# PRELIMINARY JURISDICTIONAL DELINEATION FOR THE NEWELL CREEK DAM INLET/OUTLET REPLACEMENT PROJECT

Santa Cruz County, California

#### PREPARED FOR:

# CITY OF SANTA CRUZ WATER DEPARTMENT

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# ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
APN	Assessor's Parcel Number
CDFW	California Department of Fish and Wildlife
City	City of Santa Cruz
CWA	Clean Water Act
ED	ephemeral drainage
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FR	Federal Register
ID	intermittent drainage
L1RB	lacustrine, limnetic, rock bottom
L1UB	lacustrine, limnetic, unconsolidated bottom
LLRA	Loch Lomond Recreation Area
N/A	not applicable
NCD	Newell Creek Dam
NCP	Newell Creek Pipeline
NL	not listed
OBL	obligate
OHWM	ordinary high water mark
PEM1	palustrine, emergent, persistent
PEM2	palustrine, emergent, nonpersistent
Project	Newell Creek Dam Inlet/Outlet Replacement Project
R3RB	riverine, upper perennial rock bottom
R3RB1	riverine, upper perennial rock bottom, bedrock
R4SB1	riverine, intermittent, streamed bedrock
R6	riverine, ephemeral
Reservoir	Loch Lomond Reservoir
RS	roadside swale
RWQCB	Regional Water Quality Control Board
SW	seasonal wetland
TNW	traditional navigable water
UPL	upland
USGS	U.S. Geological Survey

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# 1 INTRODUCTION

At the request of the City of Santa Cruz (City) Water Department, Dudek has prepared this report to document the results of a preliminary jurisdictional delineation of waters of the United States, including wetlands, conducted for the Newell Creek Dam (NCD) Inlet/Outlet Replacement Project (Project). NCD, which impounds Loch Lomond Reservoir (Reservoir), is located in unincorporated Santa Cruz County. The results of this delineation are preliminary until verified by the San Francisco District of the U.S. Army Corps of Engineers (ACOE).

## 1.1 Project Location

NCD is located approximately 10 miles north of the City of Santa Cruz and 2 miles east of the unincorporated community of Ben Lomond (see Figure 1). The dam and Reservoir are located on an approximately 518-acre site owned by the City of Santa Cruz (Assessor's Parcel Number [APN] 076-251-24). The Study Area consists of two separate areas, referred to herein as the North Site and the South Site (Figure 1) that total approximately 85 acres. The North Site is located at the Loch Lomond Recreation Area (LLRA) boat launch on the eastern side of Loch Lomond Reservoir. The South Site encompasses the southern portion of Loch Lomond Reservoir and an area located below the dam, where Loch Lomond Reservoir drains into Newell Creek via a spillway and outlet. The Project site is located in Section 33 of Township 9 South, Range 2 West of the Felton, California, U.S. Geological Survey (USGS) 7.5-minute quadrangle map. The central point of the Study Area corresponds to the following decimal degree coordinates: 37.1021 degrees north latitude and 122.0733 degrees west longitude (Figure 1).

The Study Area consists of all the areas where Project activities could occur and includes the NCD, the southern portion of the Reservoir where the existing and proposed intakes are located, the spillway plunge pool and plunge pool crossing, the existing outlet and seepage channel at the toe of the of the dam, the control house on the crest of the dam, Newell Creek Road and access roads to the toe and crest of the dam, a portion of the Newell Creek Pipeline (NCP), and a portion of an emergency access (Haul) road along the right bank of the reservoir. In addition, the Study Area includes the LLRA launch, and areas surrounding the dam and reservoir that would be used for construction staging and/or storage of excavated spoils (see Figure 2).

## 1.2 Directions to the Study Area

Access to the North Site of the Study Area is via Loch Lomond Way. From the City of Santa Cruz, head north on Ocean Street. Continue onto Graham Hill Road. In 5.3 miles, turn right onto East Zayante

Road. Turn left onto Lompico Road. Turn left onto West Drive, and travel for 0.6 miles. Take a slight right turn onto Sequoia Avenue, and then continue on Loch Lomond Way to the North Site.

Access to the South Site is via Newell Creek Road. From Santa Cruz, travel north on Ocean Street. Continue onto Graham Hill Road for 5.7 miles. Turn right onto CA-9/Highway 9 and travel 1.7 miles. Turn right on Glen Arbor Road and travel 1.1 miles, then turn right onto Newell Creek Road. Follow Newell Creek Road to the South Site. There are several locked gates along Newell Creek Road restricting vehicular traffic to the South Site.

# 2 PROJECT DESCRIPTION SUMMARY

The proposed Project would entirely replace the existing aging inlet/outlet works in a new location at the Reservoir and include other associated improvements. The Project is comprised of the following primary components:

- Three new inlets located within the Reservoir that function as both inlet and outlet and an operational structure and valves at the toe of the dam;
- A 14-foot-diameter tunnel containing 48-inch and 10-inch inlet/outlet pipelines through the right (west) abutment and under the dam;
- A new control house on the dam crest to house controls for the inlets;
- Replacement of an approximately 2,000-linear-foot segment of NCP between the outlet structure and the first isolation valve;
- Improvements along the dam's access roads to improve access for construction, including a new culvert crossing at the spillway plunge pool; and
- Decommissioning of the existing inlet/outlet works once the replacement inlet/outlet system is operational.

Figure 3 illustrates the location of the primary new facilities in relation to existing facilities.

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# 3 REGULATORY BACKGROUND

## 3.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the ACOE.

As defined in Title 33 of the Code of Federal Regulations, Section 328.3, waters of the United States include all waters subject to interstate or foreign commerce, including tidal waters, interstate waters and wetlands, many intrastate waters, impoundments, tributaries, the territorial seas, and adjacent wetlands. Specifically, Section 328.3 of Title 33 of the Code of Federal Regulations defines waters of the United States as follows:

- a. For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term "waters of the United States" means:
  - 1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
  - 2. All interstate waters, including interstate wetlands;
  - 3. The territorial seas;
  - 4. All impoundments of waters otherwise identified as waters of the United States under this section;
  - 5. All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
  - 6. All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.
- b. The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.
  - 1. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.
  - 2. Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high water mark (OHWM) when no adjacent wetlands are present. Defined in the Code of Federal Regulations, Title 33, Section 328.3(e), the OHWM is

that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

If adjacent wetlands are present, the jurisdiction extends to the limit of wetlands.

Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). Wetlands are jurisdictional if they meet this definition and the definition of waters of the United States. ACOE predominantly uses the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (ACOE 2010) methodology to determine the presence of wetlands. According to the manual (ACOE 2010), the following three criteria must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). Further guidance for determining jurisdictional limits in ephemeral riverine systems in the western mountains, valleys, and coast region is detailed in A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (ACOE 2014).

In the last two decades, two major court cases have affected the jurisdictional reach of Section 404 of the Clean Water Act (CWA): (1) Solid Waste Agency of Northern Cook County v. United States Corps of Engineers and (2) Rapanos v. United States (2006) and Carabell v. United States Army Corps of Engineers.

## Solid Waste Agency of Northern Cook County v. United States Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, ACOE stated that Section 404(a) of the CWA extends to intrastate waters (51 Federal Register [FR] 41217):

a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or

- b. Which are or would be used as habitat by other migratory birds which cross state lines; or
- c. Which are or would be used as habitat for endangered species; or
- d. Used to irrigate crops sold in interstate commerce.

In 2001, the U.S. Supreme Court—in its judgment on the Solid Waste Agency of Northern Cook County case, held that Code of Federal Regulations, Title 33, Section 328.3(a)(3), as clarified and applied to the Solid Waste Agency of Northern Cook County site pursuant to the Migratory Bird Rule (51 FR 41217)—superseded the authority granted to ACOE under Section 404(a) of the CWA. Therefore, ACOE may not rely on the Migratory Bird Rule to establish a "significant nexus" to interstate or foreign commerce. In additional language, the U.S. Supreme Court majority opinion reasoned that these types of waters required some nexus to navigable waters. Although no formal guidance was issued by ACOE interpreting the extent to which the Solid Waste Agency of Northern Cook County decision would limit jurisdictional determinations, in practice, ACOE considers intrastate waters as waters of the United States where there is an appropriate connection to navigable water or other clear interstate commerce connection (Solid Waste Agency of Northern Cook County v. United States Corps of Engineers 2001).

#### Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court again issued an opinion on the extent ACOE had jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to waters of the United States, as well as wetlands adjacent to those tributaries (*Rapanos v. United States* 2006).

ACOE and the U.S. Environmental Protection Agency issued guidance related to the *Rapanos* decision on June 5, 2007. The guidance identifies the waters the agencies (i.e., ACOE and the U.S. Environmental Protection Agency) will assert jurisdiction over categorically and on a case-by-case basis based on the reasoning of the *Rapanos* opinions. In summary, ACOE will continue to assert jurisdiction over the following:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature).

Note: Relatively permanent waters do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months).

• Non-relatively permanent waters, if determined (on a fact-specific analysis) to have a significant nexus with a TNW, including non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but that do not directly abut a relatively permanent, are non-navigable tributary. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, including hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the Western Mountains, Valleys, and Coast Region are distinguishable from the geographic features described previously, where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. These ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality.

Swales or erosional features (e.g., gullies and small washes characterized by low-volume, infrequent, or short-duration flow) are generally not considered waters of the United States, because they are not tributaries, or they do not have a significant nexus to downstream TNWs. In addition, ditches (including roadside ditches) excavated wholly in and draining only uplands, and that do not carry a relatively permanent flow of water, are generally not considered waters of the United States, because they are not tributaries, or they do not have a significant nexus to downstream TNWs. Even when not jurisdictional under Section 404 of the CWA, these features may still be jurisdictional at the state or local level such as under the California Porter-Cologne Water Quality Control Act, and/or Section 1602 of the California Fish and Game Code.

Prior to the Rapanos guidance, ACOE required its regional districts to request concurrence for only those jurisdictional determinations where the district was planning to assert jurisdiction over a non-navigable, intrastate, and isolated water and/or wetland. The agencies now require that all determinations for non-navigable, intrastate, and isolated waters be submitted for ACOE and U.S. Environmental Protection Agency review prior to the district making a final decision on the jurisdictional determination.

#### U.S. Army Corps of Engineers-Regulated Activities

Under Section 404 of the CWA, ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring concrete,

laying sod, and stockpiling excavated material into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

#### 3.2 State of California

#### California Department of Fish and Wildlife

Pursuant to Section 1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

In Title 14 of the California Code of Regulations, Section 1.72, the CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In Title 14 of the California Code of Regulations, Section 1.56, the CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from the CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

#### California Regional Water Quality Control Board

Pursuant to Section 401 of the federal CWA, the Regional Water Quality Control Board (RWQCB) regulates discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code, Section 13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act. Waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)). Before ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the Project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter-Cologne Water Quality Control Act.

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# 4 METHODOLOGY

#### 4.1 Literature Review

Prior to conducting fieldwork, Dudek reviewed the following available public resources and prior studies to assess the potential for jurisdictional features:

- 1:200-scale aerial photograph (Bing Maps 2016; Google Earth 2017)
- USGS "Felton, California" 7.5-minute topographic quadrangle (USGS 2018)
- U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA 2018)
- Local and regional climate data (WRCC 2018)
- National Wetland Inventory (USFWS 2018)
- Marine Geophysical Survey Loch Lomond Reservoir, California (Sea Engineering Inc. 2009)
- Newell Creek Dam Hydro-electric Project, Santa Cruz County, California Delineation of State and Federal Jurisdictional Waters (Biotic Resources Group 2013)
- Watershed Resource Management Plan Existing Conditions Report (Swanson Hydrology & Geomorphology 2001)

#### 4.2 Jurisdictional Delineation

Potential wetlands were delineated based on methodology described in the 1987 Corps of Engineers Wetlands Delineation Manual (ACOE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (ACOE 2010). Non-wetland waters of the United States were delineated based on the presence of an OHWM determined using the methodology in A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (ACOE 2014).

Dudek biologists collected photographic records that represent the on-site habitats and wetlands (Appendix A).

#### 4.3 Flora

All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2018), and common names follow the U.S. Department of Agriculture, Natural Resources

Conservation Service, Plants Database (USDA 2017). Wetland plant indicator status for each observed species was determined using the 2016 National Wetland Plant List regional plant list for the Mountains, Valley, and Coast Region (Lichvar et al. 2016). Wetland plant indicator status is ranked as follows:

- Obligate (OBL): plants that always occur in standing water or in saturated soils
- Facultative Wetland (FACW): plants that nearly always occur in areas of prolonged flooding
  or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands
- Facultative (FAC): plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils
- Facultative Upland (FACU): plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils
- Upland (UPL): plants that rarely occur in water or saturated soils

A rating of Not Listed (NL) indicates the plant has no wetland plant indicator status and is not considered a wetland plant in any region. Appendix B contains a complete list of plant species observed during the surveys and their wetland plant indicator status.

#### 4.4 Field Visit

Dudek biologists, Laura Burris and Lisa Achter, surveyed the Study Area on April 11 and 12, 2018, to document current site conditions and to assess potential wetlands and non-wetland waters of the United States. Dudek biologists conducted the wetland delineation fieldwork in conjunction with biological surveys performed for the same Project. A supplemental field survey was conducted by Dudek on September 6, 2018 to assess several additional staging areas proposed for inclusion in the Study Area.

Dudek biologists collected additional data at a total of six data stations where necessary to collect site-specific data on the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The data stations were established based on topography and evidence of potential wetland indicators, such as hydrophytic vegetation or evidence of wetland hydrology. The data stations generally consist of paired locations that are placed to transect the wetland boundary. The results of the survey are presented in Chapter 6, Results, and data sheets for each data station are included as Appendix C. In addition to information gathered at the data stations to assess potential wetland resources, data were collected from four stream transects to assess stream hydrology. Evidence of an OHWM was present in the form of shelving, undercut banks, wracking, and changes in sediment and vegetation. Data sheets for stream transects are included as Appendix C. All data stations, wetland boundaries, and OHWM data were collected using a hand-held GPS unit capable of sub-meter accuracy (Trimble Geo XT). These data were then downloaded and overlain on aerial imagery by Dudek GIS staff using ArcMaps software.

The vegetation communities and land cover types within the Study Area were documented in the field and have been adapted from *A Manual of California Vegetation*, *Second Edition* (Sawyer et.al 2009), and the California Wildlife Habitat Relationship System (CDFW 2014).

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# 5 ENVIRONMENTAL SETTING

#### 5.1 Land Uses

The Study Area is generally rural and surrounded by forested watershed lands and open space. Structures that presently exist in the southern portion of the Study Area include a control house on the southeastern side of the dam, and, in the northern portion of the property, a boat launch and a small store in the LLRA. Several parking lots exist along the access road to the boat launch.

## 5.2 Topography and Soils

The Study Area consists of forested hills with a central valley created by Newell Creek and the Reservoir. Elevations in the vicinity of the North Site range from approximately 580 feet above mean sea level (AMSL) at the boat launch to approximately 760 feet AMSL on the slopes above the Reservoir. Elevations in the vicinity of the South Site range from approximately 780 feet AMSL above the dam to 390 feet AMSL at the bottom of the dam. The Reservoir sits at an elevation of approximately 580 feet AMSL.

According to the Natural Resources Conservation Service (USDA 2018), four native soil types and one anthropogenic soil types are mapped within the Study Area (Figure 4). The native soils include Maymen-Rock outcrop complex, 50%–75% slopes; Nisene-Aptos complex, 30%–50% slopes; Nisene-Aptos complex, 50%–75% slopes; and Lompico-Felton complex, 50%–75% slopes. The anthropogenic soil type is classified as "Dam" and corresponds to NCD. The Maymen-Rock outcrop complex is characterized by residuum weathered from sandstone and shale, or granite. This complex is a somewhat excessively drained soil consisting of approximately 75% Maymen soils and 25% rock outcrops (USDA 2018). Nisene-Aptos complex soils are derived from approximately 30% Nisene soils and 30% Aptos soils, with the inclusion of other minor soil components. This complex is well drained and is derived from residuum weathered from sandstone and shale or from siltstone (USDA 2018). The Lompico-Felton complex contains approximately 45% Lompico soils and 40% Felton soils, with minor components included. This complex is well drained and is derived from residuum weathered from siltstone and/or mica schist, sandstone, and shale (USDA 2018).

The U.S. Department of Agriculture, Natural Resources Conservation Service does not consider any of these soil types to be hydric soils (USDA 2016).

During the site survey, soils in the Study Area conformed to survey mapping, and were generally loamy with a layer of leaf litter at the surface. Soils on the dam face and at the base of the dam consisted of mixed fill with a loose, rocky texture at the surface composed of various sized materials, presumably due to dam construction activities and placement of fill in the past.

## 5.3 Watershed and Hydrology

The Study Area is located in the Zayante Creek – San Lorenzo River Watershed (Hydrologic Unit Code 180600150202). Newell Creek drains water from Loch Lomond Reservoir and the watershed upstream of the Reservoir, south to the San Lorenzo River, approximately 3 miles south of the Study Area. The San Lorenzo River conveys water south, where it empties into the northern portion of Monterey Bay approximately 10 miles south of the Study Area.

The water levels of the Reservoir are variable depending on the time of year, rainfall, and available flows from upstream tributaries. Four large streams flow into the Reservoir from the west and the north, including the main channel of Newell Creek (Swanson Hydrology & Geomorphology 2001). The Reservoir overtops the main spillway at its southern end and drains water to the lower reach of Newell Creek.

Newell Creek is depicted as a perennial blue-line stream on the Felton, California, USGS 7.5-minute quadrangle map. It originates northeast of the Study Area near the Bear Creek ridge area, then enters the Reservoir at its northeastern end. The Reservoir was constructed in 1960 and retains water from the Newell Creek Watershed as well as water from the San Lorenzo River (Felton Diversion) (Swanson Hydrology & Geomorphology 2001). The City Water Department maintains a minimum release of 1 cubic foot per second from the Reservoir when water is not actively spilling down the main spillway, per existing regulatory permits (Berry, pers. comm. 2018). The water is discharged into a seepage channel before entering the spillway plunge pool that discharges into Newell Creek channel to the south.

Chapter 6 includes further discussion of features within the Study Area.

# 5.4 Regional and Local Climate

The Study Area is located within the San Francisco Bay Area subregion of the Central Western California region in the greater California Floristic Province (Baldwin ed. 2012). This subregion characterizes lands east of the truly coastal habitat along the Pacific Ocean coastline and contains variable vegetation (Baldwin ed. 2012). Average annual temperatures in the Ben Lomond, California, area range from approximately 43.5 degrees Fahrenheit to 73.8 degrees Fahrenheit, and the average annual precipitation is 49.25 inches (WRCC 2018). On average, the months with the highest rainfall are January and February, and July has the least precipitation.

Rainfall for the survey year (2018) was average following above-normal rains in 2016/2017 after a number of years of drought. Site conditions during survey appeared typical for the time of year and region in which they occurred.

## 5.5 Natural Vegetation Communities and Land Cover Types

Land cover types within the Study Area consist of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types discussed further in the results section of this report. The following vegetation communities and land cover types were observed and mapped during the field visit using the classifications described in *A Manual of California Vegetation* by Sawyer and Keeler-Wolf (2009): California annual grassland, coyote brush scrub, French broom, mixed chaparral, redwood forest, big leaf maple forest, arroyo willow-bigleaf maple groves, red alder/bigleaf maple groves, redwood-Douglas fir forest, redwood-madrone woodland, Douglas fir forest, Douglas fir/knobcone pine forest, live oak/madrone woodland, and ruderal/developed.

#### Herbaceous

California Annual Grassland. California annual grassland in the Study Area is generally confined to the south-facing slope of the dam face but occurs in small patches throughout the Study Area. This vegetation community is dominated by non-native annual grasses such as wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), and rip-gut brome (*Bromus diandrus*). In addition to the non-native grasses, red fescue (*Festuca rubra*), a native grass, was also present. Annual forbs such as bicolor lupine (*Lupinus bicolor*), English plantain (*Plantago lanceolata*), and spring vetch (*Vicia sativa*) are also interspersed in the grasses of this land cover type. The annual grassland community on the dam face is maintained by periodic goat grazing.

#### Scrubs/Shrub

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs on a northwest-facing slope along the access road to the NCD. Other shrub species observed in this vegetation community include pink honeysuckle (*Lonicera hispidula*), bush monkeyflower (*Diplacus aurantiacus*), and wedge leaf ceanothus (*Ceanothus cuneatus*). Scattered coastal live oak trees (*Quercus agrifolia*) are interspersed in this shrubland. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California annual grassland previously described.

French Broom (*Genista monspessulana* and Others Shrubland Semi-Natural Alliance). Broom patches occur sporadically throughout the Study Area, with highest concentrations along the ecotone of woodland and grassland adjacent to the NCD face and along the margins of the reservoir. This shrubland is dominated by French broom (*Genista monspessulana*), a non-native, invasive species introduced from Europe. French broom creates a dense shrub canopy and herbaceous vegetation is sparse to absent in the understory.

**Mixed Chaparral.** Mixed chaparral occurs on a bluff in the northern portion of the Study Area. This habitat type is dominated by manzanitas (*Arctostaphylos* spp.), wedge leaf ceanothus, and wart leaf ceanothus (*Ceanothus papillosus*). The shrub canopy is dense, and herbaceous vegetation is largely absent from the understory.

#### **Woodlands and Forests**

**Redwood Forest (Sequoia sempervirens Forest Alliance).** A small grove of redwood (Sequoia sempervirens) trees occurs adjacent to a proposed staging area within the Study Area. This stand contained 100% cover of mature redwood trees. The thick layer of redwood leaf duff under the canopy likely precludes the growth of herbaceous vegetation in the understory.

Bigleaf Maple Forest (Acer macrophyllum Forest Alliance). Bigleaf maple (Acer macrophyllum) forest occurs throughout the southern portion of the Study Area, primarily along the margins of the NCD face and on north-facing slopes adjacent to Newell Creek. Bigleaf maple is the dominant species in the tree canopy of this vegetation community. Other trees observed in this community include California bay (Umbellularia californica), redwood, and madrone (Arbutus menziesii). The shrub layer in this vegetation community is sparse and consists of snowberry (Symphoricarpos mollis), toyon (Heteromeles arbutifolia), and poison oak (Toxicodendron diversilobum). Grassland similar to California annual grassland also occurs in the understory.

Arroyo Willow-Bigleaf Maple Groves (Salix lasiolepis – Acer macrophyllum Shrubland Alliance). This vegetation community is a tall shrub/low tree canopy composed of codominant arroyo willow (Salix lasiolepis) and bigleaf maple trees. This vegetation community occurs along the margins of Loch Lomond Reservoir to the northwest of NCD. Arroyo willow is a riparian tree or arborescent shrub that easily colonizes along stream banks and benches, slope seeps, and along drainages. It is valuable species for bank and slope stabilization. The herbaceous layer is variable and dependent on the coverage and density of the canopy and lower shrubs.

Red Alder–Bigleaf Maple Groves (*Alnus rubra – Acer macrophyllum* Forest Alliance). Big leaf maple forest within the Study Area intergrades with red alder (*Alnus rubra*) groves along the channel of Newell Creek and along the margins of the spillway plunge pool.

