

San Pedro Terrace Final Wetland Delineation Report



Prepared for

Benaiah Ventures, LLC
11 Bay Rd
Menlo Park, California 94025-1728

Prepared by

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309 Seabright Ave
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FINAL
January 18, 2017



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INTRODUCTION

Report Purpose

Benaiah Ventures, LLC has proposed a project in Pacifica, California. A *Biological Assessment* (Toyon Consultants 2016) was developed for this project, which found that there was potential for dredge and fill in wetlands that could be considered Waters of the US under the Federal Clean Water Act. Such an action requires a 401/404 Permit to be issued by the U.S Army Corps of Engineers (USACE).

This report provides final jurisdictional determination for wetlands identified on for the proposed project. The delineation was performed in accordance with the 1987 USACE Wetland Delineation Manual (Environmental Laboratory 1987) and the 2008 USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Arid West Region (Environmental Laboratories 2008). The wetland boundaries were confirmed in the field by Army Corps personnel on December 14, 2016.

Project Owner

Benaiah Ventures, LLC
11 Bay Rd
Menlo Park, California 94025-1728

Project Location

The proposed project is located at the end of San Pedro Terrace Road in the City of Pacifica, San Mateo County, California. The lot is adjacent to 751 San Pedro Terrace Road. Figure 1 shows the project location.

APN: 023-075-050

Site Description

The proposed project is on a 2.42 acre lot. The parcel is zoned C-3 and is currently vacant land. The majority of the parcel is flat. The North-northeastern section of the parcel abuts the San Pedro Creek and has a bank with a 35% slope with a depth of approximately 15 feet. There is a terrace that retains high water flows, adjacent to a second bank that defines the normal creek channel. The edge of this terrace where it abuts the slope is the ordinary high water mark.

Proposed Use

The proposed use of the site is 6 single family homes. The houses will be served by a private street with a cul-de-sac for the fire truck turnaround. The proposed zoning of the site is R-1. No architectural plans are being submitted for the site at this time. Upon subdivision, separate permits will be submitted for each house. The houses will comply with the Pacifica Design Guidelines and the zoning regulations. Utilities are available at the site to serve the development. A public water main will be extended from the end of the existing San Pedro Terrace. Electric and cable are available via the adjacent joint

pole on San Pedro Terrace. There is an existing public sanitary sewer main on the lot which the development will connect to. A new storm drain outfall to the creek is also required. While the site is 2.42 acres, approximately 1.31 acres will be disturbed as part of the new construction.

Outfall Description

A new storm drain outfall is proposed as part of the project. The new outfall comprises approximately 18 LF of 24 inch of reinforced concrete pipe storm drain and rip-rap energy dissipation structure. The rip-rap for the energy dissipater is non-grouted and has a minimum D50 rip-rap diameter of 200 mm. Approximately 3.1 CY of soil needs to be removed to install the rip-rap. A layer of geotextile fabric will separate the rip-rap from the native soil. Approximately 5.8 cubic yards of soil within the bank of the creek is required to be excavated to install the new outfall pipe. The rip-rap will have a footprint of approximately 10 feet x 5 feet. The outfall pipe is angled at 30 degrees to the direction of flow to reduce turbulence. The approximate area disturbed for the outfall within the creek bank is approximately 85 square feet.

Streambed Changes

There are no proposed changes in streambed slope or cross sectional or dimensional area. The outfall structure will be 50 sq. ft., and will be built below the ordinary high water mark. The placement of the outfall pipe will impact an 85 sq. ft. section of wetland.

The proposed changes to the surface area include planting additional willow trees and removing invasive plant species as part of the Restoration and Mitigation and Monitoring Plan.

Dewatering

Work performed below the ordinary high water mark will be performed during the dry season when surface water is only found in the perennial channel of San Pedro Creek. Groundwater was encountered at more than 10 feet below ground surface during the soils investigation. Given the shallow excavations proposed for the project, it is not anticipated that dewatering will be required.

Construction Methods and Phasing

Construction will be completed with conventional construction equipment. Blades and scrapers will be utilized to rough grade the site. A small backhoe will be sufficient to trench for foundations and utilities, including the outfall. Fine grading will be completed with a skip loader.

Construction proposes to begin in June 2017. The grading, utilities, and foundations will be installed between June 2017 and October 2017. Vertical construction of the homes will be between October 2017 and August 2018. The project is anticipated to be completed in September 2018.

