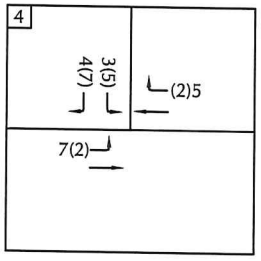
The distribution pattern used for assigning project trips was developed based on existing traffic patterns observed in the study-area and consideration of the land uses in the surrounding area. Table 4 presents the distribution pattern developed for the project. Figure 5 shows the distribution and assignment of project traffic on the study-area street network.

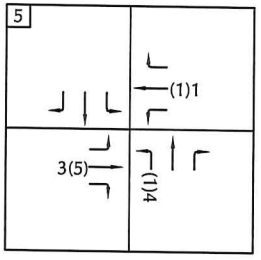
Table 4
Project Trip Distribution

Origin/Destination	Direction	Percentage
U.S. 101	North	50%
	South	35%
Via Real	East	10%
	West	5%
Total		**100%**









LEGEND

(XX)XX - (A.M.)P.M. Peak Hour Volume

% - Distribution Percentage

N

NOT TO SCALE

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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 5

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Existing + Project Roadway Operations

The Existing + Project roadway volumes are shown on Figure 6. Table 5 compares the Existing and Existing + Project roadway operations and identifies project-specific impacts based on City of Carpinteria impact thresholds.

Table 5
Existing + Project Roadway Operations

Intersection	Roadway Classification	Geometry	Acceptable Capacity	Existing ADT	Project Added	Existing + Project	Project Impact?
Via Real w/o Cravens Lane	Primary Arterial	2 Lanes	10,990	8,027	112	8,139	No
Via Real e/o Cravens Lane	Primary Arterial	2 Lanes	10,990	6,405	92	6,497	No

As shown in Table 5, the study-area roadways are forecast to carry volumes within their Acceptable Capacity ratings under Existing + Project conditions. The Project would not generate significant roadway impacts based on the County of Santa Barbara thresholds.

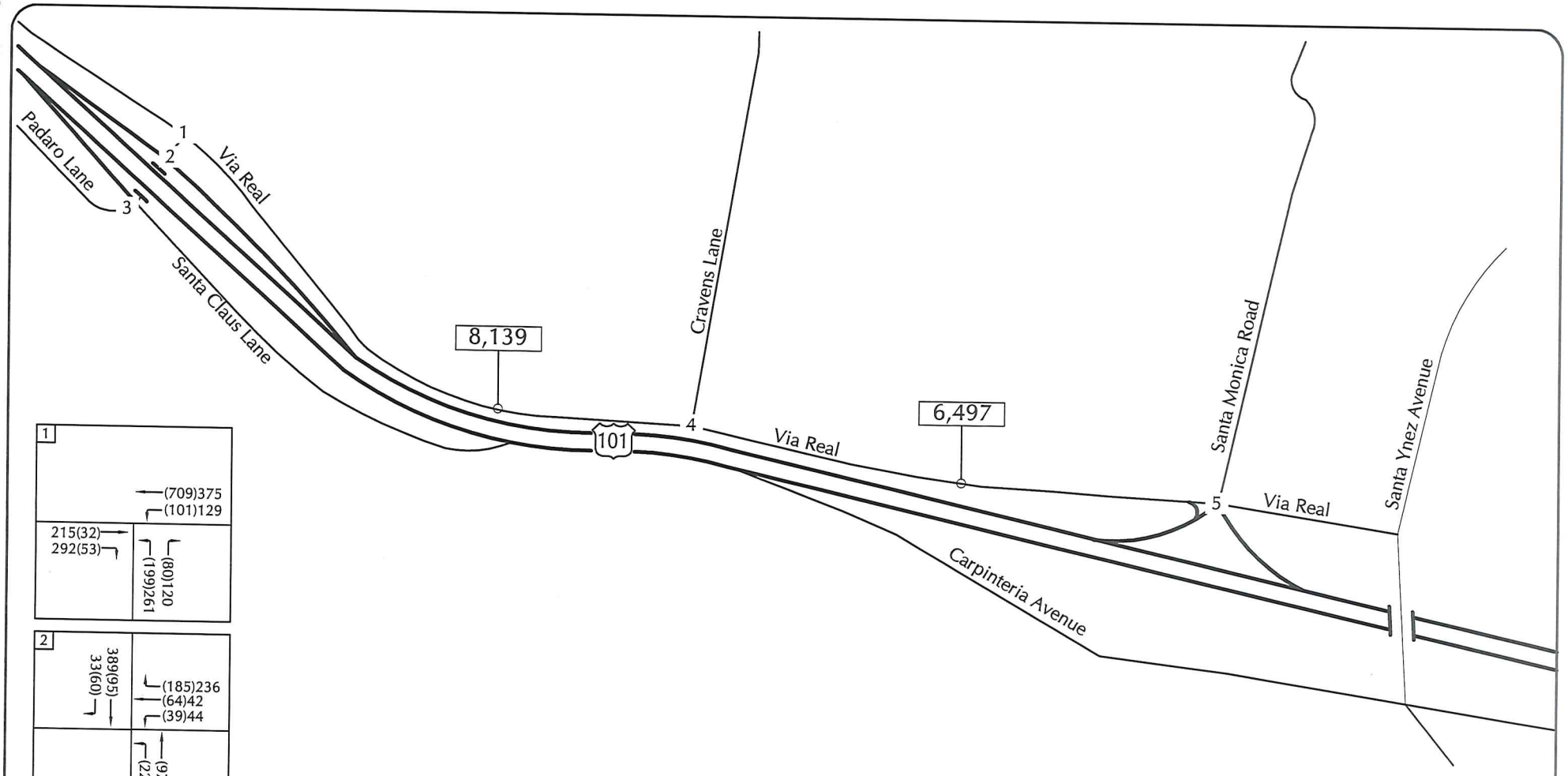
Existing + Project Intersection Operations

Levels of service were calculated for the study-area intersections assuming the Existing + Project traffic volumes shown on Figure 6. Tables 6 and 7 compare the Existing and Existing + Project peak hour levels of service and identify the significance of project-added traffic based on City thresholds.

Table 6
Existing + Project A.M. Peak Hour Levels of Service

Intersection	Existing		Existing + Project		Project-Added		Project Impact?
	Delay	LOS	Delay	LOS	Trips	Delay	
#1 - Padaro Lane/Via Real	17.5 Sec.	C	17.8 Sec.	C	9	0.3	No
#2 - U.S. 101 NB Ramps/Padaro Lane	7.1 Sec.	A	7.1 Sec.	A	8	0.0	No
#3 - U.S. 101 SB Ramps-Santa Claus Lane/ Padaro Lane	8.3 Sec.	A	8.3 Sec.	A	2	0.0	No
#4 - Cravens Lane/Via Real	16.0 Sec.	C	16.4 Sec.	C	16	0.4	No
#5 - U.S. 101 NB Ramps-Santa Monica Road/Via Real	**40.1 Sec.**	**E**	**40.4 Sec.**	**E**	**7**	**0.3**	**No**

Bolded values exceed City of Carpinteria LOS C operating standard.



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EXISTING + PROJECT TRAFFIC VOLUMES

FIGURE 6

EKM - ATE#16058

Table 7
Existing + Project P.M. Peak Hour Levels of Service

Intersection	Existing		Existing + Project		Project-Added		Project Impact?
	Delay	LOS	Delay	LOS	Trips	Delay	
#1 - Padaro Lane/Via Real	16.1 Sec.	C	16.2 Sec.	C	11	0.1	No
#2 - U.S. 101 NB Ramps/Padaro Lane	9.0 Sec.	A	9.1 Sec.	A	10	0.1	No
#3 - U.S. 101 SB Ramps-Santa Claus Lane/ Padaro Lane	8.9 Sec.	A	8.9 Sec.	A	6	0.0	No
#4 - Cravens Lane/Via Real	10.4 Sec.	B	10.6 Sec.	B	19	0.2	No
#5 - U.S. 101 NB Ramps-Santa Monica Road/Via Real	15.2 Sec.	C	15.3 Sec.	C	8	0.1	No

Bolded values exceed City of Carpinteria LOS C operating standard.

The data presented in Tables 6 and 7 show that most of the study-area intersections are forecast to continue to operate at LOS C or better during the peak hour periods with Existing + Project traffic volumes. The data presented in Table 6 show that the U.S. 101 NB Ramps-Santa Monica Road/Via Real is forecast to operate at LOS E during the A.M. peak hour period with Existing and Existing + Project traffic volumes. The Project would add 7 peak hour trips to this location which is not considered a significant project-specific impact based on the City's impact thresholds (minimum addition of 10 trips at LOS E).

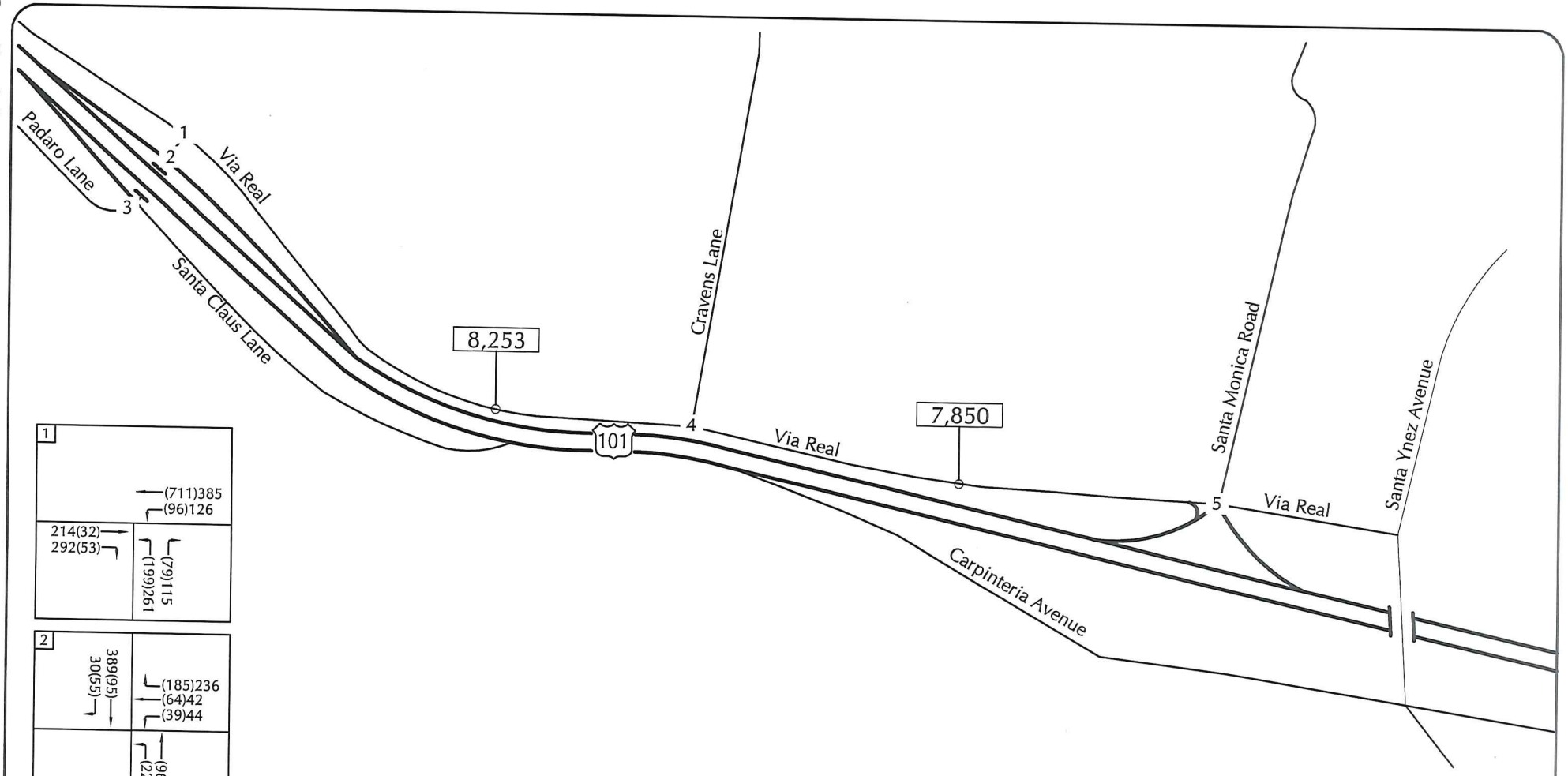
CUMULATIVE ANALYSIS

Cumulative Traffic Volumes

Cumulative traffic volumes were forecast based on a list of approved and pending projects located in Carpinteria provided by City staff. The cumulative analysis also accounts for the approved and pending projects located in the Santa Barbara County area west of the site. Copies of the approved and pending project lists are contained in the Technical Appendix for reference. Trip generation estimates were developed for the approved and pending projects using rates contained in the ITE Trip Generation report. The traffic volumes generated by the approved and pending projects were then assigned to the study-area roadway network and added to the Existing traffic volumes. The resulting Cumulative traffic volumes are presented on Figure 7, and the Cumulative + Project traffic volumes are shown on Figure 8.

Cumulative + Project Roadway Operations

Table 8 compares the Cumulative and Cumulative + Project roadway operations and identifies cumulative impacts based on the City/County impact thresholds.



LEGEND

└(XX)XX - (A.M.)P.M. Peak Hour Volume

X - Average Daily Traffic Volume

N
NOT TO SCALE

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CUMULATIVE TRAFFIC VOLUMES

FIGURE 7

EKM - ATE#16058



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CUMULATIVE + PROJECT TRAFFIC VOLUMES

FIGURE 8

EKM - ATE#16058

Table 8
Cumulative + Project Roadway Operations

Intersection	Roadway Classification	Acceptable Capacity	Cumulative	Project Added	Cumulative + Project	Project Impact?
Via Real w/o Cravens Lane	Primary Arterial	10,990	8,253	112	8,365	No
Via Real e/o Cravens Lane	Primary Arterial	10,990	7,850	92	7,942	No

As shown in Table 8, the study-area roadways are forecast to carry volumes within their Acceptable Capacity ratings under Cumulative + Project traffic conditions. The Project would therefore not contribute to significant cumulative roadway impacts based on City/County thresholds.

Cumulative Intersection Operations

Tables 9 and 10 compare the Cumulative and the Cumulative + Project levels of service for the study-area intersections and identify cumulative impacts based on City thresholds.

Table 9
Cumulative + Project A.M. Peak Hour Levels of Service

Intersection	Cumulative		Cumulative + Project		Project-Added		Project Impact?
	Delay	LOS	Delay	LOS	Trips	Delay	
#1 - Padaro Lane/Via Real	17.6 Sec.	C	17.9 Sec.	C	9	0.3	No
#2 - U.S. 101 NB Ramps/Padaro Lane	7.1 Sec.	A	7.1 Sec.	A	8	0.0	No
#3 - U.S. 101 SB Ramps-Santa Claus Lane/ Padaro Lane	8.3 Sec.	A	8.3 Sec.	A	2	0.0	No
#4 - Cravens Lane/Via Real	16.2 Sec.	C	16.6 Sec.	C	16	0.4	No
#5 - U.S. 101 NB Ramps-Santa Monica Road/Via Real	**41.7 Sec.**	**E**	**42.0**	**E**	**7**	**0.3**	**No**

Bolded values exceed City of Carpinteria LOS C operating standard.

Table 10
Cumulative + Project P.M. Peak Hour Levels of Service

Intersection	Cumulative		Cumulative + Project		Project-Added		Project Impact?
	Delay	LOS	Delay	LOS	Trips	Delay	
#1 - Padaro Lane/Via Real	16.3 Sec.	C	16.4 Sec.	C	11	0.1	No
#2 - U.S. 101 NB Ramps/Padaro Lane	9.0 Sec.	A	9.1 Sec.	A	10	0.1	No
#3 - U.S. 101 SB Ramps-Santa Claus Lane/ Padaro Lane	8.9 Sec.	A	8.9 Sec.	A	6	0.0	No
#4 - Cravens Lane/Via Real	10.5 Sec.	B	10.7 Sec.	B	19	0.2	No
#5 - U.S. 101 NB Ramps-Santa Monica Road/Via Real	17.7 Sec.	C	18.0 Sec.	C	8	0.3	No

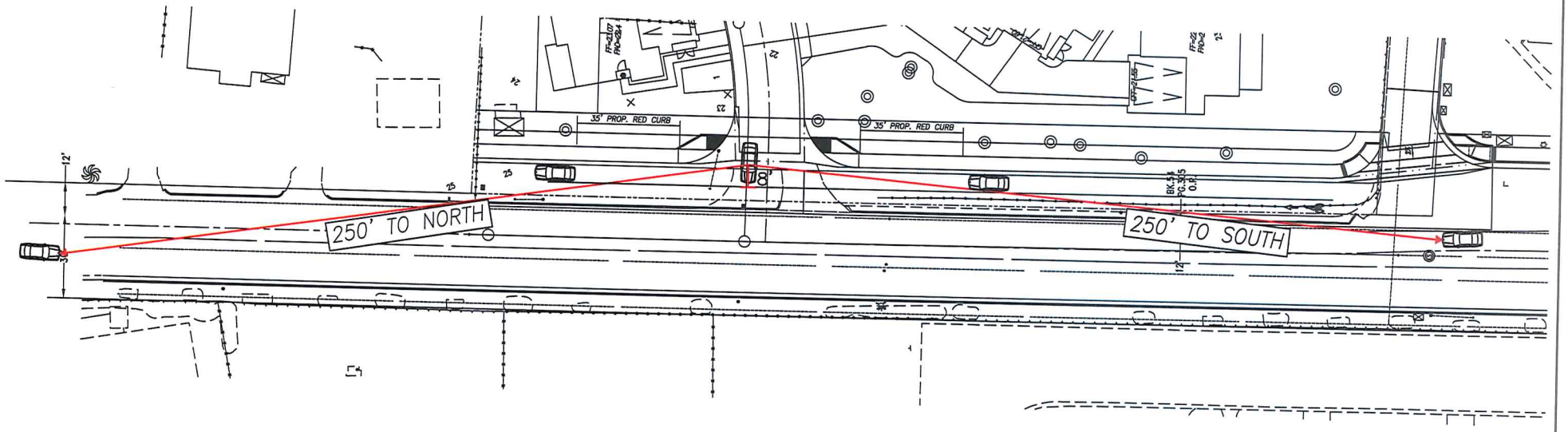
Bolded values exceed City of Carpinteria LOS C operating standard.

The data presented in Tables 9 and 10 show that most of the study-area intersections are forecast to continue to operate at LOS C or better during the peak hour periods with Cumulative and Cumulative+Project traffic volumes. The data presented in Table 9 show that the U.S. 101 NB Ramps-Santa Monica Road/Via Real is forecast to operate at LOS E during the A.M. peak hour period with Cumulative and Cumulative+Project traffic volumes. The project is forecast to add 0.3 seconds of delay to this location which would not be considered a significant cumulative impact based on the City's impact thresholds (minimum added increase of 2 seconds at LOS E).

SITE ACCESS AND CIRCULATION

Access to the site would be provided via an internal roadway connection to Cravens Lane (see Figure 2). The roadway continues as an interior private drive where it narrows to a one-way loop around a common green. An emergency fire access gate is provided that allows access to a private driveway located just south of the site. The private driveway also provides emergency access for the Franciscan Village and the Villas condominium developments located to the south of the project. Levels of service calculations completed for the Project's access roadway intersection with Cravens Lane show that vehicles turning into and out of the site would experience delays in the LOS A-B range (driveway LOS calculation worksheets are contained in the Technical Appendix). The driveway analysis shows that the site access system would accommodate project traffic and not impact operations along Cravens Lane.

Figure 9 shows the available sight distances for drivers exiting the Project driveway on Cravens Lane. ATE evaluated the sight distances at the driveway to determine if the sight lines along Cravens Lane are sufficient in length to permit drivers to anticipate and avoid potential



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PROJECT DRIVEWAY STOPPING SIGHT DISTANCE

FIGURE 9

EKM - #16058

collisions when turning from the Project site. The Caltrans Highway Design Manual[3] sight distance standards were used to determine minimum sight distance requirements at the private driveway. The existing speed limit along Cravens Lane is 35 MPH. The Caltrans stopping sight distance standard for private road driveways is 250 feet for a 35 MPH design speed.

As shown in Figure 9, the Project would improve the Cravens Lane frontage by constructing an 8-foot wide parallel parking zone and a 6-foot wide bike lane along the Project site adjacent to the proposed driveway. The area is currently a curb with no available parking or bike lane. A red curb is proposed to extend 35 feet from the north and south of the project driveway to provide adequate an adequate sight distance for vehicles exiting the driveway. Sight distances were measured from the driver looking to the north and south from the driveway assuming that the driver's eye was 8-feet back from the edge of traveled way at the beginning of the bike lane. As shown, the driver is provided with more than a 250-foot line of sight looking to the north and south which meets Caltrans stopping sight distance standard.

TRAFFIC IMPACT FEES - LONG-TERM INTERSECTION IMPROVEMENTS

The City has established a Development Impact Fee (DIF) mitigation program to collect funds to implement long-term improvements at the U.S. 101 NB Ramps-Santa Monica Road/Via Real intersection. The City is planning on implementing either a roundabout or traffic signal to improve operations at the intersection. The project would be required to contribute to the improvement costs via DIF fees. The long-term improvements developed for this location would provide improved operations compared to the existing all-way stop sign control.

■ ■ ■

3 Highway Design Manual, California Department of Transportation, Sixth Edition, Updated May 2012.

REFERENCES AND PERSONS CONTACTED

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TECHNICAL APPENDIX

CONTENTS:

LEVEL OF SERVICE DEFINITIONS

PROJECT TRIP GENERATION WORKSHEET

TORO CANYON PLAN ROADWAY CLASSIFICATIONS

TRAFFIC COUNT DATA

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Reference 1 Padaro Lane/Via Real
Reference 2 U.S. 101 NB Ramps/Padaro Lane
Reference 3 U.S. 101 SB Ramps-Santa Claus Lane/Padaro Lane
Reference 4 Cravens Lane/Via Real
Reference 5 U.S. 101 NB Ramps-Santa Monica Road/Via Real

DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

CUMULATIVE PROJECT LIST

LEVEL OF SERVICE DEFINITIONS

Signalized Intersection Level of Service Definitions

LOS	Delay (a)	V/C Ratio	Definition
A	< 10.0	< 0.60	Progression is extremely favorable. Most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	10.1 - 20.0	0.61 - 0.70	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20.1 - 35.0	0.71 - 0.80	Only fair progression, longer cycle lengths, or both, result in higher cycle lengths. Cycle lengths may fail to serve queued vehicles, and overflow occurs. Number of vehicles stopped is significant, though many still pass through intersection without stopping.
D	35.1 - 55.0	0.81 - 0.90	Congestion becomes more noticeable. Unfavorable progression, long cycle lengths and high v/c ratios result in longer delays. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1 - 80.0	0.91 - 1.00	High delay values indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent
F	> 80.0	> 1.00	Considered unacceptable for most drivers, this level occurs when arrival flow rates exceed the capacity of lane groups, resulting in many individual cycle failures. Poor progression and long cycle lengths may also contribute to high delay levels.

(a) Average control delay per vehicle in seconds.

Unsignalized Intersection Level of Service Definitions

The HCM[1] uses *control delay* to determine the level of service at unsignalized intersections. Control delay is the difference between the travel time actually experienced at the control device and the travel time that would occur in the absence of the traffic control device. Control delay includes deceleration from free flow speed, queue move-up time, stopped delay and acceleration back to free flow speed.

LOS	Control Delay Seconds per Vehicle
A	< 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	> 50.0

[1] Highway Capacity Manual, National Research Board, 2010

PROJECT TRIP GENERATION WORKSHEET

Associated Transportation Engineers
Trip Generation Worksheet - With In/Out Splits

GREEN HERON SPRING (#16058)																
			ADT		A.M.						P.M.					
Land-Use	Size	Multi-Trip	Rate	Trips	Rate	Trips	In %	Trips	Out %	Trips	Rate	Trips	In %	Trips	Out %	Trips
SINGLE FAMILY DETACHED HOUSING	7	1.00	9.52	67	0.750	5	25%	1	75%	4	1.00	7	63%	4	37%	3
RESIDENTIAL TOWNHOUSE	23	1.00	5.81	134	0.440	10	17%	2	83%	8	0.52	12	67%	8	33%	4
TOTAL	**30**			**201**		**15**		**3**		**12**		**19**		**12**		**7**

TORO CANYON PLAN ROADWAY CLASSIFICATIONS

may be fronted by a mixture of uses and generally carry a lower percentage of through traffic than primaries.

TABLE 9: TORO CANYON ROADWAY CLASSIFICATIONS

Roadway	Segment	Classification	Design Capacity (2-Lane)[2]	Acceptable Capacity (LOS B)
East Valley Rd	Toro Cyn Rd to end of Planning Area	S-3	7,900	5,530
Bella Vista Dr	Ladera Ln to end of Planning Area	S-3	7,900	5,530
Ladera Ln	Bella Vista Dr to East Valley Rd	S-3	7,900	5,530
Toro Cyn Rd	Entire length	S-3	7,900	5,530
Foothill Rd	Toro Cyn Rd to east Planning Area	S-2	9,100	6,370
Nidever Rd	Via Real to Foothill Rd	S-2	9,100	6,370
Cravens Ln	Via Real to Foothill Rd	S-3	7,900	5,530
Padaro Ln	End of Planning Area to Santa Claus Lane	S-3	7,900	5,530
Santa Claus Ln	Padaro Ln to US 101 SB ramp	P-3	15,700	10,990
Via Real	Lambert Rd to Nidever Rd	S-2	9,100	6,370
Via Real	Nidever Rd to end of Planning Area	P-3	15,700	10,990

c. Standards for Determination of Project Consistency:

Purpose: This section defines intersection and roadway standards in terms of level of service, provides methodology for determining project consistency with these standards, and defines how the roadway and intersection standards will be applied in making findings of project consistency with this Plan. The intent of this section is to ensure that roadways and intersections in the Planning Area continue to operate at acceptable levels.