Redwood-Douglas Fir Forest (Sequoia sempervirens – Pseudotsuga menzieseii Forest Alliance). Redwood trees are intermixed with Douglas fir (Pseudotsuga menzieseii) in the western portion of the study area. The canopy is relatively continuous and dense, with some areas of two-tiered canopy. Mixtures of redwood and Douglas fir usually occurs in protected upland slopes up to approximately 3,200 feet (976 meters) elevation. The longitudinal extent of the Redwood – Douglas fir forest type is associated with a constant temperature and moisture regime that defines the Redwood fog belt.

**Redwood–Madrone Woodland** (Sequoia sempervirens – Arbutus menziesii woodland Alliance). This community extends in a north-south band on the west side of Loch Lomond Reservoir. The vegetation community is characterized by redwood trees and a nearly continuous lower canopy composed of madrone. Understory shrub and herbaceous species are sparse to intermittent.

**Douglas Fir Forest** (*Pseudotsuga menzieseii* Forest Alliance). Douglas fir dominates much of the eastern slopes of the Study Area, particularly in the northern portion. Additional tree species present in lower cover include madrone, redwood, and knobcone pine (*Pinus attenuata*).

Douglas Fir-Knobcone Pine Forest (*Pseudotsuga menzieseii – Pinus attenuata* Forest Alliance). The Douglas fir in the northwestern portion of the southern Study Area becomes codominant in the tree canopy with knobcone pine.

Coast Live Oak – Madrone Woodland (*Quercus agrifolia – Arbutus menziesii* woodland Alliance). Portions of the southern Study Area, especially north-facing slopes adjacent to the NCD are contain a co-dominance of coast live oak and madrone in the tree canopy. The understory of this vegetation alliance consists primarily of poison oak and annual grasses similar to those described in California Annual Grasslands.

## **Other Land Cover Types**

**Ruderal Roadways/Developed**. This land cover type includes the developed dirt and gravel access roads, and the buildings at the top of the dam. Vegetation is generally absent from this land cover type in the Study Area.

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# 6 RESULTS

The following section describes the results of the literature review and field assessment. These data represent Dudek's best effort to determine limits of potential jurisdiction. All findings are considered preliminary until verified by the San Francisco District of the ACOE.

#### 6.1 Wetlands

Two types of wetlands occur within the Study Area: seasonal wetland and seep. Each of these wetland types is described in more detail below.

**Seasonal Wetland.** Two seasonal wetlands (SWs) were observed in the southern portion of the Study Area during the site survey. SW-01 is located at the base of a rock wall adjacent to the spillway plunge pool where water appears to pond in a natural depression as the levels of the plunge pool recede during dry months. This area is characterized by Harford's sedge (*Carex harfordii*) and miner's lettuce (*Claytonia perfoliata*). A dense cover of leaf litter blankets this area from the mature woodland canopy and the leaves were saturated at the time of the site survey. Due to its adjacency to a potentially jurisdictional water feature, SW-01 is likely jurisdictional.

SW-02 is located in the upland areas in the northwestern portion of the Southern part of the Study Area. This wetland is located in a natural depression above a logging road cut where rainwater runoff from the surrounding hills appears to pond for sufficient time to create hydric soils and support hydrophytic vegetation. Dominant vegetation in this wetland includes Baltic rush (*Juncus balticus*) and clustered sedge (*Carex densa*). Due to its proximity to the Reservoir, SW-02 is likely considered an adjacent wetland and is likely jurisdictional.

**Seeps.** Several small seep areas were noted adjacent to the outlet pipe at the base of the NCD and at the base of a hillslope adjacent to Newell Creek. Seep-01 is located just north of the low water crossing at the confluence of the tributary to Newell Creek (ED-01) and Newell Creek (PD-01). This area contains a layer of bedrock below the soil that likely aids in retention of water in the surface soils and the creation of wetland soils. Hydrophytic vegetation such as field sedge (*Juncus effusus*), horsetail (*Equisetum hyemale*), and redroot flatsedge (*Cyperus eragrostis*). Due to its adjacency to Newell Creek and ED-01, this seep is likely jurisdictional.

Seep-02 is located at the base of NCD, directly adjacent to the outlet structure. This seep appears to contain standing water for much of the year and support a high cover of hydrophytic species such as watercress (*Nasturtium officinale*), stinging nettle (*Urtica dioica*), and redroot flatsedge. Because Seep-02 is associated with the outlet of Reservoir, and is adjacent to PD-02, it is likely jurisdictional.

#### 6.1.1 Results of Data Stations

Results from the eight representative data stations document potentially jurisdictional wetlands within the Study Area based on observable field indicators. Table 1, below, provides a summary of each data station and whether the required wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were met at each location, whether the data station was associated with a stream, as well as a determination of jurisdictional status and potential agency jurisdiction. As described in Section 4.4, the data stations were established in key locations for the purposes of assessing if wetland indicators were present. Each of the data stations is show on Figure 5 and the data collected at each data station are included in Appendix C, on the ACOE's Wetland Determination Data Forms for the Western Mountains, Valleys and Coast Region.

Table 1
Data Station Summary

	Wetland Determination Field Indicators				Jurisdictional	
Data Station	Vegetation	Hydric Soils	Hydrology	Stream Association	Status Determination	Jurisdiction
1a	<b>✓</b>	<b>~</b>	✓	No	Jurisdictional; Seasonal Wetland	ACOE, RWQCB
1b	None	None	None	No	Non-jurisdictional; Upland	None
2a	✓	<b>√</b>	✓	Yes	Jurisdictional; Seep	ACOE, RWQCB
2b	None	None	None	No	Non-jurisdictional; Upland	None
3	✓	✓	None	Yes	Non-jurisdictional; Upland	None
4a	<b>√</b>	<b>√</b>	✓	No	Jurisdictional; Seasonal Wetland	ACOE, RWQCB
4b	None	None	None	No	Non-jurisdictional; Upland	None
5	✓	None	None	No	Non-jurisdictional, Upland	None

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board.

#### 6.2 Non-Wetland Waters of the United States

There are five types of non-wetland waters within the Study Area: perennial drainage, ephemeral drainage, roadside swale, spillway plunge pool, and reservoir.

**Perennial Drainages.** Newell Creek (PD-01) holds water on a year-round basis. At least 1 cubic foot per second of water is released from the Reservoir on a continuous basis (Berry, pers. comm. 2018),

maintaining water flow into the seepage channel, spillway plunge pool, and the channel of Newell Creek. The bed of Newell Creek is comprised of large boulders and cobbles, and evidence of an OHWM includes debris wracking, undercut banks, and changes in vegetation and sediment texture. The channel near the man-made low-water crossing is approximately 20 feet wide.

The seepage channel (PD-02) conveying water from the outlet to Newell Creek also maintains water on an annual basis due to the discharge from the Reservoir. This channel has an average width of 5 feet and is relatively shallow. The substrates in the channel are a mixture of cobbles and gravel and the OHWM is evidenced by the change in vegetation and sediment texture in the channel. Based on perennial flows, clear evidence of an OHWM, and connectivity to downstream TNWs, Newell Creek and the seepage channel are both considered likely jurisdictional.

**Ephemeral Drainages.** Four ephemeral drainages (ED) occur within the southern portion of the Study Area. ED-01 is tributary to Newell Creek, draining water from the hills northwest of spillway plunge pool and into the creek. This stream had flowing water at the time of the survey but appears not to maintain water on an annual basis. This channel cuts a deeply incised pathway through the surrounding landscape, with the top of the slopes approximately 15 feet above the level of the stream. The bed consists of a rocky channel that ranged in width from approximately 2 feet to 3.5 feet. An OHWM is evidenced by shelving, watermarks on boulders, and debris wracking.

ED-02 occurs along the access road, where it appears to drain rainwater runoff from the hills to the east of the roadway. This stream channel travels under the road via a corrugated metal culvert, then drains to Newell Creek. This channel had steep banks and cobbles, and changes in sediment and vegetation cover provide evidence of an OHWM.

ED-03 is a small cobble-lined drainage in the southern portion of the Study Area that appears to drain rainwater runoff from the hillslopes west to the roadside swale (described below). Evidence of an OHWM through a change in vegetation cover and sediment texture was observed in the channel. There was some evidence of flow in some cut banks. There is a high density of shrub cover over this channel, including poison oak, coyote brush, and wart leaf ceanothus. This channel did not contain water in it at the time of the site survey.

ED-04 originates on a terrace above and north of Newell Creek and drains south into Newell Creek. Water appears to sheetflow overland from a culvert under Newell Creek Road and south into the two channels of ED-04 (ED-04a and ED-04b) before draining into Newell Creek. ED-04 contains an OHWM as evidenced by break in slope and change in vegetation. The channels are incised into the terrace above Newell Creek and appear to convey water on an ephemeral basis. Neither channel contained water at the time of the survey.

The ephemeral drainages described above all exhibit clear evidence of an OHWM and have connectivity to downstream TNWs. Consequently, these ephemeral drainages are considered likely jurisdictional.

Roadside Swale. One roadside swale (RS-01) occurs parallel to the NCD access roadway. It is located downstream of ED-03 and is an extension of this feature (presumably ED-03 was re-directed into this roadside swale at the time the dam and access roadway was constructed). This swale also appears to drain water from the hillslopes northeast of the NCD access roadway and conveys flows southward to where the swale crosses under the access roadway via a culvert. This swale is largely vegetated and does not contain evidence of an OHWM. Nevertheless, this roadside swale is considered likely jurisdictional because it connects to, and conveys flows from, ED-03 (located upstream) to downstream jurisdiction waters (i.e., Newell Creek) and ultimately TNWs.

**Spillway Plunge Pool**. The NCD spillway plunge pool (SPP-01) at the base of the NCD spillway contains water on a year-round basis and is directly tributary to Newell Creek. This feature has a defined bed and bank, as well as an associated riparian fringe comprised of red alder and bigleaf maple. The spillway plunge pool is considered likely jurisdictional based on the presence of a clear OHWM and direct connectivity to Newell Creek.

Reservoir. Loch Lomond Reservoir (R) was created by the installation of the NCD on Newell Creek. The concrete spillway at the southern end of the Reservoir where water drains into the plunge pool and then Newell Creek during times of high flow. The Reservoir has a defined bed and bank and contains a mature, if sporadic, riparian fringe comprised of bigleaf maple and arroyo willow. For this evaluation, normal operating levels of the Reservoir were determined based on bathymetric surveys of the Reservoir and communications with the City of Santa Cruz (Sea Engineering Inc. 2009). Based on the presence of an OHWM around the periphery of the reservoir and connectivity to Newell Creek and downstream TNWs, Loch Lomond Reservoir is considered likely jurisdictional.

# 7 CONCLUSIONS

The Study Area supports 0.07 acre of wetlands and 2,633 linear feet (20.81 acres) of non-wetland waters that are anticipated to meet the criteria to be jurisdictional waters of the United States, including wetlands, based on an analysis of the three parameters for wetlands (soils, hydrology, and vegetation) and connectivity/proximity to known waters of the United States.

The Study Area does not support TNWs, interstate waters, or waters that support interstate commerce (33 CFR 328.3(a)(1–4)); therefore, potential ACOE jurisdiction was determined based on connectivity or adjacency to off-site waters of the United States (33 CFR 328.3(a)(5)).

Figure 5 depicts the geographic extent of potentially jurisdictional wetlands and non-wetland waters within the Study Area, and Table 2, below, summarizes the acreage and, where applicable, linear footage for each feature, as well as potential agency jurisdiction An aquatic resources spreadsheet is provided in accordance with the ACOE requirements is included as Appendix D.

Table 2
Wetlands and Non-Wetland Waters in the Study Area

Cowardin Potential Agency Feature Code Jurisdiction		Acres	Linear Feet			
Wetlands						
SW-01	PEM2	ACOE, RWQCB	0.01	N/A		
SW-02	PEM2	ACOE, RWQCB	0.01	N/A		
Seep-01	PEM1	ACOE, RWQCB	0.03	N/A		
Seep-02	PEM1	ACOE, RWQCB	0.02	N/A		
		Total	0.07	N/A		
		Non-wetland Waters				
PD-01	R3RB1	ACOE/RWQCB/CDFW	0.28	648		
PD-02	R3RB	ACOE/RWQCB/CDFW	0.02	153		
ED-01	R4SB1	ACOE/RWQCB/CDFW	0.03	414		
ED-02	R4SB1	ACOE/RWQCB/CDFW	0.01	140		
ED-03	R6	ACOE/RWQCB/CDFW	0.02	319		
ED-04a	R6	ACOE/RWQCB/CDFW	0.01	202		
ED-04b	R6	ACOE/RWQCB/CDFW	0.01	217		
RS-01	R6	ACOE/RWQCB	0.01	540		
SPP-01	L1RB	ACOE/RWQCB/CDFW	0.21	N/A		
Reservoir-01	L1UB	ACOE/RWQCB/CDFW	20.21	N/A		
		Total	20.81	2,633		

Table 2
Wetlands and Non-Wetland Waters in the Study Area

Feature	Cowardin Code	Potential Agency Jurisdiction	Acres	Linear Feet
		Wetlands		

Notes: SW = Seasonal Wetland; ACOE = U.S. Army Corps of Engineers; RWQCB; Regional Water Quality Control Board; N/A = not applicable; L1RB = Lacustrine, limnetic, rock bottom; L1UB = Lacustrine, limnetic, unconsolidated bottom; PEM1 = Palustrine, emergent, persistent; PEM2 = Palustrine, emergent, nonpersistent; ID = Intermittent Drainage; R3RB = Riverine, upper perennial, rock bottom; R3RB1 = Riverine, upper perennial, rock bottom, bedrock; R4SB1 = Riverine, intermittent, streambed, bedrock; RS = Roadside Swale; R6 = Riverine, ephemeral; ED = Ephemeral Drainage.

All features identified as potential ACOE jurisdiction are potentially jurisdictional wetlands or non-wetlands waters of the United States. These findings are considered preliminary until verified by the San Francisco District of the ACOE.

#### 7.1 Discussion of Potential Jurisdiction

## 7.1.1 U.S. Army Corps of Engineers

As previously described in Section 3.1 of this report, ACOE has jurisdiction over waters of the United States, including wetlands, as outlined in Section 404 of the CWA. This includes up to the OHWM of drainages and adjacent wetlands. Because Newell Creek is tributary to the San Lorenzo River, which in turn is tributary to Monterey Bay and the Pacific Ocean, it is considered a non-wetland water of the United States. All tributaries to Newell Creek and adjacent wetlands and the Reservoir are also potentially jurisdictional. Project-related fill or dredge within these features would require prior authorization from the ACOE.

## 7.1.2 Regional Water Quality Control Board

RWQCB's jurisdiction corresponds with the wetland and non-wetland waters of the United States as described in Section 3.1, with the addition of isolated waters covered under the Porter-Cologne Water Quality Act discussed in Section 3.2. The wetlands and perennial and ephemeral drainages would all fall within the jurisdiction of RWQCB under Section 401 of the CWA, as would the Reservoir. Placement of fill within or modification to wetlands or work below the top of bank of any linear feature on site would require authorization from RWQCB in the form of a Water Quality Certification.

# 7.1.3 California Department of Fish and Wildlife

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and lakes characterized by the presence of defined bed and banks and existing fish or wildlife resources. CDFW also takes

jurisdiction along watercourses to the outer limits of associated riparian vegetation. With the exception of the roadside swale, which lacks a defined bed and bank, all non-wetland waters in the Study Area, including the perennial and ephemeral drainages, Loch Lomond Reservoir, and associated riparian areas, are likely under CDFW jurisdiction. Any work within the bed or bank of these features, or within associated riparian corridors, would require authorization from CDFW via a Lake and Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code. Any work in CDFW-jurisdictional features or trimming/removal of riparian vegetation may require compensatory mitigation.

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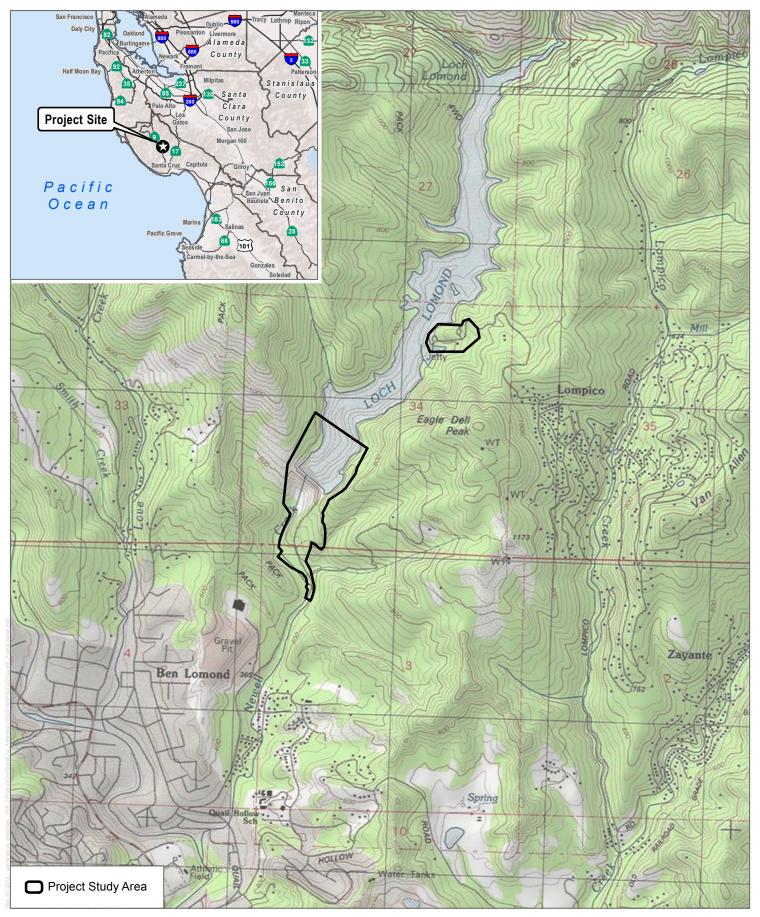
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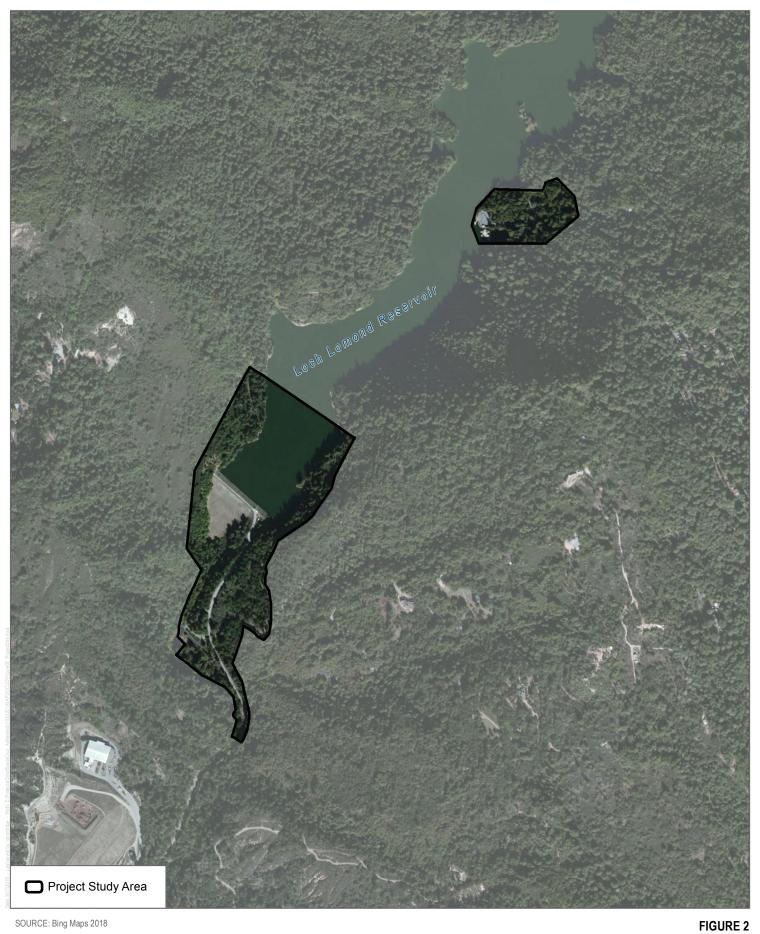


SOURCE: USGS 7.5-Minute Series Felton Quadrangle

**DUDEK** 

Project Location

FIGURE 1



**Project Site** 

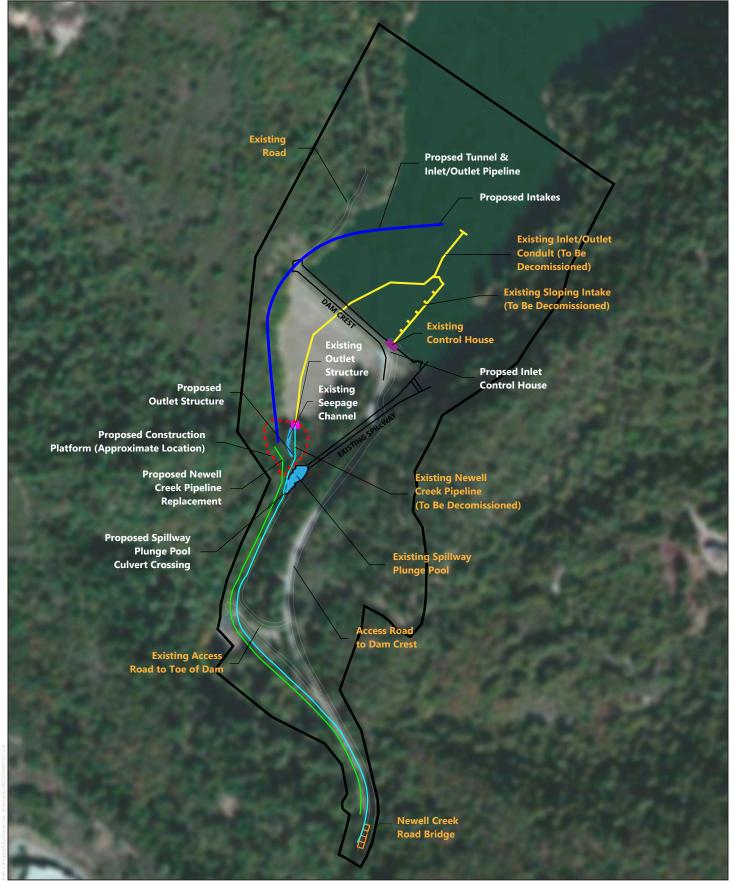
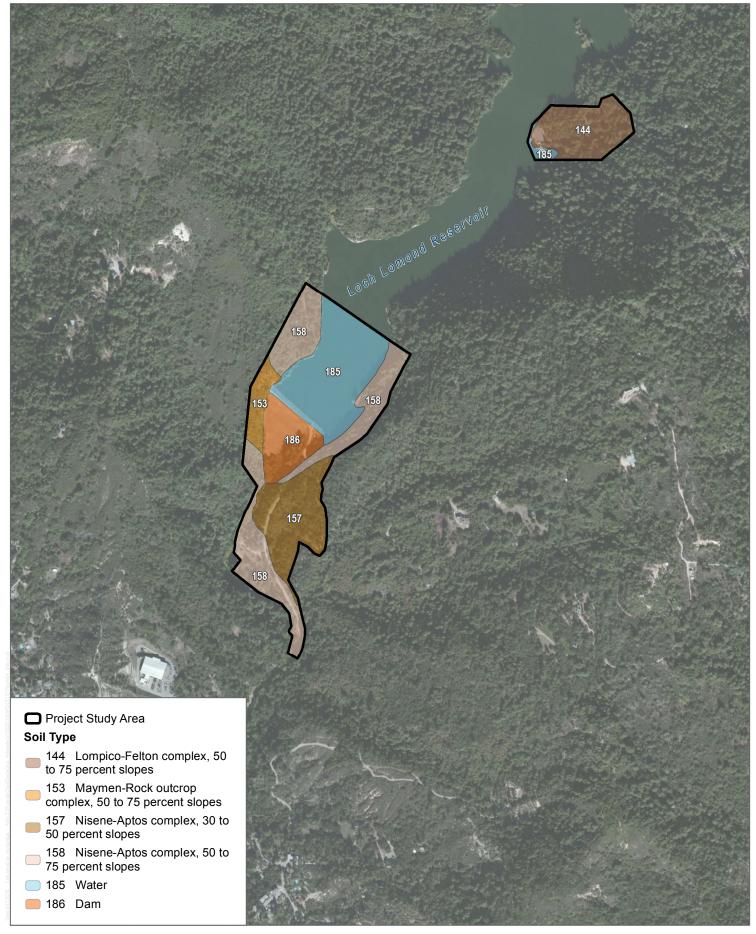