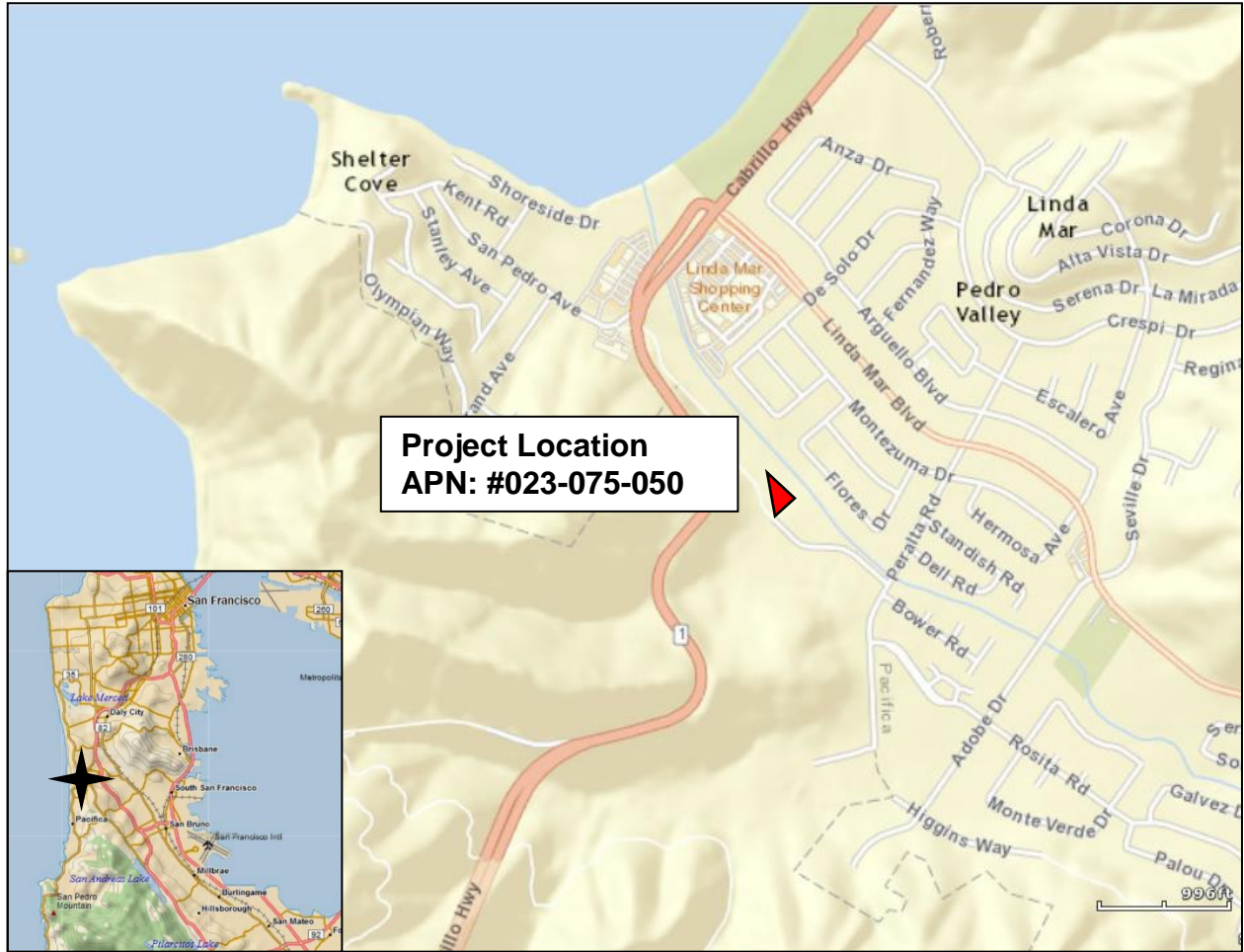
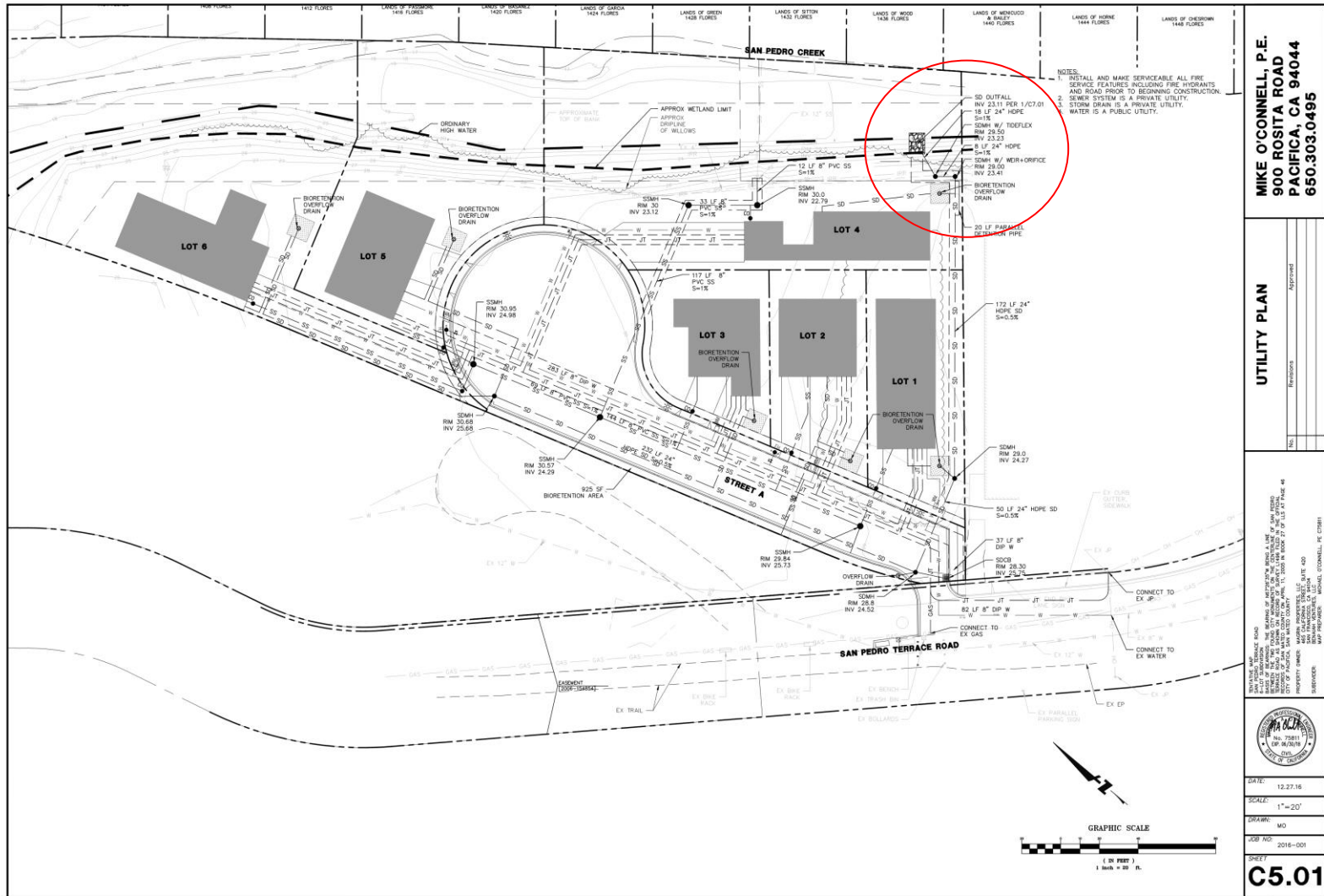