Consistency Standards for Primary Roadways (P-1 through P-3)

1) *For Primary roadway segments, a project is considered consistent with this section of the Plan where the Estimated Future Volume does not exceed the Acceptable Capacity.*

[2] Same standards as used in the Montecito Community Plan, 1992, pp. 76-7

TRAFFIC COUNT DATA

Prepared by NDS/ATD

VOLUME

Via Real W/o Santa Monica Ave

Day: Thursday
Date: 5/23/2013

City: Carpinteria
Project #: CA13_8044_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,521	3,294	6,815

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		2		8		12:00			46		47		93	
00:15			8		6		14		12:15			46		44		90	
00:30			2		2		4		12:30			57		49		106	
00:45			3	19	1	11	4	30	12:45			52	201	55	195	107	396
01:00			1		1		2		13:00			54		54		108	
01:15			4		2		6		13:15			58		44		102	
01:30			1		1		2		13:30			48		52		100	
01:45			0	6	1	5	1	11	13:45			56	216	35	185	91	401
02:00			2		0		2		14:00			41		28		69	
02:15			0		1		1		14:15			50		40		90	
02:30			1		0		1		14:30			46		44		90	
02:45			1	4	1	2	2	6	14:45			62	199	39	151	101	350
03:00			2		1		3		15:00			52		47		99	
03:15			2		1		3		15:15			68		59		127	
03:30			1		1		2		15:30			93		42		135	
03:45			2	7	2	5	4	12	15:45			77	290	62	210	139	500
04:00			4		0		4		16:00			102		52		154	
04:15			2		0		2		16:15			91		51		142	
04:30			1		3		4		16:30			95		52		147	
04:45			7	14	7	10	14	24	16:45			86	374	53	208	139	582
05:00			10		1		11		17:00			141		46		187	
05:15			9		4		13		17:15			101		62		163	
05:30			10		29		39		17:30			93		51		144	
05:45			16	45	27	61	43	106	17:45			95	430	37	196	132	626
06:00			17		25		42		18:00			77		44		121	
06:15			40		54		94		18:15			43		34		77	
06:30			46		82		128		18:30			53		33		86	
06:45			41	144	89	250	130	394	18:45			53	226	33	144	86	370
07:00			33		59		92		19:00			42		31		73	
07:15			53		58		111		19:15			47		35		82	
07:30			56		81		137		19:30			37		28		65	
07:45			47	189	102	300	149	489	19:45			37	163	28	122	65	285
08:00			43		122		165		20:00			30		28		58	
08:15			49		132		181		20:15			31		24		55	
08:30			34		89		123		20:30			39		27		66	
08:45			49	175	96	439	145	614	20:45			37	137	24	103	61	240
09:00			33		83		116		21:00			17		22		39	
09:15			35		45		80		21:15			24		26		50	
09:30			45		49		94		21:30			14		15		29	
09:45			52	165	39	216	91	381	21:45			13	68	13	76	26	144
10:00			43		35		78		22:00			14		13		27	
10:15			51		38		89		22:15			3		8		11	
10:30			44		40		84		22:30			9		8		17	
10:45			53	191	40	153	93	344	22:45			13	39	12	41	25	80
11:00			48		48		96		23:00			7		2		9	
11:15			45		43		88		23:15			5		6		11	
11:30			58		50		108		23:30			4		2		6	
11:45			46	197	52	193	98	390	23:45			6	22	8	18	14	40
TOTALS				1156		1645		2801	TOTALS				2365		1649		4014
SPLIT %				41.3%		58.7%		41.1%	SPLIT %				58.9%		41.1%		58.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,521	3,294	6,815

AM Peak Hour			10:45	07:45	07:30	PM Peak Hour			17:00	15:45	16:30
AM Pk Volume			204	445	632	PM Pk Volume			430	217	636
Pk Hr Factor			0.879	0.843	0.873	Pk Hr Factor			0.762	0.875	0.850
7 - 9 Volume	0	0	364	739	1103	4 - 6 Volume	0	0	804	404	1208
7 - 9 Peak Hour			07:15	07:45	07:30	4 - 6 Peak Hour			17:00	16:30	16:30
7 - 9 Pk Volume	0	0	199	445	632	4 - 6 Pk Volume	0	0	430	213	636
Pk Hr Factor	0.000	0.000	0.888	0.843	0.873	Pk Hr Factor	0.000	0.000	0.762	0.859	0.850

Prepared by NDS/ATD

VOLUME

Via Real W/O Cravens Lane

Day: Thursday
Date: 7/21/2016

City: Carpinteria
Project #: CA16_8112_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,159	4,868	8,027

AM Period	NB	SB	EB		WB		TOTAL	
00:00			4		1		5	
00:15			4		3		7	
00:30			4		3		7	
00:45			3	15	1	8	4	23
01:00			1		0		1	
01:15			2		2		4	
01:30			1		0		1	
01:45			0	4	0	2	0	6
02:00			1		1		2	
02:15			1		2		3	
02:30			1		0		1	
02:45			4	7	0	3	4	10
03:00			2		0		2	
03:15			2		0		2	
03:30			0		2		2	
03:45			0	4	0	2	0	6
04:00			1		1		2	
04:15			2		1		3	
04:30			1		3		4	
04:45			1	5	3	8	4	13
05:00			3		2		5	
05:15			1		8		9	
05:30			7		20		27	
05:45			4	15	18	48	22	63
06:00			7		31		38	
06:15			18		49		67	
06:30			16		103		119	
06:45			24	65	156	339	180	404
07:00			20		166		186	
07:15			19		174		193	
07:30			18		219		237	
07:45			22	79	211	770	233	849
08:00			26		201		227	
08:15			23		196		219	
08:30			16		185		201	
08:45			25	90	203	785	228	875
09:00			26		174		200	
09:15			36		163		199	
09:30			36		132		168	
09:45			28	126	97	566	125	692
10:00			35		89		124	
10:15			23		75		98	
10:30			32		52		84	
10:45			31	121	45	261	76	382
11:00			41		41		82	
11:15			41		33		74	
11:30			44		48		92	
11:45			53	179	48	170	101	349
TOTALS				710		2962		3672
SPLIT %				19.3%		80.7%		45.7%

PM Period	NB	SB	EB		WB		TOTAL	
12:00			56		52		108	
12:15			55		52		107	
12:30			46		55		101	
12:45			52	209	54	213	106	422
13:00			43		49		92	
13:15			45		34		79	
13:30			52		47		99	
13:45			45	185	29	159	74	344
14:00			57		38		95	
14:15			46		25		71	
14:30			45		43		88	
14:45			44	192	74	180	118	372
15:00			61		73		134	
15:15			47		88		135	
15:30			65		141		206	
15:45			85	258	107	409	192	667
16:00			60		134		194	
16:15			81		99		180	
16:30			90		121		211	
16:45			90	321	81	435	171	756
17:00			93		72		165	
17:15			77		46		123	
17:30			116		34		150	
17:45			96	382	32	184	128	566
18:00			87		32		119	
18:15			94		22		116	
18:30			98		18		116	
18:45			79	358	34	106	113	464
19:00			66		15		81	
19:15			68		12		80	
19:30			41		26		67	
19:45			43	218	17	70	60	288
20:00			31		11		42	
20:15			23		17		40	
20:30			30		10		40	
20:45			27	111	19	57	46	168
21:00			33		11		44	
21:15			32		15		47	
21:30			16		9		25	
21:45			28	109	10	45	38	154
22:00			33		8		41	
22:15			20		15		35	
22:30			16		8		24	
22:45			12	81	3	34	15	115
23:00			3		5		8	
23:15			5		7		12	
23:30			7		1		8	
23:45			10	25	1	14	11	39
TOTALS				2449		1906		4355
SPLIT %				56.2%		43.8%		54.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,159	4,868	8,027

AM Peak Hour			11:45	07:30	07:30
AM Pk Volume			210	827	916
Pk Hr Factor			0.938	0.944	0.966
7 - 9 Volume	0	0	169	1555	1724
7 - 9 Peak Hour			08:00	07:30	07:30
7 - 9 Pk Volume	0	0	90	827	916
Pk Hr Factor	0.000	0.000	0.865	0.944	0.966

PM Peak Hour			17:30	15:30	15:45
PM Pk Volume			393	481	777
Pk Hr Factor			0.847	0.853	0.921
4 - 6 Volume	0	0	703	619	1322
4 - 6 Peak Hour			17:00	16:00	16:00
4 - 6 Pk Volume	0	0	382	435	756
Pk Hr Factor	0.000	0.000	0.823	0.812	0.896

#1

ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

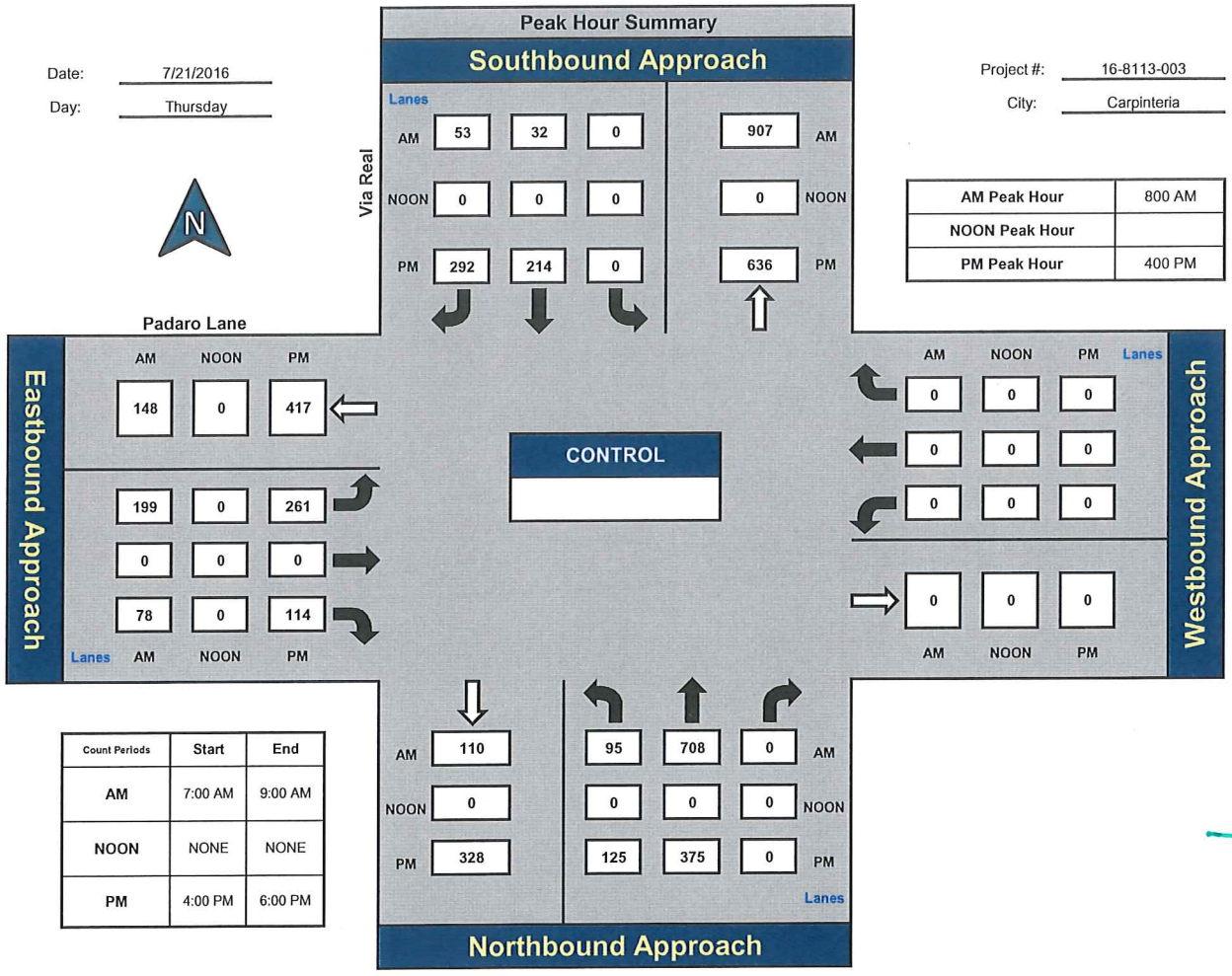
Via Real and Padaro Lane , Carpinteria

Date: 7/21/2016

Day: Thursday

Project #: 16-8113-003

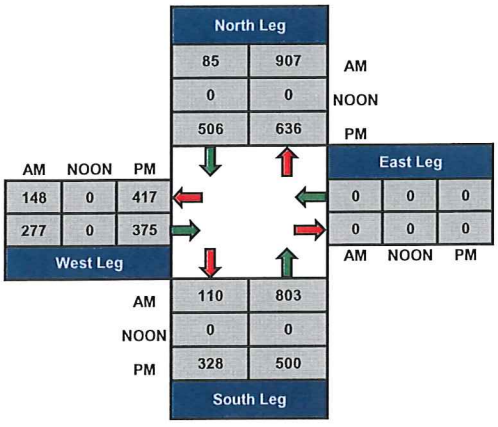
City: Carpinteria



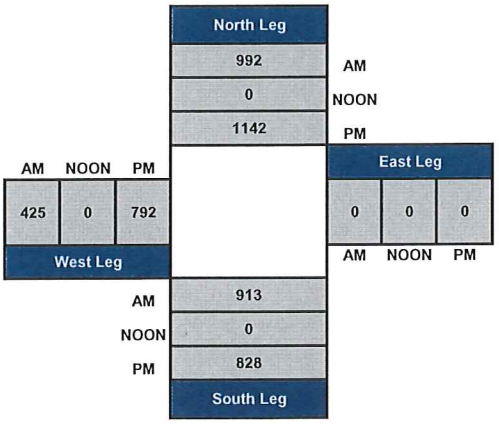
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



#2

ITM Peak Hour Summary

Prepared by:

NDS

National Data & Surveying Services

U.S. 101 NB Ramps and Padaro Lane , Carpinteria

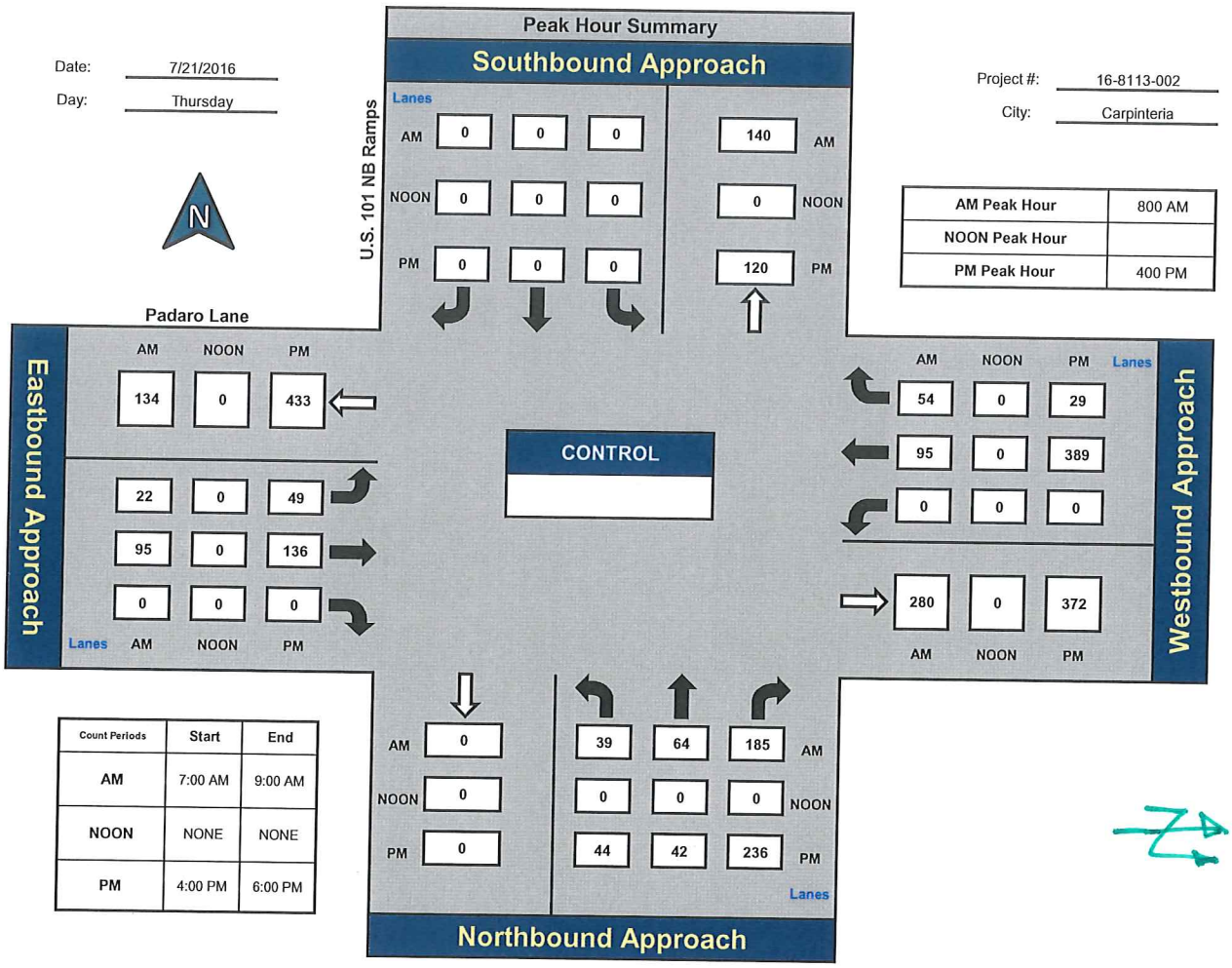
Date: 7/21/2016

Day: Thursday

Project #: 16-8113-002

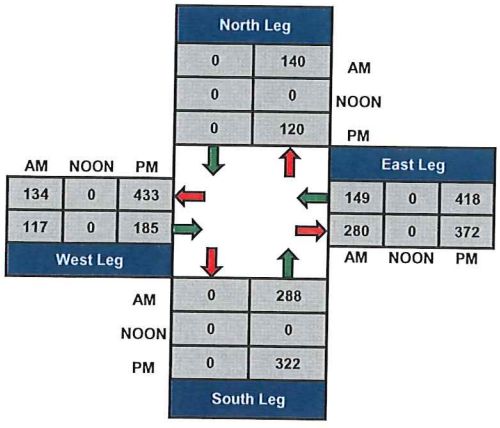
City: Carpinteria

AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	400 PM



Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



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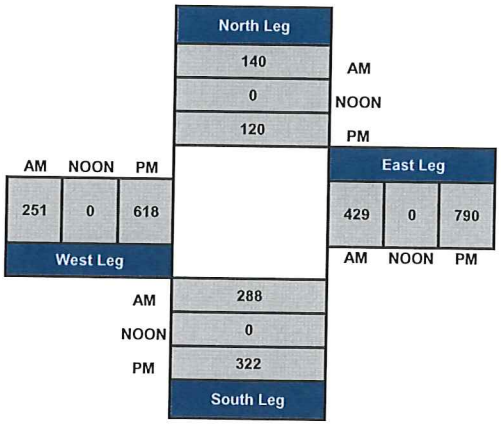


#3

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

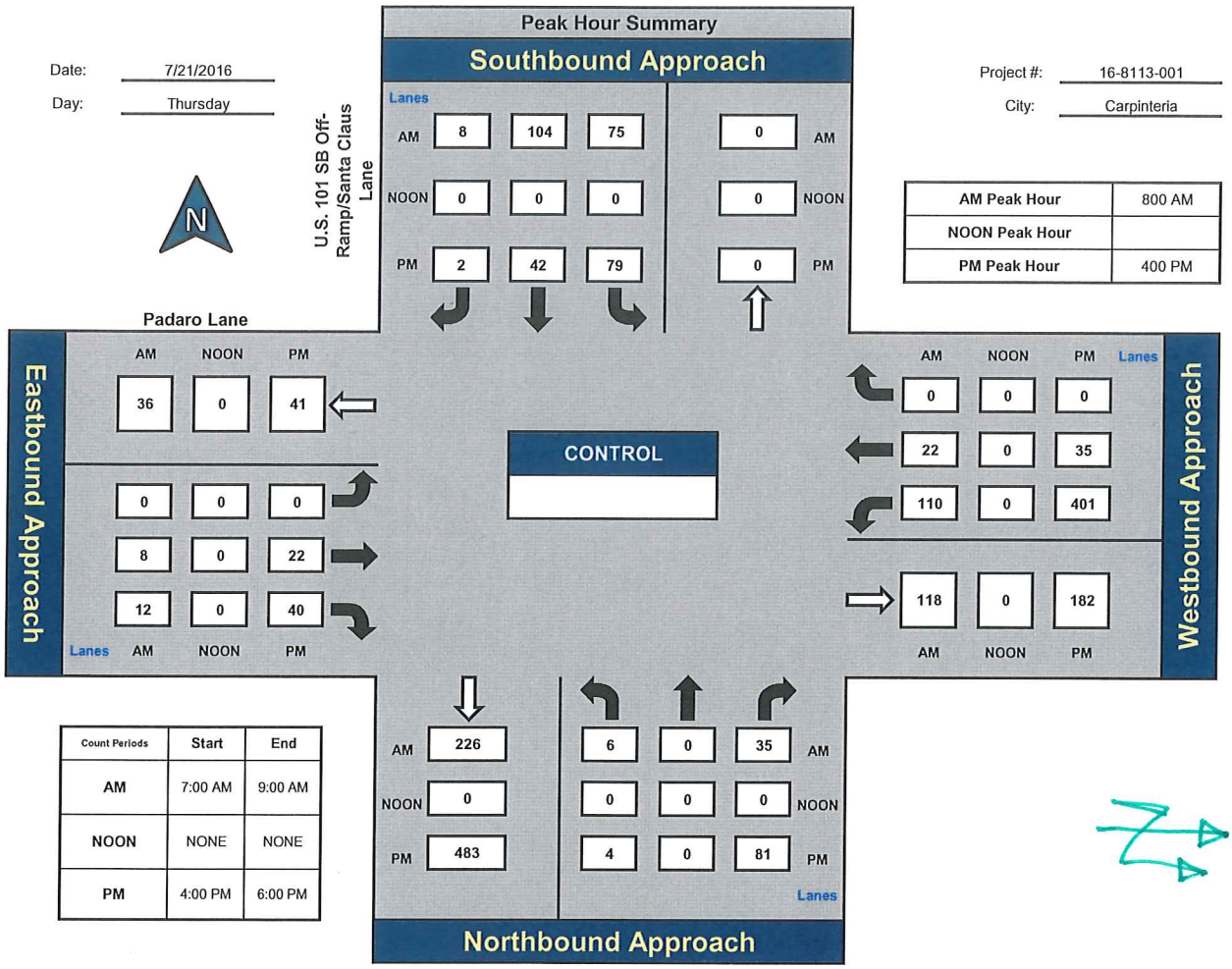
U.S. 101 SB Off-Ramp/Santa Claus Lane and Padaro Lane , Carpinteria

Date: 7/21/2016

Day: Thursday

Project #: 16-8113-001

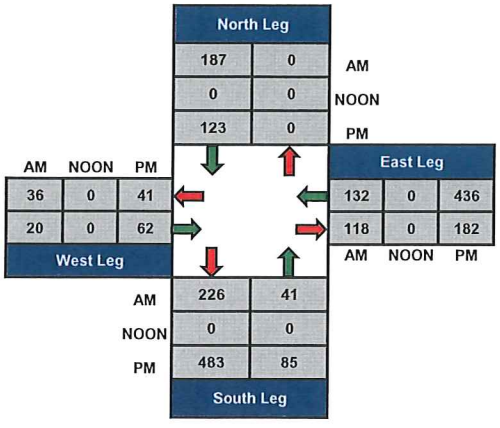
City: Carpinteria



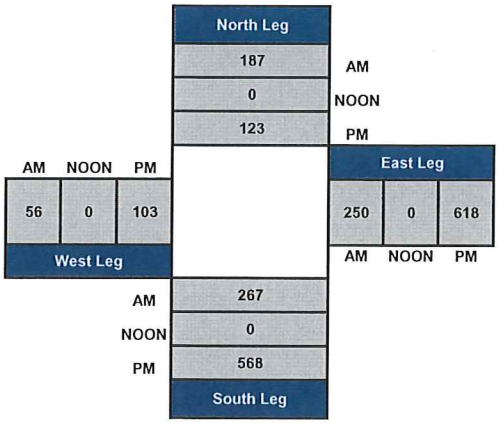
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

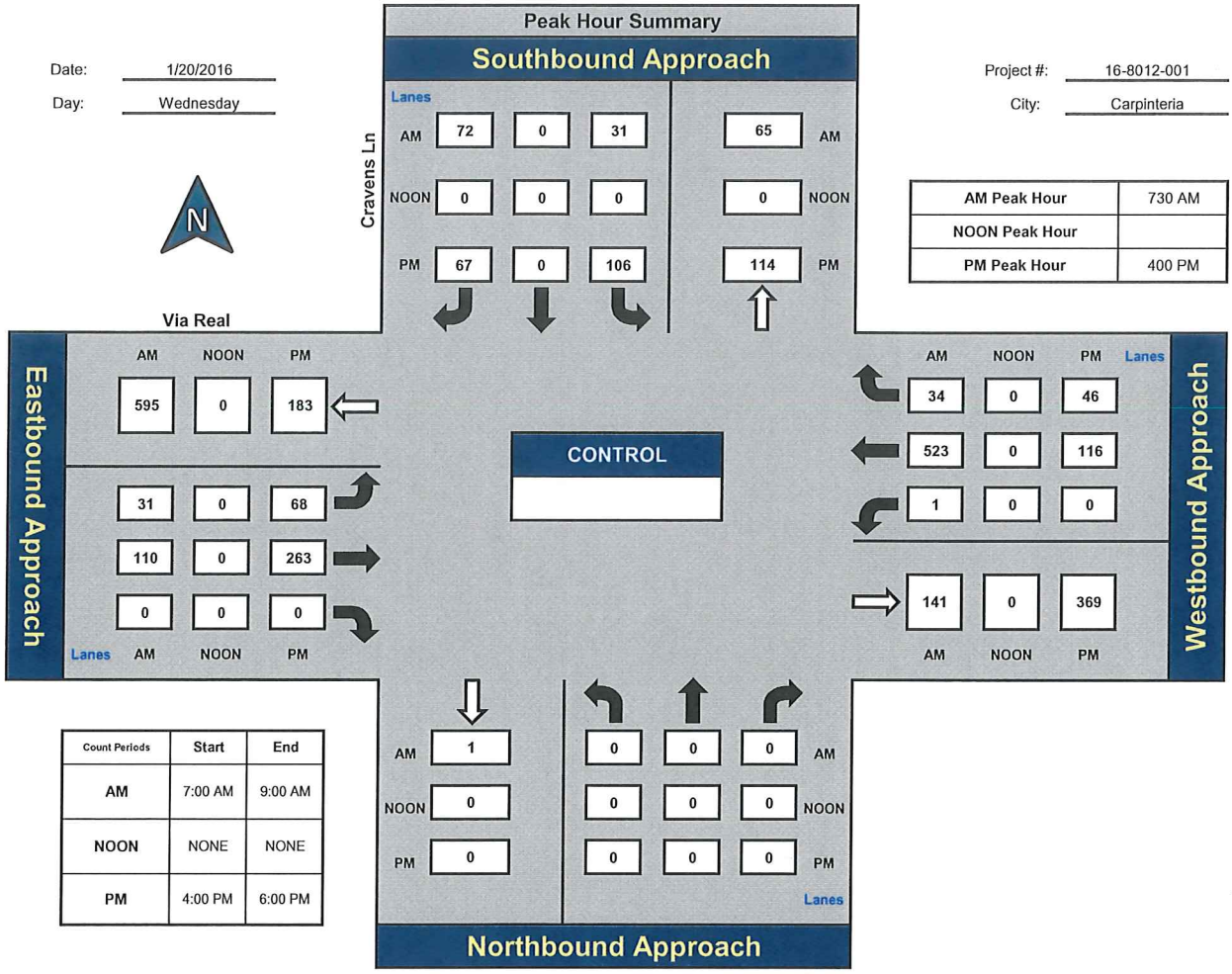
Cravens Ln and Via Real , Carpinteria

Date: 1/20/2016

Day: Wednesday

Project #: 16-8012-001

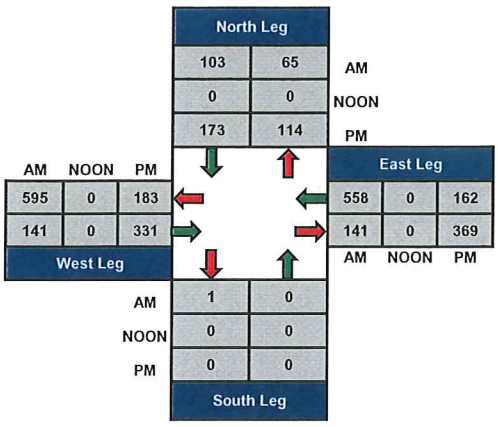
City: Carpinteria



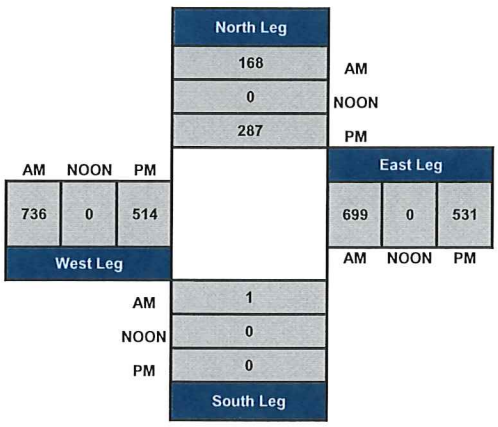
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