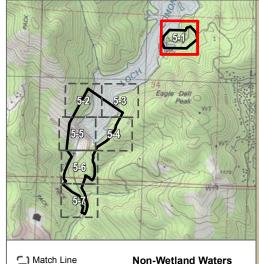
FIGURE 3



SOURCE: Bing Maps 2018; USDA 2017

**DUDEK** 

FIGURE 4 Soils



- Project Study Area (±85.3 acres)
- Culvert
- Outlet
- Data Station

#### Wetlands

- Seasonal Wetlands (±0.02 acre)
- Seeps
- (±0.04 acre)

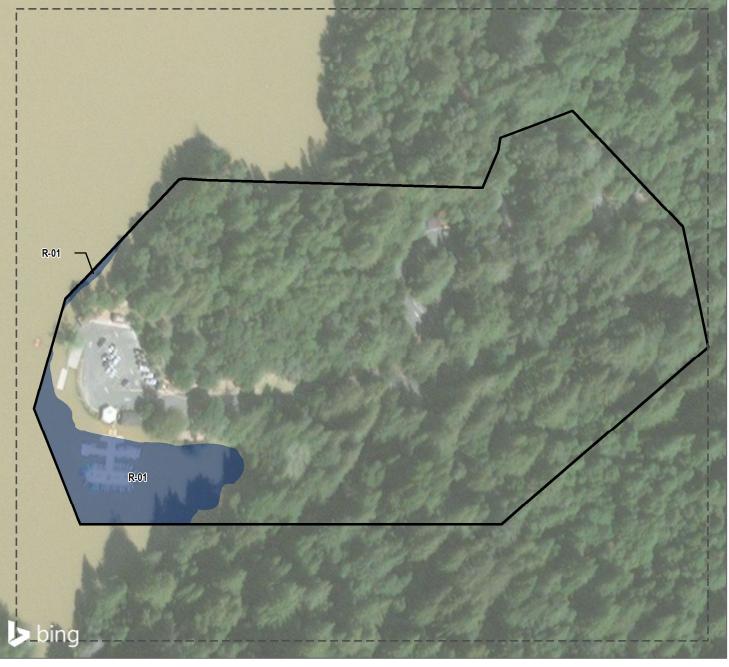
#### Non-Wetland Waters

- Perennial Drainages (±792 feet)
- Ephemeral Drainages (±1,280 feet)
- Roadside Swale (±540 feet)
- Spillway Plunge Pool (±0.2 acre)
- Reservoir (±20.2 acres)

Coordinate System: NAD 1983 CA State Plane (Zone III) Projection: Lambert Conformal Conic Datum: North American 1983 Vertical Datum: NAVD 88, U.S. Feet 1 inch = 150 feet

> Created on May 22nd, 2018 Revised on September 18th, 2018

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on February 10, 2016, by: Jason Deters, Project Manager Enforcement and Special Projects Unit U.S. Army Corps of Engineers South Pacific Division Sacramento District, Regulatory Division 1325 J Street. Room 1350 Sacramento, California 95814-2922

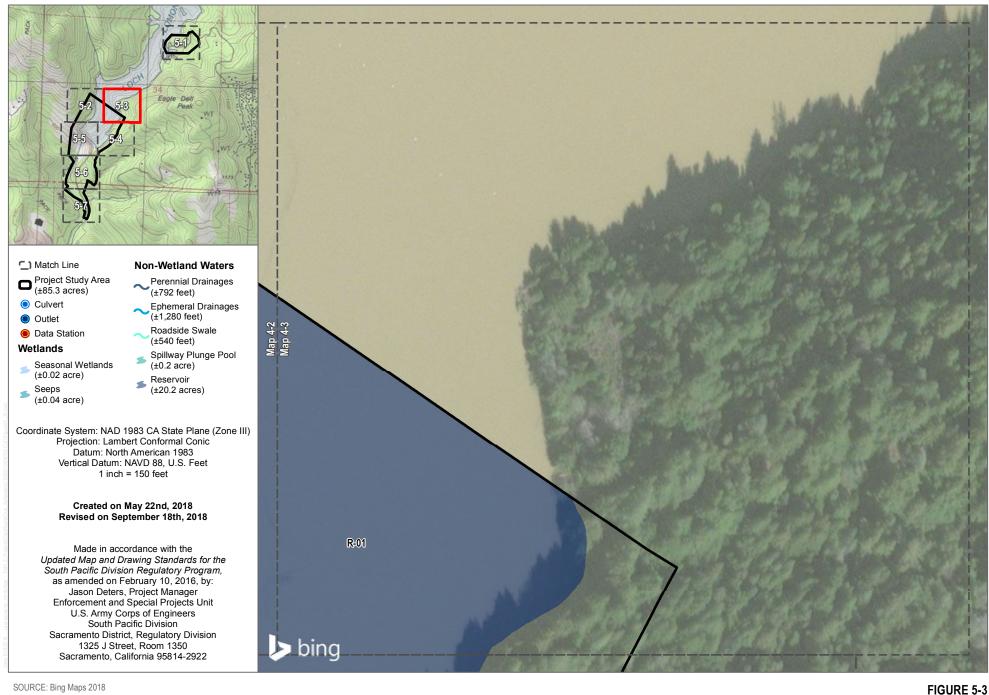


SOURCE: Bing Maps 2018

FIGURE 5-1

Delineation of Wetland and Non-Wetland Waters of the U.S.





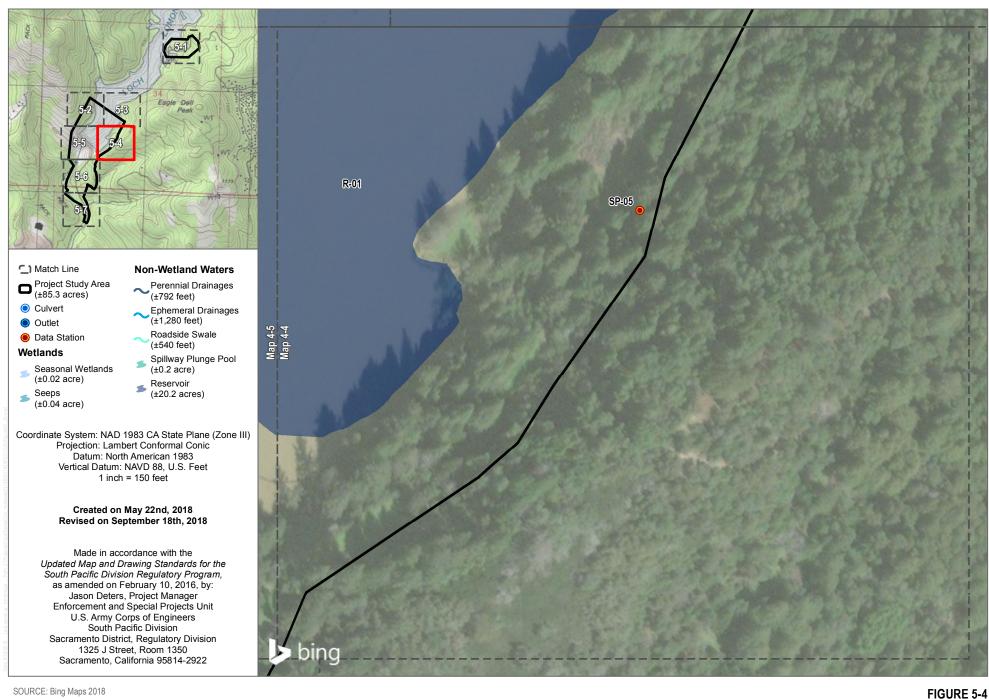




FIGURE 5-5

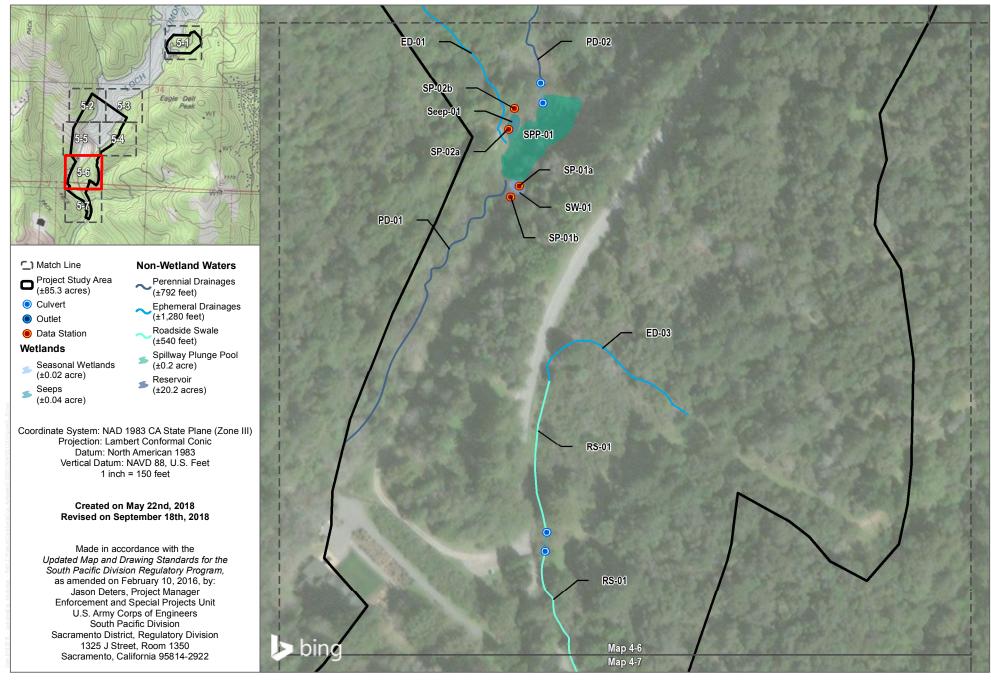
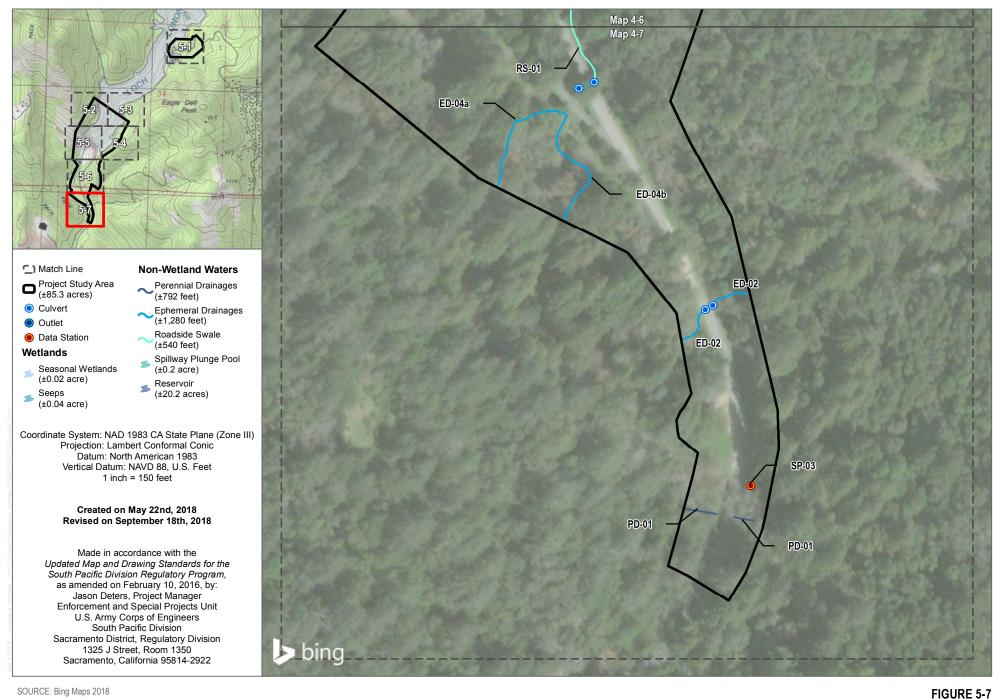
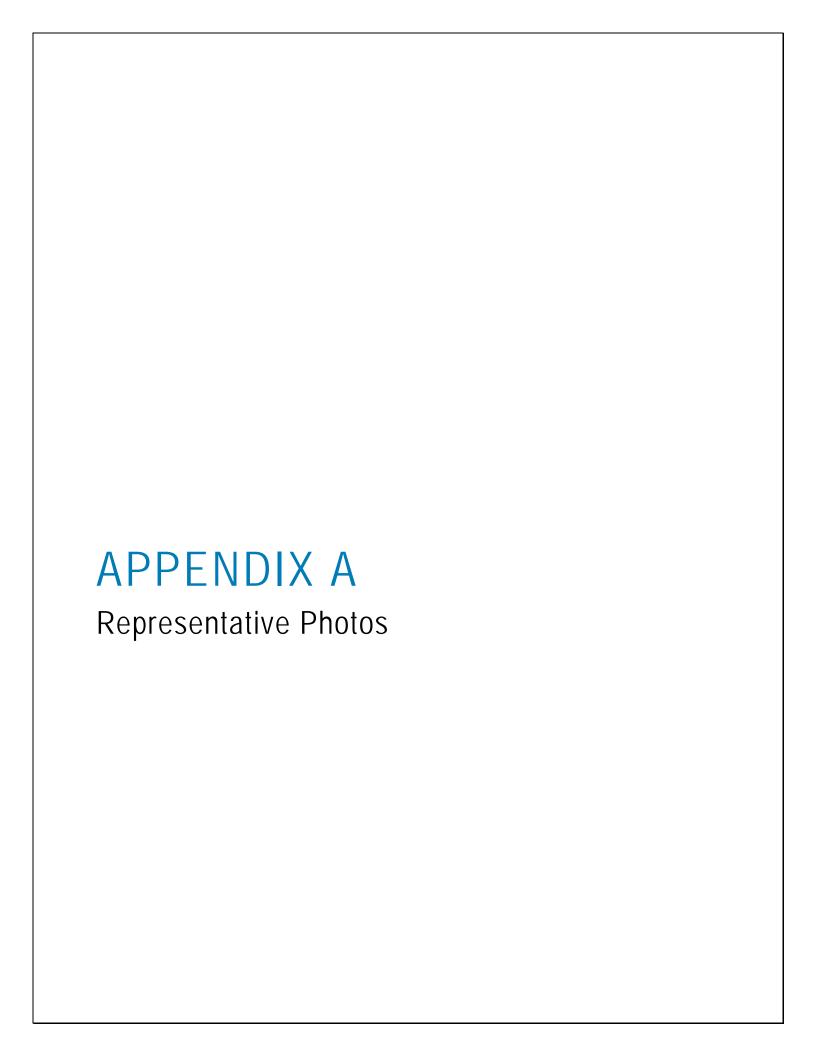


FIGURE 5-6

Delineation of Wetland and Non-Wetland Waters of the U.S.



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**Photo 1:** View of SP01. April 11, 2018.



**Photo 2:** View of plunge pool with spillway in background, facing northeast. April 11, 2018.



**Photo 3:** View of Newell Creek (PD-01), facing west and downstream of the low water crossing. April 11, 2018.



Photo 4: View of the tributary to Newell Creek (ED-01), facing north and upstream. April 11, 2018.



**Photo 5:** View of Seep-01 at the base of Newell Creek Dam, facing north. April 11, 2018.



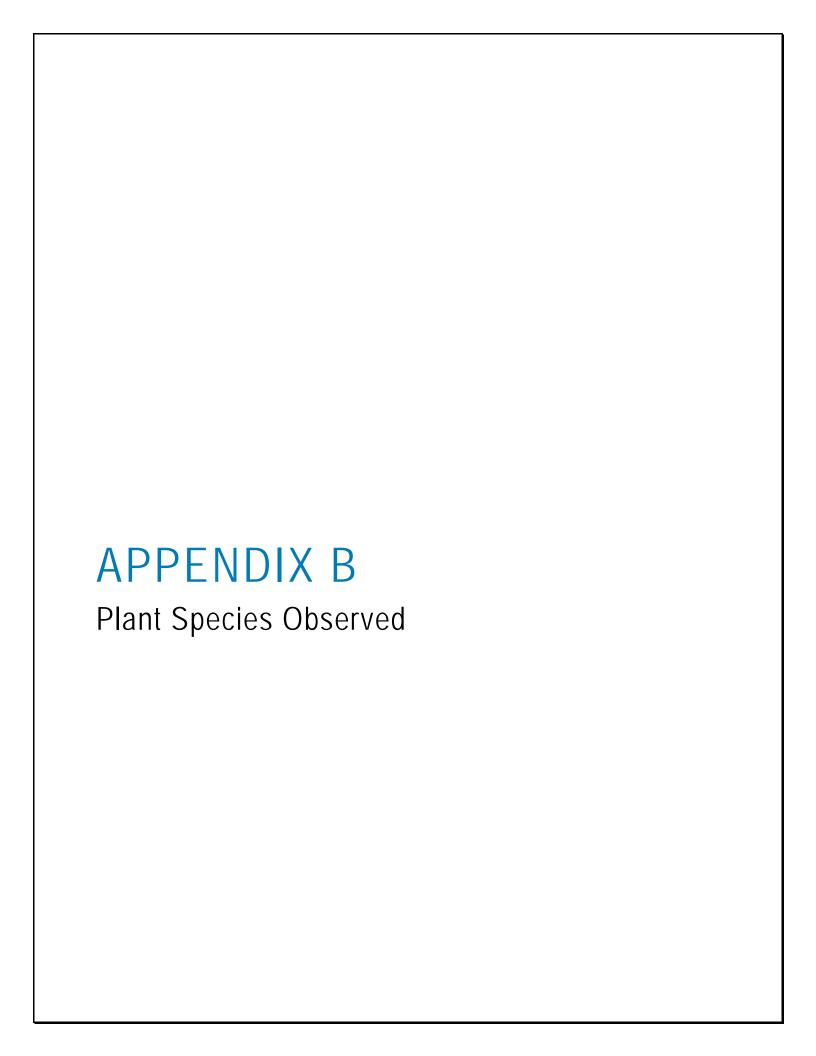
Photo 6: View of ED-02 where it crosses under Newell Creek Dam Road, facing east. April 11, 2018.



Photo 7: View of SP04 in SW-02, facing north. April 11, 2018.



Photo 8: View of roadside swale (RS-01), facing southwest. April 12, 2018.