Figure 1: Project Location

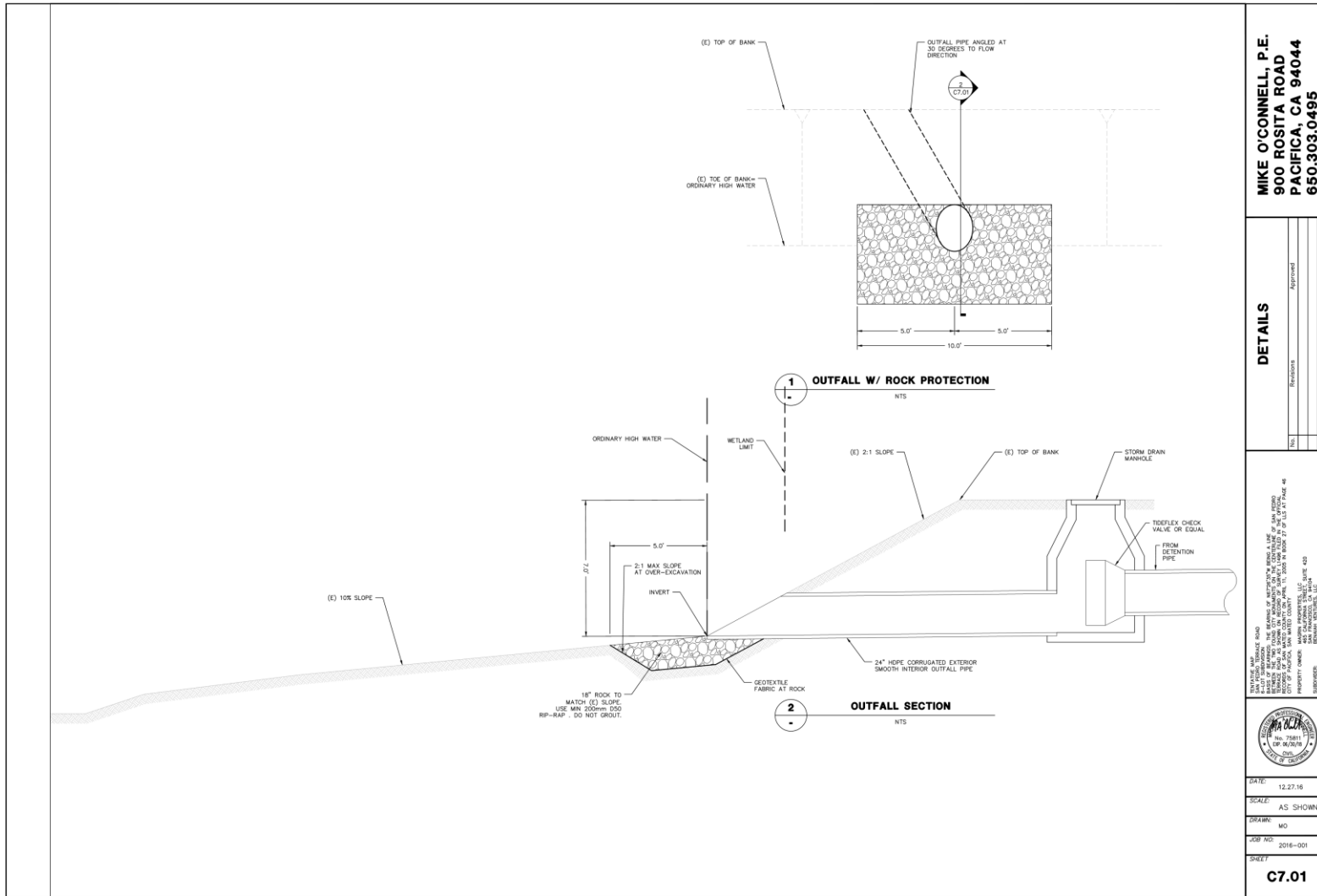


MIKE O'CONNELL, P.E.
900 ROSITA ROAD
PACIFICA, CA 94044
650.303.0495

UTILITY PLAN

DATE: 12.27.16
 SCALE: 1"=20'
 DRAWN: MO
 JOB NO: 2016-001
 SHEET: **C5.01**

Figure 2: Proposed Project – Wetland impacted area circled



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PACIFICA, CA 94044
650.303.0495

DETAILS

DATE	APPROVED
REVISIONS	

SAN PEDRO TERRACE ROAD
SAN PEDRO, CALIFORNIA
PROJECT NO. 2016-001
DATE: 12/27/16
SCALE: AS SHOWN
DRAWN: MO
JOB NO: 2016-001
SHEET: C7.01

PROPERTY OWNER: TOYON CONSULTANTS, INC.
SAN ANTONIO, TEXAS
DATE: 03/18/2016
DRAWN BY: MICHAEL O'CONNELL, P.E. C08911



DATE: 12.27.16
SCALE: AS SHOWN
DRAWN: MO
JOB NO: 2016-001
SHEET: C7.01

Figure 3: Drainpipe Details

METHODS

Literature Review

Plant identification was validated using *The Jepson Manual Second Edition* (Baldwin, *et. al.* 2012).