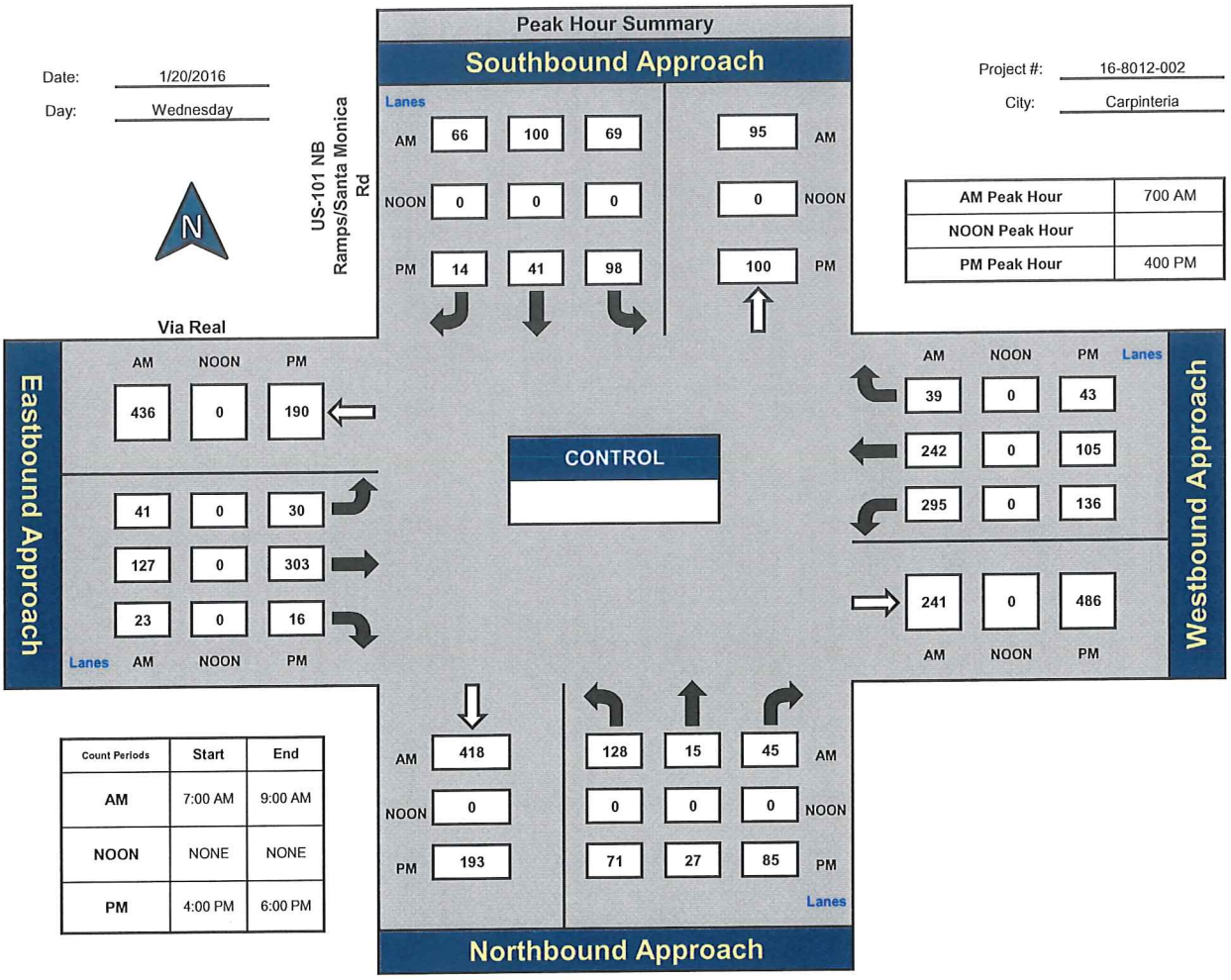
US-101 NB Ramps/Santa Monica Rd and Via Real , Carpinteria

Date: 1/20/2016

Day: Wednesday

Project #: 16-8012-002

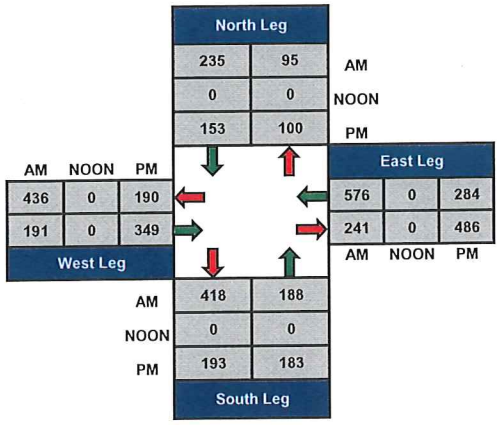
City: Carpinteria



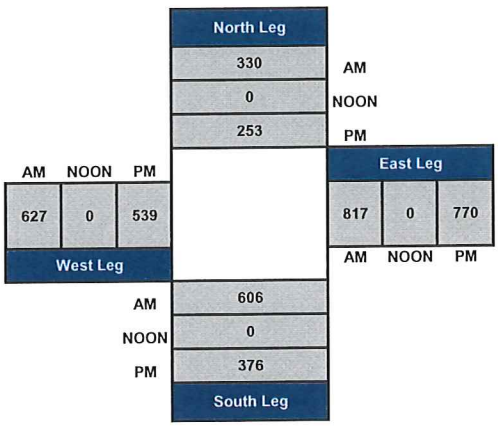
Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

US-101 NB Ramps/Santa Monica Rd and Via Real , Carpinteria

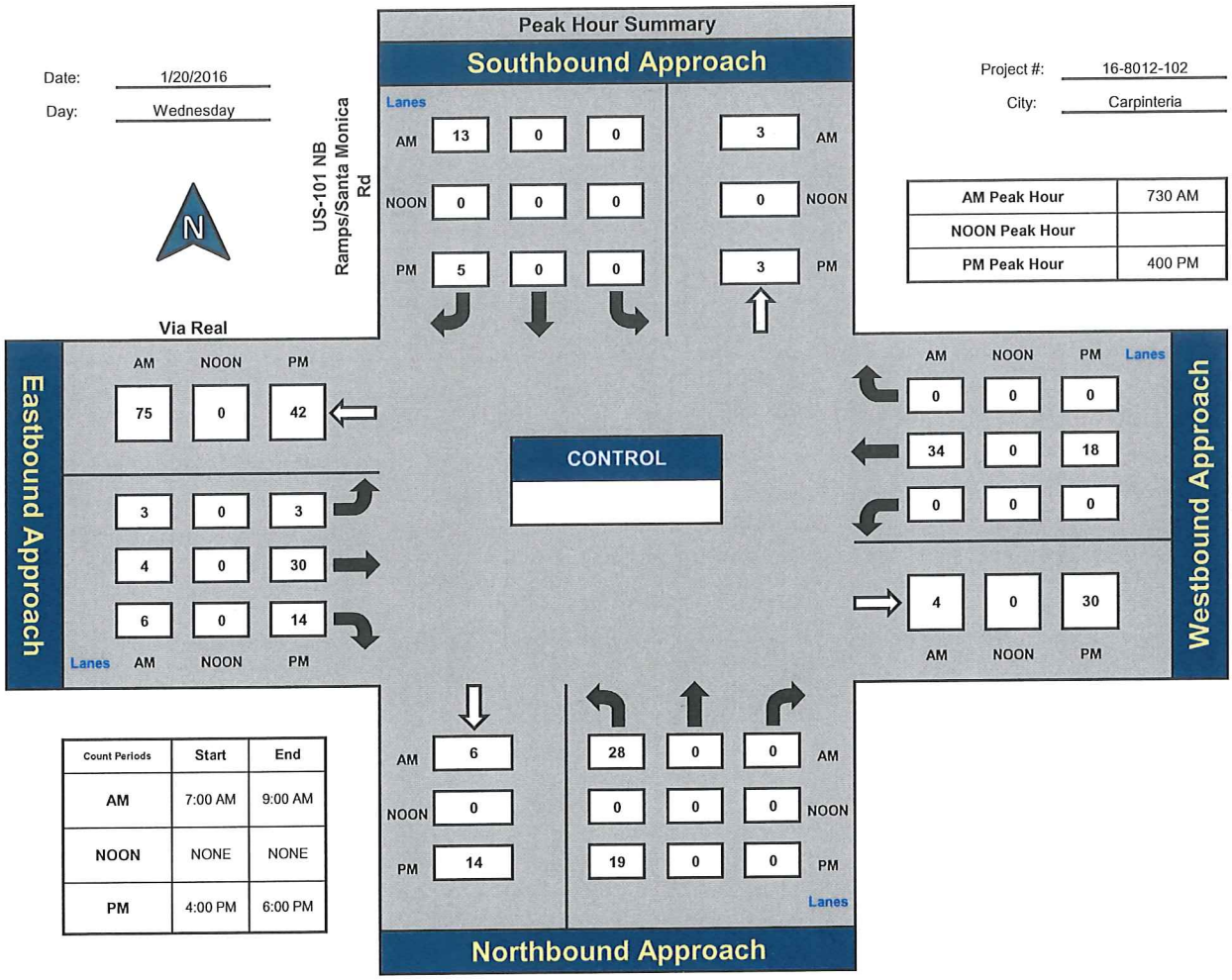
Date: 1/20/2016

Day: Wednesday

Project #: 16-8012-102

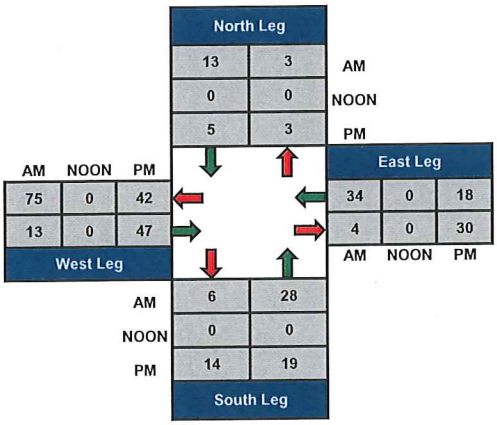
City: Carpinteria

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	400 PM

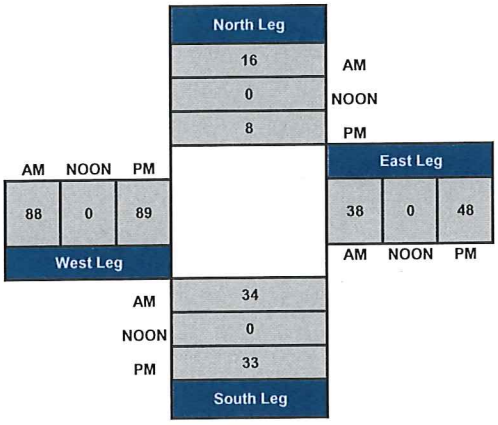


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

US-101 NB Ramps/Santa Monica Rd and Via Real , Carpinteria

Date: 1/20/2016

Day: Wednesday

Project #: 16-8012-202

City: Carpinteria

AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	530 PM

Peak Hour Summary

Southbound Approach (US-101 NB Ramps/Santa Monica Rd)

Lanes					
AM	0	0	0	1	AM
NOON	0	0	0	0	NOON
PM	0	0	0	1	PM

Eastbound Approach (Via Real)

Lanes	AM	NOON	PM
	0	0	0
	1	0	1
	0	0	0
	3	0	1

Westbound Approach

Lanes	AM	NOON	PM
	0	0	0
	0	0	0
	0	0	0
	0	0	0

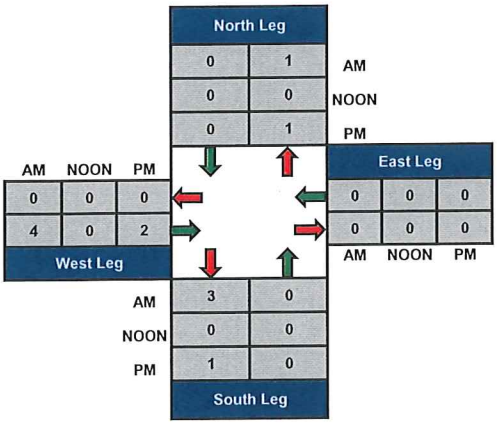
CONTROL

Northbound Approach

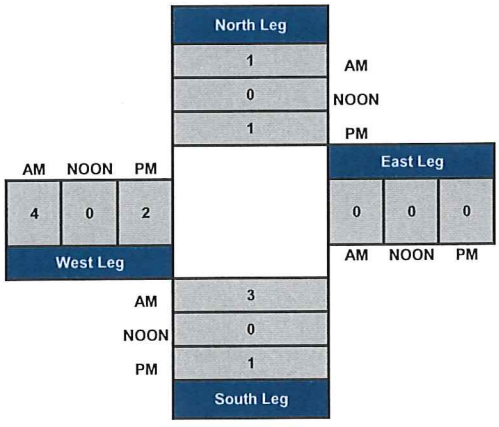
Lanes					
AM	3	0	0	0	AM
NOON	0	0	0	0	NOON
PM	1	0	0	0	PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



INTERSECTION DELAY WORKSHEET
CARPINTERIA
VIA REAL / PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: NORTHBOUND LEFT + RIGHT

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	2	3	3	3	2	3	4	4	4	5	4	2	2	1	0	
8:10 AM	0	1	3	5	4	0	3	1	0	0	0	0	1	2	2	0	0	0	0	0	
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	2	2	0	0	1	51
8:20 AM	1	0	0	0	2	2	2	1	1	1	0	0	0	0	3	3	4	0	3	0	
8:25 AM	0	0	2	2	1	1	1	1	1	0	0	1	0	0	0	0	2	0	0	1	
8:30 AM	1	0	0	0	0	1	0	0	2	0	0	0	1	0	1	3	1	0	1	1	60
8:35 AM	0	0	0	0	0	0	2	2	0	1	2	0	0	0	1	0	0	0	2	1	
8:40 AM	1	0	0	0	0	0	1	2	5	6	6	5	3	5	7	0	5	6	0	1	
8:45 AM	3	4	2	2	0	0	1	0	2	2	0	0	0	0	0	0	0	0	1	0	78
8:50 AM	0	0	5	0	0	0	0	0	0	4	0	1	0	6	4	0	5	0	0	3	
8:55 AM	0	2	3	0	0	1	0	0	0	0	4	6	0	0	5	0	3	5	0	0	
9:00 AM	4	0	0	2	3	4	0	5	0	0	4	0	1	0	0	0	0	0	2	3	88
Subtotal:	10	7	15	11	10	12	13	15	14	16	19	17	10	17	30	12	24	13	10	11	277

Total Vehicles in Queue: 286

Total Delay = 286 vehicles x 15 seconds = 4290 seconds

Average Delay Per Vehicle = 4290 seconds / 277 vehicles

15.5 Stop delay (seconds per vehicle) + 5 seconds control = 20.5

INTERSECTION DELAY WORKSHEET
CARPINTERIA
VIA REAL / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: NORTHBOUND LEFT + RIGHT

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	0	0	0	2	0	1	0	2	0	2	2	2	0	1	0	0	0	0	0	
4:10 PM	1	4	4	0	0	1	2	5	0	6	0	0	0	0	4	2	0	0	3	4	
4:15 PM	5	4	0	0	6	0	0	0	6	5	0	0	0	3	3	1	1	0	3	5	90
4:20 PM	0	2	1	5	0	4	0	3	3	1	2	3	0	1	0	0	0	0	0	0	
4:25 PM	0	2	3	5	2	0	3	0	0	0	0	0	0	1	0	0	2	0	0	0	
4:30 PM	1	0	0	0	0	0	2	2	0	3	2	4	1	2	0	0	5	3	0	0	110
4:35 PM	6	0	5	0	2	2	1	0	4	0	0	0	0	0	0	3	3	0	2	0	
4:40 PM	0	0	0	6	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	
4:45 PM	5	5	0	1	4	0	4	5	1	0	0	3	0	0	0	1	5	0	0	0	71
4:50 PM	0	1	6	6	0	2	0	0	1	1	2	3	0	0	0	0	0	3	0	4	
4:55 PM	0	2	3	3	3	3	4	0	4	0	5	4	0	6	6	0	0	0	0	1	
5:00 PM	0	0	1	0	0	0	2	1	0	2	2	0	4	3	4	2	0	0	1	1	104
Subtotal:	18	20	23	26	19	12	19	16	21	18	15	19	11	16	18	9	16	6	9	15	375

Total Vehicles in Queue: 326

Total Delay = 326 vehicles x 15 seconds = 4890 seconds

Average Delay Per Vehicle = 4890 seconds / 375 vehicles

13.0 Stop delay (seconds per vehicle) + 5 seconds control = 18.0

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 NB RAMPS / PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:10 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	59
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	57
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:40 AM	0	0	0	0	0	0	0	0	0	1	3	0	3	0	1	2	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	81
8:50 AM	0	0	1	0	0	0	0	0	0	3	0	2	0	4	6	0	0	0	0	0	
8:55 AM	0	0	2	0	0	3	0	0	0	1	1	1	0	0	0	0	0	2	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	91
Subtotal:	0	0	3	0	0	3	1	0	1	5	6	3	5	4	7	2	0	3	1	1	288

Total Vehicles in Queue: 45

Total Delay = 45 vehicles x 15 seconds = 675 seconds

Average Delay Per Vehicle = 675 seconds / 288 vehicles

2.3 Stop delay (seconds per vehicle) + 5 seconds control = 7.3

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 NB RAMPS / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:10 PM	0	0	0	0	2	0	0	1	0	1	1	0	2	0	3	0	1	0	0	0	
4:15 PM	1	0	0	0	2	2	0	2	3	1	0	0	0	0	0	0	0	0	0	0	70
4:20 PM	0	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	82
4:35 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	
4:40 PM	0	0	0	0	2	4	9	9	0	0	0	1	0	0	0	0	2	4	0	0	
4:45 PM	0	0	0	0	0	0	0	0	5	7	0	7	0	0	1	0	4	4	4	0	70
4:50 PM	2	0	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	100
Subtotal:	3	5	5	0	7	10	10	12	9	11	4	8	5	2	7	2	7	8	5	1	322

Total Vehicles in Queue: 121

Total Delay = 121 vehicles x 15 seconds = 1815 seconds

Average Delay Per Vehicle = 1815 seconds / 322 vehicles

5.6 Stop delay (seconds per vehicle) + 5 seconds control = 10.6

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE /PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: EASTBOUND LEFT

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		
8:10 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0		
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	
8:25 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
8:30 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	18
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
8:50 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:55 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
Subtotal:	1	0	0	0	2	1	1	0	2	0	1	0	0	2	0	2	0	0	1	0	75

Total Vehicles in Queue: 13

Total Delay = 13 vehicles x 15 seconds = 195 seconds

Average Delay Per Vehicle = 195 seconds / 75 vehicles

2.6 Stop delay (seconds per vehicle) + 5 seconds control = 7.6

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE / PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	15
Subtotal:	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	41

Total Vehicles in Queue: 2

Total Delay = 2 vehicles x 15 seconds = 30 seconds

Average Delay Per Vehicle = 30 seconds / 41 vehicles

0.7 Stop delay (seconds per vehicle) + 5 seconds control = 5.7

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE / PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: EASTBOUND THROUGH + RIGHT

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14
8:20 AM	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:50 AM	0	0	0	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0	0	0	
8:55 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	42
Subtotal:	0	0	0	0	1	2	3	0	0	2	0	0	2	1	0	0	0	1	0	1	92

Total Vehicles in Queue: 13

Total Delay = 13 vehicles x 15 seconds = 195 seconds

Average Delay Per Vehicle = 195 seconds / 92 vehicles

2.1 Stop delay (seconds per vehicle) + 5 seconds control = 7.1

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS /SANTA CLAUS LANE / PADARO LANE
AM PEAK HOUR: 8:00 - 9:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND & EASTBOUND LEFT & EASTBOUND THROUGH + RIGHT

Time Ending	Vehicles in Queue																				Total Approach
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
8:10 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	36
8:20 AM	0	0	0	0	1	2	0	0	0	1	0	0	0	2	0	0	0	0	0	0	
8:25 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
8:30 AM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	55
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
8:50 AM	0	0	0	0	0	0	3	0	0	0	0	0	1	1	0	0	0	0	0	0	
8:55 AM	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	
9:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	82
Subtotal:	1	0	0	0	3	3	4	0	2	2	1	0	3	4	0	2	0	1	1	1	208

Total Vehicles in Queue: 28

Total Delay = 28 vehicles x 15 seconds = 420 seconds

Average Delay Per Vehicle = 420 seconds / 208 vehicles

2.0 Stop delay (seconds per vehicle) + 5 seconds control = 7.0

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND & EASTBOUND LEFT & EASTBOUND THROUGH + RIGHT

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	
4:10 PM	0	0	1	0	0	0	1	0	0	0	0	0	2	1	0	0	2	0	2	0	
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	62
4:20 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	0	0	0	0	0	
4:25 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
4:35 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	
4:40 PM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	45
4:50 PM	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	
5:00 PM	0	1	0	2	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	51
Subtotal:	2	1	2	5	2	0	2	0	0	2	5	2	2	3	8	1	2	1	2	0	208

Total Vehicles in Queue: 42

Total Delay = 42 vehicles x 15 seconds = 630 seconds

Average Delay Per Vehicle = 630 seconds / 208 vehicles

3.0 Stop delay (seconds per vehicle) + 5 seconds control = 8.0

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SOUTHBOUND RAMPS / SANTA CLAUS LANE / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: WESTBOUND

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	21
Subtotal:	0	0	0	0	1	0	0	0	0	0	0	0	0	3	3	0	1	0	0	0	85

Total Vehicles in Queue: 8

Total Delay = 8 vehicles x 15 seconds = 120 seconds

Average Delay Per Vehicle = 120 seconds / 85 vehicles

1.4 Stop delay (seconds per vehicle) + 5 seconds control = 6.4

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: EASTBOUND LEFT

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	
4:10 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	0	
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	26
4:20 PM	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
4:35 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	
4:40 PM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
4:50 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	
5:00 PM	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	19
Subtotal:	2	1	2	5	1	0	1	0	0	2	5	1	0	0	4	1	1	1	2	0	79

Total Vehicles in Queue: 29

Total Delay = 29 vehicles x 15 seconds = 435 seconds

Average Delay Per Vehicle = 435 seconds / 79 vehicles

5.5 Stop delay (seconds per vehicle) + 5 seconds control = 10.5

INTERSECTION DELAY WORKSHEET
CARPINTERIA
101 SB RAMPS / SANTA CLAUS LANE / PADARO LANE
PM PEAK HOUR: 4:00 - 5:00
42572 - THURSDAY
15 SECOND INTERVALS
APPROACH: EASTBOUND THROUGH + EASTBOUND RIGHT

Time Ending	Vehicles in Queue																				Total Approach
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	10
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
4:55 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Subtotal:	0	0	0	0	0	0	1	0	0	0	0	1	2	0	1	0	0	0	0	0	44
Total Vehicles in Queue:											5										

Total Delay = 5 vehicles x 15 seconds = 75 seconds

Average Delay Per Vehicle = 75 seconds / 44 vehicles

1.7 Stop delay (seconds per vehicle) + 5 seconds control = 6.7

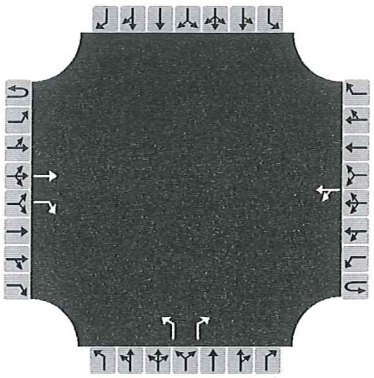
INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Reference 1 Padaro Lane Lane/Via Real
Reference 2 U.S. 101 NB Ramps/Padaro Lane
Reference 3 U.S. 101 SB Ramps-Santa Claus Lane/Padaro Lane
Reference 4 Cravens Lane/Via Real
Reference 5 Santa Monica Road/Via Real

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_EX_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			32	53		95	708			199		78				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						873				216		85				
Capacity						1486				387		1144				
v/c Ratio						0.59				0.56		0.07				
95% Queue Length						0.2				3.3		0.2				
Control Delay (s/veh)						7.6				25.4		8.4				
Level of Service (LOS)						A				D		A				
Approach Delay (s/veh)					1.7				20.6							
Approach LOS									C							

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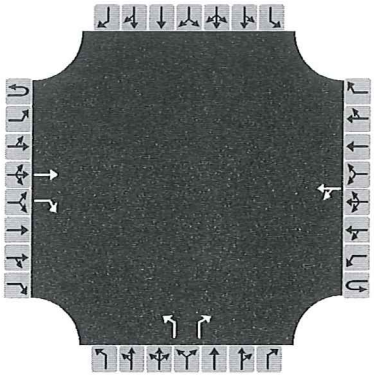
AWD = 17.5 SEC LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_EX_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			214	292		125	375			261		114				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						544				284		124				
Capacity						1008				489		942				
v/c Ratio						0.54				0.58		0.13				
95% Queue Length						0.5				3.6		0.5				
Control Delay (s/veh)						9.1				22.1		9.4				
Level of Service (LOS)						A				C		A				
Approach Delay (s/veh)					3.5				18.2							
Approach LOS									C							

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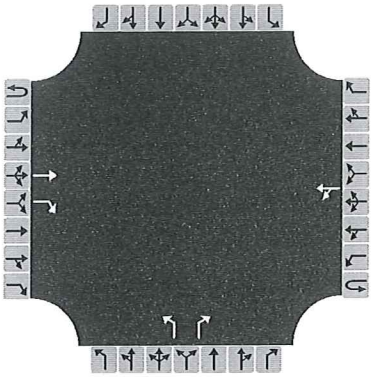
AWD = 16.1 SEC LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_EX+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			32	53		101	709			199		80				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						881				216		87				
Capacity						1486				379		1144				
v/c Ratio						0.59				0.57		0.08				
95% Queue Length						0.2				3.4		0.2				
Control Delay (s/veh)						7.6				26.4		8.4				
Level of Service (LOS)						A				D		A				
Approach Delay (s/veh)					1.8				21.2							
Approach LOS									C							

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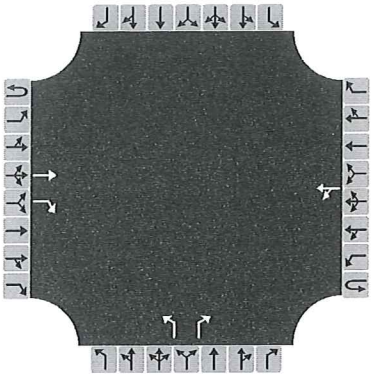
AWD = 17.8 SEC LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_EX+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			215	292		129	375			261		120				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						548				284		130				
Capacity						1008				483		941				
v/c Ratio						0.54				0.59		0.14				
95% Queue Length						0.5				3.7		0.5				
Control Delay (s/veh)						9.1				22.5		9.4				
Level of Service (LOS)						A				C		A				
Approach Delay (s/veh)					3.6				18.4							
Approach LOS									C							

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AWD = 16.2 SEC LOS C

HCS 2010 Two-Way Stop Control Summary Report

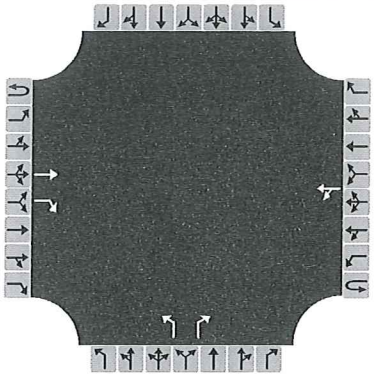
General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Year	2016
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	#16058 - GREEN HERON SPRING

Site Information

Intersection	01_CU_AM
Jurisdiction	CITY OF CARPINTERIA
East/West Street	VIA REAL
North/South Street	PADARO LANE
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			32	53		96	711			199		79				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						877				216		86				
Capacity						1486				385		1144				
v/c Ratio						0.59				0.56		0.08				
95% Queue Length						0.2				3.3		0.2				
Control Delay (s/veh)						7.6				25.7		8.4				
Level of Service (LOS)						A				D		A				
Approach Delay (s/veh)					1.7				20.8							
Approach LOS									C							

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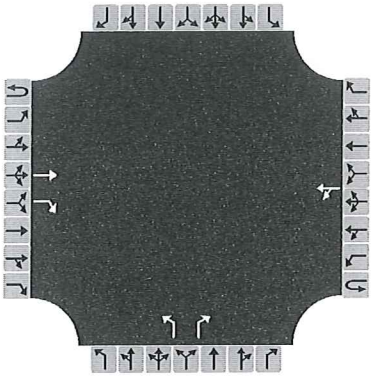
AWD = 17.6 LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_CU_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			214	292		126	385			261		115				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						555				284		125				
Capacity						1008				484		942				
v/c Ratio						0.55				0.59		0.13				
95% Queue Length						0.5				3.7		0.5				
Control Delay (s/veh)						9.1				22.5		9.4				
Level of Service (LOS)						A				C		A				
Approach Delay (s/veh)					3.5				18.5							
Approach LOS									C							

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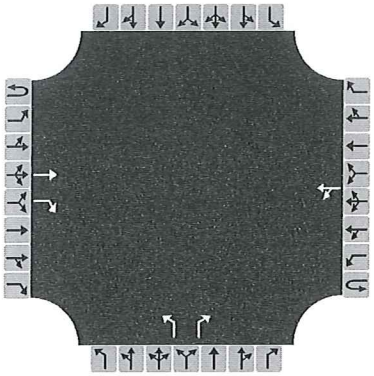
AWD = 16.3 LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_CU+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			32	53		102	712			199		81				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						885				216		88				
Capacity						1486				377		1144				
v/c Ratio						0.60				0.57		0.08				
95% Queue Length						0.2				3.4		0.2				
Control Delay (s/veh)						7.6				26.6		8.4				
Level of Service (LOS)						A				D		A				
Approach Delay (s/veh)					1.8				21.4							
Approach LOS									C							