# **EUDICOTS**

## **VASCULAR SPECIES**

#### ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra—blue elderberry FAC

#### ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Toxicodendron diversilobum—poison oak

**FAC** 

#### APIACEAE—CARROT FAMILY

\* Foeniculum vulgare—fennel

Not Listed

\* Torilis arvensis—spreading hedgeparsley

Not Listed

#### ARALIACEAE—GINSENG FAMILY

\* Hedera helix—English ivy

FACU

### ASTERACEAE—SUNFLOWER FAMILY

Artemisia douglasiana—Douglas' sagewort

**FACW** 

Baccharis pilularis—coyote brush

Not Listed

\* Cirsium vulgare—bull thistle

**FACU** 

Hieracium albiflorum—white hawkweed

Not Listed

\* Sonchus asper—spiny sowthistle

**FACU** 

#### BETULACEAE—BIRCH FAMILY

Alnus rhombifolia—white alder

FACW

Corylus cornuta—beaked hazelnut

FACU

#### BORAGINACEAE—BORAGE FAMILY

Amsinckia menziesii—Menzies' fiddleneck

Not Listed

Cynoglossum grande—Pacific hound's tongue

Not Listed

\* Myosotis latifolia—broadleaf forget-me-not

Not Listed

Phacelia ramosissima—branching phacelia

**FACU** 

#### BRASSICACEAE—MUSTARD FAMILY

\* Brassica nigra—black mustard

Not Listed

Cardamine californica—milkmaids

Not Listed

Nasturtium officinale—watercress

OBL

## CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

Lonicera hispidula—pink honeysuckle

**FACU** 

*Symphoricarpos albus*—common snowberry

**FACU** 

## CARYOPHYLLACEAE—PINK FAMILY

\* Stellaria media—common chickweed

**FACU** 

#### ERICACEAE—HEATH FAMILY

Arbutus menziesii—madrone

Not Listed

#### FABACEAE—LEGUME FAMILY

Acmispon glaber—deer weed

Not Listed

\* Genista monspessulana—French broom

Not Listed

Lathyrus jepsonii—Delta tule pea

OBL

Lathyrus torreyi—Torrey's pea

Not Listed

Lupinus bicolor—miniature lupine

Not Listed

\* Melilotus indicus—annual yellow sweetclover

**FACU** 

\* Trifolium campestre—field clover

Not Listed

\* Vicia sativa—garden vetch

UPL

\* Vicia villosa—winter vetch

Not Listed

#### FAGACEAE—OAK FAMILY

Notholithocarpus densiflorus—tanoak

Not Listed

Quercus agrifolia—coast live oak

Not Listed

#### GERANIACEAE—GERANIUM FAMILY

\* Geranium dissectum—cutleaf geranium

Not Listed

\* Geranium molle—dovefoot geranium

Not Listed

## LAMIACEAE—MINT FAMILY

Clinopodium douglasii—yerba buena

**FACU** 

\* Marrubium vulgare—horehound

**FACU** 

#### LAURACEAE—LAUREL FAMILY

Umbellularia californica—California bay

FAC

#### MONTIACEAE—MONTIA FAMILY

Claytonia perfoliata—miner's lettuce

FAC

#### PHRYMACEAE—LOPSEED FAMILY

Diplacus aurantiacus—bush monkeyflower

**FACU** 

Erythranthe guttata—common monkey flower OBL

#### PLANTAGINACEAE—PLANTAIN FAMILY

\* Plantago lanceolata—narrowleaf plantain FACU

#### RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus cuneatus—wedge leaf ceanothus

Not Listed

Ceanothus papillosus—wart leaf ceanothus

Not Listed

#### ROSACEAE—ROSE FAMILY

Holodiscus discolor—ocean spray brush

**FACU** 

Rosa gymnocarpa—dwarf rose

**FACU** 

\* Rubus armeniacus—Himalayan black berry

FAC

Rubus ursinus—California blackberry

FACU

#### RUBIACEAE—MADDER FAMILY

Galium californicum—California bedstraw

Not Listed

### SALICACEAE—WILLOW FAMILY

Salix lasiandra—shining willow

**FACW** 

## SAPINDACEAE—SOAPBERRY FAMILY

Acer macrophyllum—bigleaf maple

**FACU** 

Aesculus californica—California buckeye

Not Listed

#### SAXIFRAGACEAE—SAXIFRAGE FAMILY

Lithophragma affine—San Francisco woodland-star Not Listed

#### URTICACEAE—NETTLE FAMILY

*Urtica dioica*—stinging nettle FAC

## FERNS AND FERN ALLIES

## VASCULAR SPECIES

#### BLECHNACEAE—DEER FERN FAMILY

Woodwardia fimbriata—giant chainfern FACW

#### DENNSTAEDTIACEAE—BRACKEN FAMILY

Pteridium aquilinum—western brackenfern FACU

#### DRYOPTERIDACEAE—WOOD FERN FAMILY

Dryopteris arguta—coastal woodfern Not Listed Polystichum munitum—western swordfern FACU

#### EQUISETACEAE—HORSETAIL FAMILY

Equisetum hyemale—scouringrush horsetail FACW

### PTERIDACEAE—BRAKE FAMILY

Adiantum capillus-veneris—common maidenhair FACW

Pentagramma triangularis—goldback fern

Not Listed

# GYMNOSPERMS AND GNETOPHYTES

## **VASCULAR SPECIES**

#### CUPRESSACEAE—CYPRESS FAMILY

Calocedrus decurrens—incense cedar

Not Listed

Sequoia sempervirens—redwood

Not Listed

#### PINACEAE—PINE FAMILY

Pinus attenuata—knobcone pine

Not Listed

Pseudotsuga menziesii—Douglas fir

**FACU** 

## **MONOCOTS**

## VASCULAR SPECIES

#### CYPERACEAE—SEDGE FAMILY

Cyperus eragrostis—tall flatsedge

**FACW** 

#### IRIDACEAE—IRIS FAMILY

Iris douglasiana—Douglas iris

Not Listed

#### LILIACEAE—LILY FAMILY

Calochortus albus—white fairy-lantern

Not Listed

#### MELANTHIACEAE—FALSE HELLEBORE FAMILY

Toxicoscordion fremontii—Fremont's deathcamas

Not Listed

### POACEAE—GRASS FAMILY

\* Avena fatua—wild oat

Not Listed

\* Bromus diandrus—ripgut brome

Not Listed

## APPENDIX B (CONTINUED)

\* Bromus hordeaceus—soft brome

FACU

\* Festuca myuros—rat-tail fescue

Not Listed

\* Festuca perennis—perennial rye grass

FAC

Festuca rubra—red fescue

FAC

\* Hordeum murinum—mouse barley

FAC

\* Phalaris aquatica—Harding grass

FACU

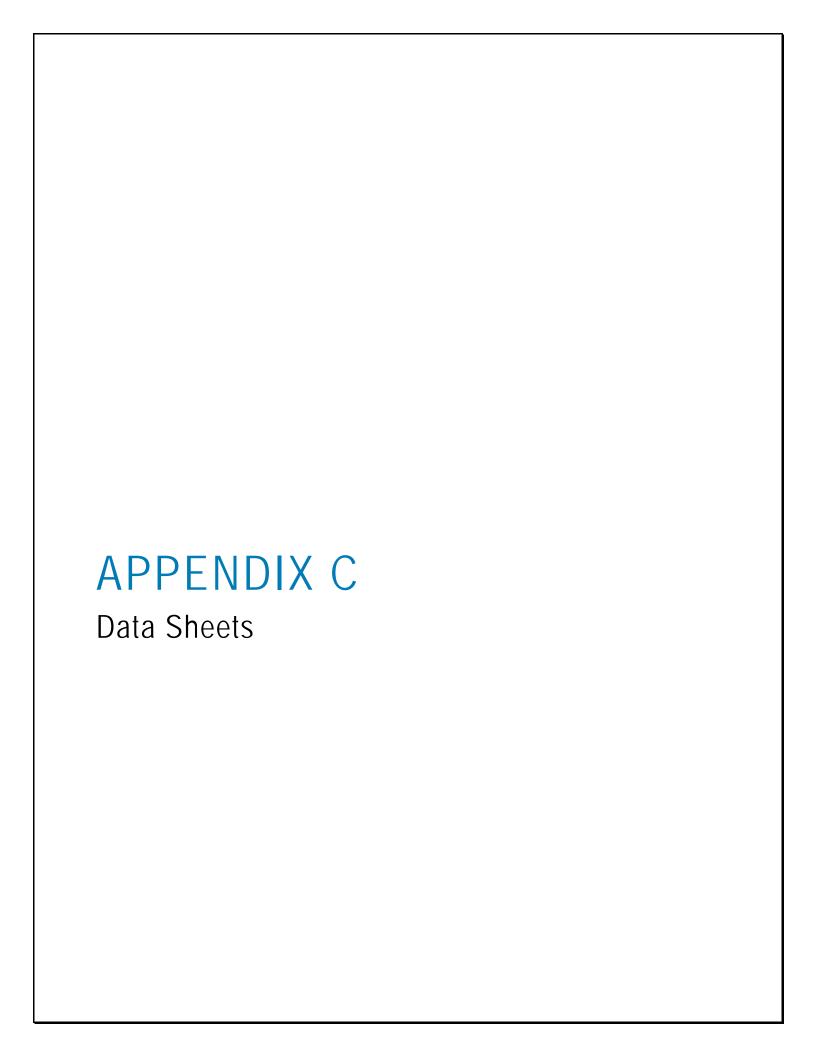
## RUSCACEAE—LILY-OF-THE-VALLEY FAMILY

Maianthemum racemosum—feathery false lily of the valley FAC

\* signifies introduced (non-native) species

APPENDIX B (CONTINUED)

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## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site:	Newell Creek	Dam Inlet - Outlet	Replaceme	ent Projec	: <u>t</u>	City/Cour	nty: <u>Be</u>	en Lomond/	Santa Cruz	Sampling D	Date:	4/11	/2018	<u>3</u>
Applicant/Owner:	City of Santa	<u>Cruz</u>						St	tate: <u>CA</u>	Sampling P	oint:	SP0	<u>)1</u>	
Investigator(s):	L. Burris							Section, To	ownship, Rar	nge:				
Landform (hillslope, ter	rrace, etc.):	bottomland			Loca	al relief (cond	cave, con	vex, none)	: <u>concave</u>	<u>)</u>	Slope	e (%):	<u>0</u>	
Subregion (LRR):	Mediteranne	<u>ean</u>	Lat: <u>37</u>	<u>.100564</u>			Long	g: <u>-122.07</u>	<u>4412</u>		Datum: 1	JTM Z	one 1	0
Soil Map Unit Name:	Nisene-Apto	s complex, 30 to 5	0 percent s	lopes					NWI clas	ssification:	Freshwa	ater Po	<u>ond</u>	
Are climatic / hydrologi	c conditions of	n the site typical for	r this time o	of year?	Υ	es 🗵	] No	☐ (I	f no, explain	in Remarks.)				
Are Vegetation $\square$ ,	Soil □,	or Hydrology	□, signi	ficantly di	sturbed	d? Are	"Normal (	Circumstan	ices" present	i?	Yes	$\boxtimes$	No	
Are Vegetation $\square$ ,	Soil □,	or Hydrology	□, natu	rally probl	ematic <sup>*</sup>	? (If ne	eeded, ex	xplain any a	answers in R	emarks.)				
SUMMARY OF FIN	DINGS - Att	ach site map sl	nowing s	ampling	point	locations	, transe	ects, impo	ortant featu	ures, etc.				
Hydrophytic Vegetation	n Present?		Yes	⊠ No										
Hydric Soil Present?			Yes	⊠ No		Is the Sam		a			Yes	$\boxtimes$	No	
Wetland Hydrology Pre	esent?		Yes	⊠ No										
Remarks: South of a	ccess road, w	est of crossing at p	lunge pool.	Wetland	area at	t base of rocl	k cliff and	d adjacent t	o plunge pod	ol.				
								•						
VEGETATION - Us	e scientific	names of plant	s											
Tree Stratum (Plot size	e: 30')	-	Absolute	Domir		Indicator	Domir	nance Test	Worksheet	:				
Acer macrophyllun	<del></del>		% Cover 60	<u>Speci</u>	<u>es?</u>	Status FACU	Numaha	or of Domin	ant Chasina					
Umbellularia califo	<del></del>		<u>10</u>	no		FAC			nant Species ACW, or FAC		<u>2</u>			(A)
3.	<u>irriica</u>		<u>10</u>	110		<u>1 AO</u>								
4.								Number of I es Across A			<u>5</u>			(B)
50% = <u>35</u> , 20% = <u>14</u>			<del>70</del>	= Tota	al Cove		Daras	nt of Domin	ant Charles					
Sapling/Shrub Stratum	(Plot size: 10	)	<u>10</u>	_ 1010	0010	•			ant Species ACW, or FAC	<b>:</b>	<u>40</u>			(A/B)
Salix lasiolepis	(*	.,	<u>10</u>	<u>yes</u>		FACW	Preval	lence Inde	x worksheet	t:				
Aesculus californic	ra		<u>5</u>	<u>yes</u>		NL (UPL)	11014		I % Cover of		Multipl	v hv.		
3	<u>.u</u>		<u>u</u>	<u>700</u>		112 (01 2)	OBL s	pecies	<u>15</u>	<u>-</u>	x1 =	<u>15</u>		
4								/ species	<u>15</u>		x2 =	30		
5								pecies	<u>15</u>		x3 =	45		
50% = <u>7.5,</u> 20% = <u>3</u>			<u>15</u>	= Tota	al Cove			species	<u>65</u>		x4 =	260		
Herb Stratum (Plot size	e· 1m)		<u></u>	. 010	0010			pecies	<u>15</u>		x5 =	<u>75</u>		
Carex harfordii	o. <u>1111</u> )		<u>15</u>	VAS		<u>OBL</u>	·		<u>125</u> (A	<b>\</b> \	λ0 –		<u>5</u> (B)	
				<u>yes</u>			Colum	n Totals:			A - 2.4	420	<u>)</u> (D)	
Lathyrus oderatus     Clautania parfaliati	_		<u>10</u>	<u>yes</u>		NL (UPL)	Usalna	mbudia Vad		ce Index = B/	A = <u>3.4</u>			
Claytonia perfoliata     Pubus ursinus	<u>a</u>		<u>5</u>	no no		<u>FAC</u> <u>FACU</u>	_		getation Indi	ophytic Veget	otion			
<ol> <li>Rubus ursinus</li> <li>Persicaria lapathifo</li> </ol>	olio		<u>5</u>	no no		FACU FACW		•	nce Test is >	. ,	ation			
-	<u>Jila</u>		<u>5</u>	<u>no</u>		IACW								
6									nce Index is					
7										ations¹ (Provi on a separate		ting		
8							١, ,		Non-Vascul	•	Silect)			
9														
10								Problemation	Hydrophytic	C Vegetation <sup>1</sup>	(Explain)			
11							1Indica	ators of hvd	ric soil and w	vetland hydro	loav must			
50% = <u>20</u> , 20% = <u>8</u>	<b>5</b>	,	<u>40</u>	= Tota	al Cove	r				or problematic				
Woody Vine Stratum (I	Plot size:	_)												
1						—	Hydro	phytic						
2							Vegeta		١	Yes [	$\boxtimes$	No		
50% =, 20% = _				= Tota	al Cove	r	Prese	nt?						
% Bare Ground in Herl	b Stratum <u>60</u>													
Remarks:	eaf litter and b	are ground/rocks in	n herb laye	r Herbace	ous lay	er is hydrop	hytic - tre	ee canopy p	orimarily from	n upland hill a	bove cliff			

Project Site: Newell Creek Dam Inlet - Outlet Replacement Project

O-6   7.5YR 2.5/1   90   5YR 4/6   10   C   M   sandy loam   Cobble and bedrock present	inches)	Color (moist)	0	%	Colo	or (mois	t) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture			Remark	s	
yper: C= Concentration, D=Depleton, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    Page   Port   Lining, M=Matrix   Lini					-		<u> </u>				Cobble	and bedr			
Indicators (Applicable to all LRRs, unless otherwise noted.)	<u> </u>	<u>110 111 210/ 1</u>	2	<u></u>	<u> </u>		<u></u>	<u>~</u>	<u></u>	oarray roarr	. 0000.0	and boar	00.1 p. 00	<u> </u>	
Indicators (Applicable to all LRRs, unless otherwise noted.)															
Indicators (Applicable to all LRRs, unless otherwise noted.)			_		_										
Histoc Epipedon (A2)			_		_										
Histocal (A1)					_										
Histocal (A1)			_	_	_										
Histocal (A1)			-		_		<del></del>		— .						
Histocol (A1)			-					ted Sand	Grains. <sup>2</sup> Lo						
Histic Epipedon (A2)	-		icable to	o all LF			-						Hydric S	Soils <sup>3</sup> :	
Black Histic (A3)	_														
Hydrogen Sulfide (A4)	_							(E4) (						=10)	
Depleted Below Dark Surface (A11)	_	, ,				_			CEPT WILKA 1)		•		•	F12)	
Thick Dark Surface (A12)	-	-	urfaco (A	.11\			-	(FZ)			Other (Expi	am in Ker	narks)		
Sandy Mucky Mineral (S1)			-	.11)				F6)							
Sandy Gleyed Matrix (S4)		•	•					-		<sup>3</sup> Indicat	tors of hydro	ophytic ve	getation	and	
### Setrictive Layer (if present): ### / #		-	•			_	•			wetl	land hydrolo	gy must b	e preser		
Procedure   Proc		` ` `						-,		unie	ss disturbe	u or proble	emauc.		
PYDROLOGY  ettland Hydrology Indicators: rimary Indicators (minimum of one required; check all that apply)    Surface Water (A1)															
PYDROLOGY  etland Hydrology Indicators: imary Indicators (minimum of one required; check all that apply)  Secondary Indicators (2 or more required)  Secondary Indicators (2 or more required)  Water-Stained Leaves (B9)  Mater-Stained Leaves (B1)  Mater-Stained Leaves (B9)  Mater-Stained Leaves (B1)  Mater-Stained Leaves (B1)  Mater-Stained Leaves (B1)  Mater-Stained Leaves (B1)  Mater-Stained Leav	epth (inche	es): 6							Uvdria Caila Di	esent?		Yes	$\boxtimes$	No	
Surface Water (A1)	emarks:	<del>, -</del>							nyunc sons Fi						
Surface Water (A1)	YDROLO	DGY	· · · · · · · · · · · · · · · · · · ·						nyunc sons Fi						
High Water Table (A2)	YDROLO	DGY rdrology Indicator		auired:	check a	all that a	apply)		nyunc sons Fr		ary Indicator	s (2 or mo	ore requir	ed)	
Saturation (A3)   Salt Crust (B11)   Drainage Patterns (B10)	YDROLO /etland Hy rimary Indi	DGY /drology Indicator icators (minimum c		quired;				s (B9)	nyunc sons Fr	Seconda	-	-		ed)	
Sediment Deposits (B2)	YDROLO /etland Hy rimary Indi	OGY /drology Indicator icators (minimum o		quired;			Water-Stained Leaves	, ,		Seconda ⊠ Wa	ater-Stained	Leaves (I	B9)	ed)	
Drift Deposits (B3)	YDROLO /etland Hy rimary Indi   Surfa   High	OGY rdrology Indicator icators (minimum o ice Water (A1) Water Table (A2)		quired;			Water-Stained Leaves (except MLRA 1, 2, 4	, ,		Seconda ⊠ Wa	ater-Stained	Leaves (I	B9)	ed)	
Algal Mat or Crust (B4)	YDROLO /etland Hy rimary Indi ] Surfa ] High ] Satur	OGY  rdrology Indicator icators (minimum of ice Water (A1)  Water Table (A2) ration (A3)		quired;			Water-Stained Leaves (except MLRA 1, 2, 4) Salt Crust (B11)	A, and 4		Seconda  Wa (M)	ater-Stained LRA 1, 2, 4 ainage Patte	Leaves (I A, and 4B erns (B10)	B9)	ed)	
Iron Deposits (B5)	YDROLO /etland Hy rimary Indi   Surfa   High   Satur	OGY  /drology Indicator icators (minimum of ice Water (A1)  Water Table (A2) ration (A3) ir Marks (B1)	of one red	quired;			Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates	<b>A, and 4</b> (B13)		Seconda  Wa (M) Dra	ater-Stained  LRA 1, 2, 4  ainage Patte y-Season W	Leaves (I A, and 4B erns (B10) ater Table	B9)  (C2)	·	
Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A)  Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7)  Sparsely Vegetated Concave Surface (B8)  ield Observations:  urface Water Present? Yes No Depth (inches):  //ater Table Present? Yes No Depth (inches):  aturation Present?  Yes No Depth (inches):  Metland Hydrology Present? Yes No	YDROLO /etland Hy rimary Indi	DGY /drology Indicator icators (minimum conce Water (A1) Water Table (A2) ration (A3) or Marks (B1) ment Deposits (B2)	of one red	quired;			Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo	<b>A, and 4</b> (B13) or (C1)	В)	Seconda  We (M) Dra Dra	ater-Stained  LRA 1, 2, 4.  ainage Patte  y-Season W  turation Visi	Leaves (I A, and 4B erns (B10) ater Table ble on Ae	B9)  (C2)  (C3)	·	
Inundation Visible on Aerial Imagery (B7)	IYDROLO /etland Hy rimary Indi	pogy varology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) or Marks (B1) ment Deposits (B2) Deposits (B3)	of one red	quired;			Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere	A, and 4 (B13) or (C1) es along l	B)	Seconda  Wa  (M)  Dra  Dra  Dra  Sa  Ge	ater-Stained LRA 1, 2, 4. ainage Patte y-Season W turation Visi	Leaves (I A, and 4B erns (B10) ater Table ble on Ae osition (D	B9)  (C2)  (C3)	·	
Sparsely Vegetated Concave Surface (B8)  ield Observations:  urface Water Present? Yes No Depth (inches):  //ater Table Present? Yes No Depth (inches):  aturation Present?  rockludes capillary fringe)  Wetland Hydrology Present? Yes No	IYDROLO  /etland Hy rimary Indi	DGY  rdrology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) or Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4)	of one red	quired;			Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced	A, and 4  (B13)  or (C1)  es along l  Iron (C4	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge	ater-Stained LRA 1, 2, 4. ainage Patte y-Season W turation Visi comorphic P allow Aquita	Leaves (I A, and 4B erns (B10) ater Table able on Ae osition (Da ard (D3)	B9)  (C2)  (C3)	·	
ield Observations:  urface Water Present? Yes No Depth (inches):  //ater Table Present? Yes No Depth (inches):  aturation Present?  rocklodes capillary fringe)  Wetland Hydrology Present? Yes No	IYDROLO  /etland Hy rimary Indi	or Marks (B1) Deposits (B3) Mat or Crust (B4) Deposits (B5)	of one red	quired;			Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction	A, and 4 (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  We (M)  Dra  Dry  Sa  Ge  Sh	ater-Stained LRA 1, 2, 4. ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T	Leaves (I A, and 4B erns (B10) dater Table dible on Ae dosition (D3) and (D3)	B9)  (C2)  (C3)  (C4)  (C5)	ery (C9)	
urface Water Present? Yes No Depth (inches):  /ater Table Present? Yes No Depth (inches):  aturation Present? Yes No Depth (inches):   Metland Hydrology Present? Yes No	YDROLO /etland Hy rimary Indi     Surfa     High     Sedin     Drift [     Algal     Iron [     Surfa     Inund	pogy  Indrology Indicator Indicators (minimum of cators (minimum of cators (minimum of cators))  Indrology Indicators (minimum of cators)  Indrology Indicators  Indrology Indrology Indrology  Indrology Indrology	of one red  )  S)  erial Imag	gery (B	37)		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge Sh FA	ater-Stained LRA 1, 2, 4 ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) /ater Table ible on Ae osition (D: ard (D3) fest (D5) bunds (D6)	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	
/ater Table Present?       Yes       No       ☑       Depth (inches):          aturation Present?       Yes       ☐       No       ☑       Depth (inches):        Wetland Hydrology Present?       Yes       ☒       No         ncludes capillary fringe)       Yes       ☒       No       ✓       No       ✓       Yes       ☒       No	YDROLO Vetland Hy rimary Indi Surfa High Satur Sedin Jrin [ Jrin	pogy  Indicators (minimum of icators (minimum	of one red  )  S)  erial Imag	gery (B	37)		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge Sh FA	ater-Stained LRA 1, 2, 4 ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) /ater Table ible on Ae osition (D: ard (D3) fest (D5) bunds (D6)	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	
aturation Present?  No Depth (inches):  Wetland Hydrology Present? Yes No	IYDROLO  /etland Hy rimary Indi	pogy rdrology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) or Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ice Soil Cracks (B6 dation Visible on A6 sely Vegetated Corrvations:	of one red  )  S)  erial Imag	gery (B urface (	37) (B8)		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reductior Stunted or Stresses P Other (Explain in Rem	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge Sh FA	ater-Stained LRA 1, 2, 4 ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) /ater Table ible on Ae osition (D: ard (D3) fest (D5) bunds (D6)	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	
ncludes capillary fringe)  Yes Deptn (inches): Wetland Hydrology Fresent?  Yes Deptn (inches): Wetland Hydrology Fresent?	IYDROLO Vetland Hy rimary Indi Surfa High Satur Sedin Sedin Iron [ Surfa Inund Spars ield Obser	DGY Idrology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) In Marks (B1) Inent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) Ince Soil Cracks (B6) Idration Visible on Active Sely Vegetated Corvations: Iter Present?	of one red  S) erial Imag ncave Su	gery (B urface (	37) (B8) No		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge Sh FA	ater-Stained LRA 1, 2, 4 ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) /ater Table ible on Ae osition (D: ard (D3) fest (D5) bunds (D6)	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	
escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLO /etland Hy rimary Indi     Surfa     High     Satur     Sedin     Drift [     Algal     Iron [     Surfa     Inund     Spars ield Obsei	pogy  Indicators (minimum of icators (minimum	of one red  S) erial Imag ncave Su	gery (B urface (	37) (B8) No		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	Living Roots (C3)	Seconda  Wa (M) Dra Dry Sa Ge Sh FA	ater-Stained LRA 1, 2, 4 ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) /ater Table ible on Ae osition (D: ard (D3) fest (D5) bunds (D6)	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	
coorde recorded bata (oreall gauge, monitoring well, acital priotos, previous inspections), il available.	IYDROLO  /etland Hy rimary Indi	DGY Idrology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) In Marks (B1) Innent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) Index Soil Cracks (B6) Idration Visible on Active (B6) Idration Visible (B6)	of one red  ) erial Imag ncave Su  Yes Yes	gery (B urface (	87) (B8) No No		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reductior Stunted or Stresses P Other (Explain in Rem  Depth (inches): Depth (inches):	A, and 4  (B13) or (C1) es along L Iron (C4 in in Tilled	B) Living Roots (C3)  I Soils (C6)  I) (LRR A)	Seconda  Wa (MI)  Dra Dry  Sa Ge Sh Ra Fro	ater-Stained LRA 1, 2, 4. ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) fater Table ible on Ae osition (Di ard (D3) fest (D5) bunds (D6 lummocks	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	lo
	YDROLO  /etland Hy rimary Indi  Surfa  High Satur  Wate Sedir  Inon [  Surfa  Inon [  Surfa  Inon [  Wate Wate Red Observation Faciludes car	DGY Idrology Indicator icators (minimum of ice Water (A1) Water Table (A2) ration (A3) In Marks (B1) Innent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) Ice Soil Cracks (B6) Idation Visible on Active Sely Vegetated Convations: ter Present? Present? Present?	of one red  )  erial Imag ncave Su  Yes Yes Yes	gery (B urface (	87) (B8) No No No		Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem  Depth (inches): Depth (inches):	A, and 4 (B13) or (C1) os along l Iron (C4 or in Tilled lants (D1 earks)	Living Roots (C3) ) Il Soils (C6) I) (LRR A) Wet	Seconda  Wa (MI)  Dra Dry  Sa Ge Sh Ra Fro	ater-Stained LRA 1, 2, 4. ainage Patte y-Season W turation Visi comorphic P allow Aquita C-Neutral T ised Ant Mo	Leaves (I A, and 4B erns (B10) fater Table ible on Ae osition (Di ard (D3) fest (D5) bunds (D6 lummocks	B9)  i (C2)  rial Imag  2)  (LRR A	ery (C9)	lo