Prior to beginning the field delineation, the following references were examined to determine the locations of known or potential areas of jurisdiction:

- U.S. Department of Interior Fish and Wildlife Service National Wetlands Inventory (NWI) map obtained (USFWS 2016). (See Figure...)
- Aerial photo obtained from Google Earth™
- Soils report obtained from Natural Resource Conservation Service Web Soil Survey website (NRCS 2016). (See Appendix B)
- California Natural Diversity Database (CNDDDB 2016).

Field Surveys

Field investigations occurred on August 18, 2016. Copies of the Wetland Determination Forms are included in Appendix A.

Field investigations of potential wetlands on the project site applied the routine determination method described in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and the USACE Supplemental Manual for the Arid West (Environmental Laboratories 2008). This methodology includes examination of specific sample sites within suspected wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three of these parameters must be present for an area to be considered a wetland

Delineation points were selected based on the presence of wetland indicator vegetation. After points were selected, pits were dug to examine subsurface hydrology and soil characteristics based on the USACE guidelines. In order to define the wetland boundaries, all sampled points were paired.

Once delineation boundaries were determined, they were staked in the field and GPS points were taken at each stake. GPS coordinates were taken for each delineation point and digitally added to wetland maps. GPS was collected using WGS 84 datum with a Trimble GeoXT™ with submeter accuracy.

Field Validation

On December 14, 2016, the site was visited by ACE representative Danielle Mullen and Francis Malamud-Roam. Joe Rigney from Toyon Consultants was also present at this meeting. The final wetland boundaries were determined in the field, including the ordinary high water mark and the edge of wetland features. No additional wetland were found on the site. Boundaries indicated in this report are based on that determination.

RESULTS

Abnormal Circumstance Determination

As outlined in the *Biological Assessment* (Toyon Consultants 2016), the project location has been highly disturbed through the years. Based on the vegetation found on the site, along with aerial photos of the past history, the *Biological Assessment* concluded that the riparian woodland was likely part of an historic habitat restoration project. The uniform slope leading from the top of the project down to the potential wetland was likely constructed at some point in the past. While these are considered “abnormal circumstances,” the continued presence of wetland vegetation along with soil and hydrological indicators is sufficient to delineate the wetland on this site.

Sampling Points

Two sampling points were taken on the project site to delineate the wetland. Locations are listed in Table 1. Each sampling point was paired such that one is within a wetland and the other is outside a wetland. One wetland feature was identified. The sampling points are shown in Photos 1 and 2.

The boundaries of all potentially jurisdictional features were staked in the field and GPS points were taken. Due to the fact that the banks of the creek would not appear as distinct on the scale of the wetland delineation map, a line feature was used. The map showing the wetland delineation and sampling points is provided in Figure 6 and 7 below (see pages 25-26).

Sampling Point	Latitude	Longitude	Wetland
SPT-1	37° 35' 23.534" N	122° 30' 04.141" W	Y
SPT-2	37° 35' 23.482" N	122° 30' 04.653" W	N

Table 1: Locations of Wetland Delineation Points

Vegetation

Species cover was estimated at representative sites. Plant identification was validated utilizing *The Jepson Manual Second Edition* (Baldwin, *et. al.* 2012). Wetland status was determined based on the National Wetland Plant List website (NWPL 2016). Vegetation sampling areas are shown in Photos 3 and 4.

All vegetation observed is listed in Table 2. Dominant vegetation observed in each sampling point is provided in Table 3.



Photo 1: Sampling Point SPT-1



Photo 2: Sampling Point SPT-2

Scientific Name	Common Name	Wetland Indicator Status
<i>Alnus rubra</i>	Red Alder	FACW
<i>Baccharis pilularis</i>	Coyote bush	NL
<i>Delairea odorata</i>	Cape Ivy	NL
<i>Equisetum arvense</i>	Common Horsetail	FAC
<i>Eucalyptus globulus</i>	Blue Gum Eucalyptus	NL
<i>Foeniculum vulgare</i>	Sweet Fennel	NL
<i>Fumaria capreolata</i>	White Ramping Fumitory	NL
<i>Genista monspessulana</i>	French Broom	NL
<i>Melica imperfecta</i>	Little California Melic	NL
<i>Phalaris aquatica</i>	Harding Grass	FACU
<i>Rubus ursinus</i>	California Blackberry	FAC
<i>Salix laevigata</i>	Red Willow	FACW
<i>Salix lasiolepis</i>	Arroyo Willow	FACW
<i>Vinca major</i>	Periwinkle	NL

Table 2: Wetland Indicator Status of Vegetation Observed

OBL = Almost always occurs in wetlands (estimated probability > 99%) under natural conditions

FACW = Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.

FAC = Equally likely to occur in wetlands (estimated probability 34%- 66%) or non-wetlands.

FACU = Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands.

UPL = Almost always occurs in non-wetlands (estimated probability > 99%) under natural conditions

NL = No Wetland Indicator Status Listed; Presumed to Be UPL

Sampling Point	Species	Stratum	Wetland Indicator Status
SPT-1 – Wetland	<i>Salix laevigata</i>	Tree	FACW
	<i>Equisetum arvense</i>	Herb	FAC
	<i>Melica imperfecta</i>	Herb	NL (UPL)
	<i>Rubus ursinus</i>	Vine	FAC
SPT-2 – Non-wetland	<i>Eucalyptus globulus</i>	Tree	NL (UPL)
	<i>Baccharis pilularis</i>	Shrub	NL (UPL)
	<i>Phalaris aquatica</i>	Herb	FACU
	<i>Vinca major</i>	Herb	NL (UPL)

Table 3: Dominant Vegetation Observed in Sampling Points (Dominance determined by 50/20 rule)



Photo 3: Vegetation at SPT-1



Photo 4: Vegetation at SPT-2

Soils

Soil pits were dug at each sampling point to a minimum of 12 inches (see Photos 1 and 2 above).