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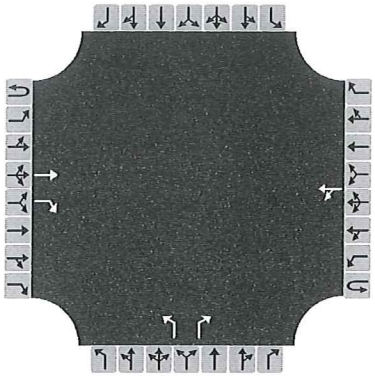
AWD= 17.9 LOSC

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	01_CU+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	VIA REAL
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	0	1	0		1	0	1		0	0	0
Configuration			T	R		LT				L		R				
Volume (veh/h)			215	292		130	385			261		121				
Percent Heavy Vehicles						4				4		4				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						559				284		132				
Capacity						1008				478		941				
v/c Ratio						0.55				0.59		0.14				
95% Queue Length						0.5				3.8		0.5				
Control Delay (s/veh)						9.2				23.0		9.5				
Level of Service (LOS)						A				C		A				
Approach Delay (s/veh)					3.6				18.7							
Approach LOS									C							

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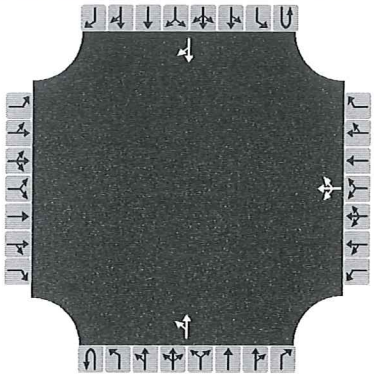
AWD = 16.4 SEC LOS C

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_EX_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						39	64	185		22	95				95	54
Percent Heavy Vehicles						3	3	3		3						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							313			127						
Capacity							2018			1409						
v/c Ratio							0.16			0.09						
95% Queue Length							0.5			0.1						
Control Delay (s/veh)							7.1			7.6						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					7.1				1.5							
Approach LOS					A											

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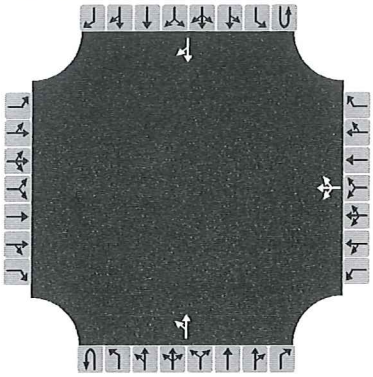
AWD = 7.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_EX_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						44	42	236		49	136				389	29
Percent Heavy Vehicles						3	3	3		3						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							351			201						
Capacity							1223			1099						
v/c Ratio							0.29			0.18						
95% Queue Length							1.2			0.2						
Control Delay (s/veh)							9.1			8.4						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					9.1				2.6							
Approach LOS					A											

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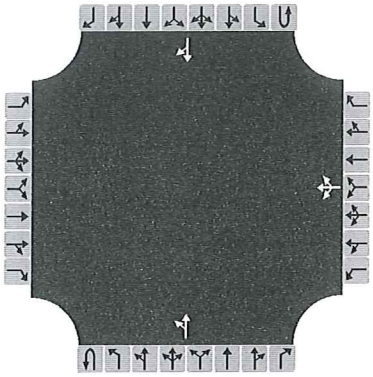
AWD = 9.0 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_EX+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						39	64	185		22	97				95	60
Percent Heavy Vehicles						4	4	4		4						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							313			129						
Capacity							2006			1395						
v/c Ratio							0.16			0.09						
95% Queue Length							0.6			0.1						
Control Delay (s/veh)							7.1			7.6						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					7.1				1.5							
Approach LOS					A											

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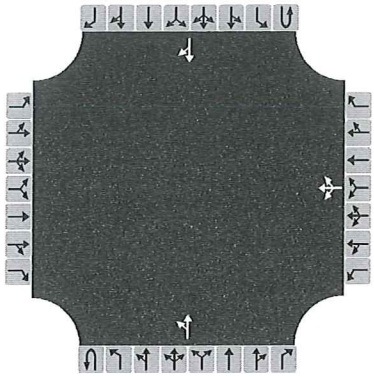
AWD = 7.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_EX+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						44	42	236		49	142				389	33
Percent Heavy Vehicles						4	4	4		4						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							351			207						
Capacity							1210			1090						
v/c Ratio							0.29			0.19						
95% Queue Length							1.2			0.2						
Control Delay (s/veh)							9.2			8.5						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					9.2				2.5							
Approach LOS					A											

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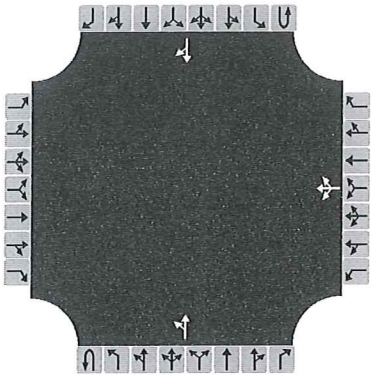
AWD = 9.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_CU_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						39	64	185		22	96				95	55
Percent Heavy Vehicles						3	3	3		3						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							313			128						
Capacity							2016			1408						
v/c Ratio							0.16			0.09						
95% Queue Length							0.5			0.1						
Control Delay (s/veh)							7.1			7.6						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					7.1				1.5							
Approach LOS					A											

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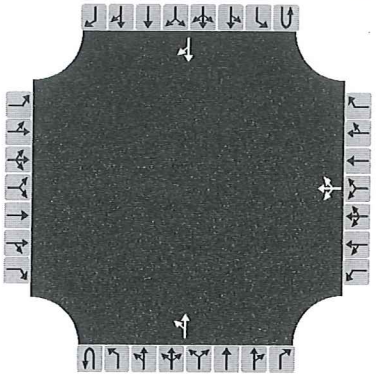
AWD = 7.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_CU_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						44	42	236		49	137				389	30
Percent Heavy Vehicles						3	3	3		3						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							351			202						
Capacity							1221			1098						
v/c Ratio							0.29			0.18						
95% Queue Length							1.2			0.2						
Control Delay (s/veh)							9.1			8.4						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					9.1				2.5							
Approach LOS					A											

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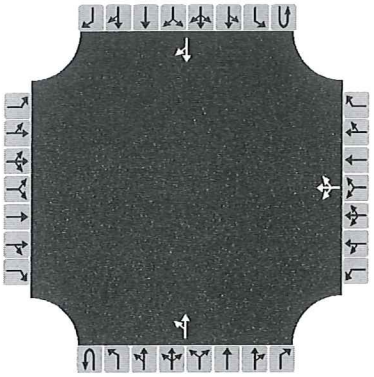
AWD = 9.0 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_CU+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						39	64	185		22	98				95	61
Percent Heavy Vehicles						4	4	4		4						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							313			131						
Capacity							2002			1394						
v/c Ratio							0.16			0.09						
95% Queue Length							0.6			0.1						
Control Delay (s/veh)							7.1			7.6						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					7.1				1.5							
Approach LOS					A											

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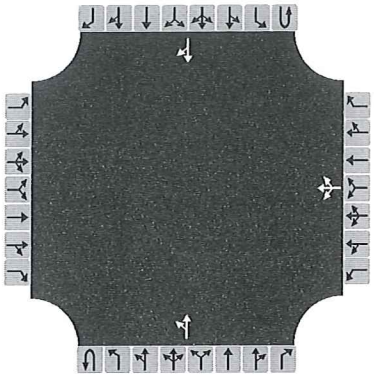
AWD = 7.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	02_CU+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	US 101 NB RAMPS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LTR			LT						TR
Volume (veh/h)						44	42	236		49	143				389	34
Percent Heavy Vehicles						4	4	4		4						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							351			208						
Capacity							1208			1089						
v/c Ratio							0.29			0.19						
95% Queue Length							1.2			0.2						
Control Delay (s/veh)							9.2			8.5						
Level of Service (LOS)							A			A						
Approach Delay (s/veh)					9.2				2.5							
Approach LOS					A											

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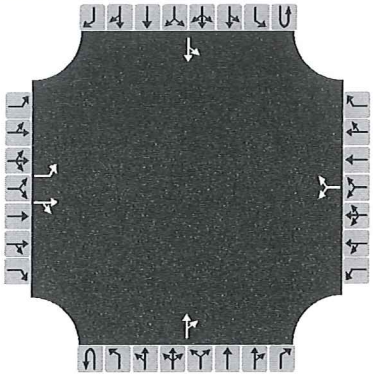
AWD=9.1 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_EX_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		75	104	8		6		35			8	12		110	22	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		82		122			45							144		
Capacity		948		1036			1651							1578		
v/c Ratio		0.09		0.12			0.03							0.09		
95% Queue Length		0.3		0.4			0.1							0.2		
Control Delay (s/veh)		9.2		8.7			7.2							7.5		
Level of Service (LOS)		A		A			A							A		
Approach Delay (s/veh)	8.9				7.2								6.3			
Approach LOS	A				A											

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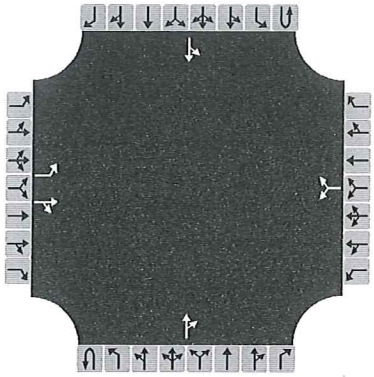
AWD = 8.3 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_EX_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		79	42	2		4		81			22	40		401	35	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		86		48			92							474		
Capacity		625		651			1394							1519		
v/c Ratio		0.14		0.07			0.07							0.31		
95% Queue Length		0.5		0.2			0.2							1.2		
Control Delay (s/veh)		11.7		10.8			7.8							8.3		
Level of Service (LOS)		B		B			A							A		
Approach Delay (s/veh)	11.3				7.8								7.8			
Approach LOS	B				A											

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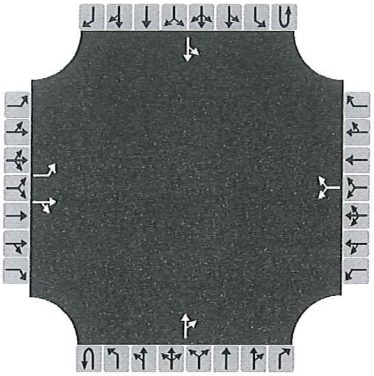
AWD= 8.9 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_EX+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		77	104	8		6		35			8	12		110	22	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		84		122			45							144		
Capacity		948		1036			1651							1578		
v/c Ratio		0.09		0.12			0.03							0.09		
95% Queue Length		0.3		0.4			0.1							0.2		
Control Delay (s/veh)		9.2		8.7			7.2							7.5		
Level of Service (LOS)		A		A			A							A		
Approach Delay (s/veh)	8.9				7.2								6.3			
Approach LOS	A				A											

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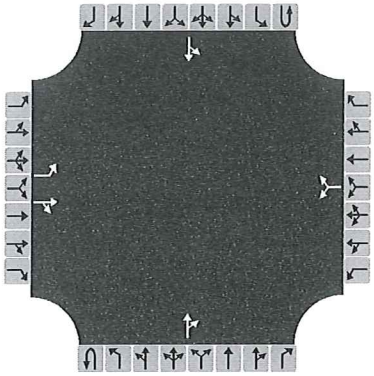
AWD = 8.3 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_EX+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		85	42	2		4		81			22	40		401	35	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		92		48			92							474		
Capacity		625		651			1394							1519		
v/c Ratio		0.15		0.07			0.07							0.31		
95% Queue Length		0.5		0.2			0.2							1.2		
Control Delay (s/veh)		11.8		10.8			7.8							8.3		
Level of Service (LOS)		B		B			A							A		
Approach Delay (s/veh)	11.4				7.8								7.8			
Approach LOS	B				A											

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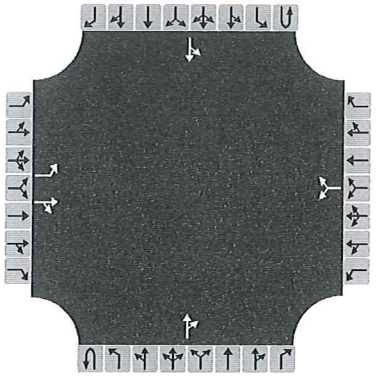
AWD= 8.9 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_CU_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		76	104	8		6		35			8	12		110	22	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		83		122			45							144		
Capacity		948		1036			1651							1578		
v/c Ratio		0.09		0.12			0.03							0.09		
95% Queue Length		0.3		0.4			0.1							0.2		
Control Delay (s/veh)		9.2		8.7			7.2							7.5		
Level of Service (LOS)		A		A			A							A		
Approach Delay (s/veh)	8.9				7.2								6.3			
Approach LOS	A				A											

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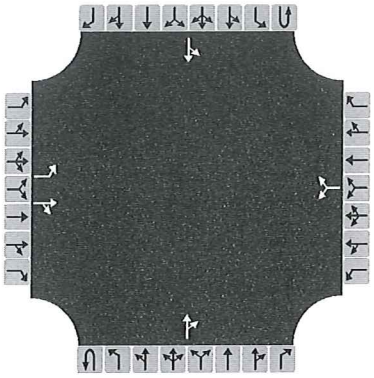
AWD = 8.3 SEC LOSA

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_CU_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		80	42	2		4		81			22	40		401	35	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		87		48			92							474		
Capacity		625		651			1394							1519		
v/c Ratio		0.14		0.07			0.07							0.31		
95% Queue Length		0.5		0.2			0.2							1.2		
Control Delay (s/veh)		11.7		10.8			7.8							8.3		
Level of Service (LOS)		B		B			A							A		
Approach Delay (s/veh)	11.4				7.8								7.8			
Approach LOS	B				A											

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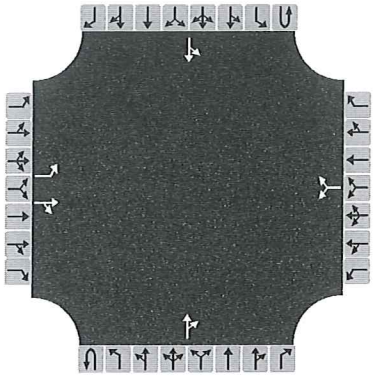
AWD = 8.9 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_CU+PR_AM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		78	104	8		6		35			8	12		110	22	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		85		122			45							144		
Capacity		948		1036			1651							1578		
v/c Ratio		0.09		0.12			0.03							0.09		
95% Queue Length		0.3		0.4			0.1							0.2		
Control Delay (s/veh)		9.2		8.7			7.2							7.5		
Level of Service (LOS)		A		A			A							A		
Approach Delay (s/veh)	8.9				7.2								6.3			
Approach LOS	A				A											

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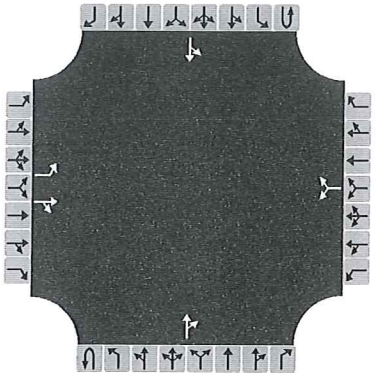
AWD = 8.3 SEC LOS A

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	EKM	Intersection	03_CU+PR_PM
Agency/Co.	ATE	Jurisdiction	CITY OF CARPINTERIA
Date Performed	7/29/2016	East/West Street	101 SB RAMPS/SANTA CLAUS
Analysis Year	2016	North/South Street	PADARO LANE
Time Analyzed	PM PEAK HOUR	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#16058 - GREEN HERON SPRING		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration		L		TR			LR					TR		LT		
Volume (veh/h)		86	42	2		4		81			22	40		401	35	
Percent Heavy Vehicles		4	4	4		4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		93		48			92							474		
Capacity		625		651			1394							1519		
v/c Ratio		0.15		0.07			0.07							0.31		
95% Queue Length		0.5		0.2			0.2							1.2		
Control Delay (s/veh)		11.8		10.8			7.8							8.3		
Level of Service (LOS)		B		B			A							A		
Approach Delay (s/veh)	11.4				7.8								7.8			
Approach LOS	B				A											

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AWD = 8.9 SEC LOS A

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	04_EX_AM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID 16058 - GREEN HERON SPRING

East/West Street: VIA REAL | North/South Street: CRAVENS LANE

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	110	0	0	523	34
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	31	0	72
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	152		604				33	78
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.1				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		0.0				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.14		0.54				0.03	0.07
hd, final value (s)	4.98		4.42				5.90	5.09
x, final value	0.210		0.742				0.054	0.110
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	3.0		2.4				3.9	3.1

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	724		816				660	709
Delay (s/veh)	9.3		19.0				9.2	8.7
LOS	A		C				A	A
Approach: Delay (s/veh)	9.3		19.0				8.9	
LOS	A		C				A	
Intersection Delay (s/veh)	16.0							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	04_EX_PM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* | North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	68	263	0	0	116	46
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	106	0	67
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	358		175				115	72
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.3				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.1				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.32		0.16				0.10	0.06
hd, final value (s)	4.70		4.72				5.44	4.64
x, final value	0.468		0.229				0.174	0.093
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	2.7		2.7				3.4	2.6

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	762		761				676	800
Delay (s/veh)	11.8		9.1				9.6	8.1
LOS	B		A				A	A
Approach: Delay (s/veh)	11.8		9.1				9.0	
LOS	B		A				A	
Intersection Delay (s/veh)	10.4							
Intersection LOS	B							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	04_EX+PR_AM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	33	110	0	0	523	36
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	36	0	79
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	154		607				39	85
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.1				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		0.0				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.14		0.54				0.03	0.08
hd, final value (s)	5.04		4.46				5.93	5.12
x, final value	0.216		0.753				0.064	0.121
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	3.0		2.5				3.9	3.1

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	700		809				650	708
Delay (s/veh)	9.4		19.7				9.3	8.8
LOS	A		C				A	A
Approach: Delay (s/veh)	9.4		19.7				9.0	
LOS	A		C				A	
Intersection Delay (s/veh)	16.4							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	04_EX+PR_PM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* | North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	75	263	0	0	116	51
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	109	0	71
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	366		181				118	77
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.3				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.1				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.33		0.16				0.10	0.07
hd, final value (s)	4.74		4.74				5.48	4.67
x, final value	0.482		0.238				0.180	0.100
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	2.7		2.7				3.5	2.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	763		754				656	770
Delay (s/veh)	12.1		9.2				9.7	8.2
LOS	B		A				A	A
Approach: Delay (s/veh)	12.1		9.2				9.1	
LOS	B		A				A	
Intersection Delay (s/veh)	10.6							
Intersection LOS	B							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	04_CU_AM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	111	0	0	527	34
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	31	0	72
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	153		608				33	78
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.1				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		0.0				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.14		0.54				0.03	0.07
hd, final value (s)	4.99		4.43				5.92	5.11
x, final value	0.212		0.748				0.054	0.111
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	3.0		2.4				3.9	3.1

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	729		811				660	709
Delay (s/veh)	9.3		19.3				9.3	8.7
LOS	A		C				A	A
Approach: Delay (s/veh)	9.3		19.3				8.9	
LOS	A		C				A	
Intersection Delay (s/veh)	16.2							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	04_CU_PM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	68	264	0	0	127	46
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	106	0	67
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	359		187				115	72
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.3				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.1				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.32		0.17				0.10	0.06
hd, final value (s)	4.72		4.74				5.47	4.67
x, final value	0.471		0.246				0.175	0.093
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	2.7		2.7				3.5	2.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	764		748				676	800
Delay (s/veh)	11.9		9.3				9.6	8.1
LOS	B		A				A	A
Approach: Delay (s/veh)	11.9		9.3				9.1	
LOS	B		A				A	
Intersection Delay (s/veh)	10.5							
Intersection LOS	B							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	04_CU+PR_AM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	33	111	0	0	527	36
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	36	0	79
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	155		611				39	85
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.1				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		0.0				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.14		0.54				0.03	0.08
hd, final value (s)	5.04		4.47				5.94	5.13
x, final value	0.217		0.758				0.064	0.121
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	3.0		2.5				3.9	3.1

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	705		804				650	708
Delay (s/veh)	9.4		20.0				9.3	8.8
LOS	A		C				A	A
Approach: Delay (s/veh)	9.4		20.0				9.0	
LOS	A		C				A	
Intersection Delay (s/veh)	16.6							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	04_CU+PR_PM
Jurisdiction	CITY OF CARPINTERIA
Analysis Year	2016

Project ID *16058 - GREEN HERON SPRING*

East/West Street: *VIA REAL* North/South Street: *CRAVENS LANE*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	75	264	0	0	127	51
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	0	0	0	109	0	71
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				L	R
PHF	0.92		0.92				0.92	0.92
Flow Rate (veh/h)	367		193				118	77
% Heavy Vehicles	4		4				4	4
No. Lanes	1		1		0		2	
Geometry Group	2		2				1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.0				1.0	0.0
Prop. Right-Turns	0.0		0.3				0.0	1.0
Prop. Heavy Vehicle	0.0		0.0				0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.1		-0.1				0.3	-0.5

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20				3.20	3.20
x, initial	0.33		0.17				0.10	0.07
hd, final value (s)	4.76		4.76				5.51	4.71
x, final value	0.485		0.255				0.181	0.101
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t_s (s)	2.8		2.8				3.5	2.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	749		742				656	770
Delay (s/veh)	12.2		9.4				9.7	8.2
LOS	B		A				A	A
Approach: Delay (s/veh)	12.2		9.4				9.1	
LOS	B		A				A	
Intersection Delay (s/veh)	10.7							
Intersection LOS	B							

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Intersection	
Intersection Delay, s/veh	40.1
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	333	23	0	295	276	39	0	128	43	45
Future Vol, veh/h	0	34	333	23	0	295	276	39	0	128	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	343	24	0	304	285	40	0	132	44	46
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	25.8	63.8	16.6
HCM LOS	D	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	59%	9%	0%	48%	47%
Vol Thru, %	20%	91%	0%	45%	38%
Vol Right, %	21%	0%	100%	6%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	367	23	610	146
LT Vol	128	34	0	295	69
Through Vol	43	333	0	276	55
RT Vol	45	0	23	39	22
Lane Flow Rate	223	378	24	629	151
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.456	0.733	0.041	1	0.325
Departure Headway (Hd)	7.477	7.075	6.328	6.538	7.782
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	485	515	569	560	465
Service Time	5.477	4.775	4.028	4.547	5.782
HCM Lane V/C Ratio	0.46	0.734	0.042	1.123	0.325
HCM Control Delay	16.6	26.8	9.3	63.8	14.5
HCM Lane LOS	C	D	A	F	B
HCM 95th-tile Q	2.3	6.1	0.1	14.4	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	131	16	0	136	123	43	0	71	46	85
Future Vol, veh/h	0	45	131	16	0	136	123	43	0	71	46	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	142	17	0	148	134	47	0	77	50	92
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.5	17.2	13
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	35%	26%	0%	45%	35%
Vol Thru, %	23%	74%	0%	41%	37%
Vol Right, %	42%	0%	100%	14%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	176	16	302	284
LT Vol	71	45	0	136	98
Through Vol	46	131	0	123	106
RT Vol	85	0	16	43	80
Lane Flow Rate	220	191	17	328	309
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.379	0.372	0.03	0.568	0.523
Departure Headway (Hd)	6.219	6.996	6.15	6.229	6.096
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	577	515	581	578	590
Service Time	4.269	4.742	3.896	4.272	4.14
HCM Lane V/C Ratio	0.381	0.371	0.029	0.567	0.524
HCM Control Delay	13	13.9	9.1	17.2	15.7
HCM Lane LOS	B	B	A	C	C
HCM 95th-tile Q	1.8	1.7	0.1	3.5	3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	15.7
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	40.4
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	338	23	0	295	277	39	0	129	43	45
Future Vol, veh/h	0	34	338	23	0	295	277	39	0	129	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	348	24	0	304	286	40	0	133	44	46
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	26.5	63.9	16.7
HCM LOS	D	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	59%	9%	0%	48%	47%
Vol Thru, %	20%	91%	0%	45%	38%
Vol Right, %	21%	0%	100%	6%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	372	23	611	146
LT Vol	129	34	0	295	69
Through Vol	43	338	0	277	55
RT Vol	45	0	23	39	22
Lane Flow Rate	224	384	24	630	151
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.459	0.744	0.041	1	0.326
Departure Headway (Hd)	7.497	7.084	6.338	6.561	7.808
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	483	514	568	554	464
Service Time	5.497	4.784	4.038	4.57	5.808
HCM Lane V/C Ratio	0.464	0.747	0.042	1.137	0.325
HCM Control Delay	16.7	27.6	9.3	63.9	14.5
HCM Lane LOS	C	D	A	F	B
HCM 95th-tile Q	2.4	6.3	0.1	14.3	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	134	16	0	136	124	43	0	75	46	85
Future Vol, veh/h	0	45	134	16	0	136	124	43	0	75	46	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	146	17	0	148	135	47	0	82	50	92
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.6	17.4	13.3
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	36%	25%	0%	45%	35%
Vol Thru, %	22%	75%	0%	41%	37%
Vol Right, %	41%	0%	100%	14%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	179	16	303	284
LT Vol	75	45	0	136	98
Through Vol	46	134	0	124	106
RT Vol	85	0	16	43	80
Lane Flow Rate	224	195	17	329	309
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.389	0.38	0.03	0.573	0.526
Departure Headway (Hd)	6.257	7.023	6.179	6.262	6.134
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	573	512	578	576	587
Service Time	4.308	4.774	3.929	4.309	4.18
HCM Lane V/C Ratio	0.391	0.381	0.029	0.571	0.526
HCM Control Delay	13.3	14	9.1	17.4	15.8
HCM Lane LOS	B	B	A	C	C
HCM 95th-tile Q	1.8	1.8	0.1	3.6	3.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	15.8
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	41.7
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	348	31	0	300	297	39	0	143	43	45
Future Vol, veh/h	0	34	348	31	0	300	297	39	0	143	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	359	32	0	309	306	40	0	147	44	46
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	29	64.7	17.8
HCM LOS	D	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	62%	9%	0%	47%	47%
Vol Thru, %	19%	91%	0%	47%	38%
Vol Right, %	19%	0%	100%	6%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	231	382	31	636	146
LT Vol	143	34	0	300	69
Through Vol	43	348	0	297	55
RT Vol	45	0	31	39	22
Lane Flow Rate	238	394	32	656	151
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.495	0.776	0.056	1	0.333
Departure Headway (Hd)	7.583	7.091	6.346	6.704	7.955
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	479	508	559	544	455
Service Time	5.583	4.888	4.142	4.716	5.955
HCM Lane V/C Ratio	0.497	0.776	0.057	1.206	0.332
HCM Control Delay	17.8	30.6	9.5	64.7	14.9
HCM Lane LOS	C	D	A	F	B
HCM 95th-tile Q	2.7	6.9	0.2	14.2	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.9
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	151	27	0	146	151	43	0	86	46	86
Future Vol, veh/h	0	45	151	27	0	146	151	43	0	86	46	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	164	29	0	159	164	47	0	93	50	93
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	14.8	21.7	14.8
HCM LOS	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	39%	23%	0%	43%	35%
Vol Thru, %	21%	77%	0%	44%	37%
Vol Right, %	39%	0%	100%	13%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	218	196	27	340	284
LT Vol	86	45	0	146	98
Through Vol	46	151	0	151	106
RT Vol	86	0	27	43	80
Lane Flow Rate	237	213	29	370	309
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.436	0.431	0.053	0.667	0.557
Departure Headway (Hd)	6.627	7.276	6.441	6.497	6.496
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	540	492	553	554	553
Service Time	4.704	5.05	4.214	4.564	4.566
HCM Lane V/C Ratio	0.439	0.433	0.052	0.668	0.559
HCM Control Delay	14.8	15.5	9.6	21.7	17.5
HCM Lane LOS	B	C	A	C	C
HCM 95th-tile Q	2.2	2.1	0.2	4.9	3.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	17.5
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	42
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	353	31	0	300	298	39	0	144	43	45
Future Vol, veh/h	0	34	353	31	0	300	298	39	0	144	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	364	32	0	309	307	40	0	148	44	46
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	30	64.8	17.9
HCM LOS	D	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	62%	9%	0%	47%	47%
Vol Thru, %	19%	91%	0%	47%	38%
Vol Right, %	19%	0%	100%	6%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	387	31	637	146
LT Vol	144	34	0	300	69
Through Vol	43	353	0	298	55
RT Vol	45	0	31	39	22
Lane Flow Rate	239	399	32	657	151
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.498	0.787	0.056	1	0.334
Departure Headway (Hd)	7.603	7.103	6.358	6.728	7.981
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	476	507	558	545	453
Service Time	5.603	4.897	4.152	4.739	5.981
HCM Lane V/C Ratio	0.502	0.787	0.057	1.206	0.333
HCM Control Delay	17.9	31.6	9.5	64.8	14.9
HCM Lane LOS	C	D	A	F	B
HCM 95th-tile Q	2.7	7.2	0.2	14.2	1.4