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site:	Newell Cr	eek D	am Inlet - Outle	t Replace	ment	Projec	<u>ct</u>	City/Cour	nty:	Ben Lo	mond/	Santa Cru	<u>uz</u> Sampl	ing Date:	4	1/11/2	018	
Applicant/Owner:	City of Sa	nta Cr	<u>ruz</u>								Sta	ate: <u>CA</u>	Sampl	ing Point:	<u> </u>	SP01b	<u>)</u>	
Investigator(s):	L. Burris									Sect	ion, To	wnship, F	Range:					
Landform (hillslope, te	errace, etc.):	: <u>h</u>	<u>illslope</u>				Loca	al relief (cond	ave, c	onvex,	none):	none		S	lope (	%): <u>6</u>		
Subregion (LRR):	Meditera	ınnear	<u>n</u>	Lat:		_			Lo	ng: _				Datum	n: <u>UT</u>	M Zon	ne 1	<u>D</u>
Soil Map Unit Name:	Nisene-A	Aptos	complex, 30 to	50 percer	nt slo	<u>oes</u>						NWI	classificatio	n: <u>None</u>	<u>e</u>			
Are climatic / hydrolog	gic condition	s on t	he site typical for	or this tim	e of y	ear?	Y	′es ⊠	l N	lo [	☐ (If	no, expla	ain in Rema	rks.)				
Are Vegetation	, Soil	□,	or Hydrology	□, si	gnific	antly d	isturbe	d? Are	'Norma	al Circu	ımstanı	ces" pres	ent?	Υe	es D	₫ N	lo	
Are Vegetation	, Soil	□,	or Hydrology	□, na	atural	y prob	lematic	:? (If ne	eeded,	explair	n any a	nswers ir	n Remarks.)	)				
SUMMARY OF FIN	IDINGS -	Attac	ch site map s	showing	san	npling	poin	tlocations	, trans	sects,	impo	rtant fe	atures, et	c.				
Hydrophytic Vegetatio	n Present?			Yes		No	$\boxtimes$	le the Com	۸ امما	*00								
Hydric Soil Present?				Yes		No	$\boxtimes$	Is the Sam within a We						Ye	es [	] N	lo	$\boxtimes$
Wetland Hydrology Pr	esent?			Yes		No	$\boxtimes$											
Remarks: Upland po	oint for SP0	1a. Up	pslope and wes	t of SP01	a. Ro	cky an	nd dry.											
VEGETATION - U	se scienti	fic na	ames of plan															
Tree Stratum (Plot siz	ze: <u>30'</u> )			Absolu <u>% Cov</u>		Domi Speci		Indicator <u>Status</u>	Don	ninanc	e Test	Workshe	eet:					
1. Acer macrophyllui	<u>m</u>			<u>50</u>	<u>u.</u>	yes		FACU	Num	nber of	Domin	ant Speci	ies					
2. <u>Umbellularia califo</u>	ornica			<u>5</u>		<u>no</u>		<u>FAC</u>				CW, or F		<u>1</u>				(A)
3									Tota	al Numb	per of E	Dominant						
4												ll Strata:		<u>4</u>				(B)
50% = <u>27,</u> 20% = <u>11</u>				<u>55</u>		= Tot	al Cove	er	Pero	cent of	Domina	ant Speci	ies	0.5				(A (D)
Sapling/Shrub Stratun	m (Plot size:	<u>10'</u> )										CW, or F		<u>25</u>				(A/B)
1. Toxicodendron div	versilobum			<u>10</u>		<u>yes</u>		FAC	Prev	valence	e Inde	worksh	eet:					
2											Total	% Cover	r of:	<u>Mu</u>	ltiply b	y:		
3									OBL	. specie	es	<u>0</u>		x1	= !	<u>)</u>		
4									FAC	W spe	cies	<u>0</u>		x2	= !	<u>)</u>		
5									FAC	specie	es	<u>5</u>		x3	= :	<u>15</u>		
50% = <u>5,</u> 20% = <u>2</u>				<u>10</u>		= Tot	al Cove	er	FAC	U spec	cies	<u>55</u>		x4	= 2	220		
Herb Stratum (Plot siz	ze: <u>1m</u> )								UPL	. specie	es	<u>15</u>		x5	= :	<u>75</u>		
1. Vicia sativa				<u>10</u>		yes		<u>UPL</u>	Colu	ımn To	tals:	<u>75</u>	(A)		;	310 (E	3)	
Bromus diandrus				<u>5</u>		no		NL (UPL)	00.0				lence Index	= B/A = 4.1			,	
3.				_		_			Hvd	rophyt	ic Vea		ndicators:					
4.											_		drophytic V	egetation				
5												ice Test i		3				
6										3 <sub>-</sub> Di	rovalon	ice Index	is ~3 0 <sup>1</sup>					
7													aptations <sup>1</sup> (I	Drovido our		~		
8													or on a sepa			y		
9										5 - W	etland	Non-Vas	cular Plants	.1				
10															.i\			
11									"	PIODI	emalic	пуагорп	ytic Vegeta	поп (⊏хріа	uri)			
50% = <u>7</u> , 20% = <u>2</u>				<u>15</u>			al Cove		<sup>1</sup> Indi	icators	of hydi	ric soil an	d wetland h	ydrology m	ust			
Woody Vine Stratum (	(Plot size:	١		13		= 100	ai Cove	;1	be p	resent,	, unless	s disturbe	ed or proble	matic.				
Rubus ursinus	(1 101 3126	/		5		VOC		EACH										
' <u></u>				<u>5</u>		<u>yes</u>		<u>FACU</u>	Hyd	rophyt	tic							
2				5			al Cove		Veg	etation			Yes			No		$\boxtimes$
50% = <u>2</u> , 20% = <u>1</u>				<u>5</u>		= 100	ai CUVE	71	Pres	sent?								
% Bare Ground in He																		
Remarks:	Dry, rocky g	round	at base of hills	lope.														

Project Site: Newell Creek Dam Inlet - Outlet Replacement Project

			Redox Fea				
nches) Color (moist)	%	Color (m	oist) %	Type <sup>1</sup> Loc	<sup>2</sup> Texture	e Remarks	
<u>0-4</u> <u>7.5YR 3/2</u>	<u>100</u>		<del></del>		grave	el gravel from road base and bedrock	
						<del>-</del> -	
<del></del>			<del>-</del>			<del>-</del>	
			<del>-</del>		_	<del>-</del>	
			<del></del>	<del></del>	_		
			<del></del>			<del>-</del>	
/pe: C= Concentration, D=Deplet	tion. RM=R	educed Ma	trix. CS=Covered or C	oated Sand Grains.	Location: PL	 _=Pore Lining, M=Matrix	
dric Soil Indicators: (Applicab						icators for Problematic Hydric Soils <sup>3</sup> :	
Histosol (A1)			Sandy Redox (S5)			2 cm Muck (A10)	
Histic Epipedon (A2)			Stripped Matrix (S6	5)		Red Parent Material (TF2)	
Black Histic (A3)			Loamy Mucky Mine	eral (F1) (except MLR	A 1)	Very Shallow Dark Surface (TF12)	
Hydrogen Sulfide (A4)			Loamy Gleyed Mat	rix (F2)		Other (Explain in Remarks)	
Depleted Below Dark Surface	) (A11)		Depleted Matrix (F3	3)			
Thick Dark Surface (A12)			Redox Dark Surfac	e (F6)			
Sandy Mucky Mineral (S1)			Depleted Dark Surf	ace (F7)		dicators of hydrophytic vegetation and wetland hydrology must be present,	
Sandy Gleyed Matrix (S4)			Redox Depressions	s (F8)		unless disturbed or problematic.	
strictive Layer (if present):							
pe: gravel and rock	:						
pth (inches): 4				Hydric S	oils Present?	Yes □ No	Σ
emarks:							
YDROLOGY etland Hydrology Indicators:							
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one	required; c					ndary Indicators (2 or more required)	
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one Surface Water (A1)	erequired; o	check all tha	Water-Stained Lea	• •		Water-Stained Leaves (B9)	
PDROLOGY etland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2)	e required; o		Water-Stained Lear	• •		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
PROLOGY etland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3)			Water-Stained Lear (except MLRA 1, 2 Salt Crust (B11)	2, 4A, and 4B)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)	
'DROLOGY  Itland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	required; c		Water-Stained Lear (except MLRA 1, 2 Salt Crust (B11) Aquatic Invertebrat	es (B13)	0	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	
PDROLOGY  Estland Hydrology Indicators:  mary Indicators (minimum of one  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)	required; o		Water-Stained Lead (except MLRA 1, 2 Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C	es (B13) Odor (C1)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)	
PDROLOGY Estland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)			Water-Stained Leav (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho	es (B13) Odor (C1) eres along Living Roo		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)	
PDROLOGY Estland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	e required; (		Water-Stained Leav (except MLRA 1, 2 Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho Presence of Reduc	es (B13) Dodor (C1) eres along Living Roo ed Iron (C4)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)	
PDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	e required; o		Water-Stained Leaver (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizosphoresence of Reduct Recent Iron Reduct	es (B13) Ddor (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)	
PDROLOGY  etland Hydrology Indicators: imary Indicators (minimum of one   Surface Water (A1)   High Water Table (A2)   Saturation (A3)   Water Marks (B1)   Sediment Deposits (B2)   Drift Deposits (B3)   Algal Mat or Crust (B4)   Iron Deposits (B5)   Surface Soil Cracks (B6)			Water-Stained Lead (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresses	es (B13) Door (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	
PROLOGY  Setland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I	lmagery (B7		Water-Stained Leaver (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizosphoresence of Reduct Recent Iron Reduct	es (B13) Door (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)	
PROLOGY Etland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I Sparsely Vegetated Concave	lmagery (B7		Water-Stained Lead (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresses	es (B13) Door (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	
POROLOGY  Setland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I Sparsely Vegetated Concave	lmagery (B7 e Surface (B		Water-Stained Lead (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresses	es (B13) Dodor (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A) emarks)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	
PDROLOGY etland Hydrology Indicators: mary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I Sparsely Vegetated Concave eld Observations: rface Water Present?  Yes	lmagery (B7 e Surface (E		Water-Stained Leav (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresses Other (Explain in R	es (B13) Dodor (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A) emarks)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I Sparsely Vegetated Concave eld Observations: urface Water Present? Yes atturation Present?	Imagery (B7 e Surface (E	7) DB8)	Water-Stained Leav (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduct Recent Iron Reduct Stunted or Stresses Other (Explain in R	es (B13) Dodor (C1) eres along Living Roo ed Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A) emarks)  :	SS (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)	
PDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial I Sparsely Vegetated Concave eld Observations: urface Water Present? Yes ater Table Present? Cuter Surface (Yes cuter Table Present) Ves cuter Country Ves cuter Captal II Ves Cuter Table Present? Ves Cuter Captal II Ves C	lmagery (B7 e Surface (E	7) DB8)  No 🗵	Water-Stained Leav (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduct Recent Iron Reduct Stunted or Stresses Other (Explain in R  Depth (inches) Depth (inches)	es (B13) Door (C1) eres along Living Roo eld Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A) emarks)	as (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one I Surface Water (A1) I High Water Table (A2) I Saturation (A3) I Water Marks (B1) I Sediment Deposits (B2) I Drift Deposits (B3) I Algal Mat or Crust (B4) I Iron Deposits (B5) I Surface Soil Cracks (B6) I Inundation Visible on Aerial I Sparsely Vegetated Concave eld Observations: urface Water Present? Yes ater Table Present?	lmagery (B7 e Surface (E	7) DB8)  No 🗵	Water-Stained Leav (except MLRA 1, 2) Salt Crust (B11) Aquatic Invertebrat Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduct Recent Iron Reduct Stunted or Stresses Other (Explain in R  Depth (inches) Depth (inches)	es (B13) Door (C1) eres along Living Roo eld Iron (C4) tion in Tilled Soils (C6 s Plants (D1) (LRR A) emarks)	as (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)	

Project Site:	Newell C	reek D	Dam Inlet - Outle	t Repla	cemer	nt Projec	<u>t</u>	City/Cou	nty: <u>I</u>	Ben Lo	mond/	Santa	Cruz	Sampling I	Date:	<u>4/11</u>	1/2018	<u>3</u>
Applicant/Owner:	City of Sa	ınta C	ruz								Sta	ate: <u>C</u>	<u>CA</u>	Sampling I	Point:	SPO	)2a	
Investigator(s):	L. Burris									Secti	ion, To	wnship	p, Rang	e:				
Landform (hillslope, te	rrace, etc.)	): <u>t</u>	oottomland				Loca	al relief (con	cave, co	onvex,	none):	CO	ncave		Slope	e (%):	<u>0</u>	
Subregion (LRR):	Mediter	<u>annea</u>	<u>ın</u>	La	t: <u>37.</u>	100788			Lo	ng: <u>-1</u>	22.074	<u>4513</u>			Datum:	UTM Z	Zone 1	<u>10</u>
Soil Map Unit Name:	Nisene-	<u>Aptos</u>	complex, 30 to	50 perd	cent slo	<u>opes</u>						NV	VI class	ification:	<u>None</u>			
Are climatic / hydrolog	ic condition	ns on t	the site typical fo	or this t	ime of	year?	Y	es 🛭	] N	lo [	] (If	no, ex	xplain in	Remarks.)	)			
Are Vegetation □,	Soil	□,	or Hydrology	□,	signifi	cantly dis	sturbed	l? Are	"Norma	al Circu	mstan	ces" pr	resent?		Yes	$\boxtimes$	No	
Are Vegetation □,	Soil	□,	or Hydrology	□,	natura	ally probl	ematic?	? (If n	eeded,	explair	n any a	answer	s in Ren	marks.)				
SUMMARY OF FIN			ch site map s					locations	, trans	sects,	impo	rtant	featur	es, etc.				
Hydrophytic Vegetation	n Present?	,		Υe	_			Is the Sam	nled A	rea								
Hydric Soil Present?				Υe				within a W							Yes	$\boxtimes$	No	
Wetland Hydrology Pre	esent?			Ye	es 🛭	No No												
Remarks: Seep area	a at the ba	se of r	oad grade, north	nwest c	of plune	gepool, a	cross a	access road	, adjace	ent to N	lewell	Creek.						
VEGETATION – Us	se scient	ific n	ames of plan		ali ika	Damin		Indicator	1									
Tree Stratum (Plot size	e: <u>30'</u> )				olute <u>over</u>	Domin Specie		Indicator <u>Status</u>	Don	ninance	e Test	Works	sheet:					
1. Acer macrophyllur	<u>n</u>			<u>10</u>		<u>yes</u>		FACU	Num	ber of	Domin	ant Sp	ecies		<u>3</u>			(A)
2. <u>Sequoia sempervi</u>	rons			<u>10</u>		<u>yes</u>		NL (UPL)	That	Are O	BL, FA	CW, o	or FAC:		<u>5</u>			(A)
3. Pseudotsuga men	<u>ziesii</u>			<u>10</u>		<u>yes</u>		<u>FACU</u>	Tota	ıl Numb	er of D	Domina	ant		<u>7</u>			(B)
4				_	_				Spec	cies Ac	ross A	II Strat	ta:		<u>_</u>			(D)
$50\% = \underline{15}, 20\% = \underline{6}$				<u>30</u>		= Tota	I Cove	r		ent of I					<u>43</u>			(A/B)
Sapling/Shrub Stratum	<u>n</u> (Plot size	: <u>10'</u> )							That	t Are O	BL, FA	CW, o	or FAC:		<u>10</u>			(700)
1. Genista monspess	<u>sulana</u>			<u>5</u>		<u>yes</u>		NL (UPL)	Prev	valence	e Index	x work	sheet:					
2. <u>Toxicodendron div</u>	<u>rersilobum</u>			<u>5</u>		<u>yes</u>		FAC			Total	1 % Co	ver of:		Multip	ly by:		
3									OBL	. specie	es	<u>C</u>	<u>)</u>		x1 =	<u>0</u>		
4					_				FAC	W spec	cies	7	<u>70</u>		x2 =	<u>140</u>	<u>)</u>	
5					_				FAC	specie	es	5	<u>5</u>		x3 =	<u>15</u>		
50% = 5, $20% = 2$				<u>10</u>		= Tota	l Cove	r	FAC	U spec	cies	2	<u>20</u>		x4 =	<u>80</u>		
Herb Stratum (Plot siz	e: <u>1m</u> )								UPL	. specie	es	<u>1</u>	<u>15</u>		x5 =	<u>75</u>		
<ol> <li>Cyperus eragrostis</li> </ol>	<u>s</u>			<u>45</u>		<u>yes</u>		<u>FACW</u>	Colu	ımn To	tals:	<u>1</u>	<u>110</u> (A)			310	<u>)</u> (B)	
2. Equisetum hyama	<u>le</u>			<u>15</u>		<u>yes</u>		<u>FACW</u>				Pre	valence	Index = B	/A = <u>2.8</u>			
3. <u>Juncus effusus</u>				<u>5</u>		<u>no</u>		<u>FACW</u>	Hyd	rophyt	ic Veg	jetatio	n Indica	ators:				
4. Polypogon monsp	<u>eliensis</u>			<u>5</u>		<u>no</u>		<u>FACW</u>		1 – R	apid T	est for	Hydrop	hytic Vege	tation			
5					_					2 - Do	ominar	nce Te	st is >50	)%				
6					_				$\boxtimes$	3 - Pr	evalen	nce Ind	lex is <u>&lt;</u> 3	3.0 <sup>1</sup>				
7					_					4 - Mo	orpholo	ogical i	Adaptati	ions¹ (Prov	ide suppo	rting		
8					_					da	ita in R	Remark	s or on	a separate	sheet)	_		
9				_	_					5 - W	etland	Non-V	/ascular	Plants <sup>1</sup>				
10										Probl	ematic	Hydro	ophytic V	/egetation <sup>1</sup>	(Explain)			
11																		
50% = <u>35</u> , 20% = <u>14</u>				<u>70</u>		= Tota	l Cove	r						tland hydro problemati				
Woody Vine Stratum (	Plot size:		)						l so p	1000111,	unioo	o alota	1000 01	probleman	0.			
1																		
2					_				1 -	rophyt			.,		<b>-</b>			
50% =, 20% =					_	= Tota	l Cove	r	_	etation sent?	ı		Ye	5		No		
% Bare Ground in Her	b Stratum	<u>30</u>																
Remarks:									1									
Nomano.																		