On August 16, 2016, a soils report was generated for the project site using the Natural Resource Conservation Service Web Soil Survey online database (NRCS 2016). The full report is provided in Appendix B. The soil survey map is provided in Figure 4.

One soil type is expected to occur within the areas identified in this report: Barnabe-Candlestick complex. Summary description of this soil is provided below.

Table 4 summarizes the results of the soil samples taken at each sampling point. Photos 5 and 6 show soils with hydric indicators found on the site at SPT-1.

Given the high complexity of the soils expected on the site, the observed soil types appear to fit the NRCS descriptions.

Point	Sample Profile	NRCS Soil Type	Hydric Indicator	Hydric	Wetland
SPT-1	0 – 5” Sandy Clay	Barnabe-Candlestick complex	Sandy Mucky Mineral	Y	Y
SPT-1	5 – 10” Loam	Barnabe-Candlestick complex	Redox Dark Surfaces	Y	Y
SPT-2	0 – 12” Sandy Loam	Barnabe-Candlestick complex	None	N	N

Table 4: Summary of Soil Wetland Indicators at Sampling Points
* = Atypical Situation



**Photo 5: Hydric Soil Indicator at SPT-1
Sandy Mucky Mineral**



**Photo 6: Hydric Soil Indicator at SPT-1
Redox Dark Surfaces**



Figure 4: Soil Survey Map (See Appendix B for Full Soil Report)

105—Barnabe-Candlestick complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: **h9gl**

Elevation: **200 to 1,340 feet**

Mean annual precipitation: **20 to 30 inches**

Mean annual air temperature: **54 to 57**

degrees F Frost-free period: 300 to

350 days

Farmland classification: **Not prime farmland**

Map Unit Composition

Barnabe and similar soils: **45 percent**

Candlestick and similar soils: **35 percent**

Minor components: **15 percent**

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Barnabe

Setting

Landform: **Mountain slopes**

Landform position (two-dimensional): **Backslope**

Landform position (three-dimensional): **Mountainflank**

Down-slope shape: **Concave** *Across-slope*

shape: **Convex** *Parent material:* **Hard fractured**

residuum weathered from sandstone

Typical profile

H1 - 0 to 7 inches: **very gravelly sandy loam**

H2 - 7 to 12 inches: **very gravelly sandy loam**

H3 - 12 to 16 inches: **unweathered bedrock**

Properties and qualities

Slope: **30 to 75 percent**

Depth to restrictive feature: **8 to 20 inches to lithic bedrock**

Natural drainage class: **Well drained**

Runoff class: **High**

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: **More than 80 inches**

Frequency of flooding: **None**

Frequency of ponding: **None**

Salinity, maximum in profile: **Nonsaline to very slightly saline (0.0**

to 2.0 mmhos/cm) Available water storage in profile: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated):

None specified *Land capability*

classification (nonirrigated): **7e**

Hydrologic Soil Group: **D**

Description of Candlestick

Setting

Landform: **Mountain slopes**

Landform position (two-dimensional): **Backslope**

Landform position (three-dimensional): **Mountainflank**

Down-slope shape: **Concave** *Across-slope shape:* **Convex** *Parent material:* **Hard fractured residuum weathered from sandstone**

Typical profile

H1 - 0 to 2 inches: **fine sandy loam**

H2 - 2 to 20 inches: **loam**

H3 - 20 to 24 inches: **sandy clay loam**

H4 - 24 to 28 inches: **unweathered bedrock**

Properties and qualities

Slope: **30 to 75 percent**

Depth to restrictive feature: **20 to 40 inches to lithic bedrock**

Natural drainage class: **Well drained**

Runoff class: **Very high**

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.57 in/hr)

Depth to water table: **More than 80 inches**

Frequency of flooding: **None**

Frequency of ponding: **None**

Salinity, maximum in profile: **Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)** *Available water storage in profile:* **Low (about 3.6 inches)**

Interpretive groups

Land capability classification (irrigated):

None specified *Land capability classification (nonirrigated):* **7e**

Hydrologic Soil Group: **C**

Minor Components

Kron

Percent of map unit: **3 percent**

Buriburi

Percent of map unit: **3 percent**

Rock outcrop

Percent of map unit: **3 percent**

Candlestick variant

Percent of map unit: **3 percent**

Unnamed

Percent of map unit: **3 percent**

Hydrology

The National Wetland Inventory website was accessed in order to determine the known or suspected presence of wetlands in the project vicinity (USFWS 2016). The NWI map is provided in Figure 5.

The NWI map shows an anomalous data point, where San Pedro Creek appears to simply stop almost immediately prior to the project site. In fact, the creek does continue, adjacent to the project location. The NWI Classification for this area is R4SBAX, which is defined as follows:

R System **RIVERINE**: The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.

4 Subsystem **INTERMITTENT**: This Subsystem includes channels that contain flowing water only part of the year, but may contain isolated pools when the flow stops.

SB Class **STREAMBED**: Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.

A WATER REGIME **Temporary Flooded**: Surface water is present for brief periods during growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime.

X SPECIAL MODIFIER **Excavated**: Lies within a basin or channel that have been dug, gouged, blasted or suctioned through artificial means by man.

Table 4 summarizes the hydrological indicators observed at each sampling point. Photos 7, 8, 9, and 10 show the hydrological indicators observed.