Intersection				
Intersection Delay, s/veh				
Intersection LOS				

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.9
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	154	27	0	146	152	43	0	90	46	86
Future Vol, veh/h	0	45	154	27	0	146	152	43	0	90	46	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	167	29	0	159	165	47	0	98	50	93
Number of Lanes	0	0	1	1	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	15	22.1	15.1
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	41%	23%	0%	43%	35%
Vol Thru, %	21%	77%	0%	45%	37%
Vol Right, %	39%	0%	100%	13%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	222	199	27	341	284
LT Vol	90	45	0	146	98
Through Vol	46	154	0	152	106
RT Vol	86	0	27	43	80
Lane Flow Rate	241	216	29	371	309
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.447	0.439	0.053	0.673	0.561
Departure Headway (Hd)	6.665	7.308	6.475	6.535	6.538
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	538	491	550	552	549
Service Time	4.746	5.088	4.254	4.606	4.611
HCM Lane V/C Ratio	0.448	0.44	0.053	0.672	0.563
HCM Control Delay	15.1	15.7	9.6	22.1	17.7
HCM Lane LOS	C	C	A	C	C
HCM 95th-tile Q	2.3	2.2	0.2	5	3.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	17.7
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	21
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	333	23	0	295	276	39	0	128	43	45
Future Vol, veh/h	0	34	333	23	0	295	276	39	0	128	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	343	24	0	304	285	40	0	132	44	46
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	27.4	20.3	16.2
HCM LOS	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	9%	0%	100%	0%	47%
Vol Thru, %	20%	91%	0%	0%	88%	38%
Vol Right, %	21%	0%	100%	0%	12%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	367	23	295	315	146
LT Vol	128	34	0	295	0	69
Through Vol	43	333	0	0	276	55
RT Vol	45	0	23	0	39	22
Lane Flow Rate	223	378	24	304	325	151
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.45	0.751	0.042	0.619	0.606	0.317
Departure Headway (Hd)	7.28	7.148	6.382	7.323	6.723	7.576
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	507	560	493	536	473
Service Time	5.341	4.903	4.137	5.08	4.479	5.643
HCM Lane V/C Ratio	0.451	0.746	0.043	0.617	0.606	0.319
HCM Control Delay	16.2	28.5	9.4	21.3	19.4	14.2
HCM Lane LOS	C	D	A	C	C	B
HCM 95th-tile Q	2.3	6.4	0.1	4.1	4	1.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.2
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	131	16	0	136	123	43	0	71	46	85
Future Vol, veh/h	0	45	131	16	0	136	123	43	0	71	46	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	142	17	0	148	134	47	0	77	50	92
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	13.2	12.4	12.6
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	35%	26%	0%	100%	0%	35%
Vol Thru, %	23%	74%	0%	0%	74%	37%
Vol Right, %	42%	0%	100%	0%	26%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	176	16	136	166	284
LT Vol	71	45	0	136	0	98
Through Vol	46	131	0	0	123	106
RT Vol	85	0	16	0	43	80
Lane Flow Rate	220	191	17	148	180	309
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.367	0.365	0.029	0.29	0.319	0.506
Departure Headway (Hd)	6.013	6.877	6.03	7.065	6.369	5.905
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	518	588	506	559	605
Service Time	4.11	4.675	3.827	4.854	4.158	3.994
HCM Lane V/C Ratio	0.371	0.369	0.029	0.292	0.322	0.511
HCM Control Delay	12.6	13.6	9	12.7	12.2	15
HCM Lane LOS	B	B	A	B	B	B
HCM 95th-tile Q	1.7	1.7	0.1	1.2	1.4	2.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	15
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	21.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	338	23	0	295	277	39	0	129	43	45
Future Vol, veh/h	0	34	338	23	0	295	277	39	0	129	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	348	24	0	304	286	40	0	133	44	46
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	28.3	20.5	16.3
HCM LOS	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	9%	0%	100%	0%	47%
Vol Thru, %	20%	91%	0%	0%	88%	38%
Vol Right, %	21%	0%	100%	0%	12%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	372	23	295	316	146
LT Vol	129	34	0	295	0	69
Through Vol	43	338	0	0	277	55
RT Vol	45	0	23	0	39	22
Lane Flow Rate	224	384	24	304	326	151
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.454	0.763	0.042	0.62	0.61	0.318
Departure Headway (Hd)	7.305	7.159	6.394	7.345	6.744	7.606
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	492	506	558	490	534	471
Service Time	5.368	4.917	4.152	5.105	4.504	5.678
HCM Lane V/C Ratio	0.455	0.759	0.043	0.62	0.61	0.321
HCM Control Delay	16.3	29.5	9.4	21.4	19.6	14.2
HCM Lane LOS	C	D	A	C	C	B
HCM 95th-tile Q	2.3	6.7	0.1	4.1	4.1	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.2
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	134	16	0	136	124	43	0	75	46	85
Future Vol, veh/h	0	45	134	16	0	136	124	43	0	75	46	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	146	17	0	148	135	47	0	82	50	92
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	13.5	12.5	12.9
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	36%	25%	0%	100%	0%	35%
Vol Thru, %	22%	75%	0%	0%	74%	37%
Vol Right, %	41%	0%	100%	0%	26%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	179	16	136	167	284
LT Vol	75	45	0	136	0	98
Through Vol	46	134	0	0	124	106
RT Vol	85	0	16	0	43	80
Lane Flow Rate	224	195	17	148	182	309
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.382	0.378	0.03	0.291	0.323	0.509
Departure Headway (Hd)	6.145	7.002	6.156	7.206	6.511	6.048
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	589	516	584	501	555	599
Service Time	4.157	4.714	3.868	4.906	4.211	4.048
HCM Lane V/C Ratio	0.38	0.378	0.029	0.295	0.328	0.516
HCM Control Delay	12.9	13.9	9.1	12.8	12.3	15.1
HCM Lane LOS	B	B	A	B	B	C
HCM 95th-tile Q	1.8	1.7	0.1	1.2	1.4	2.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	15.1
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	23.7
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	348	31	0	300	297	39	0	143	43	45
Future Vol, veh/h	0	34	348	31	0	300	297	39	0	143	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	359	32	0	309	306	40	0	147	44	46
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	31.7	22.7	17.6
HCM LOS	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	62%	9%	0%	100%	0%	47%
Vol Thru, %	19%	91%	0%	0%	88%	38%
Vol Right, %	19%	0%	100%	0%	12%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	231	382	31	300	336	146
LT Vol	143	34	0	300	0	69
Through Vol	43	348	0	0	297	55
RT Vol	45	0	31	0	39	22
Lane Flow Rate	238	394	32	309	346	151
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.493	0.8	0.058	0.644	0.664	0.327
Departure Headway (Hd)	7.453	7.312	6.547	7.501	6.905	7.817
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	492	545	479	523	458
Service Time	5.523	5.078	4.313	5.271	4.675	5.9
HCM Lane V/C Ratio	0.495	0.801	0.059	0.645	0.662	0.33
HCM Control Delay	17.6	33.5	9.7	23	22.4	14.7
HCM Lane LOS	C	D	A	C	C	B
HCM 95th-tile Q	2.7	7.5	0.2	4.5	4.8	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.7
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	151	27	0	146	151	43	0	86	46	86
Future Vol, veh/h	0	45	151	27	0	146	151	43	0	86	46	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	164	29	0	159	164	47	0	93	50	93
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	14.6	13.8	14.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	39%	23%	0%	100%	0%	35%
Vol Thru, %	21%	77%	0%	0%	78%	37%
Vol Right, %	39%	0%	100%	0%	22%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	218	196	27	146	194	284
LT Vol	86	45	0	146	0	98
Through Vol	46	151	0	0	151	106
RT Vol	86	0	27	0	43	80
Lane Flow Rate	237	213	29	159	211	309
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.424	0.427	0.052	0.326	0.394	0.543
Departure Headway (Hd)	6.449	7.212	6.376	7.391	6.719	6.328
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	557	499	561	486	536	568
Service Time	4.501	4.964	4.127	5.14	4.469	4.373
HCM Lane V/C Ratio	0.425	0.427	0.052	0.327	0.394	0.544
HCM Control Delay	14.2	15.3	9.5	13.7	13.8	16.7
HCM Lane LOS	B	C	A	B	B	C
HCM 95th-tile Q	2.1	2.1	0.2	1.4	1.9	3.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	16.7
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	34	353	31	0	300	298	39	0	144	43	45
Future Vol, veh/h	0	34	353	31	0	300	298	39	0	144	43	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	35	364	32	0	309	307	40	0	148	44	46
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	32.9	22.9	17.8
HCM LOS	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	62%	9%	0%	100%	0%	47%
Vol Thru, %	19%	91%	0%	0%	88%	38%
Vol Right, %	19%	0%	100%	0%	12%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	387	31	300	337	146
LT Vol	144	34	0	300	0	69
Through Vol	43	353	0	0	298	55
RT Vol	45	0	31	0	39	22
Lane Flow Rate	239	399	32	309	347	151
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.497	0.812	0.058	0.647	0.669	0.328
Departure Headway (Hd)	7.482	7.329	6.564	7.529	6.932	7.853
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	495	544	479	521	456
Service Time	5.551	5.094	4.33	5.297	4.7	5.937
HCM Lane V/C Ratio	0.497	0.806	0.059	0.645	0.666	0.331
HCM Control Delay	17.8	34.8	9.7	23.2	22.7	14.8
HCM Lane LOS	C	D	A	C	C	B
HCM 95th-tile Q	2.7	7.7	0.2	4.5	4.9	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	69	55	22
Future Vol, veh/h	0	69	55	22
Peak Hour Factor	0.97	0.97	0.97	0.97
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	71	57	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.8
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	45	154	27	0	146	152	43	0	90	46	86
Future Vol, veh/h	0	45	154	27	0	146	152	43	0	90	46	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	49	167	29	0	159	165	47	0	98	50	93
Number of Lanes	0	0	1	1	0	1	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	14.8	13.9	14.5
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	41%	23%	0%	100%	0%	35%
Vol Thru, %	21%	77%	0%	0%	78%	37%
Vol Right, %	39%	0%	100%	0%	22%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	222	199	27	146	195	284
LT Vol	90	45	0	146	0	98
Through Vol	46	154	0	0	152	106
RT Vol	86	0	27	0	43	80
Lane Flow Rate	241	216	29	159	212	309
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.435	0.435	0.052	0.327	0.398	0.546
Departure Headway (Hd)	6.483	7.242	6.407	7.427	6.756	6.365
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	498	558	484	532	565
Service Time	4.536	4.996	4.161	5.178	4.507	4.412
HCM Lane V/C Ratio	0.434	0.434	0.052	0.329	0.398	0.547
HCM Control Delay	14.5	15.5	9.5	13.8	13.9	16.9
HCM Lane LOS	B	C	A	B	B	C
HCM 95th-tile Q	2.2	2.2	0.2	1.4	1.9	3.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	98	106	80
Future Vol, veh/h	0	98	106	80
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	4	4	4
Mvmt Flow	0	107	115	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	16.9
HCM LOS	C

Lane

DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

HCS 2010 Two-Way Stop Control Summary Report

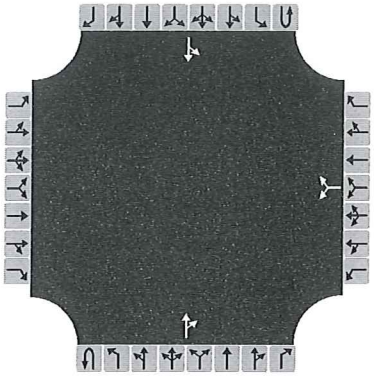
General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Year	2016
Time Analyzed	AM PEAK HOUR
Intersection Orientation	North-South
Project Description	#16058 - GREEN HERON SPRING

Site Information

Intersection	ENTRY_AM
Jurisdiction	CITY OF CARPINTERIA
East/West Street	MAIN ENTRY
North/South Street	CRAVENS LANE
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						12		0			65	4		0	103	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							13							112		
Capacity							799							1509		
v/c Ratio							0.02							0.07		
95% Queue Length							0.0									
Control Delay (s/veh)							9.6							7.4		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)					9.6											
Approach LOS					A											

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HCS 2010 Two-Way Stop Control Summary Report

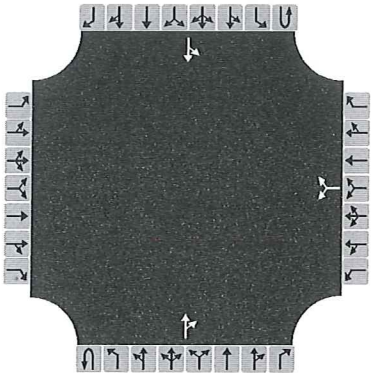
General Information

Analyst	EKM
Agency/Co.	ATE
Date Performed	7/29/2016
Analysis Year	2016
Time Analyzed	PM PEAK HOUR
Intersection Orientation	North-South
Project Description	#16058 - GREEN HERON SPRING

Site Information

Intersection	ENTRY_PM
Jurisdiction	CITY OF CARPINTERIA
East/West Street	MAIN ENTRY
North/South Street	CRAVENS LANE
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						7		0			114	12		0	173	
Percent Heavy Vehicles						4		4						4		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							8							188		
Capacity							671							1432		
v/c Ratio							0.01							0.13		
95% Queue Length							0.0									
Control Delay (s/veh)							10.4							7.5		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					10.4											
Approach LOS					B											

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CUMULATIVE PROJECT LIST

CITY OF CARPINTERIA
CUMULATIVE PROJECTS LIST
JULY 2016

	ID	PROJECT NAME	PROJECT LOCATION	ASSESSOR PARCEL #	PROJECT DESCRIPTION	NET NEW RES. UNITS	NET NEW COMM. & OFFICE SQ. FT.	PROJECT#
	1	Lagunitas Mixed Use	6380 Via Real	001-190-097	Construct 85,000 sq ft office building		85,000	07-1407-TM/PM/DP/CDP
	2	Caltrans Linden-Casitas Interchanges	Linden Avenue &Casitas Pass at Hwy 101	City/Caltrans ROW	Replace/reconfigure Linden Ave & Casitas Pass Rd interchanges		0	09-1522-CUP/CDP
A	3	Carpinteria Valley Arts Center	855 Linden Avenue	003-262-010	New 7,911 sq ft community art center		6,660	09-1534-DP/CDP
P	4	M3 Mixed Use Building	4819 Carpinteria Avenue	003-253-008	New 6,488 sq. ft. commercial building & two apts.	2	6,488	13-1650-DP/CDP
P	5	Schildknecht SFD	4634 Ninth Street	003-242-018	Construct one new SFD	1		13-1683-CDP/ARB
R	6	Island Brewing Co. Expansion	5049 Sixth Street	004-105-004	Convert (E) warehouse to brewery/tasting room add'n & expand patio		595	13-1695-CUPR/CDP
O	7	MTI Capital, Inc SFD I	1275 Cramer Circle	003-103-003	Construct one new SFD	1		14-1729-ARB/CDP
V	8	MTI Capital, Inc SFD II	1289 Cramer Circle	003-103-002	Construct one new SFD	1		14-1730-ARB/CDP
E	9	Olverd SFD	5157 Ogan Road	003-161-019	Construct one new SFD	1		14-1731-ARB/CDP
D	10	Sanctuary Beach Condominiums	4925 Carpinteria Avenue	003-212-030	Construct four new condos	4		14-1733-DP/CDP/TPM
	11	Steadfast Assisted Living	5464 Carpinteria Avenue	001-070-066	Covert (E) office building to 76-bed assissted living facility		0	15-1752-CUP/CDP
	12	Gobbell Second Unit	5398 Star Pine Road	001-060-017	Construct one new residential second unit	1		15-1788-CDP
	13	699 Linden Ave Restaurant	699 Linden Avenue	003-312-004	Restaurant remodel; 136 sq ft addition		136	15-1793-DP/CDP
	14	Habitat for Humanity Triplex	4949 Sawyer Avenue	003-153-005	Construct three new condos	3		15-1798-DP/TPM/CDP
P	15	Paredon Project - Venoco	5731 Carpinteria Avenue	001-170-014	Extended Reach Oil & Gas Development		0	04-1175-DP/CDP
R	16	Carpinteria Ave Bridge Replacement	5400 Carpinteria Avenue	City ROW at Carpinteria Creek	Replace (E) Carpinteria Ave. bridge over Carpinteria Creek		0	14-1719-CUP/CDP
O	17	Wood SFD	650 Concha Loma Drive	003-340-008	Construct one new SFD	1		15-1767-CDP
P	18	Punto de Vista Mixed Use	6155/6175 Carpinteria Avenue	001-180-032 & -040	Demo 46,044 sq ft, construct 76,000 sq ft comm & 49 dwelling units	49	29,956	15-1777-DP/CDP
O	19	Cruz Mixed Use	4675 Carpinteria Avenue	003-242-007	Construct two one-bedroom apts & 500 sq ft commercial space	2	500	15-1781-DP/CDP
S	20	Freeman Residence	789 Linden Ave	003-311-004	Construct (N) garage w/ studio unit above	1		15-1782-DP/CDP
E	21	Hawkins SFD	5567 Calle Arena	003-382-014	Construct one new SFD	1		15-1804-CDP
D	22	Martinez Apartments	1061 Cramer Road	004-036-008	Demo (E) SFD, construct 3 apartment units	2		16-1811-DP/CDP
	23	Fourth Street Condominiums	4610 Fourth Street	003-431-005	Demo one unit, construct four new condos	3		16-1816-DP/CDP
	24	Via Real Hotel	4110 Via Real	004-017-022	Demo (E) church, construct 110-room hotel		55,465	16-1822-DP/CDP
	25	Omni Catering	4835 Carpinteria Avenue	003-253-001	Construct 560 sq ft storage building		560	16-1837-DP/CDP
	26	Green Heron Spring	1300 & 1326 Cravens Lane	004-013-026	Demo one unit, construct 30 new condos	29		16-1840-DP/CDP

Associated Transportation Engineers
Trip Generation Worksheet - With In/Out Splits

GREEN HERON SPRING - CUMULATIVE LIST (#16058)																	
	Land-Use	Size		ADT		A.M.						P.M.					
				Rate	Trips	Rate	Trips	In %	Trips	Out %	Trips	Rate	Trips	In %	Trips	Out %	Trips
1	LAGUNITAS MIXED USE (d)	85,000	SF	11.03	938	1.56	133	88%	117	12%	16	1.49	127	17%	22	83%	105
2a	M3 MIXED USE BUILDING (e)	6,488	SF	44.32	288	0.00	0	0%	0	0%	0	2.71	18	44%	8	56%	10
2b	M3 MIXED USE BUILDING (c)	2	APT	6.65	13	0.510	1	25%	0	75%	1	0.620	1	63%	1	37%	0
3	ISLAND BREWING CO. EXPANSION (g)	595	SF	11.34	7	0.00	0	0%	0	0%	0	15.49	9	66%	6	34%	3
4	MTI CAPITAL, INC SFD I (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
5	MTI CAPITAL, INC SFD II (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
6	OLVERD SFD (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
7	SANCTUARY BEACH CONDOMINIUMS (b	4	CONDOS	5.81	23	0.440	2	17%	0	83%	2	0.520	2	67%	1	33%	1
8	STEADFAST ASSISTED LIVING (i)	76	BEDS	2.74	208	0.180	14	68%	10	32%	4	0.290	22	50%	11	50%	11
9	GOBBELL SECOND UNIT (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
10	699 LINDEN AVE RESTAURANT (f)	136	SF	127.15	17	10.81	1	55%	1	45%	0	9.85	1	60%	1	40%	0
11	SCHILDKNECHT SFD (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
12	WOOD SFD (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
13a	PUNTO DE VISTA MIXED USE (15024) (e	29,956	SF	44.32	1,328	0.00	0	0%	0	0%	0	2.71	81	44%	36	56%	45
13b	PUNTO DE VISTA MIXED USE (15024) (a	49	SFD	9.52	466	0.750	37	25%	9	75%	28	1.000	49	63%	31	37%	18
14a	CRUZ MIXED USE (e)	500	SF	44.32	22	0.00	0	0%	0	0%	0	2.71	1	44%	0	56%	1
14b	CRUZ MIXED USE (c)	2	APT	6.65	13	0.510	1	20%	0	80%	1	0.620	1	65%	1	35%	0
15	HABITAT FOR HUMANITY TRIPLEX (b)	3	CONDOS	5.81	17	0.440	1	17%	0	83%	1	0.520	2	67%	1	33%	1
16	HAWKINS SFD (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.490	1	63%	1	37%	0
17	CARPINTERIA VALLEY ARTS CENTER (j	6,660	SF		141								4		3		1
18	FREEMAN RESIDENCE (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.000	1	63%	1	37%	0
19	MARTINEZ APARTMENTS (c)	2	APT	6.65	13	0.510	1	20%	0	80%	1	0.620	1	65%	1	35%	0
20	OMNI CATERING (f)	560	SF	127.15	71	5.95	3	55%	2	45%	1	4.86	3	60%	2	40%	1
21	VIA REAL HOTEL (h)	110	ROOMS	8.17	899	0.530	58	59%	34	41%	24	0.600	66	41%	27	59%	39
22	FOURTH STREET CONDOMINIUMS (b)	3	CONDOS	5.81	17	0.440	1	17%	0	83%	1	0.520	2	67%	1	33%	1

(a) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Single-Family Housing Detached Housing (#210)
(b) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Residential Condominium/Townhouse (#230)
(c) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Apartment (#220)
(d) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Office (#710)
(e) Trip generation rate derived from 9th Edition ITE Trip Generation Manual forSpecialty Retail Center (#826)
(f) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for High-Turnover (sit-down) Restaurant (#932)
(g) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Drinking Place (#925)
(h) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Hotel (#310)
(i) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Assisted Living
(j) Trip generation taken from traffic study.

South Coast

continued ...

Summerland Community Plan Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process	3	0	0	0
Approved	7	5,936	0	12,188
Under Construction				
Built				
Totals	***10***	***5,936***	***0***	***12,188***

Toro Canyon Plan

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Institutional (schools, churches, etc)	02NEW-00000-00001 J. Leipner	PACIFICA INSTITUTE: 88-CP-005 RV01 005-210-054	Approved	0	0	0	0	5635 sf of new campus facilities.
Commercial	04DVP-00000-00036 A. Almy	SANTA CLAUS LANE AS-BUILT DP 005-450-008	Approved	0	28,021	0	0	As-built permitting - no new
		005-450-009 005-450-015	Approved	6	0	0	0	As- bukilt permitting - no new development
Residential	05TPM-00000-00017 A. Almy	STEIN LOT SPLIT (TPM 14,682) 005-400-011	Approved	2	0	0	0	TPM 14, 682: two-way lot split / 2 lots of .722 and .532 acres

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Commercial	06CUP-00000-00045 A. Almy	ESTANCIA LA SERENA EQUESTRIAN CENTER 005-270-006	In Process	1	5,000	0	0	A commercial horse training, breeding and boarding facility for up to 45 horses together with site improvements for the facility, as well as a residential remodel, new guesthouse, pool cabana, swimming pool, and a new private driveway.
Commercial	07DVP-00000-00015 N. Lieu	CLAUS PROPERTIES STA CLAUS LN MIXED USE 005-450-001 005-450-002	Under Construction	0	3,140	0	0	Mixed use consisting of four commerical lots and three residential lots.
			Under Construction	3	0	0	0	Mixed use consisting of four commerical lots and three residential lots.
Ag Development (excluding wineries)	09CUP-00000-00014 N. Lieu	HOLANI FARMS HORSE BOARDING FACILITY 005-210-050	Approved	1	0	0	20,805	Horse boarding CUP

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Use Type	Case Number/ Assigned Staff	Project Name/ APN(s)	Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.	Misc
Ag Development (excluding wineries)	10DVP-00000-00010 A. Almy	VAN WINGERDEN GREENHOUSE 005-310-024	In Process	0	0	0	264,500	greenhouses
Residential	12TPM-00000-00002 M. Lowery	LIGHT LOT SPLIT (TPM 14,787) 005-030-011 005-030-023	In Process	2				LOT SPLIT (TPM 14,787) OF ONE LOT OF 2.77 ACRES INTO TWO LOTS OF 1.0 AND 1.77 ACRES IN SIZE

Toro Canyon Plan Cumulative Status Summaries:

Status	# Res. Units/Lots	Commr. Sq. Ft.	Industr. Sq. Ft.	Ag Dev. Sq. Ft.
Proposed				
In Process	3	5,000	0	264,500
Approved	9	28,021	0	20,805
Under Construction	3	3,140	0	0
Built				
Totals	***15***	***36,161***	***0***	***285,305***

Note: To appear on this report, a CAP must have a primary parcel designated.
For specific information regarding each of these cases
(e.g. project description, location, etc.), please visit the Citizens Access site at: https://aca.sbcountyplanning.org/CitizenAccess/

Associated Transportation Engineers
Trip Generation Worksheet - With In/Out Splits

GREEN HERON SPRING - CUMULATIVE LIST - SANTA BARBARA COUNTY/TORO CANYON PLAN (#16058)																	
	Land-Use	Size		ADT		A.M.						P.M.					
				Rate	Trips	Rate	Trips	In %	Trips	Out %	Trips	Rate	Trips	In %	Trips	Out %	Trips
1	STEIN LOT SPLIT (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.000	1	63%	1	37%	0
2a	CLAUS PROPERTIES MIXED USE (b)	3,140	SF	44.32	139	2.71	9	44%	4	56%	5	6.84	21	48%	10	52%	11
2b	CLAUS PROPERTIES MIXED USE (a)	3	SFD	9.52	29	0.750	2	25%	1	75%	1	1.000	3	63%	2	37%	1
3	VAN WINGERDEN GREENHOUSE (c)	264,500	SF	0.27	71	0.03	8	55%	4	45%	4	0.06	16	60%	10	40%	6
4	LIGHT LOT SPLIT (a)	1	SFD	9.52	10	0.750	1	25%	0	75%	1	1.000	1	63%	1	37%	0
	TOTAL				259		21		9		12		42		24		18

(a) Trip generation rate derived from 9th Edition ITE Trip Generation Manual for Single-Family Housing Detached Housing (#210)
(b) Trip generation rate derived from 9th Edition ITE Trip Generation Manual forSpecialty Retail Center (#826)
(c) Trip generation taken from traffic study.

Appendix M

Response to Comments

Responses to Comments on the Draft IS-MND

This section includes comments received during the circulation of the Draft Initial Study-Mitigated Negative Declaration prepared for the Green Heron Spring Residential Project (Project).

The Draft Initial Study-Mitigated Negative Declaration was circulated for a 30-day public review period that began on September 14th, 2017 and ended on October 13th, 2017. The City of Carpinteria received five written comment letters on the Draft IS-MND. This response to comments also addresses the comments from the City of Carpinteria Environmental Review Committee (ERC) Meeting that took place September 28th, 2017. In addition to the written comment letters, and ERC meeting comments, the City received two phone calls regarding the IS-MND. The commenters and the page number on which each commenter's letter/comments appear are listed below.

Comments/Letter No. and Commenter		Page No.
Comments received during City of Carpinteria Environmental Review Committee Meeting on September 28th, 2017		2
Letter 1	Scott Morgan, Director, State Clearinghouse	10
Letter 2	Paula Richter, Environmental Scientist, Central Coast Regional Water Quality Control Board	12
Letter 3	Lucas Sharkey, Water Resource Control Engineer, Central Coast Water Board	14
Letter 4	Jerry Van Wingerden	16
Phone Call 1	John McCann	18
Letter 5	John McCann	20
Phone Call 2	Wesley Horn	22

The comments from the ERC meeting are broken down individually by the commenter, and comments raised during the meeting. They are listed sequentially as Response 1, Response 2, etc.