	noist)	%	Color (r	noist) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture			Remarks	3		
<u>0-4</u> <u>5Y 2</u>	.5/1	90	10YR	3/6 10	<u>C</u>	<u>M</u>	sandy loa	m bedrock	√boulder u	ınder so	<u>il</u>		
				_									
was C- Canaantratio					r Coated Sand C	2I or	ection: DI –	Pore Lining, M	1_Natrix				
ydric Soil Indicators						rains. Loc		ators for Prol		Judric S	cils <sup>3</sup> :		
] Histosol (A1)	(Applicable	to all Lr	tras, unica	Sandy Redox (S				2 cm Muck (		iyunc 3	iolis .		
] Histic Epipedon (	12)			Stripped Matrix (	•			Red Parent		Γ <b>F</b> 2)			
Black Histic (A3)	· <b>L</b> )				ineral (F1) (exce	pt MLRA 1)		Very Shallov	•	,	F12)		
<ul><li>Hydrogen Sulfide</li></ul>	(A4)			Loamy Gleyed M	· , •	<b>,</b> ,		Other (Expla		•	,		
Depleted Below [		(A11)		Depleted Matrix			_	` '		,			
Thick Dark Surfac		,		Redox Dark Surf									
Sandy Mucky Mir	eral (S1)			Depleted Dark S	surface (F7)			ators of hydro					
] Sandy Gleyed Ma	trix (S4)			Redox Depression	ons (F8)			etland hydrolog less disturbed			τ,		
estrictive Layer (if p	esent):												
/pe: <u>Bed</u>	<u>rock</u>												
					H	łydric Soils Pr	esent?		Yes		No		
emarks:					H	łydric Soils Pr	esent?		Yes		No		
emarks:	dicators:				H	łydric Soils Pr	esent?		Yes		No		
emarks:  IYDROLOGY  /etland Hydrology In rimary Indicators (min		equired;				łydric Soils Pr	Second	dary Indicators	s (2 or mor	e require			
emarks:  IYDROLOGY  /etland Hydrology In rimary Indicators (min	mum of one r	required;	check all th	nat apply) Water-Stained L		tydric Soils Pr	Second	/ater-Stained	s (2 or mor Leaves (B	e require 9)			
EMARKS:  SYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A)  High Water Table	mum of one r	required;		Water-Stained L			Second W	Vater-Stained	s (2 or mor Leaves (B A, and 4B)	e require 9)			
emarks:  IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3)	mum of one r 1) e (A2)	required;		Water-Stained Lo (except MLRA 1 Salt Crust (B11)	eaves (B9) I, <b>2, 4A, and 4B)</b>		Second (N	Vater-Stained  WLRA 1, 2, 44  Irainage Patte	s (2 or mor Leaves (B A, and 4B) rns (B10)	e require 9)			
YDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1)	mum of one r 1) e (A2)	required;		Water-Stained L (except MLRA 1 Salt Crust (B11) Aquatic Inverteb	eaves (B9) I, <b>2, 4A, and 4B)</b> rates (B13)		Second (N	Water-Stained WLRA 1, 2, 4A Prainage Patte Pry-Season Water	s (2 or mor Leaves (B <b>A, and 4B)</b> ırns (B10) ater Table	e require 9) (C2)	ed)		
YDROLOGY  /etland Hydrology In rimary Indicators (min	mum of one r 1) • (A2) ) ts (B2)	required;		Water-Stained L (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide	eaves (B9) I, <b>2, 4A, and 4B)</b> rates (B13) e Odor (C1)		Second  W (N)	Vater-Stained  VLRA 1, 2, 4A  Prainage Patte  Pry-Season Water  Prainage Visit	s (2 or mor Leaves (B <b>A, and 4B)</b> Irns (B10) ater Table ble on Aeri	e require 9) (C2) ial Image	ed)		
emarks:    YDROLOGY     Vetland Hydrology In     rimary Indicators (min     Surface Water (A     High Water Table     Saturation (A3)     Water Marks (B1     Sediment Depos     Drift Deposits (B	mum of one r 1) (A2) ts (B2)	required;		Water-Stained L (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi		Second  W (N  D D S G	Vater-Stained WLRA 1, 2, 44 Prainage Patte Pry-Season Water Pratter Visit	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aeri osition (D2	e require 9) (C2) ial Image	ed)		
WDROLOGY Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B Algal Mat or Crus	mum of one r 1) e (A2) ts (B2) 3) t (B4)	required;		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red	eaves (B9) I, <b>2, 4A, and 4B)</b> rates (B13) e Odor (C1) pheres along Livi	ing Roots (C3)	Second  W (N  D  S  G  S	Vater-Stained  VALRA 1, 2, 44  Varianage Patte  Vary-Season Wall  Vaturation Visit  Geomorphic Polyhallow Aquita	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3)	e require 9) (C2) ial Image	ed)		
emarks:  IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3)  Water Marks (B1 Sediment Deposits (B1 Algal Mat or Crust Iron Deposits (B2 Iron Deposits (B3 Iron Deposits (B3 Iron Deposits (B3 Iron Deposits (B4 Ir	mum of one r 1) 2 (A2) 3) 3 (t (B4)	required;		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red	eaves (B9)  I, 2, 4A, and 4B)  rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled S	ing Roots (C3)	Second  W (N  D D S G S G S F	Vater-Stained  VALRA 1, 2, 4A  Varianage Patte  Vary-Season Ward  Vaturation Visit  Geomorphic Polyhallow Aquita  AC-Neutral Te	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5)	e require 9) (C2) ial Image	ed) ery (C9)		
IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B Algal Mat or Crus Iron Deposits (B8) Surface Soil Cra	mum of one r 1) 2 (A2) ) tts (B2) 3) tt (B4) b)			Water-Stained Li (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red Stunted or Stress	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled Si ses Plants (D1) (	ing Roots (C3)	Second  W (N  D  S  G  S  R	Vater-Stained  VALEA 1, 2, 4A  Prainage Patte  Pry-Season Williant Visible  Geomorphic Polyhallow Aquita  AC-Neutral Tellaised Ant Molarita	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6)	e require 9) (C2) ial Image	ed) ery (C9)		
emarks:    YDROLOGY     /etland Hydrology In     rimary Indicators (min     Surface Water (A     High Water Table     Saturation (A3)     Water Marks (B1     Sediment Deposits (B     Algal Mat or Cruster     Iron Deposits (B3     Surface Soil Craster     Inundation Visible	mum of one r  1)  2 (A2)  33  34 (B4)  39  39  45 (B6)  46 on Aerial Im	nagery (B		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled Si ses Plants (D1) (	ing Roots (C3)	Second  W (N  D  S  G  S  R	Vater-Stained  VALRA 1, 2, 4A  Varianage Patte  Vary-Season Ward  Vaturation Visit  Geomorphic Polyhallow Aquita  AC-Neutral Te	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6)	e require 9) (C2) ial Image	ed) ery (C9)		
emarks:  IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B Algal Mat or Crue Iron Deposits (BE Surface Soil Crae Inundation Visibl Sparsely Vegeta	mum of one r  1)  2 (A2)  33  34 (B4)  39  39  45 (B6)  46 on Aerial Im	nagery (B		Water-Stained Li (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red Stunted or Stress	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled Si ses Plants (D1) (	ing Roots (C3)	Second  W (N  D  S  G  S  R	Vater-Stained  VALEA 1, 2, 4A  Prainage Patte  Pry-Season Williant Visible  Geomorphic Polyhallow Aquita  AC-Neutral Tellaised Ant Molarita	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6)	e require 9) (C2) ial Image	ed) ery (C9)		
emarks:  IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B Algal Mat or Crus Iron Deposits (BS Surface Soil Cras Inundation Visibl Sparsely Vegeta ield Observations:	mum of one r 1) to (A2) to (B2) s) to (B4) c) cks (B6) e on Aerial Im ed Concave S	nagery (B		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red Stunted or Stres: Other (Explain in	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled So ses Plants (D1) (	ing Roots (C3)	Second  W (N  D  S  G  S  R	Vater-Stained  VALEA 1, 2, 4A  Prainage Patte  Pry-Season Witaturation Visible  Geomorphic Pothallow Aquita  AC-Neutral Tellarised Ant Mo	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6)	e require 9) (C2) ial Image	ed) ery (C9)		
IYDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B1 Algal Mat or Crus Iron Deposits (B2 Surface Soil Cra Inundation Visibl Sparsely Vegeta  ield Observations: urface Water Present	mum of one r 1) ts (B2) tts (B2) tt (B4) c) cks (B6) e on Aerial Im ed Concave S	nagery (B Surface (		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red Stunted or Stres Other (Explain in	eaves (B9)  I, 2, 4A, and 4B)  rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled Si ses Plants (D1) ( n Remarks)	ing Roots (C3)	Second  W (N  D  S  G  S  R	Vater-Stained  VALEA 1, 2, 4A  Prainage Patte  Pry-Season Witaturation Visible  Geomorphic Pothallow Aquita  AC-Neutral Tellarised Ant Mo	s (2 or mor Leaves (B A, and 4B) Irns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6)	e require 9) (C2) ial Image	ed) ery (C9)		
AYDROLOGY  Vetland Hydrology In  Verimary Indicators (min  Surface Water (A  High Water Table  Saturation (A3)  Water Marks (B1  Sediment Deposits (B1  Algal Mat or Crue  Iron Deposits (B2  Surface Soil Crae  Inundation Visible	mum of one r 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1) 1)	nagery (B Surface (		Water-Stained Lo (except MLRA 1 Salt Crust (B11) Aquatic Inverteb Hydrogen Sulfide Oxidized Rhizos Presence of Red Recent Iron Red Stunted or Stres Other (Explain in	eaves (B9) I, 2, 4A, and 4B) rates (B13) e Odor (C1) pheres along Livi duced Iron (C4) uction in Tilled Si ses Plants (D1) ( n Remarks)	ing Roots (C3) oils (C6)	Second  W (N  D  D  Si  G  R  F	Vater-Stained  VALEA 1, 2, 4A  Prainage Patte  Pry-Season Witaturation Visible  Geomorphic Pothallow Aquita  AC-Neutral Tellarised Ant Mo	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6) ummocks	e require 9) (C2) ial Image	ed) ery (C9)		
WDROLOGY  Vetland Hydrology In rimary Indicators (min Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Deposits (B) Algal Mat or Cruston Deposits (B) Iron Deposits (B) Surface Soil Cratton Deposits (B) Surface Water Present Color Color Deposits (B) Water Table Present Color Cratton Deposits (B) Water Table Present Cratton Deposits (B) Water Marks (B) Wate	mum of one r 1) t (A2) tts (B2) st (B4) tt (B4) c on Aerial Im ed Concave s Yes Yes Yes	nagery (B Surface (		Water-Stained L  (except MLRA 1  Salt Crust (B11)  Aquatic Inverteb  Hydrogen Sulfide  Oxidized Rhizos  Presence of Rec  Recent Iron Red  Stunted or Stress  Other (Explain in	eaves (B9)  I, 2, 4A, and 4B)  rates (B13) e Odor (C1) pheres along Lividuced Iron (C4) uction in Tilled States Plants (D1) (In Remarks)  eas):  eas):  eas):	ing Roots (C3) oils (C6) (LRR A)  Wetl	Second  W (N  D  D  Si  G  R  F	Vater-Stained  Vater-Stained  Vater-Atained  Vater-	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aeri osition (D2 rd (D3) est (D5) unds (D6) ummocks	e require 9) (C2) ial Image ) (LRR A)	ed) ery (C9)	))	

Project Site:	Newell Creek Dam Inlet - Outlet	Replacemen	t Project	City/Cour	ty: Ben Lomond/Santa Cruz	Sampling Date:	4/11/201	8
Applicant/Owner:	City of Santa Cruz				State: CA	Sampling Point:	SP02b	
Investigator(s):	L. Burris				Section, Township, Ra	ınge:		
Landform (hillslope, te	errace, etc.): <u>bottomland</u>		Lo	cal relief (conc	ave, convex, none): concav	<u>e</u> Slop	oe (%): <u>0</u>	
Subregion (LRR):	<u>Mediterannean</u>	Lat: 37.1	00564		Long: <u>-122.074412</u>	Datum:	UTM Zone	10
Soil Map Unit Name:					NWI cla	assification: None		
Are climatic / hydrolog	gic conditions on the site typical fo	r this time of	/ear?	Yes 🛛	No 🗌 (If no, explain	n in Remarks.)		
Are Vegetation	, Soil □, or Hydrology	☐, signific	antly disturbe	ed? Are "	Normal Circumstances" preser	nt? Yes	☑ No	
Are Vegetation	, Soil □, or Hydrology	☐, natural	ly problemati	c? (If ne	eded, explain any answers in I	Remarks.)		
SUMMARY OF FIN	NDINGS – Attach site map s	howing sar	npling poir	nt locations,	transects, important feat	tures, etc.		
Hydrophytic Vegetatio	on Present?	Yes 🗆	No 🛛					
Hydric Soil Present?		Yes 🗌	No 🛛	Is the Samp		Yes	☐ No	$\boxtimes$
Wetland Hydrology Pr	esent?	Yes 🗌	No 🛛	within a vic				
Remarks: Upland po	oint for SP02a. Adjacent to gravel	access road	north of plun	ge pool.				
	, ,							
	se scientific names of plant	S Absolute	Dominant	Indicator				
Tree Stratum (Plot siz	_	% Cover	Species?	<u>Status</u>	Dominance Test Workshee	t:		
Acer macrophyllui	<del>_</del>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Number of Dominant Species	1		(A)
2. <u>Sequoia sempervi</u>		<u>10</u>	<u>yes</u>	NL (UPL)	That Are OBL, FACW, or FA	<b>O</b> .		
3. <u>Pseudotsuga mer</u>	<u>ızieseii</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata:	<u>6</u>		(B)
4								
50% = 15, 20% = 6	m (Plot size: 10')	<u>30</u>	= Total Cov	er	Percent of Dominant Species That Are OBL, FACW, or FA			(A/B)
Sapling/Shrub Stratun	<del></del>	5	VOS	NL (UPL)	Prevalence Index workshee			
Genista monspess     Toyiicadandran di		<u>5</u>	<u>yes</u>		Total % Cover of		oly by:	
Toxiicodendron di     Toxiicodendron di	versiiobuiti	<u>5</u>	<u>yes</u>	<u>FAC</u>	OBL species 0	<u>wuuu</u> x1 =	<u>oly by:</u> <u>0</u>	
4					FACW species <u>0</u>	x2 =	<u>o</u>	
5					FAC species <u>5</u>	x3 =	<u>⊻</u> <u>15</u>	
50% = <u>5</u> , 20% = <u>2</u>		10	= Total Cov	——	FACU species 20	x4 =	<u>80</u>	
Herb Stratum (Plot siz	zo: 1m\	10	= Total Cov	Gi	UPL species 25	x5 =	<u>30</u> 125	
Dryopteris arguta		10	VOS	NI (LIDI )	F0 //		220 (B)	
		<u>10</u>	<u>yes</u>	NL (UPL)	Column Totals: 50 (A		<u>220</u> (B)	
2						nce Index = B/A = <u>4.4</u>		
3					Hydrophytic Vegetation Inc			
4 5					☐ 1 – Rapid Test for Hyd ☐ 2 - Dominance Test is:			
6								
·					3 - Prevalence Index is	<del>-</del> .		
7						otations <sup>1</sup> (Provide suppo on a separate sheet)	orting	
8 9					5 - Wetland Non-Vascu			
10								
					Problematic Hydrophyt	ic Vegetation <sup>1</sup> (Explain)	)	
11 50% = <u>5,</u> 20% = <u>2</u>		10	= Total Cov	<del></del>	<sup>1</sup> Indicators of hydric soil and	wetland hydrology mus	st .	
<u>Woody Vine Stratum</u>	(Plot size: )	<u>10</u>	= Total Cov	ei	be present, unless disturbed	or problematic.		
	(FIOL SIZE)							
1					Hydrophytic			
2 50% =, 20% =			= Total Cov		Vegetation	Yes 🗆	No	$\boxtimes$
· · · · · · · · · · · · · · · · · · ·			= 10tal COV	<u>0</u> 1	Present?			
% Bare Ground in He								
Remarks:	*Leaf duff from conifers on ground	1.						

inches) Color (moist)	%	Colo	or (mois	st) % Typ	e <sup>1</sup> Loc <sup>2</sup>	Texture	<b>:</b>		Remarks	S		
0-10 7.5YR 2.5/1	100					Loam						
		_			_							
		_										
		_										
		_										
		_										
		_										
		_										
ype: C= Concentration, D=D					Sand Grains.		=Pore Lining, N			3		
ydric Soil Indicators: (Appli	cable to all			•			cators for Prol		Hydric S	soils":		
Histosol (A1)				Sandy Redox (S5)			2 cm Muck (		TEO)			
Histic Epipedon (A2)				Stripped Matrix (S6) Loamy Mucky Mineral (F1)	\ (avcant MI DA	1) 🗆	Red Parent	,	,	E12)		
Black Histic (A3)  Hydrogen Sulfide (A4)				Loamy Gleyed Matrix (F2)		1) 🗆	Very Shallov Other (Expla			F12)		
Depleted Below Dark Su	face (A11)			Depleted Matrix (F3)			Other (Expir	ani in item	iaikoj			
Thick Dark Surface (A12				Redox Dark Surface (F6)								
Sandy Mucky Mineral (S				Depleted Dark Surface (F7	7)		icators of hydro					
] Sandy Gleyed Matrix (S4				Redox Depressions (F8)			vetland hydrolog Inless disturbed			ıt,		
estrictive Layer (if present)								2 C. p. C				_
/pe:												
									_	No		
· · · · · · · · · · · · · · · · · · ·					Hydric Soi	Is Present?		Yes		No	<u>k</u>	_
emarks: YDROLOGY					Hydric Soi	Is Present?		Yes		NO	k	_
emarks:  YDROLOGY  Vetland Hydrology Indicator					Hydric Soi						L L	_
epth (inches):  emarks:  YDROLOGY  //etland Hydrology Indicator rimary Indicators (minimum o		ed; check a		,		Secon	ndary Indicators	s (2 or mor	re requir			
YDROLOGY Vetland Hydrology Indicator rimary Indicators (minimum o		ed; check a	all that a	Water-Stained Leaves (B9	9)	Secon	Water-Stained	s (2 or mor Leaves (B	re require		L	
YDROLOGY  Vetland Hydrology Indicator  rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)		ed; check a		Water-Stained Leaves (B9 (except MLRA 1, 2, 4A, a	9)	Secon	Water-Stained	s (2 or mor Leaves (B <b>A, and 4B</b> ,	re require		L	
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)		ed; check a		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11)	9) nd 4B)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte	s (2 or moi Leaves (B <b>A, and 4B</b> ) rrns (B10)	re require 39)		L	
YDROLOGY etland Hydrology Indicator imary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)		ed; check a		Water-Stained Leaves (B9 (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13)	9) nd 4B)	Secon	Water-Stained (MLRA 1, 2, 4,4) Drainage Patte Dry-Season Water	s (2 or mor Leaves (B <b>A, and 4B</b> ) erns (B10) ater Table	re require 39) ) (C2)	ed)		
YDROLOGY  Tetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)		ed; check a		Water-Stained Leaves (B9 (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13 Hydrogen Sulfide Odor (C	9) nd 4B)	Secon	Water-Stained (MLRA 1, 2, 4# Drainage Patte Dry-Season Water Saturation Visil	s (2 or mor Leaves (B <b>A, and 4B</b> ) erns (B10) ater Table ble on Aer	re require 39) ) (C2) ial Image	ed)		
YDROLOGY  Tetland Hydrology Indicator  Timary Indicators (minimum of a surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)		ed; check a		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13 Hydrogen Sulfide Odor (C Oxidized Rhizospheres alo	ong Living Roots	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Water Saturation Visit Geomorphic Po	s (2 or mor Leaves (B A, and 4B) rrns (B10) ater Table ble on Aer osition (D2	re require 39) ) (C2) ial Image	ed)		
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)		ed; check a		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C) Oxidized Rhizospheres ald Presence of Reduced Iron	ong Living Roots	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Water Staturation Visit Geomorphic Potentials Shallow Aquita	s (2 or mor Leaves (B <b>A, and 4B</b> ) erns (B10) ater Table ble on Aer osition (D2 rd (D3)	re require 39) ) (C2) ial Image	ed)		
YDROLOGY  Yetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)	one require			Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13 Hydrogen Sulfide Odor (C Oxidized Rhizospheres alo	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Water Saturation Visit Geomorphic Po	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5)	re require 39) ) (C2) ial Image	ed) ery (C9)		
YDROLOGY /etland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6	one require			Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13 Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in T	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 4A) Drainage Patte Dry-Season Water Staturation Visit Geomorphic Poshallow Aquita FAC-Neutral To	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6)	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY //etland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6	one require	· (B7)		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Wi Saturation Visil Geomorphic Po Shallow Aquita FAC-Neutral To Raised Ant Mo	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6)	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY  /etland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae	one require	· (B7)		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Wi Saturation Visil Geomorphic Po Shallow Aquita FAC-Neutral To Raised Ant Mo	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6)	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cordeld Observations:	one require	r (B7) ce (B8)		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Wi Saturation Visil Geomorphic Po Shallow Aquita FAC-Neutral To Raised Ant Mo	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6)	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY Vetland Hydrology Indicator rimary Indicators (minimum o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6 Inundation Visible on Ae Sparsely Vegetated Cor veld Observations: urface Water Present?	one require	r (B7) ce (B8) No		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants Other (Explain in Remarks)	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Wi Saturation Visil Geomorphic Po Shallow Aquita FAC-Neutral To Raised Ant Mo	s (2 or mor Leaves (B A, and 4B) erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6)	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Ae Sparsely Vegetated Cor	one require	(B7) ce (B8) No No		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres alc Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants Other (Explain in Remarks	nd 4B)  3) 1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Wi Saturation Visil Geomorphic Po Shallow Aquita FAC-Neutral To Raised Ant Mo	s (2 or mor Leaves (B A, and 4B, erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6) ummocks	re require 39) ) (C2) ial Image 2)	ed) ery (C9)		
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum o  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Ae  Sparsely Vegetated Cor  Vetla Observations:  urface Water Present?  Vater Table Present?	rial Imagery cave Surface Yes   Yes   Yes   Yes	(B7) ce (B8) No No No		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C Oxidized Rhizospheres ald Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plants Other (Explain in Remarks  Depth (inches):  Depth (inches):  Depth (inches):	nd 4B)  1) ong Living Roots (C4) Filled Soils (C6) s (D1) (LRR A) s)	Secon	Water-Stained (MLRA 1, 2, 44) Drainage Patte Dry-Season Water Staturation Visit Geomorphic Poshallow Aquita FAC-Neutral Toral Raised Ant Mo Frost-Heave Ho	s (2 or mor Leaves (B A, and 4B, erns (B10) ater Table ble on Aer osition (D2 rd (D3) est (D5) unds (D6) ummocks	re require (C2) ial Image (2) (LRR A (D7)	ed) ery (C9)		