Sampling Point	Hydrological Feature Observed	Wetland
SPT-1	Salt Crusts (Primary) Surface Soil Cracks (Primary) Drift Deposits Riverine (Secondary) Drainage Patterns (Secondary)	Y
SPT-2	None	N

Table 5: Hydrological Indicators at Sampling Points



Figure 5: National Wetlands Inventory Map



Photo 7: Hydric Indicator (Primary) – Salt Crust



Photo 8: Hydric Indicator (Primary) – Surface Soil Cracks



Photo 9: Hydric Indicator (Secondary) – Drift Deposits Riverine



Photo 10: Hydric Indicator (Secondary) – Drainage Patterns

Endangered Species

As indicated in the *Biological Assessment*, Red-legged frogs (*Rana draytonii*) and steelhead salmon (*Oncorhynchus mykiss*) are known to occur within the San Pedro Creek watershed. The proposed project is near to but not within red-legged frog critical habitat as determined by USFWS.

The California red-legged frog is listed under the federal endangered species act (FESA) as “threatened,” and so is subject to consideration under the California Environmental Quality Act (CEQA). Take of this listed species is illegal under FESA unless allowed under a permit issued by the US Fish and Wildlife Service (FWS). “Take” includes not only the direct killing of species, but impacts to habitat as well.

Steelhead salmon is listed as “threatened” under FESA, and so is subject to consideration under CEQA. Take of this species is illegal under FESA unless allowed under a permit issued by the National Marine Fisheries Service (NMFS). “Take” includes not only the direct killing of species, but impacts to habitat as well.

Avoidance of Impacts

Several measures have been taken to avoid impacts:

- Construction of outfall has been limited to between April 15 and October 15 (dry season).
- The road is designed with parking on only one side to reduce the total impervious area.
- Runoff is treated by a bioretention planter that meets C.3 requirements prior to being discharged to the creek.
- All hardscape other than the driveways for the houses will be pervious material.
- The project provides a 25 foot buffer to the existing willow trees.
- The project includes a Restoration Plan for the creek.
- A detention system is included so that the post-construction runoff rate is less than or equal to the pre-construction runoff rate.

JURISDICTION AND PERMITTING

Jurisdiction

San Pedro Creek is a perennial creek that drains directly into the Pacific Ocean. This likely constitutes provides a connection in fact, and so waters on the subject property would likely be considered Waters of the United States.

The flat area encompassed between San Pedro Creek itself and the sloped area on the north east portion of the property has been determined to qualify as a wetland under the federal definition. Sampling point SPT-1, which was located within this area, shows indicators for vegetation, soil, and hydrology. Sampling point SPT-2 was situated on the sloped area, and it showed no indicators for wetlands.

Figures 6 and 7 provide the wetland delineation map for this project, including both the ordinary high water mark and the edge of the wetland. No additional dredging or filling of wetlands are proposed for this project besides what is associated with the storm water drain. Impacts to ACE jurisdictional wetlands occur within wetland habitat and below the ordinary high water mark, but no impacts occur within the perennial section of San Pedro Creek.