For written letters, the comments and comment letters have been numbered sequentially and each separate issue raised by the commenter, if more than one, has been assigned a number. The responses to each comment identify first the number of the comment letter, and then the number assigned to each issue (Response 2.1, for example, indicates that the response is for the first issue raised in comment Letter 2).

The phone calls are listed as Phone Call 1 and Phone Call 2. Responses to the comments raised during the phone calls have been assigned numbers (Response PC 1 refers to the comment raised in Phone Call 1, and Response PC 2 refers to the comment raised in Phone Call 2).

Where a comment results in a change to the Draft IS-MND text, a notation is made in the response indicating that the text is revised. Changes in text are signified by strikeouts (~~strikeouts~~) where text is removed and by underline (<u>underline</u>) where text is added.

ERC Meeting

Green Heron Spring Residences
Draft Mitigated Negative Declaration

Environmental Review Committee Minutes
September 28, 2017
1:00 p.m. City Council Chambers

The meeting was called to order at approximately 1:05 p.m. by Steve Goggia, Chair.

ROLL CALL

Members present: Steve Goggia, Chair
Charles Ebeling
Natasha Lohmus
Vince Semonsen
Kevin Silk

OTHERS PRESENT: Nick Bobroff, Senior Planner
Nancy Johns, Project Agent

Approximately 8 members of the applicant's design and consultant team were in attendance.

PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA

None.

PROJECT PRESENTATION

Nick Bobroff provided an overview of the project description, and described the findings of the Draft Mitigated Negative Declaration (MND), including the potential project impacts and identified mitigation measures.

ERC MEMBER QUESTIONS

- Steve Goggia asked for details on the perimeter wall construction.
  - Staff explained that the final perimeter wall specifications are still being worked out, but generally for most of the side and rear perimeter, it would be six-foot high masonry wall. There is however at least a portion of the perimeter along the northerly side boundary where, because of interference with nearby trees and stormwater infrastructure, an alternative material will be needed. Currently, the applicant is considering a six-foot high tubular steel fence for this section. 1

- Natasha Lohmus asked what caused the property to be located within the Flood Zone.
  - Staff explained it is not associated with either of the nearby named creeks. Instead, there is a historic drainage pattern generating north of the project site in the foothills that appears to flow through the properties east of Cravens Lane toward the ocean. A County Flood Control District sedimentation basin is located immediately north of the project site and is designed to intercept much of this flow, directing it into a concrete channel that flows into Kim's Drain before continuing on to the Carpinteria Salt Marsh. The FEMA FIRM Map for the area suggests the eastern half of the subject property would be vulnerable to flood impacts during a 100-year storm event, principally associated with this historic drainage course. 2

PUBLIC COMMENT

Nancy Johns introduced herself to the ERC. She explained that she and her consultant team were present and available to help answer any questions.

COMMITTEE MEMBER COMMENTS

Ex Parte Communications
None.

Natasha Lohmus

- Asked for clarification/confirmation that the project still intends to incorporate "green building" features into the design, such as rooftop solar, rainwater collection systems, etc. 3
    - Staff explained that the project is still required to meet LEED "Gold" or better standards and that it includes a number of design features, including but not limited to rooftop solar. The list of design features used to reach LEED "Gold" are provided in a separate document on file with the City rather than being listed in the MND's project description summary.
- Concerning the required 35' setback buffer from the pond, she noted that any private yard areas within the setback must be protected by a deed restriction or similar to ensure they remain planted in appropriate native plants. 4
- She indicated the barbeques provided in the common pavilion should not be wood burning due to air quality concerns. 5
- She asked about FEMA requirements for construction within the floodplain. 6
    - Staff explained there are various requirements for new construction within the floodplain, but that some of the common requirements are that finished floor elevations for all conditioned space be a minimum of one foot above the base flood elevation, and that unconditioned space built below the base flood elevation be outfitted with proper flood vents. Flood insurance is all also typically required for structures located within the floodplain.
- She said mitigation replacement plantings for sycamore should follow CDFW's 5:1 replacement ratio. 7
- She asked if any of the non-specimen biologically valuable trees to be removed could be replanted on the property or elsewhere (as offsite mitigation). 8
    - Staff explained that per the requirements of the Ellinwood Parcel Overlay, it was not possible to count offsite mitigation towards the required mitigation plantings, but that it may be possible to use some of the removed trees to meet onsite mitigation planting requirements for the loss of the specimen trees.
- She said even though the pond doesn't contain CA Red Legged Frogs, other frog species are likely to be present. Therefore, the draining and desilting of the pond should be restricted to not occur during seasons when tadpoles are present. 9
- Heavy equipment should be parked overnight/on weekends over drip pans to avoid soil contamination. 10
- The CC&Rs or similar should stipulate what types and quantities of pesticides, herbicides and rodenticides are allowed. She was specifically concerned with the use of rodenticides and urged that they not be permitted to be used in outdoor areas where wildlife could come into contact with the poisons or pests that have been poisoned. 11
- She asked if there were any wells on the property. 12
    - Staff answered, no, there are no know wells on the property.
- Indicated she would be amendable to the eucalyptus trees being replaced with other native trees of an appropriate height. 13

Kevin Silk

- He asked what the issues are with building within the 100-year floodplain. 14
    - Charles Ebeling, Public Works Director, explained that federal requirements stipulate compliance with certain building techniques/specifications within the floodplain, and that it is the City's responsibility to ensure compliance with these requirements in order to maintain eligibility for

Carpinteria property owners to participate in the federal flood insurance program. He also noted the City is periodically audited by FEMA, which includes a review of built projects, to ensure proper adherence to floodplain requirements. 14

Charles Ebeling

- Provided a brief statement indicating that the City's Public Works Department is still working with the applicant on the proposed CLOMR to remove the property from the 100-year floodplain, as well as the proposed storm drain system. 15

Steve Goggia

- Recommended the inclusion of a requirement that any trucks entering/leaving the site during construction carrying soil or debris be tarped so as to avoid dust impacts. He noted this could be included with one of the existing air quality measures. 16

Vince Semonsen

- Indicated he would be amendable to replacing the redwood mitigation plantings with additional oaks or sycamores if allowed, as redwoods are not native to this particular area and are of limited habitat value in that regard. 17
- Recommended that the mitigation replacement oaks be spread further out throughout the project site. 18

ACTION: Motion by Mr. Silk, seconded by Mr. Goggia, to recommend approval of the Draft Mitigated Negative Declaration to the Planning Commission with their comments attached.

VOTE: 5 - 0

MEETING ADJOURNED: 2:10 p.m.

City of Carpinteria Environmental Review Committee Meeting

DATE: September 28th, 2017

Commenter: Steve Goggia

Response 1

The commenter requested details regarding the perimeter wall construction. The addition of a perimeter wall has been discussed in the analysis of the IS-MND. Current plans suggest a six foot redwood fence along a portion of the northern boundary to reduce interference with nearby trees and stormwater infrastructure. These changes would be shown on the most recent Landscape Plans submitted by the applicant, and submitted to the City for approval. The portions of wall where alternative materials would be used do not warrant a change to the analysis presented in the IS-MND.

Commenter: Natasha Lohmus

Response 2

The commenter requested details regarding the origin of the Flood Zone.

The historic drainage pattern of the area generates a 100 year flood zone. Section 9, *Hydrology and Water Quality* of the IS-MND covers the Flood Zone and potential impacts. The project would adhere to FEMA and City floodplain requirements, and impacts would remain less than significant.

Response 3

The commenter asks for clarification whether the developer intends to incorporate "green building" features into the project.

The project is required to meet LEED Gold or better standards. This is addressed on page 49 of the IS-MND. The following addition has been made to the Project Description on Page 1 of the IS-MND:

"As shown in Table 1, unit sizes would range from 1,274 square feet to 2,301 square feet and include from two to four bedroom units. The site plan includes village green spaces, community garden, a loop trail, and enhancement of an existing agricultural pond. Per City Ordinance for the Ellinwood Parcel Overlay CMC 14.43.030(1), the project is required to be designed to current standards of LEED Gold or better. Figure 3 shows the proposed site plan."

Response 4

The commenter stated a concern regarding the 25-foot setback buffer from the pond, and noted that any private yard areas within the setback should be protected by a deed restriction or similar to ensure sure they remain planted in appropriate native plants.

The following text has been added to mitigation measure Bio-2 on Page 37 of the IS-MND.

"Bio-2 **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Wetlands Mitigation Program to CDD for review and approval. The Final Wetland Mitigation Program shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision requiring all landscape areas within the mandatory 35-foot setback from the onsite pond/wetland, including private yards of individual residences, be maintained in, and limited to, appropriate native plants, and shall be enforced and maintained by the Homeowners' Association. All aspects of the Program shall be implemented as approved."

Response 5

The commenter stated a concern that the barbeques in the pavilion should not be wood burning due to air quality concerns.

The following text has been added to Page 25 of the IS-MND:

"The project also includes the addition of outdoor barbeque areas. The outdoor barbeques would be gas; therefore, they would not contribute to operational air pollutant emissions from wood burning sources. The project is required to adhere to the Residential Mandatory Measures in the 2016 CALGreen Code requirements (4.503.1), which pertains to gas installed fireplaces."

Response 6

The commenter requested further details about the FEMA requirements of construction within the floodplain.

There are various requirements for new construction within the 100-year floodplain, including common requirements such as: finished floor elevations for all conditioned space must bea minimum of one foot above the base flood elevation, and that unconditioned space built below the base flood elevation must be outfitted with proper flood vents. In addition, the requirement of flood insurance may be required if a project is located within a 100-year floodplain.

Response 7

The commenter stated that mitigation plantings for sycamore trees should follow CDFW's 5:1 replacement ratio.

As discussed in the Tree Assessment Protection Plan (TAPP), all sycamore trees that are proposed for removal would be mitigated at a 10:1 replacement ratio. This ratio exceeds the 5:1 ratio.

Response 8

The commenter questioned whether any of the non-specimen biologically valuable trees that are proposed for removal could be planted on the property or elsewhere as off-site mitigation.

The requirements of the Ellinwood Parcel Overlay do not allow for off-site plantings to count towards required mitigation plantings. However, there is potential for some of the trees removed as part of the project to be planted elsewhere on-site.

Response 9

The commenter states that although the on-site pond does not contain California Red Legged Frogs, other frog species are likely present; therefore, draining and desilting of the pond should be restricted to times when tadpoles are not present.

Pacific chorus frogs can potentially breed year-round in the pond; therefore, there is no definitive time when no tadpoles would be present. As discussed in Section 4, *Biological Resources*, the pond does not support and is not expected to support any rare or special status species. Therefore, the desilting and draining of the pond would have no impact on protected species.

Response 10

The commenter states that heavy equipment that is parked overnight/on weekends should be parked over drip pans to avoid soil contamination.

To address this comment, the following has been added to Page 63 of the IS-MND:

"Hyd-7 Construction materials and waste such as paint, mortar, concrete slurry, fuels, etc. shall be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Additionally, all heavy equipment that is parked on the site overnight or during the weekends shall be parked over plastic or drip pans. **Plan Requirements and Timing:** Bulk storage locations for construction materials and any measures proposed to contain the materials, and the required use of drip pans under parked heavy equipment shall be shown on the grading plans submitted to CDD for review prior to issuance of a Building Permit. **Monitoring:** CDD shall site inspect prior to the commencement and as needed during all grading and construction activities."

Response 11

The commenter stated that rodenticides should not be used in outdoor areas where wildlife could come into contact with the poisons or pests that have been poisoned.

To address this concern, the following text has been added on Page 38 of the IS-MND.

"Bio-3 **Plan Requirements:** Prior to issuance of a Grading or Building Permit, the applicant shall submit grading plans, building plans and a Final Tree Protection and Replacement Plan to CDD for review and approval. The Final Tree Protection and Replacement Plan shall include, as recommended by the City's Environmental Review Committee, a requirement that the Homeowners Association's CC&Rs include a provision prohibiting the use of rodenticides containing anticoagulant compounds, and shall be enforced and maintained by the Homeowners' Association. All aspects of the plan shall be implemented as approved.

Response 12

The commenter asked if there are any wells on the property.

There are no known wells on the property.

Response 13

The commenter stated a preference for replacement of eucalyptus trees with other native trees of an appropriate height.

Tree replacements are discussed in the Tree Assessment and Protection Plan, which can be found as Appendix C of the IS-MND. The removal of the eucalyptus trees would be mitigated per the City of Carpinteria and Ellinwood Parcel Overlay District requirements(planting of 10 saplings).

Commenter: Kevin Silk

Response 14

The commenter requested further information regarding the 100-year floodplain.

During the ERC meeting, Mr. Ebeling responded to Mr. Silks request, and noted the requirements of FEMA and the City's role in adhering to the requirements. For further details, see Response 2 and Response 6.

Commenter: Charles Ebeling

Response 15

The commenter stated that the City's Public Works Department is working with the applicant on the proposed CLOMR and the proposed storm drain system.

The CLOMR is currently under review, and all aspects related to construction in the floodplain are addressed in Section 9, *Hydrology and Water Quality*. In addition, mitigation measure Hyd-8 discusses the conditional outcomes of the CLOMR, and the project's compliance with City floodplain requirements.

Commenter: Steve Goggia

Response 16

The commenter recommended the inclusion of a requirement to tarp trucks entering/exiting the site during construction with soil or debris to avoid dust impacts.

In response to this suggestion, the following additions have been made to mitigation measure AQ-2 on page 27 of the IS-MND:

"During clearing, grading, earth moving, excavation or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.

a. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the late morning and after work is completed for the day, and whenever wind exceeds 15 miles per hour.

b. Soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation.

c. <u>During construction, all trucks entering or exiting the site carrying soil or debris shall be tarped."</u>

Commenter: Vince Semonson

Response 17

The commenter stated a preference for replacing the redwood mitigation plantings with additional oaks or sycamore trees as redwoods are not native to the area and are of limited habitat value.

The mitigation for the replacement of the coast redwood is planting three 24-inch boxed redwoods. There are no requirements for species types for replacement mitigation.

Response 18

The commenter recommended that the mitigation replacement oaks be spread further out throughout the project site.

The replacement oaks are required to be placed on-site. As the project would increase impervious surfaces and buildings on site, there is a reduced footprint that can accommodate the trees. The trees have been placed in areas that have the space to accommodate the plantings without inhibiting use of the rest of the property.

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Letter 1

October 13, 2017

Nick Bobroff
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

Subject: Green Heron Spring Residential Project
SCH#: 2017091034

Dear Nick Bobroff:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on October 12, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. 1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

RECEIVED
OCT 16 2017
CITY OF CARPINTERIA

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Letter 1

COMMENTER: Scott Morgan, Director, State Clearinghouse

DATE: October 13th, 2017

The commenter states that the MND was submitted to select state agencies for review, and that no state agencies submitted comments during the circulation review period. The commenter states that the City has complied with the State Clearinghouse review requirements.

Letter 2

From: Richter, Paula@Waterboards <Paula.Richter@Waterboards.ca.gov>
Sent: Friday, October 13, 2017 8:17 AM
To: Nick Bobroff
Cc: Sharkey, Lucas@Waterboards
Subject:Green Heron Spring (16-02960) - RWQCB Comments on Mitigated Negative Declaration

Hi Nick,

We have reviewed the Mitigated Negative Declaration dated August 28, 2017 (MND) for the above referenced project. We offer the following comments on the proposed project:

1. The MND states at Page 2 that the existing pond would be dredged, desilted, and the vegetation would be removed and replaced with appropriate native vegetation. These are activities that would require permitting from the 401 Unit at the Central Coast Water Board. 1

2. The MND states at Page 6 in the Water Quality and Drainage section that the existing pond would be modified to have a 4:1 slope and sized to capture excess stormwater runoff for a 100-year storm event. We do not typically allow the use of waters of the state (the pond) for post-construction stormwater control measures. 2

3. The MND states at Item No. 11 that the Central Coast Water Board issued a Waste Discharge Requirement (WDR) for the use of the pond as an on-site stormwater retention basin. We cannot locate any record of having issued a WDR for this project. Please either provide us with a copy of the WDR. Please also note that most of our WDRs contain language that allow us discretion in the future to determine whether they are still protective of water quality. Some contain expiration dates. We cannot ascertain the validity of the referenced WDR without further information. 3

We look forward to hearing from you.
Regards,
~Paula

Paula Richter
Environmental Scientist
Central Coast Regional Water Quality Control Board
Planning/401 Unit
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906
Paula.Richter@waterboards.ca.gov
http://www.swrcb.ca.gov/rwqcb3/
(805) 549-3865

Letter 2

COMMENTER: Paula Richter, Environmental Scientist, Central Coast Regional Water Quality Control Board

DATE: October 13th, 2017

Response 2.1

The commenter states that the activities regarding dredging, desilting, and removing and replacing vegetation of the existing pond require permitting from the 401 Unit at the Central Coast Regional Water Quality Control Board (CCRWQCB).

CCRWQCB 401 permits are required for waters of the state. The existing on-site pond was originally constructed to be a private detention basin for stormwater detention purposes. It is not hydrologically connected to any surrounding water bodies. Therefore, the pond does not qualify as a water of the state and is not under the jurisdiction of the Central Coast Regional Water Quality Control Board. As part of the project, the pond would be reconditioned and continue to serve as a detention basin. For these reasons a 401 permit is not needed.

Response 2.2

The commenter states that the CCRWQCB does not typically allow the use of waters of the state for post-construction stormwater control measures.

See Response 2.1 for a discussion of the existing stormwater detention basin and "waters of the United States." The pond is a private detention basin that is not hydrologically connected to other water bodies. It is not a "water of the United States". Therefore, no CCRWQCB permit is required.

Response 2.3

The commenter states that they cannot locate any record of having issued a WDR for the project. The commenter requests that they are provided with a copy. The commenter states that WDRs contain language that allow the CCRWQCB discretion in the future to determine whether they are still protective of water quality, and that some WDRs contain expiration dates.

An earlier IS-MND prepared for the project site in November 2007 by the City of Carpinteria states that a WDR was issued by the CCRWQCB for use of the pond as an on-site stormwater detention basin. However, to the knowledge of United Civil, Inc., which prepared a Hydrology Study for the project site, there is no record of the mentioned WDR for the use of the pond because the pond is a private stormwater detention basin. Based on the nature of the basin as a stormwater control feature that is not hydrologically connected to other water bodies, a WDR is not needed.

Letter 3

From: Sharkey, Lucas@Waterboards <Lucas.Sharkey@waterboards.ca.gov>
Sent: Friday, October 13, 2017 10:07 AM
To: Nick Bobroff
Cc: Richter, Paula@Waterboards
Subject: Green Heron Spring (16-02960) - Additional RWQCB Comments on Mitigated Negative Declaration

Nick,

I wanted to add a few notes Paula left out related to compliance with the Central Coast Post-Construction Requirements, Resolution No. R3-2013-0032 (PCRs).

1. The MND states "Per the Santa Barbara County Technical Guidance Manual, the project type is Tier 4, as the project includes new or replaced impervious surfaces in excess of 22,500 square feet. As a Tier 4 project, the project must implement Low Impact Development design measures from Tier 1, 2, 3 and 4 requirements." This statement does not appear supported by the additional text describing the activities/control measures planned for use in the "Hydrology and Water Quality" impacts section and Hydrology Study. THe text focuses solely on controlling peak flows and does not address the requirements to meet Performance Requirements 2 and 3 of the PCRs (Water Quality and Retention respectively). 1

2. The document states on Page 6 "the existing pond would remain in place and be modified to have a 4:1 slope, and be sized to capture the increased difference in volume of storm water runoff for a 100-year storm event in the proposed condition from the existing condition." Wet ponds/wetlands do not generally function as retention basins for controlling small storms such as those required to meet Performance Requirement 3 of the PCRs as they have a wet footprint not allowing rapid infiltration. 2

3. Unless properly detailed, wetponds and wetlands may not function to meet Performance Requirement 2 of the PCRs (Water Quality Treatment). 3

4. It does not appear there are other water quality treatment and retention measures planned to augment the use of the pond as a detention basin, thus the sole reliance appears on the use of an existing pond. 4

Regards,
Lucas

==========

Lucas J. Sharkey, P.E. | Water Resource Control Engineer
Central Coast Water Board | 895 Aerovista Place, Suite 101 | San Luis Obispo, CA 93401
P: (805) 594-6144

Letter 3

COMMENTER: Lucas Sharkey, Water Resource Control Engineer, Central Coast Waterboard

DATE: October 13th, 2017

Response 3.1

The commenter states that IS-MND does not describe the Low Impact Development (LID) design measures that the project is required to implement. The commenter states that the text in the IS-MND focuses solely on controlling peak flows and does not address the requirements to meet Performance Requirements 2 and 3 of the Central Coast Post Construction Requirements (PCRs).

The LID design measures from Tiers 1-3 are satisfied and described in the Stormwater Control Plan, included as Appendix H. Strategies include the preservation of natural drainage features, use of permeable pavements, and controlling all runoff on site. The Tier 4 requirement is demonstrated for compliance through the analysis of peak storm events and that the modified pond would be equipped to handle two-year through 100-year storm events.

Response 3.2

The commenter states that wet ponds/wetlands that are required to meet Performance Requirement 3 of the PCRs do not generally function as retention basins for controlling small storms since they have a wet footprint that does not allow for rapid infiltration.

See Response 2.1 for a discussion of the existing on-site detention basin. The basin would be reconditioned and continue to be used as a detention basin to control peak stormwater outflow from the project site for two-year through 100-year storm events.

Response 3.3

The commenter states that unless properly detailed, wet ponds and wetlands may not function to meet Performance Requirement 2 of the PCRs.

As stated in Response 3.2, the existing pond is an existing detention basin that would be reconditioned and continue to be used as a detention basin.

Response 3.4

The commenter states that there do not appear to be any water quality treatment or retention measures planned to augment the use of the pond as a detention basin, and that the sole reliance is the use of the pond.

Other measures, including permeable pavement, filter insert, and directing runoff from impervious areas to pervious, self-retaining landscaped areas, are described and outlined in the Stormwater Control Plan, included as Appendix H. Also, see Response 3.1.

Letter 4

10-10-2017

To Nick Bobroff, Senior Planner

Community Development Department.

Thank you for assisting me this afternoon with the questions I had regarding the Green Heron Spring Residential Project to be constructed if approved at 1300 Cravens Lane. Project 16-1840-DP/CDP.

I reviewed the excerpt of the Draft Mitigated Negative Declaration of the Green Heron Spring 16-02960 from August 2017.

Item 2. Agricultural and Forest resources.

I was pleased to see that agriculture around the development has received proper attention as to the requirement that the development has to be surrounded by a solid wall on the North, East and South to shield the project from agricultural noises, chemicals, odors, dust and lights.

As well as that all buyers of the condos and residences will be made aware on the title reports they receive at the time of purchase of the existence of agriculture and the environmental impact this may have on their property.

1

In the circular we received on the Green Heron project there is a reference that the development will be using a gated emergency access entry from the adjacent private road. Since I am the owner of that private road I would like to find out from whom permission to use the road for the purpose described was given. As of today I am not aware that permission was either requested or granted. Could you look in to the matter please?

2

I expressed to you that I was concerned about the over grown trees around the property. Over the years we have had substantial expense to maintain entrance to our own property because of trees that have fallen on the roadway on the South and East side of the property. I would like it to be noted that once the property is developed there will need to be proper maintenance on the trees.

3

Sincerely,

Jerry Van Wingerden

Letter 4

COMMENTER: Jerry Van Wingerden

DATE: October 10th, 2017

Response 4.1

The commenter states that he reviewed the Draft MND. The commenter states he is pleased the MND addresses the adjacent agricultural properties to the project site. Specifically, the commenter mentions the solid wall on the north, east, and south edges of the property, and that a buyer notification has been developed as a mitigation measure notifying future property owners of the adjacent agricultural operations.

These comments do not pertain directly to the Draft MND analysis or conclusions. No response is necessary.

Response 4.2

The commenter states that the project would use a gated emergency access entry from the adjacent private road to the south of the project. The commenter states he owns the private road, and questions whether proper permission to use the road was ever requested or granted.

The applicant is currently working to obtain an easement with the adjacent property owner for fire access to the alley.

Response 4.3

The commenter states a concern about the over grown trees around the property. The commenter states that over the years, trees have fallen on the roadway on the south and east sides of the property, and that there should be proper maintenance of these trees once the property is developed.

The applicant proposes to remove 64 trees from the site. These removals would reduce the amount of clutter and maintenance required compared to existing conditions. In addition, landscaping, tree trimming, and pruning of the trees located around the property would be implemented by the Homeowners Association.

Phone Call 1

John McCann
1222 Cravens Lane

(Comments below are summarized based on a phone call with Nick Bobroff, City Planner from the City of Carpinteria)

He expressed concern over flooding impacts to his property. He explained that when large storm events coincide with high tides, the stormdrain system that runs under Via Real and U.S. 101, connecting the Cravens Lane inlet to the Carpinteria Salt Marsh, backs up and/or becomes overwhelmed, resulting in flooding impacts to his property. He asked if it were possible to redirect some, or all runoff from the project site to the concrete-lined channel east of the project site that drains to “Kim’s Drain” instead. He believed this facility was properly designed and adequately sized to safely convey storm flows to the Salt Marsh.

1

Phone Call 1

COMMENTER: John McCann

DATE: October 2017

(Comments received via phone call with Nick Bobroff, Project Planner from the City of Carpinteria)

Response PC 1

The commenter states a concern regarding flooding impacts. The commenter questions whether it is possible to redirect some or all runoff from the project site to the concrete-lined channel east of the site.

As discussed in Section 9, *Hydrology and Water Quality*, the total discharge and peak flow rates would not exceed the pre-development rates for two-year through 100-year storm events. As discussed in the IS-MND on Pages 59 and 60, for the modified pond near the center of the project site, the total peak runoff flow rates and volumes from the site in the proposed post-development condition would be less than that in the existing pre-development condition. Impacts regarding stormwater runoff would be less than significant.

From: John McCann <john@hazelwoodallied.com>
Sent: Monday, October 16, 2017 11:39 AM
To: Nick Bobroff
Cc: 'John McCann'
Subject: Cravens Lane Green Heron Project

Letter 5

Hello Nick:

This is a follow-up to our conversation regarding my concerns about rain run off on Cravens Lane. We have been severely impacted over the years with 3' to 4' of water at Cravens and Via Real. My question is why not put a box culvert at the Green Heron Project? Much like they did up Cravens near the Van Wingerden property. This could drain into the large culvert behind the Green Heron Project. My concern is that the agricultural pond will never be able to handle the storm water volume that Cravens Lane receives. 1

Many Thanks,
John McCann

John McCann, President
Hazelwood Allied Transfer & Storage
1222 Cravens Lane
Carpinteria, CA 93013
Cell: 805.455.4690
Tel: 805.684.2922 or 805.684.4000
Fax: 805.566.6650
Toll Free: 800.541.5958
john@hazelwoodallied.com

Letter 5

COMMENTER: John McCann

DATE: October 16th, 2017

Response 5.1

The commenter follows up from Phone Call 1 and further states a concern about rain run off on Cravens Lane. The commenter states that Cravens Lane and Via Real have been impacted by three to four feet of water. The commenter opines that a box culvert should be placed at the Green Heron Project, to which could drain into the large culvert behind the project. The commenter states a concern regarding the agricultural pond sufficiently handling stormwater volume.

See Response PC 1 for a discussion of total peak runoff flowrates and volumes from the project site under pre- and post-development conditions. Stormwater runoff from the project site currently drains to Cravens Lane and should not be diverted to drain into the existing concrete culvert east of the project site. The proposed project would recondition the existing on-site detention basin and utilize it to provide stormwater detention. Additionally, an underground storm drain pipe would extend from the existing catch basin at the northeast corner of Cravens Lane and Via Real to the project site. The outflow from the project site would outlet directly to this proposed underground storm drain pipe, which would significantly reduce the surface runoff onto Cravens Lane. When built and maintained per proposed development, less ponding should occur on Cravens Lane, and the project would have no negative impact on downgradient drainage facilities.

Phone Call 2

Wesley Horn, Coastal Program Analyst, California Coastal Commission,

(Comments below are summarized based on a phone call with Nick Bobroff, Project Planner from the City of Carpinteria)

Mr. Horn noted that the discussion of, and references to, the WHEMP in the Biological Resources section of the DMND should reference to the most current version of the WHEMP. 1

Phone Call 2

COMMENTER: Wesley Horn, Coastal Program Analyst, California Coastal Commission.