Project Site:	Newell C	reek D	Dam Inlet - Outle	t Replace	ment	Projec	<u>ct</u>	City/Cour	nty: <u>I</u>	Ben Lo	mond/s	Santa Cruz	Sampling	Date:	4/11	1/201	<u>8</u>
Applicant/Owner:	City of S	anta C	ruz								Sta	ate: <u>CA</u>	Sampling	Point:	SPO	03	
Investigator(s):	L. Burris									Sect	ion, To	wnship, Ra	ange:	<u>.</u>			
Landform (hillslope, te	errace, etc.	): _	<u> Terrace</u>				Loca	al relief (conc	ave, co	onvex,	none):	none		Slope	e (%):	<u>0</u>	
Subregion (LRR):	Mediter	annea	<u>ın</u>	Lat:		_			Lo	ng: _				Datum: 1	JTM Z	Zone	<u>10</u>
Soil Map Unit Name:	Nisene-	-Aptos	complex, 50 to	75 percer	nt slop	<u>oes</u>						NWI cl	assification:	<u>None</u>			
Are climatic / hydrolog	jic conditio	ns on	the site typical for	or this time	e of y	ear?	Υ	′es ⊠	N	lo [	☐ (If	no, explaii	n in Remarks.	.)			
Are Vegetation	, Soil	□,	or Hydrology	□, si	gnifica	antly di	isturbed	d? Are "	'Norma	al Circu	ımstand	ces" presei	nt?	Yes	$\boxtimes$	No	
Are Vegetation	, Soil	□,	or Hydrology	□, na	turall	y prob	lematic	? (If ne	eded,	explair	n any a	nswers in	Remarks.)				
SUMMARY OF FIN	IDINGS -	- Atta	ch site map s	howing	san	pling	j point	locations,	, trans	sects,	impo	rtant fea	tures, etc.				
Hydrophytic Vegetatio	n Present	?		Yes	$\boxtimes$	No											
Hydric Soil Present?				Yes	$\boxtimes$	No		Is the Samp within a We						Yes		No	$\boxtimes$
Wetland Hydrology Pr	esent?			Yes		No	$\boxtimes$										
Remarks: Juncus-c	dominated	shelf	abovve stream	, north o	f Nev	vell Cr	eek Da	m Road brid	lge ov	er New	vell Cre	eek.					
VEGETATION - Us	se scient	ific n	ames of plan	ts													
Tree Stratum (Plot siz	:e: <u>30'</u> )			Absolu % Cov		Domii Speci		Indicator Status	Dom	ninanc	e Test	Workshee	et:				
Pseudotsuga men	nziesii			10	<u>51</u>	<u>yes</u>	<u>cs:</u>	FACU	Num	her of	Domin:	ant Specie	e				
2. Acer macrophyllui				<u>10</u>		ves		FACU				CW, or FA		<u>2</u>			(A)
Umbellularia califo				10		yes		FAC	Tota	ıl Numh	ner of Γ	ominant					
4.				_								l Strata:		<u>5</u>			(B)
50% = <u>15</u> , 20% = <u>6</u>				30		= Tota	al Cove	er	Perc	ent of	Domina	ant Specie	e				
Sapling/Shrub Stratun	n (Plot size	e: 10')		<u> </u>								CW, or FA		<u>40</u>			(A/B)
Genista monspess		_		<u>5</u>		yes		NL (UPL)	Prev	/alence	e Index	workshe	et:				
2				_				·			Total	% Cover of	of:	Multipl	y by:		
3									OBL	. specie		<u>0</u>	_	x1 =	0		
4										W spe		90		x2 =	180	)	
5.										specie		10		x3 =	30		
50% = <u>2.5</u> , 20% = <u>1</u>				<u></u>		= Tota	al Cove			U spec		<u>35</u>		x4 =	140	)	
Herb Stratum (Plot siz	ze: 1m)			_						specie		<u>5</u>		x5 =	25	_	
Juncus balticus	-o. <u></u> ,			90		yes		FACW				<u>140</u>	(Δ)	7.0		<u>5</u> (B)	
2. <u>Hedera helix</u>				<u>50</u>				FACU	Colu	ımn To	itais:		nce Index = B	/Δ = 2.68	010	<u> 2</u> (D)	
				<u>5</u>		<u>no</u>		IACO	اميرا	ranhud	io Voa	etation Inc		/A = <u>2.00</u>			
3 4.									□		_		rophytic Vege	station			
5											•	ce Test is		talion			
6																	
·												ce Index is	_				
7													otations <sup>1</sup> (Provonation on a separate		ting		
8 9													ular Plants <sup>1</sup>	3 011001)			
														1			
10										Probl	lematic	Hydrophyt	ic Vegetation	' (Explain)			
11									1Indi	icators	of hvdr	ic soil and	wetland hydr	oloav must			
50% = <u>47</u> , 20% = <u>19</u>	(D)			<u>95</u>		= I Ota	al Cove	er					or problemat				
Woody Vine Stratum	(Plot size:		)					E4.011									
1. <u>Rubus ursinus</u>				<u>10</u>		<u>yes</u>		<u>FACU</u>	Hvd	rophyt	tic						
2									-	etation			Yes	$\boxtimes$	No		
50% = 5, $20% = 2$				<u>10</u>		= Fota	al Cove	er	Pres	sent?							
% Bare Ground in He	rb Stratum	<u>5</u>															
Remarks:																	

SOIL Sampling Point: SP03 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (inches) Color (moist) % Color (moist) % Type<sup>1</sup> Loc<sup>2</sup> Remarks 7.5YR 3/2 7.5YR 5/6 0-10 <u>C</u> Loam 94 <u>6</u> M 10-16 7.5YR 3/1 <u>75</u> 10YR 5/8 5 C M Clay loam 7.5 YR 3/2 20 <sup>2</sup>Location: PL=Pore Lining, M=Matrix <sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils3: Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11)  $\boxtimes$ Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) <sup>3</sup>Indicators of hydrophytic vegetation and П Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, П Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Type: Tree roots Depth (inches): **Hydric Soils Present?** Yes  $\boxtimes$ No <u> 16</u> Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) П Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) High Water Table (A2) (except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B) Saturation (A3) П Salt Crust (B11) Drainage Patterns (B10) Water Marks (B1) Aquatic Invertebrates (B13) П Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Geomorphic Position (D2) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aguitard (D3) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present?  $\boxtimes$ Yes No Depth (inches):  $\boxtimes$ Water Table Present? Yes No Depth (inches): Saturation Present? Wetland Hydrology Present? Yes No  $\boxtimes$ Yes No  $\boxtimes$ Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Water seeping from base of hill.

Project Site:	Newell Creek I	Dam Inlet - Outlet	Replacemen	nt Project		City/Coun	nty: <u>Be</u>	en Lomono	d/Santa Cruz	Sampling	Date:	4/12	2018	
Applicant/Owner:	City of Santa C	<u>Cruz</u>						5	State: <u>CA</u>	Sampling	Point:	SP0	<u>4a</u>	
Investigator(s):	L. Burris							Section, T	ownship, Ra	inge:				
Landform (hillslope, ter	rrace, etc.):	<u>Terrace</u>			Loca	I relief (conc	ave, cor	nvex, none	): <u>concav</u>	<u>e</u>	Slop	e (%):	<u>0</u>	
Subregion (LRR):	Mediterannea	<u>an</u>	Lat:				Long	g:			Datum:	UTM Z	one 1	<u>0</u>
Soil Map Unit Name:	Nisene-Aptos	complex, 50 to 7	5 percent slo	opes .					NWI cla	assification:	None			
Are climatic / hydrologi	c conditions on	the site typical for	r this time of	year?	Υe	es 🛚	No		(If no, explair	n in Remarks.	)			
Are Vegetation $\square$ ,	Soil □,	or Hydrology	☐, signifi	cantly distu	urbed	? Are "	'Normal	Circumsta	nces" preser	nt?	Yes	$\boxtimes$	No	
Are Vegetation $\square$ ,	Soil □,	or Hydrology	☐, natura	lly problem	natic?	(If ne	eded, e	xplain any	answers in F	Remarks.)				
SUMMARY OF FIN	DINGS - Atta	ich site map sl	nowing sa	mpling p	oint	locations,	, transe	ects, imp	ortant feat	ures, etc.				
Hydrophytic Vegetation	n Present?		Yes 🛭	] No [										
Hydric Soil Present?			Yes 🛭	] No [		Is the Samp within a We		ea			Yes	$\boxtimes$	No	
Wetland Hydrology Pre	esent?		Yes 🛭	No [										
Remarks: Depressio	n at base of slo	pe, adjecent to ar	nd north of th	e access r	oad ii	n the northw	ester po	rtion of pro	oject site.					
·							•		•					
VEGETATION - Us	e scientific r	names of plant	s											
Tree Stratum (Plot size	e: <u>30'</u> )		Absolute	Dominar		Indicator	Domii	nance Tes	st Workshee	t:				
1. <u>Sequioia sempervi</u>	irens		<u>% Cover</u> 25	Species' yes	<u>.</u>	Status NL (UPL)	Numb	or of Domi	inant Species					
2	<del></del>								ACW, or FA		<u>1</u>			(A)
3							Total	Number of	Dominant					
4								es Across			<u>4</u>			(B)
50% = <u>12.5</u> , 20% = <u>5</u>			<u>25</u>	= Total C	Cover		Parca	nt of Domi	nant Species	,				
Sapling/Shrub Stratum	(Plot size: 10')		_						ACW, or FA		<u>25</u>			(A/B)
Genista monspess			<u>10</u>	<u>yes</u>		NL (UPL)	Preva	lence Inde	ex workshee	 et:				
2			_						al % Cover o		Multip	lv bv:		
3							OBL s	pecies	<u>10</u>	_	x1 =	10		
4.								/ species	30		x2 =	60		
5								pecies	<u>15</u>		x3 =	45		
50% = <u>5</u> , 20% = <u>2</u>			10	= Total C	Cover		FACU	species	<u>10</u>		x4 =	40		
Herb Stratum (Plot size	e: 1m)		_					pecies	40		x5 =	200		
1. Juncus balticus			<u>30</u>	<u>yes</u>		FACW		n Totals:	<u>105</u> (	Ά)		355	(B)	
2. Carex densa			<u>10</u>	<u>no</u>		OBL	Coluit	III TOlais.		nce Index = B	/Δ – 3.4	000	(5)	
Trifolium microcepa	halum		<u>10</u> 10	· <del></del>		FAC	Hydro	nhytic Ve	getation Inc		/A = <u>3.4</u>			
4. Vicia americana	<u>naium</u>		<u>10</u> 5	<u>no</u> no		FAC	_		_	rophytic Vege	tation			
5. Geranium molle			<u>5</u>	no		NL (UPL)			ance Test is:	. , .	iation			
6.			<u>u</u>	<u>110</u>		142 (01 2)								
7.									ence Index is	_				
8										otations <sup>1</sup> (Provon on a separate		rting		
9									d Non-Vascu	•				
											1			
10								Problemat	ic Hydrophyt	ic Vegetation	(Explain)			
11					<b>.</b>		<sup>1</sup> Indica	ators of hy	dric soil and	wetland hydro	ology must			
50% = 30, 20% = 12	Diet eize:	\	<u>60</u>	= Total C	Jover		be pre	sent, unle	ss disturbed	or problemati	ic.			
Woody Vine Stratum (I	FIOI SIZE	_)	10			FACIL								
1. <u>Rubus ursinus</u>			<u>10</u>	<u>yes</u>		<u>FACU</u>	Hvdro	phytic						
2			40		<b>.</b>		Veget			Yes	$\boxtimes$	No		
50% = <u>5</u> , 20% = <u>2</u>			<u>10</u>	= Total C	Jover		Prese	nt?						
% Bare Ground in Herl														
Remarks: T	ree canopy forr	n surrounding upl	ands and no	t hydrophy	tic, bu	ut herbaceou	us veg d	ominated l	by hydrophyt	ic plants.				

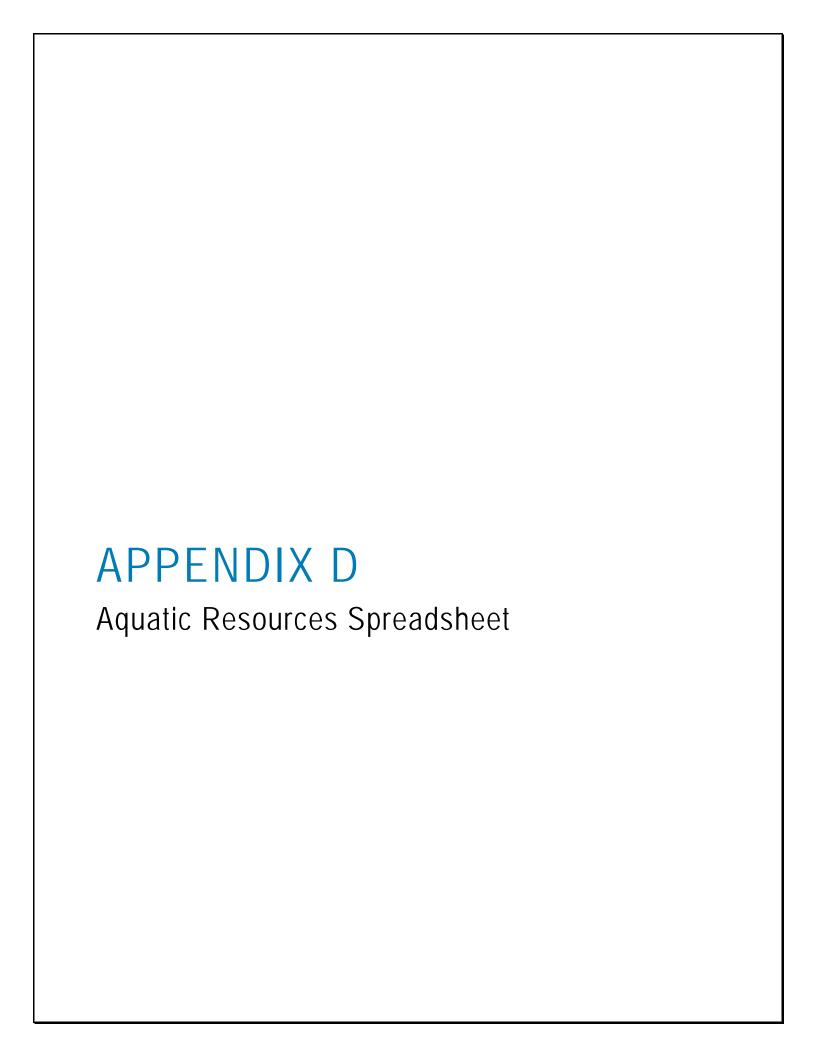
ches) Color (moist)	% C	olor (mo	ist) % Type	Loc <sup>2</sup>	Texture		Remarks		
<u>0-12</u> <u>7.5YR 3/1</u>	90 7	7.5YR 4/	<u>6</u> <u>10</u> <u>C</u>	<u>M</u>	Clay loam	Rock present			
<del></del>				<del>-</del>					
<del></del>			<del></del>			· <del></del>			
	—								
<del></del>				<del></del>					
				<del>-</del>					
pe: C= Concentration, D=Depletion		and Matr	iv CS_Covered or Coated Sc	nd Grains 2	Location: DL –D	ore Lining, M=Matri	iv		
dric Soil Indicators: (Applicable	-			inu Grains.		tors for Problemat		le <sup>3</sup> ·	
Histosol (A1)	io ali Enns,		Sandy Redox (S5)			2 cm Muck (A10)	lic riyuric 30i	15 .	
Histic Epipedon (A2)			Stripped Matrix (S6)			Red Parent Materia	al (TF2)		
Black Histic (A3)			Loamy Mucky Mineral (F1)	(except MLRA 1)	_	Very Shallow Dark		2)	
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)	(except <u>=</u> ,		Other (Explain in R	•	_,	
Depleted Below Dark Surface (A	A11)	⊠	Depleted Matrix (F3)		_		,		
Thick Dark Surface (A12)	,		Redox Dark Surface (F6)						
Sandy Mucky Mineral (S1)			Depleted Dark Surface (F7)			ators of hydrophytic		d	
Sandy Gleyed Matrix (S4)			Redox Depressions (F8)			tland hydrology mus ess disturbed or pro			
strictive Layer (if present):					dilic	ess disturbed or pro	biomatic.		
e: Rock									
th (inches): 12				Hydric Soils	Present?	Yes	s 🛛	No	
marks:				Tryunc 3011s					
marks: 'DROLOGY				Tryunc 30113					
'DROLOGY tland Hydrology Indicators:				Tryunc 30ns					
DROLOGY Itland Hydrology Indicators: mary Indicators (minimum of one re	equired; chec			Tryunc 30113	Seconda	ary Indicators (2 or ı		)	
DROLOGY tland Hydrology Indicators: mary Indicators (minimum of one re Surface Water (A1)	equired; chec	k all that	Water-Stained Leaves (B9)		_ Seconda	ary Indicators (2 or rater-Stained Leaves	s (B9)	)	
DROLOGY tland Hydrology Indicators: nary Indicators (minimum of one re Surface Water (A1) High Water Table (A2)	∍quired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an		Seconda W:	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and	s (B9) <b>4B)</b>	)	
DROLOGY  tland Hydrology Indicators: nary Indicators (minimum of one re  Surface Water (A1)  High Water Table (A2)  Saturation (A3)	equired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11)		Seconda □ W: (M ⊠ Dr	ary Indicators (2 or rater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (B	s (B9) <b>4B)</b> 10)	)	
DROLOGY tland Hydrology Indicators: nary Indicators (minimum of one re Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	equired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13)	d 4B)	Seconda UW: (M) UD:	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (Br ry-Season Water Ta	s (B9) <b>4B)</b> 10) able (C2)		
DROLOGY  Itland Hydrology Indicators:  mary Indicators (minimum of one results)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)	 ∍quired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	d 4B)	Seconda UW: (M) Dr Dr	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (B' ry-Season Water Ta aturation Visible on A	s (B9)  4B)  10)  ble (C2)  Aerial Imagery		
tland Hydrology Indicators: mary Indicators (minimum of one results) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	equired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor	d <b>4B)</b> ng Living Roots (C	Seconda  W:  (M)  Dr.  Dr.  Sa  3)	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (Br ry-Season Water Ta aturation Visible on a eomorphic Position	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)		
tland Hydrology Indicators: mary Indicators (minimum of one results) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	∍quired; chec		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron (	d <b>4B)</b> ng Living Roots (CC4)	Seconda  Wi  (M)  Dr.  Dr.  Sa  3)  Seconda	ary Indicators (2 or rater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (Bry-Season Water Taturation Visible on a comorphic Position nallow Aquitard (D3)	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)		
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tland Hydrology Indicators: mary Indicators (minimum of one results) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image	agery (B7)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Til	d <b>4B)</b> ng Living Roots (CC4)  lled Soils (C6)	Seconda	ary Indicators (2 or a later-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (Bry-Season Water Taturation Visible on a lateration Visible on a lateration Aquitard (D3)	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)  (D3)  C6) (LRR A)		
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TDROLOGY  Itland Hydrology Indicators: mary Indicators (minimum of one results) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave State (B4) Ind Observations: Ifface Water Present?  Yes	agery (B7) Surface (B8)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Til Stunted or Stresses Plants Other (Explain in Remarks)  Depth (inches):	d <b>4B)</b> ng Living Roots (CC4)  lled Soils (C6)	Seconda	ary Indicators (2 or ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (Bray-Season Water Ta aturation Visible on a eomorphic Position hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (I	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)  (D3)  C6) (LRR A)		
PROLOGY  Reland Hydrology Indicators:  mary Indicators (minimum of one results)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Aerial Image Sparsely Vegetated Concave Seld Observations:  reface Water Present?  Yes  ster Table Present?  Yes  turation Present?	agery (B7) Surface (B8)  No		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti Stunted or Stresses Plants Other (Explain in Remarks)  Depth (inches):	d 4B)  Ing Living Roots (CC4)  Iled Soils (C6)  (D1) (LRR A)	Seconda	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (B' ry-Season Water Ta aturation Visible on a eomorphic Position hallow Aquitard (D3) AC-Neutral Test (D5 aised Ant Mounds (I oost-Heave Hummoo	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)  )  (D6)  Checks (D7)		
TDROLOGY  Itland Hydrology Indicators: mary Indicators (minimum of one results) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave State Table Present?  Iter Table Present?  Yes Stater Table Present?  Yes Stater Table Present?  Yes Stater Table Present?  Yes Stater Table Present?  Yes	agery (B7) Surface (B8)  No No		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Til Stunted or Stresses Plants Other (Explain in Remarks)  Depth (inches):  Depth (inches):  Depth (inches):	d 4B)  Ing Living Roots (CC4)  Iled Soils (C6)  (D1) (LRR A)	Seconda  Wi (M) Dr Dr Sa 3) Seconda	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (B' ry-Season Water Ta aturation Visible on a eomorphic Position hallow Aquitard (D3) AC-Neutral Test (D5 aised Ant Mounds (I oost-Heave Hummoo	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)  )  (D6)  Checks (D7)	/ (C9)	
PROLOGY  Intertand Hydrology Indicators: Imary Indicators (minimum of one results)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Aerial Image Sparsely Vegetated Concave Seld Observations:  Inface Water Present?  Water Table Present?  Yes  Startation Present?	agery (B7) Surface (B8)  No No		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Til Stunted or Stresses Plants Other (Explain in Remarks)  Depth (inches):  Depth (inches):  Depth (inches):	d 4B)  Ing Living Roots (CC4)  Iled Soils (C6)  (D1) (LRR A)	Seconda  Wi (M) Dr Dr Sa 3) Seconda	ary Indicators (2 or a ater-Stained Leaves ILRA 1, 2, 4A, and rainage Patterns (B' ry-Season Water Ta aturation Visible on a eomorphic Position hallow Aquitard (D3) AC-Neutral Test (D5 aised Ant Mounds (I oost-Heave Hummoo	s (B9)  4B)  10)  ble (C2)  Aerial Imagery (D2)  )  (D6)  Checks (D7)	/ (C9)	

Project Site:	Newell Creek Dam Inlet - Outlet	: Replaceme	nt Project	City/Cour	nty: Ben Lomond/Santa Cruz Sampling Date:	4/12/2018
Applicant/Owner:	City of Santa Cruz				State: <u>CA</u> Sampling Point:	SP04b
Investigator(s):	L. Burris				Section, Township, Range:	
Landform (hillslope, te	errace, etc.): <u>terrace</u>		Lo	cal relief (conc	cave, convex, none): <u>none</u> Slo	ope (%): <u>0</u>
Subregion (LRR):	<u>Mediterannean</u>	Lat:			Long: Datum:	UTM Zone 10
Soil Map Unit Name:	Nisene-Aptos complex, 50 to 7	75 percent sl	<u>opes</u>		NWI classification: None	
Are climatic / hydrolog	gic conditions on the site typical fo	r this time of	year?	Yes 🛛	No 🔲 (If no, explain in Remarks.)	
Are Vegetation	, Soil □, or Hydrology	☐, signifi	icantly disturb	ed? Are "	'Normal Circumstances" present?	s 🛛 No 🗌
Are Vegetation	, Soil □, or Hydrology	☐, natura	ally problemat	tic? (If ne	eeded, explain any answers in Remarks.)	
SUMMARY OF FIN	IDINGS – Attach site map s	howing sa	mpling poi	nt locations,	, transects, important features, etc.	
Hydrophytic Vegetatio	n Present?	Yes [	□ No 🏻			
Hydric Soil Present?		Yes [	□ No 🏻	Is the Samp		s 🗌 No 🖾
Wetland Hydrology Pr	esent?	Yes [	□ No 🏻			
Remarks: Upland po	oint for SP04a, located just south	of SP04 alo	ng logging ac	cess road.		
VEGETATION - U	se scientific names of plant					
Tree Stratum (Plot siz	:e: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. Pseudotsuga mer	<u>ıziesii</u>	<u>50</u>	<u>yes</u>	FACU	Number of Dominant Species	
2. <u>Seguoia sempervi</u>	<u>irens</u>	<u>10</u>	<u>no</u>	NL (UPL)	That Are OBL, FACW, or FAC:	(A)
3. Pinus attenuata		<u>10</u>	<u>no</u>	NL (UPL)	Total Number of Dominant	(5)
4					Species Across All Strata:	(B)
50% = <u>35</u> , 20% = <u>14</u>		<u>70</u>	= Total Co	ver	Percent of Dominant Species	(
Sapling/Shrub Stratun	<u>n</u> (Plot size: <u>10'</u> )				That Are OBL, FACW, or FAC:	(A/B)
1					Prevalence Index worksheet:	
2					Total % Cover of: Mul	tiply by:
3					OBL species <u>0</u> x1 =	= <u>0</u>
4					FACW species $\underline{0}$ x2 =	= <u>0</u>
5					FAC species $\underline{0}$ x3 =	= <u>0</u>
50% =, 20% =			= Total Co	ver	FACU species <u>70</u> x4 =	<u>280</u>
Herb Stratum (Plot siz	ze: <u>1m</u> )				UPL species <u>55</u> x5 =	<u>275</u>
1. <u>Bromus diandrus</u>		<u>20</u>	<u>yes</u>	NL (UPL)	Column Totals: 125 (A)	<u>555</u> (B)
2. Carduus pycnoce	<u>phalus</u>	<u>10</u>	<u>yes</u>	NL (UPL)	Prevalence Index = $B/A = 4.4$	
3. <u>Geranium molle</u>		<u>5</u>	<u>no</u>	NL (UPL)	Hydrophytic Vegetation Indicators:	
4. Claytonia parviflor	<u>ra</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	☐ 1 – Rapid Test for Hydrophytic Vegetation	
5					☐ 2 - Dominance Test is >50%	
6					$\square$ 3 - Prevalence Index is $\leq 3.0^1$	
7					4 - Morphological Adaptations (Provide supp	oorting
8					data in Remarks or on a separate sheet)	
9					5 - Wetland Non-Vascular Plants <sup>1</sup>	
10					☐ Problematic Hydrophytic Vegetation¹ (Explain	n)
11					1	
50% = <u>20</u> , 20% = <u>8</u>		<u>40</u>	= Total Co	ver	<sup>1</sup> Indicators of hydric soil and wetland hydrology mube present, unless disturbed or problematic.	IST
Woody Vine Stratum	(Plot size:)					
Lonicera hispidula	<u>1</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>		
2					Hydrophytic Vegetation  Yes  □	No 🖂
50% = <u>7</u> , 20% = <u>3</u>		<u>15</u>	= Total Co	ver	Present?	NO 🔼
% Bare Ground in He	rb Stratum 60					
Remarks:	leaf litter in understory.					