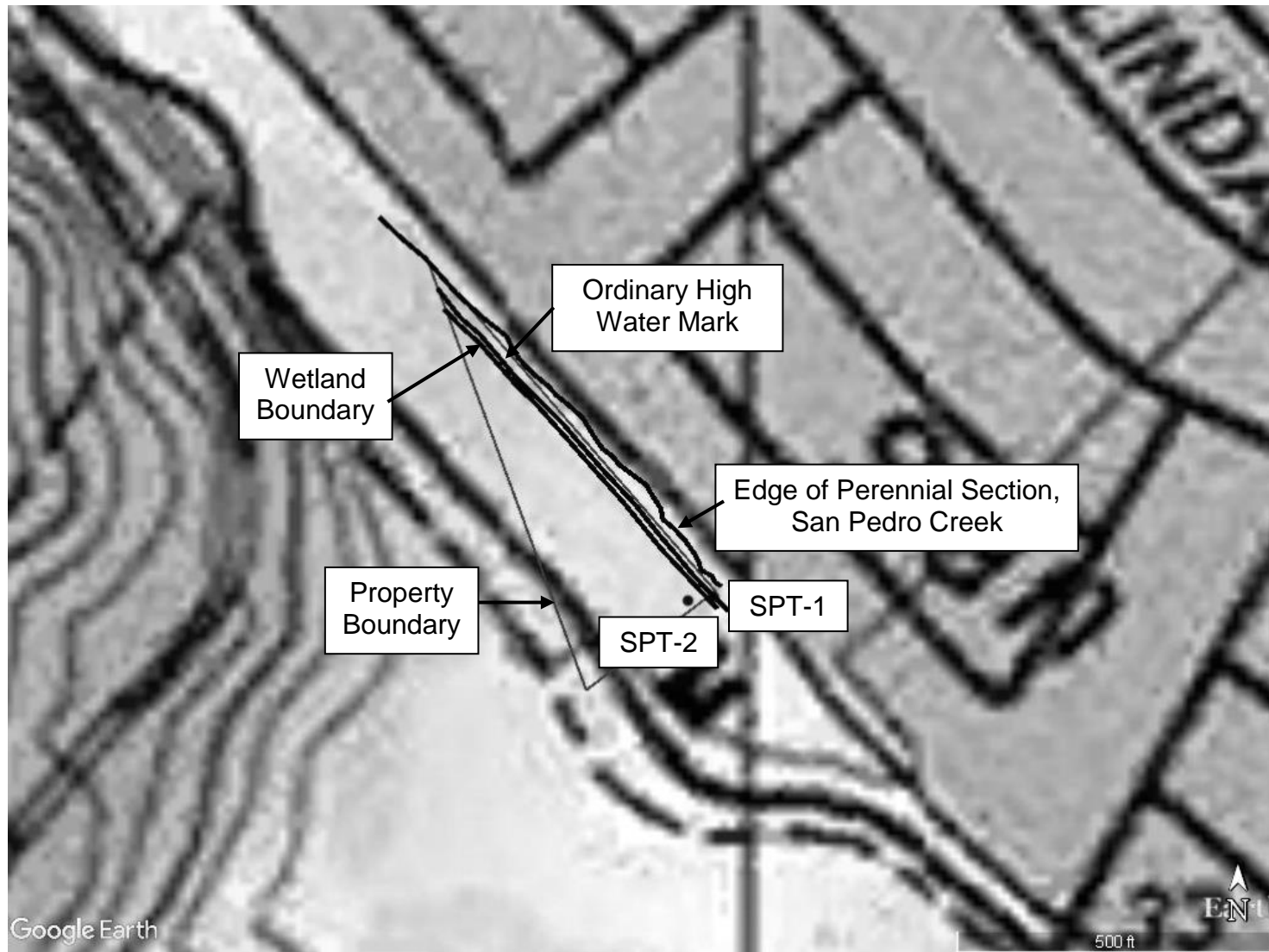


Figure 6: San Pedro Terrace Wetland Delineation Map over USGS Topographic Map

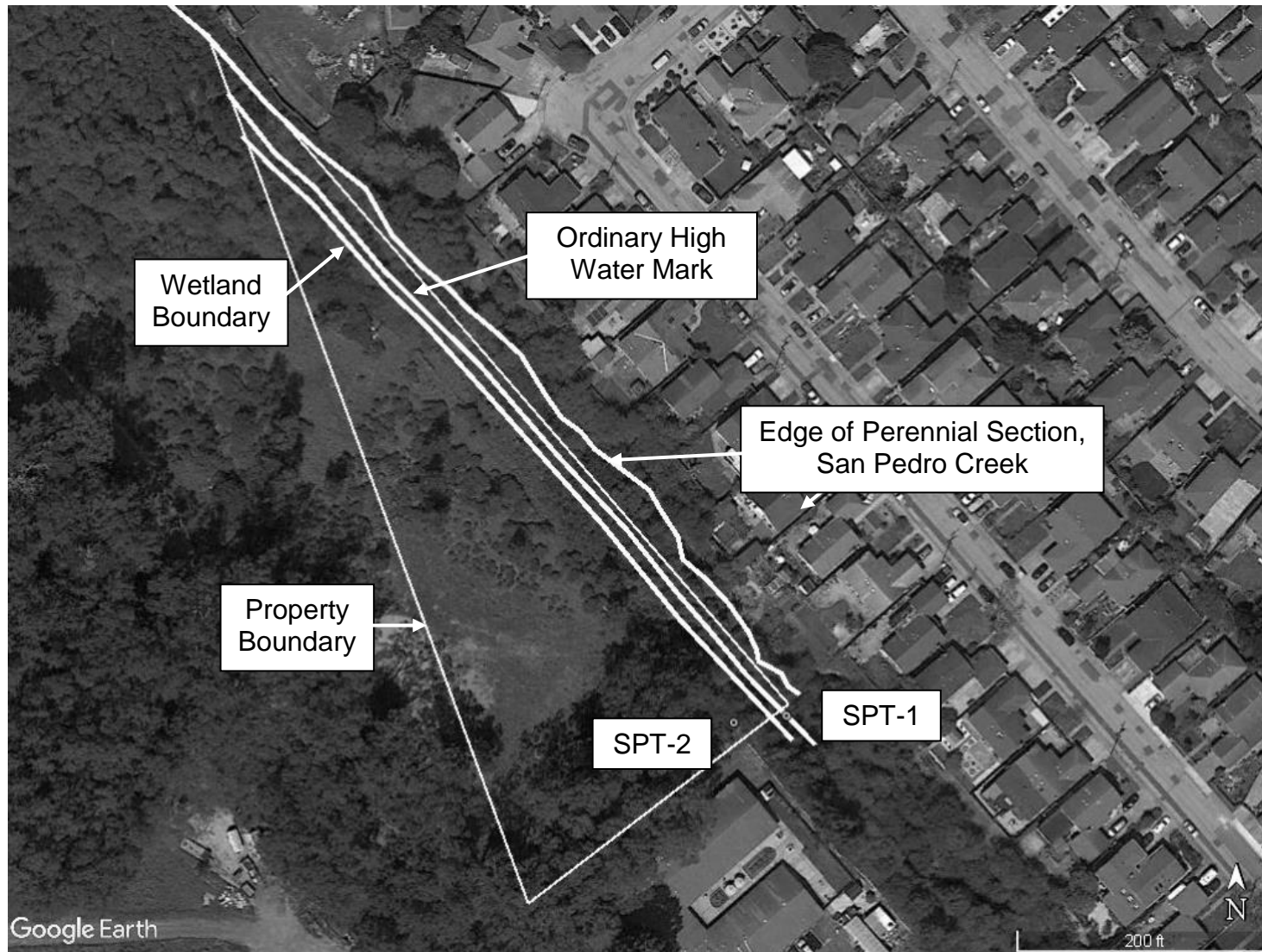


Figure 7: San Pedro Terrace Wetland Delineation Map over Aerial Photo, Image Dated August 2016

Nationwide Permit

This project likely qualifies for Nationwide Permit 7, which is described as follows:

7. Outfall Structures and Associated Intake Structures

Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

Work under this permit requires that Pre-Construction Notification be provided to USACE. Work should not begin on this project until a response has been received on the Pre-Notification application.

Additional Permitting

Due to the potential impacts of the proposed project on listed endangered species, a consultation with both USFWS and/or NMFS as required under Section 7 of FESA will likely be required for this project.

Certification of this project under Section 401 of the Clean Water Act will need to be provided by the Regional Water Quality Control Board (RWQCB).

Riparian impacts will also need to be considered as part of a Lake and Streambed Alteration Agreement by the California Department of Fish and Wildlife (CFDW).