DATE: October 2017

(Comments received via phone call with Nick Bobroff, Project Planner from the City of Carpinteria)

Response PC 2

The commenter correctly points out the typographical errors in the IS-MND regarding the dates of the WHEMP and TAPP.

The most recent versions and dates of both the WHEMP and TAPP are 2017. The analysis in the Draft IS-MND is based on the 2017 updated versions. Therefore, the dates have been changed throughout the document.

PLANNING COMMISSION STAFF REPORT

MEETING DATE: November 6, 2017

ITEM FOR CONSIDERATION

General Plan Amendment to the Safety Element

17-1889-GPA

Request to allow an amendment to the Safety Element of the City's General Plan, Project Number 17-1889-GPA, to incorporate by reference, the City's 2017 Hazard Mitigation Plan, pursuant Government Code Section 8685.9, 65302, and 65302.6.

Report prepared by: Steve Goggia, Director
Community Development Department


SIGNATURE

I. RECOMMENDATION

Staff recommends the Planning Commission recommend that the City Council make the required Findings as presented in Exhibit 1, to amend the Safety Element of the City's General Plan, adding a new Objective and Policy concerning City hazard mitigation planning.

II. PROPOSED PROJECT DESCRIPTION

The proposed amendment would add a new Objective and Policy to the Safety Element of the General Plan to read as follows:

Objective S-7: Identify and implement projects, programs and services capable of mitigating risks and reducing loss of life, injury, property damage and economic and social dislocations resulting from natural, technological, and human caused disasters affecting the Carpinteria community.

Policy S-7a.: The current Hazard Mitigation Plan as adopted by City Council is hereby incorporated by reference and is a part of this General Plan Safety Element.

III. BACKGROUND

The Federal Emergency Management Agency (FEMA) requires local governments to provide and maintain a hazard mitigation plan. Public Law 106-390, Section 322, commonly known as the Disaster Mitigation Act of 2000 (DMA 2000), and the associated Interim Final Rule, 44 CFR Parts 201 and 206, published in the Federal Register on February 26, 2002 establishes planning and funding criteria for states and local communities. The City's updated Hazard Mitigation Plan was approved by the City Council at their meeting of September 11, 2017.

State Planning and Zoning Law requires each city to adopt a comprehensive, long-term General Plan for the physical development of a city and any land outside its boundaries which, in its judgment, bears relation to its planning (i.e., sphere of interest). State law also requires that city hazard mitigation plans be incorporated by reference into the Safety Element of a General Plan pursuant to Government Code Sections 8685.9, 65302, and 65302.6.

The Safety Element is one of the seven mandatory elements, i.e., policy areas, required to be included in a General Plan (Land Use, Circulation, Housing, Conservation, Open Space, Noise, and Safety).

IV. DISCUSSION

The purpose of the City's General Plan Safety Element is to establish policies that can lead to local government projects, programs and services capable of reducing the potential for death, injuries, property damage, and the economic and social dislocation resulting from natural hazards.

Several issues related to natural hazards have been identified in the Carpinteria planning area. These issues fall into six categories, including:

- Seismically-Induced Hazards
- Slope Stability Hazards
- Soil Hazards
- Flood Hazards
- Fire Hazards
- Hazardous Materials

The City of Carpinteria 2017 Hazard Mitigation Plan is a comprehensive document that evaluates natural, technological, and human-caused disaster impacts on the public and local government. It also identifies resources and capabilities, and proposes mitigation actions or projects to reduce future impacts. The Hazard Mitigation Plan identifies potential hazards that could impact the City and assists emergency management staff with response planning, exercise development, public education, awareness programs and other emergency management functions. The Hazard Mitigation Plan can be found on the City's website under the Local Info / Emergency Preparedness tabs.

The City has an interest and obligation to comply with state and federal laws concerning emergency planning and preparedness. The City's updated Hazard Mitigation Plan responds to the Federal Emergency Management Agency (FEMA) requirements that local governments provide and maintain a hazard mitigation plan.

Amending the Safety Element of the City's General Plan to add Objective S-7 and Policy S-7a would comply with, and address, the State's requirement that the Hazard Mitigation Plan be incorporated by reference into the Safety Element of the City's General Plan, pursuant to Government Code Sections 8685.9, 65302, and 65302.6.

In the event of disaster-related expenses being incurred by the City, State and Federal disaster funding will be limited to 75% of total state-eligible costs if the Hazard Mitigation Plan has not been incorporated by reference into the Safety Element of the General Plan pursuant to Government Code Sections 8685.9, 65302, and 65302.6.

IV. ENVIRONMENTAL

The proposed amendment to the General Plan Safety Element is exempt from CEQA pursuant to State CEQA Guidelines sections 15060(c)(2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment), 15060(c)(3) (this activity is not a project as defined in section 15378) and 15061(b)(3) (the activity is covered by the general rule which exempts activities that can be seen with certainty to have no possibility for causing a significant effect on the environment). See Exhibit 2 for more details.

V. ACTION OPTIONS

1. Staff recommends that the Planning Commission recommend that the City Council make the required Findings as presented in Exhibit 1, and amend the Safety Element of the General Plan, adding a new Objective and Policy concerning City hazard mitigation planning. This staff report and the subsequent letter reflecting the Planning Commission's action shall constitute the Planning Commission's written recommendation. (staff's recommendation)

2. Modify the text of the proposed Objective and Policy and recommend approval to the City Council as amended.

3. Direct staff to prepare text revisions and return to the next Commission meeting.

VI. ATTACHMENTS

Exhibit 1 Findings

Exhibit 2 Notice of Exemption

EXHIBIT 1: FINDINGS

I. FINDINGS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Planning Commission recommends that the City Council find the proposed amendment to the Safety Element of the City's General Plan, adding a new Objective and Policy concerning City hazard mitigation planning, would not result in any significant environmental effects.

The proposed amendment to the General Plan Safety Element is exempt from CEQA pursuant to State CEQA Guidelines sections §15060(c)(2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment), §15060(c)(3) (this activity is not a project as defined in section §15378) and §15061(b)(3) (the activity is covered by the general rule which exempts activities that can be seen with certainty to have no possibility for causing a significant effect on the environment).

II. ADMINISTRATIVE FINDINGS

The amendment to the Safety Element of the City's General Plan, adding a new Objective and Policy concerning City hazard mitigation planning, is found to be in the public interest and consistent with the goals, policies and objectives of the City's Safety Element. The purpose of the Safety Element is to establish policies that can lead to local government projects, programs and services capable of reducing the potential for death, injuries, property damage, and the economic and social dislocation resulting from natural hazards.

Several issues related to natural hazards have been identified in the Carpinteria planning area. These issues fall into six categories, including Seismically-Induced Hazards, Slope Stability Hazards, Soil Hazards, Flood Hazards, Fire Hazards, and Hazardous Materials.

The City of Carpinteria 2017 Hazard Mitigation Plan is a comprehensive document that evaluates natural, technological, and human-caused disaster impacts to the public and local government. It also identifies resources and capabilities, and proposes mitigation actions or projects to reduce future impacts. The Hazard Mitigation Plan identifies potential hazards that could impact the City and assists emergency management staff with response planning, exercise development, public education, awareness programs, and other emergency management functions.

The City has an interest and obligation to comply with state and federal laws concerning emergency planning and preparedness. The City's updated Hazard Mitigation Plan responds to the Federal Emergency Management Agency (FEMA) requirements that local governments provide and maintain a hazard mitigation plan. Public Law 106-390, Section 322, commonly known as the Disaster Mitigation Act of 2000 (DMA 2000), and the associated Interim Final Rule, 44 CFR Parts 201 and 206, published in the Federal Register on February 26, 2002 establishes planning and funding criteria for states and local communities.

The State requires the Hazard Mitigation Plan be incorporated by reference into the Safety Element of the City's General Plan pursuant to Government Code Sections 8685.9, 65302, and 65302.6.

1ITY OF CARPINTERIA
5775 Carpinteria Avenue
Carpinteria California 93013

ARCHITECTURAL REVIEW BOARD
Meeting Date: October 12, 2017

ACTION MINUTES

The meeting was called to order at 5:40 p.m. by Richard Johnson, Chair.

ROLL CALL

Boardmembers present: Richard Johnson
Grant Cox
Scott Ellinwood
Jim Reginato

Boardmembers absent: Dylan Chappell

OTHERS PRESENT: 30 members of the public were in attendance.

PUBLIC COMMENT: None

PROJECT REVIEW

1) Applicant: Steven Elson, Montana Avenue Capital Partners, LLC
Planner: Steve Goggia
Project: 17-1876-DP/CUP/CDP
Project Location: 6380 Via Real
Zoning: Industrial Research Park (M-RP)

Hearing on the request of Steven Elson for Montana Avenue Capital Partners, LLC to consider Project 17-1876-DP/CUP/CDP for preliminary review of a request to redesign the Lagunitas office park building previously approved by the City Council in September 2008. The proposed redesign would replace the approved 84,550 square foot office building with six separate, smaller office buildings, one at 22,000 square feet and five at 11,000 square feet (totaling 77,000 square feet) arranged in a campus setting. A separate 4,000 square foot retail/restaurant building is also proposed, bringing the project total to 81,000 square feet, a reduction of 3,550 square feet from the approved project. Project parking has been reduced from 340 spaces to 331 spaces. The 8.63-acre site is zoned Industrial Research Park (M-RP) and shown as APN 001-190-097 located at 6380 Via Real.

Staff presented an overview of the current project and described the history of the previous approval and subsequent concept review hearings for possible redesigns.

The project representative team presented provided details concerning the selected colors and materials, landscape plan, and lighting plan. They noted the selected plantings were intended to be native and/or drought tolerant, and that the site lighting had been designed to be low intensity, downward-facing and not result in any offsite spillover. In response to various questions from the Board, the project representatives confirmed that the buildings' interior lighting would make use of occupancy sensors, zoned lighting and similar energy efficiency measures as required by the Building Code. They also explained that their intent was to screen/separate the private Lomita Lane from the office park's parking lot using a combination of a fence and landscape plantings. They explained that rough grading of the site was completed as part of the site preparation for the residential component of the Lagunitas project and only minimal additional grading was expected. A portion of the project area would drain into the to-be-expanded existing detention basin at the northern end of the project site. They also clarified that they had not yet determined whether to use permeable paving in the project design.

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Public Comment:
Grace Ann Graumann expressed concern over the heights of the building (noting the Lagunitas residences sit at a lower elevation), and the proximity of the buildings to the creek/creek paths. She felt there was not sufficient landscaping (particularly trees) along the creek paths and gathering areas to buffer the proposed project. She also thought the creek path should be fenced to separate it from the office park use(s). She did not feel the proposed architecture related to the Lagunitas homes in any appreciable manner and was concerned with impacts from interior night lighting. She suggested the retail/restaurant use would become the closest amenity to nearby public open spaces (including Rincon beaches) and could thus become a destination serving more than just local employees/residents. Finally, she expressed a general concern with drainage, noting the area does not have good drainage.

George Jimenez stated he likes his open space the way it is, and feels the proposed project is too massive and too close to the creek and creek paths. He expressed a concern with employees from the business park using the creek paths and Lagunitas residences' open spaces/amenities. He also shared concerns over drainage. He was not in favor of the introduction of a market or similar use to the site, noting these uses should remain downtown in order to further stimulate downtown business. Furthermore, he was concerned about traffic impacts such a use could bring to the area. He also noted that the office park buildings' windows are much higher than the adjacent residences, and could result in privacy impacts for nearby residents.

Gary Graumann felt the proposed buildings should look more residential in character. As designed, he felt they were too boxy and lacked articulation. He expressed concern over whether there was sufficient parking provided given the higher occupancies of modern tech firms. He was concerned with lighting impacts and reiterated that all lighting should be kept low intensity and night-sky friendly. He said if the restaurant/retail space is approved, the neighborhood must be able to review and approve of the individual use(s) of the space.

Tracey Laruenz shared similar concerns to the other speakers, expressing reservations over the proximity of the buildings to the creek/creek paths, security concerns resulting from both office park employees entering the Lagunitas residences' property and from any future restaurant/retail/market use. Overall, she felt the project negatively affected the residential character of their neighborhood. She was also concerned about impacts to traffic and parking along Via Real.

Robert Rhoades felt the plans for the redesign had regressed, and asked that the applicants go back to the original approved design. He suggested the proposed development as shown could be occupied by up to 14 tenants and could function as a 24/7 commercial development. He felt strongly that the proposed design was wrong for the site and the community. He was opposed to the introduction of the restaurant/retail space fearing it would become an attractive nuisance for highway travelers.

Vera Bensen reiterated the need to preserve Carpinteria's small beach town character. She was not in support of introducing the restaurant/retail space into the M-RP zone district noting it would bring more traffic and activity. She wondered if it were possible to reduce the prominence of the amount of parking, such as placing some if it underground. She also was concerned with night lighting impacts. She noted she generally liked the idea of the smaller individual buildings so long as the height is kept down. Finally, she asked if it were possible to gate Lomita Lane.

Don Bensen expressed a preference for the original Barton Myers design noting it was more

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residential in character, used natural materials and was designed in the Carpinteria vernacular. He noted he liked the campus setting but felt the current design was too industrial looking and too boxy, lacking sufficient articulation. He was supportive of the placement of mechanical equipment on the ground rather than on building rooftops. He did not like how much of the site was devoted to parking, and he shared others' concerns with lighting impacts. He thought the buildings were too close to the creek and Lomita Lane; he noted if there campus were moved slightly to the south, the buildings could be repositioned to give these adjacent features a larger buffer. He recommended the fence proposed along Lomita Lane be replaced with a four-foot high masonry wall designed to complement the buildings.

Linda Lisiecki noted she was happy to see the parking lots had been moved away from the residences and somewhat buffered. She was not happy with the placement/orientation of the mechanical equipment enclosures; recommending they instead be relocated to face the parking lot. She did not feel it was appropriate to add amenities, such as the outdoor fire pits, that would encourage outdoor evening activity in the office park. She had reservations about the possible inclusion of a retail/restaurant use, noting a coffee shop might be acceptable but a convenience store would not be okay. She reiterated the need for local control/oversight of how such a building could be occupied. She also suggested the approved creek restoration plan list should be provided to the office park developers so they could incorporate a complementary planting plan into their design.

Art Tiddens expressed a desire for a smaller development. He also noted he was opposed to the inclusion of a restaurant/retail use. He reiterated Mr. Bensen's call for a solid masonry wall separating Lomita Lane from the office park development. He also asked that construction staging occur entirely within the project site and that it not be allowed to use/block Lomita Lane. A comment letter was also submitted by Mr. Tiddens to the ARB.

Heather Tiddens wants to ensure office park employees will not walk/use Lomita Lane, noting it creates a dangerous situation for motorists. She recommended signage be posted at the fire access gate prohibiting pedestrian use of the private drive. She did not support the inclusion of the restaurant/retail space noting it could bring additional traffic, noise and afterhours activity to the currently rural area. She requested denser landscaping throughout to soften/buffer the development.

Verna Gindoff was primarily concerned with impacts to the creek habitat and bird species as a result of the proposed development, noting it was too close to the creek and the detention basin. She noted outdoor amenities such as the fire pits and outdoor stairs could introduce inappropriate late night activity/noise. She felt the proposed architectural style was too urban in design, and that the colors/materials did not successfully blend with the surroundings.

Bryan Gindoff recommended the mechanical enclosures be roofed and be relocated/reoriented to face the parking lot rather than toward the creek/Lagunitas residences. He also felt the project architecture included too much glass facing the residences and would result in glare/lighting impacts for the neighbors. At minimum he felt the design should incorporate roll-down shutters or similar techniques to address night lighting concerns. He noted the corners of the buildings closest to the creek lacked screening plantings; he suggested these corners be pulled back to leave room for sufficient landscape screening (e.g., trees).

Cindy Lyon recommended the parking lot be heavily screened with vegetation and/or set down at a lower grade to reduce its visibility. She expressed a preference for more trees throughout the project site. She also felt the buildings were too close to the creek and paths. She was also concerned about what types of uses might be allowed in the contemplated retail/restaurant space.

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Livia DeGeorge asked why there was not any fencing proposed to separate the office park development from the Lagunitas residences and their amenities, noting security concerns related to trespassing. She was not in support of the inclusion of outdoor amenities that would encourage evening activities, such as the fire pits. She shared others' concerns over noise impacts relating to the placement/orientation of mechanical systems. Finally, she noted she was strongly opposed to anything like a convenience store from occupying the retail/restaurant space.

Rob Schwalze was worried about site drainage from the office park, noting the site has poor drainage currently. He also wished to see lighting looked at carefully to protect the dark night skies.

Jim Gaskin acknowledged the approved concept for the site and noted simply that the proposed redesign was not what he expected and did not appear very "park-like".

A comment letter was also submitted by the Reynolds Family, expressing their concern with the industrial appearance of the project. They asked that Lomita Lane be separated from the project site by a wall and/or heavy foliage to discourage foot traffic on the private drive. They also expressed an objection to the proposed inclusion of the restaurant/retail use, noting the property is not zoned for this type of commercial use and believing it would detract from the rural character of the area.

Boardmember Discussion:
Boardmember Ellinwood reiterated that the office park development was supposed to be scaled and of a character appropriate for the site and its setting. He noted that since the proposed redesign is the same height as the previously approved building design, it should be relatively simple to introduce some of the style, character and materials of the original approved Barton Myers design. He noted the building does not make good use of natural lighting and does not account for different lighting conditions on the respective building facades. He felt strongly that energy efficient features need to be incorporated into the design, and that, so far, he was not impressed. Noise concerns related to the mechanical equipment need to be addressed (i.e., relocate and/or reorient). He felt the buildings could be set back a little more from the creek, possibly by canting some of the buildings. He noted the fire pits should be removed from the plans to address neighbor concerns. He pointed out the project calls for extensive paving and that he expected to see the use of permeable materials and biofilters incorporated into the design. He asked about the feasibility of installing a fence on the east side of Lomita Lane to discourage trespassing from the adjacent commercial/industrial buildings.

Boardmember Reginato restated his preference for the original Barton Myers design and suggested that treatment be used for the campus concept. In viewing the story poles for the current proposal, he noted the consistent building height created a uniform appearance with no break-ups or variation. To remedy this, he suggested introducing some single story elements into the buildings. He agreed that a fence or wall with dense landscaping was warranted along Lomita Lane. He also agreed that permeable materials are needed with this much paving and that views of the parking area need to be screened/hidden/softened, particularly from nearby residences.

Boardmember Cox was also in support of the use of a screening wall along Lomita Lane. He suggested the landscape architect replace proposed trees/planting with native plantings acclimated to the area (such as coast live oaks around the detention basin). He suggested that large boxed trees could be used around the building perimeters to help with screening right away. He also expressed a desire to see denser plantings/screening along the Lagunitas Creek side of the development. He noted he could be in support of a gate to keep undesired traffic off Lomita Lane. He said drainage concerns should be looked into further.

DRAFT

Boardmember Johnson stated his agreement with the comments from the other Boardmembers. He summed up his position by saying he liked the campus plan but preferred the Baryon Myers architecture.

ACTION: Motion by Boardmember Ellinwood, seconded by Boardmember Reginato to continue the project to a future meeting with direction to respond to the public's and Board's comments.

VOTE: 4-0

OTHER BUSINESS: None

CONSENT CALENDAR:

- Action Minutes of the Architectural Review Board meeting held June 29, 2017.
- Action Minutes of the Architectural Review Board meeting held September 14, 2017.

ACTION: Both items were continued to the next ARB Meeting due to lack of a quorum.

MATTERS REFERRED BY THE PLANNING COMMISSION/CITY COUNCIL: None

MATTERS PRESENTED BY BOARDMEMBERS/STAFF:

- Staff provided an update on the outcome of the Segall/Dentler Residence Appeal to the City Council.
- Sabetian Residence Remodel/Addition: Staff asked the Board to confirm whether their comments concerning plan inconsistencies has been satisfactorily addressed. The Board indicated errors still remained that needed to be fixed. The Board also indicated that the electrical plan, as shown in the final drawings, appeared to show excessive lighting, and that they would prefer a more "cottage appropriate" night-sky friendly fixture if new lighting will be installed on all exterior elevations.
-

ADJOURNMENT

Chair Johnson adjourned the meeting at 7:30 p.m. to the next regularly scheduled meeting to be held at 5:30 pm on Thursday, November 16, 2017.

All Boardmembers present indicated they would be in attendance.

_____
Chair, Architectural Review Board

ATTEST:

_____
Secretary, Architectural Review Board

DRAFT

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		 **HAPPY BIRTHDAY!** **NOV. 6 RON ALONZO** **NOV. 13 ARLENE BALMADRID** **NOV. 15 ANN MEYER** **NOV. 29 MARISOL SMITH** **NOV. 30 HENRY MENENDEZ**	**1** **8AM** Audit (John Thornberry) **BR** **10AM** Parks Dep. Mtg. **SR** **1PM** Behav. Wellness Client Consult. **SR** **2PM** Behavioral Wellness Case Mng. **CC** **2PM** Carpinteria COT **SR** **5:30PM** Fire Dist. Board Mtg. **CC-TV**	**2** **8AM** Audit (John Thornberry) **BR** **8AM** DTBAB Mtg. **SR** **8:45AM** Carp First **SR** **2PM** All CDD Staff Mtg. **SR**	**3** **8AM** Audit (John Thornberry) **BR**	**4** 
5	**6** **5:30PM** Planning Commission Mtg. **CC**	**7** **10AM** Staff Meeting **BR** **2PM** PW Staff Meeting **BR** **2:30PM** CDD Mtg. **CC**	**8** **10AM** Parks Dep. Mtg. **SR** **1PM** Behav. Wellness Client Consult. **SR** **2PM** Behavioral Wellness Case Mng. **CC** **2PM** Carpinteria COT **SR** **5:30PM** Water Dist. Board Mtg. **CC-TV**	**9** **2:30PM** Code Compliance Mtg. **BR** **3PM** Quarterly CIP Mtg. **SR** **5:30PM** Tree Advisor Board **CC**	**10 City Hall Closed** **In observance of Veterans Day** 	**11** **10am/2pm** ABOP - PW Yard 
12	**13** **3PM** CC Closed Session **BR** **5PM** CC Board Mtg. **CC-TV**	**14** **8AM** Carp Ave Bridge Utilities **CC** **10AM** Staff Meeting **BR** **2PM** Public Works Meeting **BR** **2:30PM** Planning Staff Mtg. **SR** **3PM** Neighbor to Neighbor Mtg. **BR** **4:30PM** School Dist. Closed Sess. **SR** **5:30PM** School Dist. Mtg. **CC-TV**	**15** **10AM** Parks Dep. Mtg. **SR** **1PM** Behav. Wellness Client Consult. **SR** **2PM** Behav. Wellness Case Mng. **CC** **2PM** Carpinteria COT **SR** **2:30PM** CH3 Meeting **CC**	**16** **8:30AM** Creative Housing **CC** **10:30AM** IDAG Meeting **1PM** CDD Mtg Punto de Vista **SR** **2:30PM** Code Compliance Mtg. **BR** **5:30PM** Architectural Review **CC**	**17** **9AM** BEACON Mtg. **CC**	**18**
19	**20** **11AM** Committee Meeting **BR** **5:30PM** Gen. Plan Committee **CC-TV**	**21** **10AM** Staff Mtg. **BR** **2PM** Public Works Staff Mtg. **BR** **2:30PM** Planning Staff Mtg. **SR**	**22** **10AM** Parks Dep. Mtg. **SR** **1PM** Behav. Wellness Client Consult. **SR** **2PM** Carpinteria COT **SR**	**23** **City Hall Closed** 	**24** **City Hall Closed in observance of Thanksgiving Day.** 	**25** **10am 2pm** ABOP - PW Yard
26	**27** **3PM** CC Closed Session **BR** **5PM** CC Board Mtg. **CC-TV**	**28** **10AM** Staff Meeting **2PM** Public Works Staff Mtg. **BR** **2:30** Planning Staff Mtg. **SR** **4:30PM** School Dist. Closed Sess. **SR** **5:30PM** School Dist. Mtg. **CC-TV**	**29** **10AM** Parks Dep. Mtg. **SR** **1PM** Behav. Wellness Client Consult. **SR** **2PM** Carpinteria COT **SR**	**30** **8AM** SB County GJ **CC** **2:30PM** Code Compliance Mtg. **BR**		

City of Carpinteria
Planning Activity Summary

October 2017

1. In 30-day review process
2. Incomplete
3. Schedule for ARB
4. Director's Decision
5. Schedule for PC
6. PC approved
7. Schedule for CC
8. CC Approved
9. Schedule for final ARB
10. Final ARB Approval
11. Schedule for CCC
12. In plan check
13. BP issued
14. Under construction
15. C of O issued

Last Edited 10/31/2017

Project #	Owner / Applicant	Address	Street	Project Description	Activity	Planner	Status	Code Violation
17-1892-SIGN	76 Station	4401	Via Real	Sign reface	Submitted 10/27/2017. Under review.	Marysol	1	
17-1883-SIGN	Arco	1116	Casitas Pass	Sign reface and new canopy design	Submitted 7/14/2017. Incomplete.	Marysol	2	
17-1883-DP/CDP/TPM	Bob Gobuty	4716	Seventh St	remodel (E) SFD, construct carport, construct 2 (N) 2-story residential units, subdivide	Submitted 6/22/17. Incomplete 7/20. Resubmitted 10/2/17. Incomplete 11/1/17.	Nick	2	
17-1877-DP/CDP	Phari, LLC	1112	Linden Ave	Create 2 additional units & new covered carports	Submitted 5/26/2017. Incomplete 6/26/17. Resubmitted 7/21/17. Incomplete 8/18/17. Resubmitted 10/26/17.	Lucy/Nick	2	
17-1876-DP/CDP/TM	MAC Partners	6380	Via Real	Lagunitas six 2-story commercial buildings and 1 building for retail and restaurant	Submitted 5/26/2017. Incomplete 6/16/2017. Resubmitted 07/2017. Incomplete 8/24/2017. To Prelim ARB 10/12/17. Cont'd to future hearing.	Steve	2	
17-1867-EMP	Venoco, Inc.	5661	Carpinteria Ave.	Emergency fence at Sealwatch Overlook, along public trail and parking lot	Submitted 4/4/17. Request for additional information 4/24/17. Letter to applicant 6/20/17 indicating a DP/CDP is required to install the fence.	Steve	2	
16-1836-CUP/CDP	Rafael Hernandez	4954	Fifth Street	remodel (e) apartments	Submitted 7/13/16. Incomplete 7/25/16.	Nick	2	
16-1812-ARB	Dave Moore	5550	Calle Ocho	Convert (E) garage to bedroom; construct (N) detached garage	Submitted 2/29/16. Incomplete 03/11/16.	Nick	2	
16-1811-DP/CDP	Jose Martinez	1061	Cramer Road	Demo (E) SFD; construct 3 (N) Units	Submitted 2/26/16. Incomplete 3/24/16.	Nick	2	
15-1804-CDP	Hawkins	5567	Calle Arena	Construct (N) SFD w/ attached two-car garage	Submitted 12/29/15. Incomplete 1/28/16. Meeting w/ new agent 6/26/17. Concept ARB 8/17/17.	Nick	2	
15-1799-CDP	6155 Carpinteria Avenue LLC	6155	Carpinteria Avenue	Landscape improvements & new pedestrian pathway	Submitted 11/17/15. Incomplete 12/16/15.	Nick	2	
15-1783-SIGN/FENCE	Arbor Trailer Park	4677	Carpinteria Avenue (Ninth Street)	New frontage fences and signage	Submitted 08/05/15. Need survey from PW. Incomplete 08/17/15. See Matt M for PW status.	Marysol	2	
15-1781-DP/CDP	Cruz Mixed Use	4675	Carpinteria Avenue	(N) Mixed Use bldg. 500 sq ft commercial and two one bedroom apts	Submitted 7/9/15. Incomplete 8/6/15.	Nick	2	