inches) Color (moist)	%	Co	lor (mo	oist) % Typ	pe <sup>1</sup> Loc <sup>2</sup>	 Texture	•		Remark	S	
0-12 7.5YR 3/2	100					loam				_	
		_									
		_									
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		_									
		_									
<del></del>		_		<del></del> . <del></del>	<u> </u>	2					
ype: C= Concentration, D=D					Sand Grains.		=Pore Lining, N			3	
ydric Soil Indicators: (Appl	icable to a	III LRRS, U		· ·			cators for Pro		Hydric S	ioils":	
Histosol (A1)				Sandy Redox (S5)			2 cm Muck		TE2\		
Histic Epipedon (A2) Black Histic (A3)				Stripped Matrix (S6)  Loamy Mucky Mineral (F1)	) (except MI RA		Red Parent Very Shallo	,	,	F12\	
Hydrogen Sulfide (A4)				Loamy Gleyed Matrix (F2)		., 🗆	Other (Expl		-	1 12)	
Depleted Below Dark Su	rface (A11	)		Depleted Matrix (F3)	,	_	Ou.io. (2,4p.	u	iamoj		
Thick Dark Surface (A12	-	,		Redox Dark Surface (F6)							
Sandy Mucky Mineral (S				Depleted Dark Surface (F	7)		icators of hydro				
Sandy Gleyed Matrix (S4	1)			Redox Depressions (F8)			vetland hydrolo inless disturbed			ıt,	
estrictive Layer (if present)	:					<u></u>					
ype:											
anth (inches).						Is Present?		Yes		No	$\boxtimes$
· · · · · · · · · · · · · · · · · · ·					Hydric Soi			163	_		
emarks:					Hydric Soi			163			
emarks:  IYDROLOGY  /etland Hydrology Indicator					Hydric Soi						
lepth (inches):  demarks:  IYDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of		ired; check		,		Secon	ndary Indicator	s (2 or moi	re requir	ed)	
IYDROLOGY //etland Hydrology Indicator rimary Indicators (minimum o		ired; check	all that	Water-Stained Leaves (BS	9)	Secon	Water-Stained	s (2 or moi Leaves (E	re requir	ed)	
WDROLOGY Vetland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a	9)	Secon	Water-Stained	s (2 or moi Leaves (E <b>A, and 4B</b> ,	re requir	ed)	
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11)	9) and 4B)	Secon	Water-Stained (MLRA 1, 2, 4) Drainage Patte	s (2 or moi Leaves (E <b>A, and 4B</b> erns (B10)	re requir 89)	ed)	
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1	9) and 4B)	Secon	Water-Stained (MLRA 1, 2, 4) Drainage Patte Dry-Season W	s (2 or mod Leaves (E <b>A, and 4B</b> erns (B10) later Table	re requir 39) <b>)</b>	·	
YDROLOGY  Tetland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C	9) and 4B) 3)	Secon	Water-Stained (MLRA 1, 2, 4, Drainage Patte Dry-Season W Saturation Visi	s (2 or mor Leaves (E <b>A, and 4B</b> ; erns (B10) ater Table ble on Aer	re requir 39) ) (C2) ial Imago	·	
YDROLOGY  Tetland Hydrology Indicator rimary Indicators (minimum of a surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C Oxidized Rhizospheres al	9) and 4B) 3) 3) ong Living Roots	Secor	Water-Stained (MLRA 1, 2, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P	s (2 or mor Leaves (E <b>A, and 4B</b> erns (B10) ater Table ble on Aer osition (D2	re requir 39) ) (C2) ial Imago	·	
YDROLOGY  Setland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C	9) and 4B) 3) 31) ong Living Roots n (C4)	Secor	Water-Stained (MLRA 1, 2, 4. Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita	s (2 or more Leaves (EA, and 4B) erns (B10) later Table ble on Aerosition (D2 ard (D3)	re requir 39) ) (C2) ial Imago	·	
MYDROLOGY  Metland Hydrology Indicator rimary Indicators (minimum of the content	f one requi	ired; check		Water-Stained Leaves (BS (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C Oxidized Rhizospheres al Presence of Reduced Iron	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6)	Secor	Water-Stained (MLRA 1, 2, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P	s (2 or mol Leaves (E A, and 4B) erns (B10) later Table ble on Aer osition (D2 ard (D3) est (D5)	re requir 39) ) (C2) ial Image	ery (C9)	
IYDROLOGY  /etland Hydrology Indicator rimary Indicators (minimum of the content	f one requi			Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C) Oxidized Rhizospheres al Presence of Reduced Iron Recent Iron Reduction in	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4.) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T	s (2 or mod Leaves (E A, and 4B; erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) ounds (D6)	re requir 39) ) (C2) ial Image 2)	ery (C9)	
emarks:    YDROLOGY     Vetland Hydrology Indicator     Surface Water (A1)     High Water Table (A2)     Saturation (A3)     Water Marks (B1)     Sediment Deposits (B2)     Drift Deposits (B3)     Algal Mat or Crust (B4)     Iron Deposits (B5)     Surface Soil Cracks (B6     Inundation Visible on A6	f one requi	ry (B7)		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc	s (2 or mod Leaves (E A, and 4B; erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) ounds (D6)	re requir 39) ) (C2) ial Image 2)	ery (C9)	
PYDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of particular of par	f one requi	ry (B7)		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc	s (2 or mod Leaves (E A, and 4B; erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) ounds (D6)	re requir 39) ) (C2) ial Image 2)	ery (C9)	
IYDROLOGY  /etland Hydrology Indicator rimary Indicators (minimum of the content	f one requi ) erial Image ncave Surfa	ry (B7)		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1 Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc	s (2 or mod Leaves (E A, and 4B; erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) ounds (D6)	re requir 39) ) (C2) ial Image 2)	ery (C9)	
WDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of particular of part	f one requi	ry (B7) ace (B8)		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1) Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant Other (Explain in Remarks)	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4, 4) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc	s (2 or mod Leaves (E A, and 4B; erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) ounds (D6)	re requir 39) ) (C2) ial Image 2)	ery (C9)	
IYDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of the content	f one requi	ry (B7) ace (B8)		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1) Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant Other (Explain in Remarks)	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A)	Secor	Water-Stained (MLRA 1, 2, 4.) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc Frost-Heave H	s (2 or mor Leaves (E A, and 4B, erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) bunds (D6) ummocks	re requir 39) ) (C2) ial Image 2)	ery (C9)	No
YDROLOGY  Vetland Hydrology Indicator rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on A6 Sparsely Vegetated Cor Vetlad Observations: urface Water Present? Vater Table Present?	f one requi	ry (B7) ace (B8) No No		Water-Stained Leaves (BS) (except MLRA 1, 2, 4A, a) Salt Crust (B11) Aquatic Invertebrates (B1) Hydrogen Sulfide Odor (C) Oxidized Rhizospheres all Presence of Reduced Iron Recent Iron Reduction in Stunted or Stresses Plant Other (Explain in Remarks)  Depth (inches):  Depth (inches):  Depth (inches):	9) and 4B) 3) c1) ong Living Roots n (C4) Tilled Soils (C6) s (D1) (LRR A) s)	Secon	Water-Stained (MLRA 1, 2, 4.) Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mc Frost-Heave H	s (2 or mor Leaves (E A, and 4B, erns (B10) ater Table ble on Aer osition (D2 ard (D3) est (D5) bunds (D6) ummocks	re requir 39) ) (C2) ial Image 2) (LRR A (D7)	ery (C9)	No

Project Site:	Newell Creek	Dam Inlet - Outle	t Replace	ment l	Project	<u>.</u>	City/Cour	ity: <u>Be</u>	n Lomond/	Santa Cruz	Sampling	Date:	9/6/	<u> 18</u>	
Applicant/Owner:	City of Santa	<u>Cruz</u>							St	ate: <u>CA</u>	Sampling	Point:	SPO	<u> </u>	
Investigator(s):	A. Hatch								Section, To	ownship, Rar	nge:	_			
Landform (hillslope, te	errace, etc.):	<u>terrace</u>				Loca	al relief (conc	ave, con	vex, none):	: <u>none</u>		Slope	e (%):	<u>0</u>	
Subregion (LRR):	Mediteranne	<u>an</u>	Lat:	<u>37.10</u>	<u>337</u>			Long	j: <u>-122.07</u> (	<u>011</u>		Datum:	UTM Z	Zone '	<u>10</u>
Soil Map Unit Name:	Nisene-Apto	s complex, 50 to	75 percen	t slope	<u>es</u>					NWI cla	ssification:	<u>None</u>			
Are climatic / hydrolog	ic conditions or	the site typical fo	or this time	e of ye	ear?	Υ	es 🛚	No	☐ (If	f no, explain	in Remarks	5.)			
Are Vegetation ☐,	, Soil □,	or Hydrology	_		ntly dis			Normal (	Circumstan	ces" present	?	Yes	$\boxtimes$	No	
Are Vegetation	, Soil □,	or Hydrology	□, nat	turally	proble	ematic	? (If ne	eded, ex	kplain any a	answers in R	emarks.)				
SUMMARY OF FIN		ach site map s	howing		pling	•	locations,	transe	cts, impo	ortant featu	ıres, etc.				- 1
Hydrophytic Vegetatio	n Present?		Yes	$\boxtimes$	No		Is the Samp	alad Ara	•						
Hydric Soil Present?			Yes		No	$\boxtimes$	within a We		а			Yes		No	$\boxtimes$
Wetland Hydrology Pr	esent?		Yes		No	$\boxtimes$									
Remarks:															
VEGETATION – U	se scientific	names of plan						1							
Tree Stratum (Plot siz	e:)		Absolut % Cove		Domin Specie		Indicator Status	Domin	ance Test	Worksheet	:				
1								Numbe	er of Domin	ant Species					(4)
2										ACW, or FAC	<b>:</b> :	<u>2</u>			(A)
3								Total N	Number of [	Dominant		0			(D)
4								Specie	s Across A	III Strata:		<u>2</u>			(B)
50% =, 20% = _					= Tota	l Cove	r	Percer	nt of Domin	ant Species		100			(A/D)
Sapling/Shrub Stratun	n (Plot size:	)						That A	re OBL, FA	ACW, or FAC	<b>:</b>	<u>100</u>			(A/B)
1								Preval	ence Inde	x workshee	t:				
2									Total	I % Cover of	<u>:</u>	Multip	ly by:		
3								OBL s	pecies	<u>0</u>		x1 =	<u>0</u>		
4								FACW	species	<u>0</u>		x2 =	<u>0</u>		
5								FAC s	pecies	<u>0</u>		x3 =	<u>0</u>		
50% =, 20% =					= Tota	l Cove	r	FACU	species			x4 =			
Herb Stratum (Plot siz	ze: <u>1m</u> )							UPL s	pecies			x5 =			
1. Juncus occidental	<u>lis</u>		<u>55</u>		<u>yes</u>		<u>FAC</u>	Colum	n Totals:		_ (A)			(I	В)
2. Juncs balticus			<u>10</u>		<u>no</u>		<u>FAC</u>			Prevalence	Index = B/	'A =			
3								Hydro	phytic Veg	getation Indi	icators:				
4								⊠ 1	I – Rapid T	est for Hydro	phytic Veg	etation			
5									2 - Dominar	nce Test is >	50%				
6									3 - Prevaler	nce Index is	<3.0 <sup>1</sup>				
7								,		ogical Adapt	<del>_</del> '	vide sunno	rtina		
8										Remarks or o			ung		
9									5 - Wetland	Non-Vascul	ar Plants <sup>1</sup>				
10									Problematic	Hydrophytic	: Vegetation	n¹ (Explain)			
11								•		,		(=			
50% =, 20% =			40		= Tota	l Cove	 r			ric soil and v					
Woody Vine Stratum		_)						be pre	sent, unies	s disturbed o	or problema	tic.			
1. Rubus armeniacus	<u>sa</u>		<u>5</u>		<u>ves</u>		FAC								
2					-			Hydro	phytic						
50% = <u>7</u> , 20% = <u>3</u>			15		= Tota	l Cove	 r	Vegeta		`	/es	$\boxtimes$	No		
% Bare Ground in He	rb Stratum 60		_					Presei	nt?						
ı	eaf litter in unde	erstory													
Remarks:	cai intoi iii uiiut														

inches) Color (moist)	%	Color (m	oist) % Type	Loc <sup>2</sup>	Texture		F	Remarks	3	
<u>0-24</u> <u>7YR 4/2</u>	100				clay loam					
			. <u>—</u> —							
			<del></del>							
			<del></del>							
			<del>-</del> — —							
ype: C= Concentration, D=Depler rdric Soil Indicators: (Applicat				and GrainsL	ocation: PL=Po	tors for Prob		lvdric S	inile3.	
Histosol (A1)	ne to an L		Sandy Redox (S5)		_	2 cm Muck (A		iyanc S	olis.	
Histic Epipedon (A2)			Stripped Matrix (S6)		_	Red Parent N	•	F2)		
Black Histic (A3)			Loamy Mucky Mineral (F1)	(except MLRA 1)		Very Shallow	-	•	F12)	
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)	(олоорт ш_тт.		Other (Explai		,	12)	
Depleted Below Dark Surface	e (A11)		Depleted Matrix (F3)		_					
Thick Dark Surface (A12)	,		Redox Dark Surface (F6)							
Sandy Mucky Mineral (S1)			Depleted Dark Surface (F7)	)		tors of hydrop				
Sandy Gleyed Matrix (S4)			Redox Depressions (F8)			land hydrolog ess disturbed			t,	
strictive Layer (if present):										
pe:										
pth (inches):							Yes		No	$\boxtimes$
· · · · · · · · · · · · · · · · · · ·	from con	npaction, rock	s increase with depth.	Hydric Soils F	resent?		Tes			
emarks: Hardpan-like surface	from con	npaction, rock	s increase with depth.	Hydric Soils F	resent?		res			
emarks: Hardpan-like surface  YDROLOGY  etland Hydrology Indicators:				Hydric Soils F						
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of on		t; check all the	at apply)		Seconda	ary Indicators	(2 or more	e require		
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of on			at apply) Water-Stained Leaves (B9)		Seconda	ater-Stained L	(2 or more	e require		
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of on Surface Water (A1) High Water Table (A2)		i; check all tha	at apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an		Seconda	ater-Stained L	(2 or more eaves (B:	e require		
/DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3)		i; check all tha	at apply)  Water-Stained Leaves (B9)  (except MLRA 1, 2, 4A, an  Salt Crust (B11)	d 4B)	Seconda  Wa (M)	ater-Stained L ILRA 1, 2, 4A ainage Patter	(2 or more eaves (B: , <b>and 4B)</b> ns (B10)	e require 9)		
/DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		t; check all the	at apply)  Water-Stained Leaves (B9)  (except MLRA 1, 2, 4A, an  Salt Crust (B11)  Aquatic Invertebrates (B13)	d 4B)	Seconda  Wa  (M)  Dra	ater-Stained L LRA 1, 2, 4A ainage Patter y-Season Wa	(2 or more eaves (B: , and 4B) ns (B10) ter Table	e require 9) (C2)	ed)	
/DROLOGY  etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		i; check all tha	at apply)  Water-Stained Leaves (B9)  (except MLRA 1, 2, 4A, an  Salt Crust (B11)  Aquatic Invertebrates (B13)  Hydrogen Sulfide Odor (C1	d 4B)	Seconda	ater-Stained LILRA 1, 2, 4A ainage Patter y-Season Wa	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri	e require 9) (C2) al Image	ed)	
Marks: Hardpan-like surface  Marks: Hardpan-like surface  Mary Indicators (minimum of on Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)		d; check all that	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor	d 4B)	Seconda  Wa (Mi)  Dra  Dry  Sa ())  Ge	ater-Stained L LRA 1, 2, 4A ainage Patter y-Season Wa atturation Visib	(2 or more eaves (Bt), and 4B) ns (B10) ter Table le on Aeris	e require 9) (C2) al Image	ed)	
/DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		i; check all tha	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron (	d 4B)  ing Living Roots (C3	Seconda  Wa (MI Dra Dra Dry Sa S) Seconda	ater-Stained L ILRA 1, 2, 4A ainage Patter y-Season Wa attration Visib comorphic Postallow Aquitary	(2 or more Leaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2)	e require 9) (C2) al Image	ed)	
YDROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)		d; check all that	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti	d 4B) ) ng Living Roots (C3 (C4) Illed Soils (C6)	Seconda  Wa (M) Dra Dra Dry Sa S) Ge	LILRA 1, 2, 4A ainage Patter y-Season Wa aturation Visib comorphic Pos allow Aquitar C-Neutral Te	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeric sition (D2) d (D3) st (D5)	e require 9) (C2) al Image	ed) ery (C9)	
/DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6)	e requirec	t; check all the	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11)  Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti Stunted or Stresses Plants	d 4B)  Ing Living Roots (C3  C4)  Illed Soils (C6)  (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	ater-Stained L  ILRA 1, 2, 4A  ainage Patter  y-Season Wa  atturation Visib  comorphic Pos  allow Aquitar  iC-Neutral Tel  aised Ant Mou	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2) d (D3) st (D5)	e require 9) (C2) al Image )	ed) ery (C9)	
PROLOGY  Stland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial	e requirec	i; check all tha	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti	d 4B)  Ing Living Roots (C3  C4)  Illed Soils (C6)  (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	LILRA 1, 2, 4A ainage Patter y-Season Wa aturation Visib comorphic Pos allow Aquitar C-Neutral Te	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2) d (D3) st (D5)	e require 9) (C2) al Image )	ed) ery (C9)	
/DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Sparsely Vegetated Concav	e requirec	i; check all tha	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11)  Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti Stunted or Stresses Plants	d 4B)  Ing Living Roots (C3  C4)  Illed Soils (C6)  (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	ater-Stained L  ILRA 1, 2, 4A  ainage Patter  y-Season Wa  atturation Visib  comorphic Pos  allow Aquitar  iC-Neutral Tel  aised Ant Mou	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2) d (D3) st (D5)	e require 9) (C2) al Image )	ed) ery (C9)	
Proposits (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Sparsely Vegetated Concaveled Observations:	e required	i; check all tha	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11)  Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron ( Recent Iron Reduction in Ti Stunted or Stresses Plants	d 4B)  Ing Living Roots (C3  C4)  Illed Soils (C6)  (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	ater-Stained L  ILRA 1, 2, 4A  ainage Patter  y-Season Wa  atturation Visib  comorphic Pos  allow Aquitar  iC-Neutral Tel  aised Ant Mou	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2) d (D3) st (D5)	e require 9) (C2) al Image )	ed) ery (C9)	
Proposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Sparsely Vegetated Concaverdace Water Present?  Yes proposits (B3) Algal Mat or Crust (B4)	e required	i; check all that	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, an Salt Crust (B11)  Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced Iron (Recent Iron Reduction in Ti Stunted or Stresses Plants Other (Explain in Remarks)	d 4B)  Ing Living Roots (C3  C4)  Illed Soils (C6)  (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	ater-Stained L  ILRA 1, 2, 4A  ainage Patter  y-Season Wa  atturation Visib  comorphic Pos  allow Aquitar  iC-Neutral Tel  aised Ant Mou	(2 or more eaves (B: , and 4B) ns (B10) ter Table le on Aeri sition (D2) d (D3) st (D5)	e require 9) (C2) al Image )	ed) ery (C9)	
YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Sparsely Vegetated Concaveld Observations: urface Water Present? Yeater Table Present? Yesturation Present?	e required	d; check all that all	at apply)  Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and Salt Crust (B11)  Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alore Presence of Reduced Iron (Recent Iron Reduction in Ti	d 4B)  Ing Living Roots (C3) (C4) Illed Soils (C6) (D1) (LRR A)	Seconda  Wa (M) Dra Dra Sa Sh RA	Atter-Stained Lile Land 1, 2, 4A ainage Patter y-Season Wa atturation Visib ecomorphic Postallow Aquitara C-Neutral Teasised Ant Mount obst-Heave Hu	(2 or more eaves (Bs, and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5) nds (D6) mmocks (	e require 9) (C2) al Image )	ed) ery (C9)	
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Waters_Name	State	Cowardin _Code	HGM_ Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-01	CALIFORNIA	PEM2		Area	0.01	ACRE	RPWWN	37.10053549	-122.0744253	Newell Creek
SW-02	CALIFORNIA	PEM2		Area	0.01	ACRE	RPWWN	37.10613759	-122.073135	Newell Creek
Seep-01	CALIFORNIA	PEM1		Area	0.03	ACRE	RPWWD	37.10144764	-122.0743066	Newell Creek
Seep-02	CALIFORNIA	PEM1		Area	0.018	ACRE	RPWWD	37.10080427	-122.0744548	Newell Creek
PD-01	CALIFORNIA	R3RB1		Linear	648.03	FOOT	RPW	37.09620509	-122.0730658	Newell Creek
PD-02	CALIFORNIA	R3RB		Linear	153.83	FOOT	RPW	37.1011878	-122.0743859	Newell Creek
ED-01	CALIFORNIA	R4SB1		Linear	413.79	FOOT	NRPW	37.10118421	-122.0747661	Newell Creek
ED-02	CALIFORNIA	R4SB1		Linear	140.36	FOOT	NRPW	37.09721747	-122.0731645	Newell Creek
ED-03	CALIFORNIA	R6		Linear	318.92	FOOT	NRPW	37.09977296	-122.0738636	Newell Creek
ED-04a	CALIFORNIA	R6		Linear	201.55	FOOT	NRPW	37.09798118	-122.0743952	Newell Creek
ED-04b	CALIFORNIA	R6		Linear	217.41	FOOT	NRPW	37.09779319	-122.0740134	Newell Creek
RS-01	CALIFORNIA	R6		Linear	540.36	FOOT	NRPW	37.0993178	-122.0742973	Newell Creek
SPP-01	CALIFORNIA	L1RB		Area	0.21	ACRE	IMPNDMNT	37.10077911	-122.0741834	Newell Creek
Reservoir-01	CALIFORNIA	L1UB		Area	20.21	ACRE	IMPNDMNT	37.1104584	-122.0646835	Loch Lomond