The City of Pacifica is considered the Lead Agency for this project as defined under the California Environmental Quality Act (CEQA).

As part of the approval process, a Restoration and Mitigation Monitoring Plan will be developed for this project.

CONCLUSION

This report and the associated field studies provides the final wetland delineation boundaries based on ACE criteria. This delineation has been confirmed by ACE.

REFERENCES

- Baldwin, B.G, D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California, Second Edition*. University of California Press, Berkeley.
- California Natural Diversity Data Base (CNDDDB). 2016. Accessed using Rarefind 5, data accurate as of July 2016. <https://www.wildlife.ca.gov/Data/CNDDDB>
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- U.S. Fish and Wildlife Service (USFWS). 2016. National Wetlands Inventory Website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed August 16, 2016. <https://www.fws.gov/wetlands/index.html>

APPENDIX A: WETLAND DELINEATION FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pedro Terrace City/County: Pacifica/San Mateo Sampling Date: 8/19/16
 Applicant/Owner: Bengiah Ventures LLC State: CA Sampling Point: SPT-1
 Investigator(s): Joe Rigney Section, Township, Range: San Pedro - Sanchez Land Grant
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): LRRC Lat: 37°35'23.534" N Long: 122°30'04.141" W Datum: WGS 1984
 Soil Map Unit Name: Burnabe-candlestick Complex NWI classification: R45BAx
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Area appears to have been part of a restoration project</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>5m x 5m</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Salix laevigata</u>	<u>50%</u>	<u>Y</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
2. <u>Salix lasiolepis</u>	<u>3%</u>	<u>N</u>	<u>FACW</u>		
3. <u>Alnus rubra</u>	<u>5%</u>	<u>N</u>	<u>FACW</u>		
4. _____	_____	_____	_____		
<u>68%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: _____) 1. <u>NONE</u> 2. _____ 3. _____ 4. _____ 5. _____					
Herb Stratum (Plot size: <u>5m x 5m</u> , <u>1m x 1m</u>) _____ = Total Cover 1. <u>Ribes californica</u> <u>0.5%</u> 2. <u>Equisetum arvense</u> <u>1%</u> <u>Y</u> <u>FAC</u> 3. <u>Cape Ivy Delarrea odorata</u> <u>0.5%</u> <u>N</u> <u>UPL(N)</u> 4. <u>Whiteflower Fumaria capreolata</u> <u>0.5%</u> <u>N</u> <u>UPL(N)</u> 5. <u>Melica imperfecta</u> <u>1%</u> <u>Y</u> <u>UPL</u> 6. _____ 7. _____ 8. _____					
<u>3%</u> <u>0.5%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>5m x 5m</u>) 1. <u>Ribes californica</u> <u>0.5%</u> <u>Y</u> <u>FAC</u> 2. <u>W. vinus</u> _____ = Total Cover					
<u>0.5%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>95%</u> % Cover of Biotic Crust <u>0</u>					
Remarks: <u>Tree 50/20 SD = 44% 20 = 19</u> <u>Herb 50/20 SD = 1.5 20 = .6</u> <u>Woody Vine SD = 0.25</u> <u>Hydrophytic veg present based on dominance test</u>					

SPT-1

Sampling Point: ~~SPT-1~~

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/1	95					Sandy Clay; Muck (< 33% fibers w/ 100)	
5-10	7.5YR 2.5/1	80%	5YR 5/8	40%	C	M	Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Pedro Terrace City/County: Pacific/San Mateo Sampling Date: 8/19/16
 Applicant/Owner: Benaiah Ventures LLC State: CA Sampling Point: SPT-2
 Investigator(s): Joe Rigney Section, Township, Range: San Pedro-Sanchez Land Grant
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): _____
 Subregion (LRR): LRR C Lat: 37° 35' 23.492" N Long: 122° 30' 04.653" W Datum: NAD 83 1984
 Soil Map Unit Name: Barnabe-Candlestick complex NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	

Remarks: Area appears to have been restored. Slope is likely artificially configured

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m x 6m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Blue gum eucalyptus</u>	<u>10%</u>	<u>Y</u>	<u>UPL(M)</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u>Eucalyptus globulus</u>				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____				
Sapling/Shrub Stratum (Plot size: <u>3m x 6m</u>) <u>10%</u> = Total Cover				
1. <u>Cascharis filularis</u>	<u>70%</u>	<u>Y</u>	<u>UPL(M)</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = _____ FACW species <u>0</u> x 2 = _____ FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>96</u> x 5 = <u>480</u> Column Totals: <u>117</u> (A) <u>563</u> (B) Prevalence Index = B/A = <u>4.8</u>
2. <u>French broom Genista monspessulana</u>	<u>5%</u>	<u>N</u>	<u>UPL(M)</u>	
3. <u>Fennel Foeniculum vulgare</u>	<u>1%</u>	<u>N</u>	<u>UPL(M)</u>	
4. _____				
5. _____				
Herb Stratum (Plot size: <u>1m x 1m</u>) <u>76%</u> = Total Cover				
1. <u>Vinca major</u>	<u>10%</u>	<u>Y</u>	<u>UPL(M)</u>	
2. <u>Equisitum arvense</u>	<u>1%</u>	<u>N</u>	<u>FAC</u>	
3. <u>Harding grass Phalaris aquatica</u>	<u>20%</u>	<u>Y</u>	<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Woody Vine Stratum (Plot size: <u>3m x 6m</u>) <u>31%</u> = Total Cover				
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>69%</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				

Remarks: Shrub 50/20 Herb 50/20
50 = 38% 50 = 15.5
20 = 15.2% 20 = 6.2%

SOIL

Sampling Point: SPT-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	pyR 3/2	85%		Ø			Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: No soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrological indicators observed

APPENDIX B: NRCS SOIL SURVEY REPORT