15-1777-DP/CDP	R.P. Enterprises	6155 and 6175	Carpinteria Avenue	Industrial Research Mixed-use Campus	Submitted 6/24/15. Incomplete 7/22/15. Resubmitted plans 11/10/15. Second incomplete 12/3/15.	Steve/Nick	2	
17-1868-DP/CDP	Carpinteria Sanitary District	5300	Sixth Street	Demolition of existing modular offices and the construction of a new 4,118 square foot one-story office building.	Submitted 4/12/2017. IDAG 4/20/2017. Incomplete 5/12/2017. Resubmitted 8/8/2017. Incomplete 9/7/2017. Resumbitted 10/10/2017. Complete 10/31/17. Tentatively to Prelim ARB 12/14/17.	Marysol	3	
17-1855-ARB	Judy Sirianni	1150	Vallecito Road	Remodel and addition	Submitted 2/8/2017. IDAG 3/16/2017. Complete 3/9/2017. Prelim ARB approval 3/30/2017. Resubmitted 6/28/2017. Revisions. Resubmittted 07/24/2017. Final ARB 8/17/2017 continued at applicant's request pending redesign.	Marysol	3	
16-1849-CUPR/TTM/CDP	Faith Lutheran Church	1335	Vallecito Place	8-lot subdivision & 6 (N) SFDs	Submitted 12/22/16. Incomplete 1/20/2017; waiting for additional materials from applicant. Additional materials submitted 6/9/17 and 6/22/17. Incomplete 7/10/17. Resubmittal 7/12/17 & 7/21/17. Incomplete 8/09/17. Complete 10/31/17.	Lucy/ Steve	3	
16-1847-CUP/CDP	Zerlin	5305	Eighth Street	Abate Zoning/Building Violations & construct (N) 2nd floor addition.	Submitted 11/15/2016. Incomplete 12/15/2016. Resubmittal 2/3/2017. Incomplete 2/15/2017. Resubmittal 4/24/2017. Complete 5/24/2017. To Prelim ARB 06/15/2017; cont'd with direction for redesign. Resubmitted 09/11/2017. Pending submission for Prelim ARB 12/14/17.	Marysol	3	Yes
16-1822-DP/CDP	Via Real Hotel	4110	Via Real	New 110-room hotel	Submitted 4-19-16. Incomplete 5-18-16. Resubmittal 7/14/16. Incomplete 8/11/16. Resubmittal 9-12-16. Incomplete 10/11/16. Resubmitted 10/31/16. Complete 11/30/16. Prelim ARB 12/15/16, cont'd to future meeting. In-progess ARB review 2/16/17. Prelim ARB approval 3/30/17. Env. review underway. Awaiting updated biological/wetland reports.	Nick	3	
17-1890-FENCE	Brynn & Denny Barge	560	Concha Loma Drive	Block Wall	Submitted 10/9/2017. Director Approval 10/23/2017. Pending Building Permit Application.	Marysol	4	Yes

17-1888-CDP	Finnigan	4775	Seventh St	construct (N) 728 sq ft 3-car garage	Submitted 9/6/17. Incomplete 9/20/17. Resubmitted 9/26/17. Complete 10/3/17. Approved by Director 10/9/17.	Nick	4	
17-1885-SIGN	Fatmir Mara	5292B	Carpinteria Avenue	New Sign	Submitted 7/17/2017. Approved 8/22/2017. BP submitted 9/8/2017.	Marysol	4	
17-1850-CDP	CA Dept. of Parks and Recreation	205	Palm Avenue	State Beach Phase II ADA Improvements	Submitted 1/3/2017. Incomplete 1/31/2017. Resubmittal 5/22/2017. Complete 6/15/2107. Director Approval 9/13/2017.	Marysol	4	
17-1882-DP/CDP	CUSD	4810	Foothill Road	High School Improvements	Submitted 6/9/17. Inc. Ltr. 7/7/17 Complete 8/30/17. Prelim ARB approved 8/31/17. PC approved 10/2/17.	Steve	6	
17-1881-DP/CDP	CUSD	1480	Linden Avenue	Canalino School Improvements	Submitted 6/8/17. Inc. Ltr. 7/7/17 Complete 8/21/17. Prelim ARB approved 8/31/17. PC approved 10/2/17.	Steve	6	
17-1880-DP/CDP	CUSD	5351	Carpinteria Avenue	Middle School Improvements	Submitted 6/8/17. Inc. Ltr. 7/7/17 Complete 8/30/17. Prelim ARB approved 8/31/17. PC approved 10/2/17.	Steve	6	
16-1840-DP/CDP	Cravens Lane, LLC	1300	Cravens Lane	Green Heron Springs Project- Demo (E) SFD; construct 30 new condominium units	Submitted 8/24/16. Incomplete 9/14/16. To Concept ARB 11/17/16. Resubmitted 1/12/17, under review. Incomplete 2/10/17. Concept ARB 3/16/17. Resubittal 6-02-17. Incomplete 6/30/17. Resubmittal 8/1/17. Complete 8/28/17. To Prelim ARB approval 8/31/17. MND public review 9/14/17. ERC approval 9/28/17. To PC 11/6/17.	Nick	5	
15-1767-CDP	Wood	650	Concha Loma Drive	New Single Family Residence	Submitted 4/28/15. Incomplete 5/27/15. Resubmitted 7/13/15. Complete 8/10/15. CEQA Initial Study underway. ARB concept review 10/15/15. Draft MND public review period 7/15- 8/15/16. To ERC 8/4/16. Prelim ARB 8/11/16, continued with revisions. Revised plans submitted; Prelim ARB approved 9/14/17.	Nick	5	
05-1210-ZTA/LCPA	City of Carpinteria		Citywide	Zoning Code Update	Kick-off meeting 4/20/05. Joint Study Session 5/16/05. All administrative draft chapters delivered 5/12/06. Final Draft meeting with consultant 9/14/07. Public draft to be released in Fall 2017.	Steve	5	
04-1175-DP/CDP/LCPA	Venoco, Inc.	5675	Carpinteria Avenue	Paredon Oil and Gas Extended Reach Drilling	Complete 9/11/14. MRS EIR contract approved 1/26/15. MOU for JRP approved 1/26/15. Venoco request to defer EIR rec'd 1/29/15. On hold at Applicant's request.	Steve	5	
14-1722-TPM/CDP	Godfrey	1056	Eugenia Place	Subdivide (e) mixed use building into three condominiums	Submitted 6/19/14. Incomplete 7/17/14. Resubmitted 10/20/14. Complete 10/29/14. PC approved 11/3/14. FLAN sent 11/18/14.	Nick	6	

14-1719-CUP/CDP	City of Carpinteria		Carpinteria Ave Bridge	Replace Carpinteria Ave Bridge over Carpinteria Creek	NOP & Scoping Document released 7/3/14. Scoping Hearing 7/22/14. Project overview to PC 9/2/14. Project update to CC 11/10/14. ARB CON 2/12/15. EIR released for public comment 3/25/16. ERC 4-26-16. Public Comment Period closed 5-9-16. Prelim ARB approval 9/15/16. PC approved 11/7/16. Sent to CCC 11/18/16. PW completing 65% drawings 3/17. Utility relocation coordination underway 3/17.	Nick	6	
09-1534-DP/CDP	Carpinteria Valley Arts Council	855	Linden Avenue	Community arts building	Submitted 11/19/09. Incomplete 12/17/09. Resubmitted 4/22/10. Incomplete 5/10/10. Resubmitted 9/29/10. Complete 10/28/10. Prelim ARB 1/27/11. ERC hearing 4/21/11. PC approved 6/6/11. PC granted four-year time extension 6/1/15.	Nick	6	
17-1858-DP/CDP	Anthony Segall & Deborah Dentler	5157	Eighth Street	SFR Demo/Rebuild	Submitted 2/13/2017, Complete 3/7/17, ARB Preliminary approval 3/30/17. PC approved 7/3/17. Appeal of PC decision filed 7/13/17. CC Appeal Hearing Oct. 9, 2017; PC approval upheld by CC.	Lucy	8	
17-1863-CUP/CDP	Selfridge	5596	Calle Arena	Add'n to SFD, garage	Submitted 3/22/17. Complete 4/20/17, ARB Preliminary approved 5/11/17. PC approved 6/5/17. Waiting for working drawings to schedule for Final ARB.	Lucy	9	
17-1853-CUP/ARB	Julie A. Castiglia	946	Concha Loma Drive	SFR Addition/Remodel	Submitted 2/1/2017, ARB Preliminary Approval 3/16/17. Additional materials rec'd from applicant 4/26/17. Complete letter 5/26/17. PC approved 6/5/17. Waiting for hedge photos and working drawings to schedule for Final ARB.	Lucy	9	
16-1844-DP/CDP	Sunburst Wines	5080	Carpinteria Ave	New retail wine bar	Submitted 10/13/16. Incomplete 11/4/16. Prelim ARB 3/16/17, cont'd to 3/30/17. ARB preliminary approval 4/13/17. PC approved 5/1/17. Schedule for Final ARB 11/16/17.	Nick	9	
16-1841-DPR/CDP	Carpinteria Valley Arts Council	855-865	Linden Avenue	Art Center expansion and remodl. Interior remodel; exterior: wrap-around awning, sign, façade	Submitted 9/1/16. IDAG routing 9/13/16. IDAG meeting 9/15/16. Incomplete 9/27/16. To Prelim ARB 10/13/16. Preliminary ARB approval 10/13/16. Complete 11/2/2016. PC approved 4/3/2017. To Final ARB 11/16/2017.	Marysol	9	

15-1760-CUP/CDP	City of Carpinteria		East end of Carpinteria Avenue	Rincon Trail	MND to ERC 6/27/12. Submitted 3/11/15. Complete 4/14/15. PC approved 5/4/2015. Needs County P&D application and approval. Tied to Linden/Casitas interchanges and Via Real extension Caltrans project.	Steve	9	
15-1751-DPR/CDP	City of Carpinteria	5775	Carpinteria Avenue	City Hall foyer add'n and landscape	Submitted 1/26/15. Complete 2/3/15. ARB Prelim 2/12/15. PC approved 3/2/15. CCC appeal period ended 3/30/15. Project to be phased.	Steve	9	
14-1733-DP/CDP/TPM	Sanctuary Beach Condominiums (Norman's Tennis Court)	4925	Carpinteria Avenue	Four residential condominiums	Submitted 8/21/14. Incomplete 9/19/14. Complete 12/30/14. ARB Prelim 2/12/15 continued to 4/16/15, then 5/14/15. To PC 8/3/15; continued to 10/5/15 for redesign. ARB revised preliminary 9/17/15. Planning Commission 10/5/15, and Approved 11/2/15. CCC Appeal Period ends 12/3/15. Final ARB. DP/CDP Time Extension approved 12/5/16. Final Map under review.	Steve	9	
17-1852-CPD	City of Carpinteria	1400	Santa Ynez Ave	Phase II Park Improvements	Submitted 1/19/2017. ARB approved 2/16/2017. Complete 2/17/2017. Director Approval 3/6/2017. Pending submittal of BP application.	Marysol	10	
16-1829-ARB	Cluderay, Suzan and Ian	5643	Fiesta Drive	Addition of ~450 feet and remodel of exiting residence	Submitted 06/13/16. ARB 07/14/16. Incomplete 07/08/16. ARB recommended preliminary approval. Director Approval 10/5/16. Final ARB approved 10/13/16.	Nick	10	
05-1204-DPCDP	Venoco, Inc.	5663	Carpinteria Avenue	Dump Road Gate and Signs	PC Hearing 1/3/06. Cont'd to 2/6/06. PC Approved. Neighbor appeal to CC. CC conceptually granted appeal; cont'd to 5/8/06. Gate withdrawn by applicant. CC approved sign program 5/8/06. Appealed to CCC.	Steve	11	
17-1879-DP/CDP	Geoff Wells	924	Walnut Avenue	convert (E) church to SFD, construct new uncovered parking area & driveway.	Submitted 5/31/17. Complete 6/28/17. Prelim ARB approved 6/29/17. PC approved 8/7/17. Building Permit application submitted 10/17/17. In Plan Check.	Nick	12	
17-1856-TPM/VAR/CDP	De Alba Family Trust	5031	Foothill Road	Lot Split	Submitted 2/9/17. Incomplete 3/6/17. Site visit on 3/30/17 with Building Inspector. Letter issued 4/20/17 re: Building Code issues to be addressed. Resubmittal 6/13/17. Comments back to applicant 6/27/17. Resubmitted 7/27/17. Complete 8/28/17. PC approved 9/5/17. Final Map under review.	Nick	12	

16-1837-DP/CDP	Omni Catering	4835	Carpinteria Ave	New storage buildings & fencing	Submitted 8/4/16. Incomplete 8/31/16. Resubmitted 10/25/16. Incomplete 11/16/16. Prelim ARB Cont'd 12-15-16. Revised plans submitted 1-19-17. Prelim ARB approval 3/16/17. PC approved 6/5/17. Final ARB approved 6/29/17. In Building plan check.	Nick	12	Yes
15-1788-CDP	Gobbell	5398	Star Pine Road	Convert (E) accessory building into a second dwelling unit	Submitted 8/19/15. Incomplete 9/4/15. Resubmittal 9/11/15. Complete 9/28/15. Prelim/Final ARB 10/15/15. CDD Director approved 10/29/15. 1-year time extension approved 10/11/16. Submitted for Building Permits 10/4/17. In Plan Check.	Nick	12	
13-1683-CDP	Schildknecht	4634	Ninth Street	New Single Family Residence	Submitted 10/17/13. Prelim ARB 11/14/13. Continued to future ARB. Inactive. Sent warning to close letter 041416. Resubmittal info 04/25/16 and 05/31/16, in review for completeness.Director Approval 07/6/16. Final ARB 08/25/16. BP submitted 12/21/16, in plan check.	Nick	12	
13-1650-DP/CDP	M3 Multifamily, LLC	4819	Carpinteria Avenue	6,000 square foot commercial building and two 600 square foot apartments	Submitted 1/9/13. Incomplete 2/7/13. Prelim ARB 10/17/13. PC approved 12/2/13. ARB "in-progress" 3/27/14. PC approved 36-month TEX 12/1/14. Minor height revision considered by ARB 4-14-16. Final ARB approval 11/17/16. BP submitted 12/6/16, in plan check.	Nick	12	
05-2002-DP/CDP	Venoco, Inc.	5663	Carpinteria Avenue	Parking Lot Fence & Signs	ARB Prelim 9/15/05. PC approved 1/3/06. Venoco appealed. CC granted appeal and approved 48" fence on 2/13/06. Appealed to CCC.	Steve	12	
17-1874-SIGN	Mike Reese / Silver Sands	349	Ash Avenue	New sign	Submitted 5/16/2017. Approved 6/5/2017. Building Permit issued 6/21/17. Pending Final Inspection.	Marysol	13	
17-1865-CON	Arvand Sabatian	751	Olive Street	Rehab burnt SFD and 328 s.f. addition	Submitted 3/29/2017. Incomplete 4/26/2017. Complete 5/22/2017. To Prelim ARB 6/15/2017. Preliminary ARB approval 6/29/2017. Approved 7/26/2017. Final ARB 8/31/2017. Building Permit Issued 10/25/2017.	Marysol	13	
17-1860-CUP/CDP	Thom Vernon	502	Maple Avenue	Structural repairs to nonconforming garage structures	Submitted 3/13/17. Incomplete 4/12/17. Resubmitted 4/20/17. Complete 4/26/17. PC denied 5/1/17. Appeal perioed ended 5/11/17; no appeals filed. BP for demo submitted 6/26/17. BP issued 7/6/17.	Nick	13	yes

16-1835-CUP/CDP	Rafael Hernandez	520	Elm Avenue	remodel 3 (E) apartments	Submitted 7/13/16. Incomplete 7/25/16. Resubmitted 10/10/16. Complete 11/4/16. Prelim ARB approval 11/17/16. PC approved 2/6/17. FLAN sent to CCC 2/21/17. Final ARB approved 6/15/17. BP submitted 7/20/17. BP issued.	Nick	13	
15-1786-CUP/CDP	Verizon Wireless	6267	Carpinteria Avenue	Wireless Telecommunications Facility	Submitted 08/14/15. Incomplete 08/31/15. Complete 11/112/15. PC 12/07/15. PC Action letter 12/8/15. Appeal period ends 12/17/15. CCC appeal period ends 1/8/16. In Building Review 02/25/16. BP Issued 04/20/16.	Shanna	13	
17-1870-ARB	Gary Feramisco	1241	La Brea Lane	Front portico and exterior improvements	Submitted 5/1/2017. Incomplete 5/25/2017. Complete 6/15/2017. Prelim/Final ARB approval 6/29/2017. Approved 8/02/2017. Building Permit issued 8/18/2017.	Marysol	14	
17-1857-FENCE	Tom Kenny	4292	Carpinteria Ave	New Fence (wall)	Submitted 2/10/2017, "Incomplete" 2/23/2017; add'l materials submitted 4/26/17. Fence permit issued 5/17/17. Construction on hold until CVWD approves construction plans around water meters.	Lucy	14	Yes
16-1839-CDP	Thom Vernon	500	Maple Avenue	Install new windows & replacement roll-up doors	Submitted 8/12/16. Incomplete 9/8/16. Complete 9/14/16. To ARB 9/15/16, continued to 10/13/16. ARB approved 10/13/16. Director Approved 10/21/16. FLAN sent to CCC 11/1/16. BP application submitted 10/20/16. BP issued 2/2/17, under construction.	Nick	14	
16-1826-CUP/CDP	Swinford	710	Palm Avenue	Demolish (E) SFD & garage, construct (N) SFD & attached garage	Submitted 5/5/16. Incomplete 6-3-16. Prelim ARB approval 6-16-16. Complete 8/26/16. To PC 9/6/16, continued to 11/7/16. PC Approved 11/7/16. Final ARB approval 4/13/17. BP submitted 4/18/17. BP issued , under construction.	Nick	14	
16-1814-CUP/CDP	Hathaway	4740	Fourth Street	Comprehensive remodel	Submitted 3/7/16. Incomplete 3/31/16. Resubmittal 4-7-16; deemed insufficient 4-20-16. Prelim/Final ARB 3/31/16. Complete 5-25-16. PC approved 6-6-16. NTPO recorded 6/28/16. BP submitted 7/27/16. BP issued 10/6/16. Under construction.	Nick	14	

16-1808-DP/CDP	City of Carpinteria Parks & Recreation Dept	4855	Fifth Street	Community Garden	Submitted 2/3/16. Incomplete 2/25/16. Resubmitted 3/23/16. Prelim ARB approval 3/31/16. In-progress review 4/14/16. Complete 4-25-16. PC approved 5-2-16. FLAN sent 5-18-16. Final ARB approval 10/13/16. BP application submitted 10/20/16. BP issued; Site improvements underway.	Nick	14	
15-1800-DP/CDP	Sinclair	607	Walnut Avenue	47 sq ft bathroom addition & new 2nd floor dormers	Submitted 11/30/15. Incomplete 12/10/15. Resubmitted 12/28/15. Prelim ARB Approval 1/14/16. Complete 1/21/16. PC approved 2/1/16. Final ARB approval 3/31/16. BP approved & issued. Under construction.	Nick	14	
15-1798-DP/PM/CDP	Habitat for Humanity	4949	Sawyer Avenue	Three residential condominiums	Submitted 11/5/15. IDAG Routing 11/10/15. Incomplete 11/17/15. IDAG 11/19/15. Complete 11/25/15. Prelim ARB 1/14/16. PC scheduled 03/07/16. Cont. PC 04/04/16. PC approved 04/04/16. PC Action Letter 04/05/16. NOE sent 04/05/16. 10 day appeal period ends on 04/14/16. Final ARB 08/25/16. BP submitted 8/10/16. CC approved Final Map acceptance 4/24/17. Parcel Map Recorded 5/24/17. Building Permits ready to issue 5/31/17. BP issued 6/28/17. Under construction.	Nick	14	
15-1791-ARB	Bush	4310	La Quinta Drive	211 sf addition to, and remodel of, (E) 2-story SFD	Submitted 9/10/15. Incomplete 9/23/15. Prelim ARB 10/15/15. CDD Director approved 10/29/15. Final ARB approval 3/17/16. BP submitted 4-13-16. BP issued 5-16. Under construction.	Nick	14	
14-1748-CDP	Lundin	5380	Ogan Road	SFD addition	Submitted 12/23/14. Director approved 01/05/15. NTPO recorded. BP issued; under construction.	Shanna	14	

13-1677-ARB	Olson	1477	Santa Ynez Ave	Remodel and addition	Submitted 7/26/13. Prelim/Final ARB 8/15/13. Complete 8/20/13. Director approved 8/21/13. BP issued; under construction. Last inspection 8/19/15. Awaiting final inspection.	Nick	14	
12-1649-DPR/CDP	Pini	5585	Carpinteria Avenue	Casa del Sol Motel and Apartment Renovation	Submitted 11/2/12. Complete 11/29/12. Preliminary ARB 12/13/12; continued to 1/17/13. PC approved 2/4/13. ARB Final 9/12/13. PC approved TEX 3/3/14. BP issued 1/26/15. Revisions to BP submitted 5/11/15 and issued 5/26/15. Under construction.	Steve	14	
09-1522-CUP/CDP/LCPA/ORD	Caltrans		Linden-Casitas Interchanges and Via Real Extension	Reconstruct overcrossings and extend Via Real across Carpinteria Creek	Submitted 2009. PC recommended approval 05/18/15. CC first reading and recommended approval of ORD and LCPA 06/22/15 and 07/27/15. Submitted to CCC 08/21/15. CCC hearing in October in Orange County. CC approved CUP/CDP 11/23/15. FLAN sent to CCC 12/1/15. No appeal. ARB Final 3/17/16. Construction underway 9/12/16.	Steve	14	
08-1483-CDP	Salzgeber	447	Concha Loma Drive	Install water well and storage tank for agricultural purposes	Submitted 12/18/08. Incomplete 1/16/09. Resubmitted 3/20/09. Incomplete. Resubmitted 9/1/09. Director approved 5/7/10. Permit issued 10/19/10. Well constructed and sealed 11/10. Awaiting	Nick	14	
04-1172-DP/CDP	Franssen	750	Palm Avenue	Construct one new SFD and create two condominiums	Revised plans submtited 9/15/06. Incomplete 10/9/06. Resubmitted 10/30/06. Prelim ARB 11/30/06. Complete 12/21/06. To PC 1/2/07. Revised Prelim ARB 1/25/07. PC approved 2/5/07. CC approved map clearance 12/10/07. PC approved one year TEX 2/4/08. Grading Permit issued 2/4/09. Final ARB for Unit 2 10/1/09. BP issued, under construction. CofO issued on rear unit.	Nick	14	
17-1875-SIGN	Vogue Signs/Procore	6305	Carpinteria Avenue	Signs	Submitted 5/3/2017. Director Approval 5/30/2017. Building Permit application submitted 5/31/2017. Building Permit issued 6/7/2017.	Marysol	14	

Permit Report

10/01/2017 - 10/31/2017

Permit #	Permit Date	Site Address	Owner Name	Project Description	Valuation	Status	Issued Date	Code Compliance Violation	Fire Permit Required
12200	10/31/2017	4975 Sawyer Avenue	Doyle, Andrea	Demo of 5 unpermitted storage containers. Correct improper installation of water heater. Check and Verify proper installation of wall heater. Install smoke detectors and CO detectors per state building code requirements.	0	Issued	10/31/2017	Yes	
12199	10/27/2017	4946 Eighth Street # D	MORENO FAMILY TRUST 11/10/1994	Remove water damaged materials (interior): drywall, insulation, small cabinet and base board. Demo only.	2,000	Issued	10/27/2017		
12198	10/25/2017	4505 Aragon Drive	WARD FAMILY REVOCABLE TRUST 5/9/02	Install a flush mounted roof mounted pv system. 24 panels 6.96 kw	30,000	Issued	10/26/2017		
12197	10/25/2017	5521 Calle Ocho	HULOT LLC	Tear off and install 16/32 osb sheeting and install 30 yrs shingles and synthetic underlayment. 20 squares.	9,800	Final	10/25/2017		
12196	10/25/2017	4536 El Carro Lane	GUTIERREZ JOSE JR/ALICE M	Tear off existing flat roofing composition shingles. torch down modified bitumen on flat roof and install Lifetime composition.	8,000	Issued	10/25/2017		

12195	10/24/2017	1006 Casitas Pass Road	ROIC CASITAS PLAZA, LLC	Tenant improvement - Construct a new wall and installation of fixtures	20,000	In Review Building			
12194	10/19/2017	5437 Carpinteria Ave front house and Units 1-7	KSA COASTAL, LLC	Replace partial section of main gas line serving at the rear of north units #s 1-7 and house. 2 water heaters siing of gas piping per line drawing, to be verified in field. Isolation shot offs at each transition from new to existing gas piping. To be scotch coat screw pipe.	5,500	Final	10/19/2017		
12193	10/19/2017	4402 Catlin Circle # B	Wendy Spencer	40 gallon water heater change out, same location.	1,490	Issued	10/19/2017		
12192	10/16/2017	4929 Sawyer Avenue	MENDOZA RAFAEL/BEATRIZ	Replace 100 amp panel and install new 200 amps combo (panel and meter). New location.	0	In Review Planning			
12191	10/13/2017	5460 Hales Lane	SANTILLAN, MAXIMINO/AMOR	Abate zoning violation on IOS report # 1425: (1) Demo 65 s.f. of trellis, and rebuild to 35 s.f.; (2) "As-built" permitting of 3/4" waterline to outdoor fountain; (3) "As-built" permitting of outdoor electrical line serving 3 outdoor lights, 2 outlets and a 12 v. recirculation pump in the outdoor fountain.	6,000	In Review Building		Yes	
12190	10/17/2017	924 Walnut Avenue	Mr. and Mrs. Geoff Wells	Convert a church building into a single family residence = 1616 sf. (net) / 1,177 gross sf. Area of remodel = 574 sf.	30,000	In Review Building			
12189	10/16/2017	4819 Carpinteria Ave	M3 MULTIFAMILY, LLC	Temporary power	0	Final	10/16/2017		

12188	10/13/2017	6048 Jacaranda #E	SCHMEICHEL, NATHAN	Basic bathroom remodel: switch out tub, mixer valve, angle stops; replace outlet and two switches. Upstairs bathroom.	2,500	Approve to Issue			
12187	10/12/2017	1470 Andrea Street	LINDEMANN, ALBERT SHIRK & BARBARA SHIRK FAMILY TRUST 8/23/96/6/14/11	Installation of Flush roof mounted solar p.v. 16 panels 4.640	10,208	Issued	10/24/2017		
12186	10/12/2017	5447 Dariesa Street	DENSMORE, PAMELA J	Installation of flsh roof mounted solar p.v. 14 panels 4.060 KW	8,932	Issued	10/24/2017		
12185	10/12/2017	4709 Sandyland Road # 12	GIACOPUZZI RUTH	Install temporary supports to hold up a roof covering beach facing deck. Tear out and replace existing supports which are rotting. Replace 3-stair staircase w/handrail. All like-for-like. Inspector to verify in field.	6,000	In Review Planning		Yes	
12184	10/11/2017	4932 Seventh Street	Arlie Jean Phillips Revocable Trust	Repair and replace as needed dry-rot and termite damaged around garage and windows. Replace siding and garage doors and remove the divider wall on the inside (unpermitted).	2,500	Issued	10/24/2017	Yes	
12183	10/11/2017	5481 El Carro Lane	MILLHOLLIN, KEITH/SUZANNE LIVING TRUST 5/21/02	6.21 KW roof mounted photovoltaic system	18,000	Issued	10/12/2017		
12182	10/11/2017	6392 Rose Lane	GIGAVAC BUILDING, LLC	Install a 8 feet high privacy fencse on the est side of the building.	7,500	In Review Building		Yes	
12181	10/11/2017	1475 Trenora Street	GOTTWALD, THOMAS A	Install flush roof mounted solar p.v. 7.83 kw. 27 panels	17,226	Issued	10/12/2017		

12180	10/9/2017	5462 El Carro Lane	HATHAWAY DEAN L/JULIE E	Swimming pool & spa	30,000	In Review Planning			
12179	10/4/2017	5398 Star Pine Road	GOBBELL, JOHN J JR	Change of Use. Convert (E) permitted detached workshop to 615 sq ft ADU. Enclose (E) carport to create one-car garage.	9,500	In Review Building		Yes	Yes
12178	10/3/2017	1000 Bega Way	BEGA/US , INC	AC unit replacement	33,500	In Review Building			
12177	10/3/2017	4641 Seventh Street A & B	GONZALES FAMILY TRUST 8/22/01	Remove existing roof (2 layers hot mop/combo - shingle). Install 1/2" plywood. Re-roof with Class A fiberglass dimensional shingles. (30 squares, 1 structure)	19,450	Final	10/3/2017		

Total Records: 24

11/1/2017