

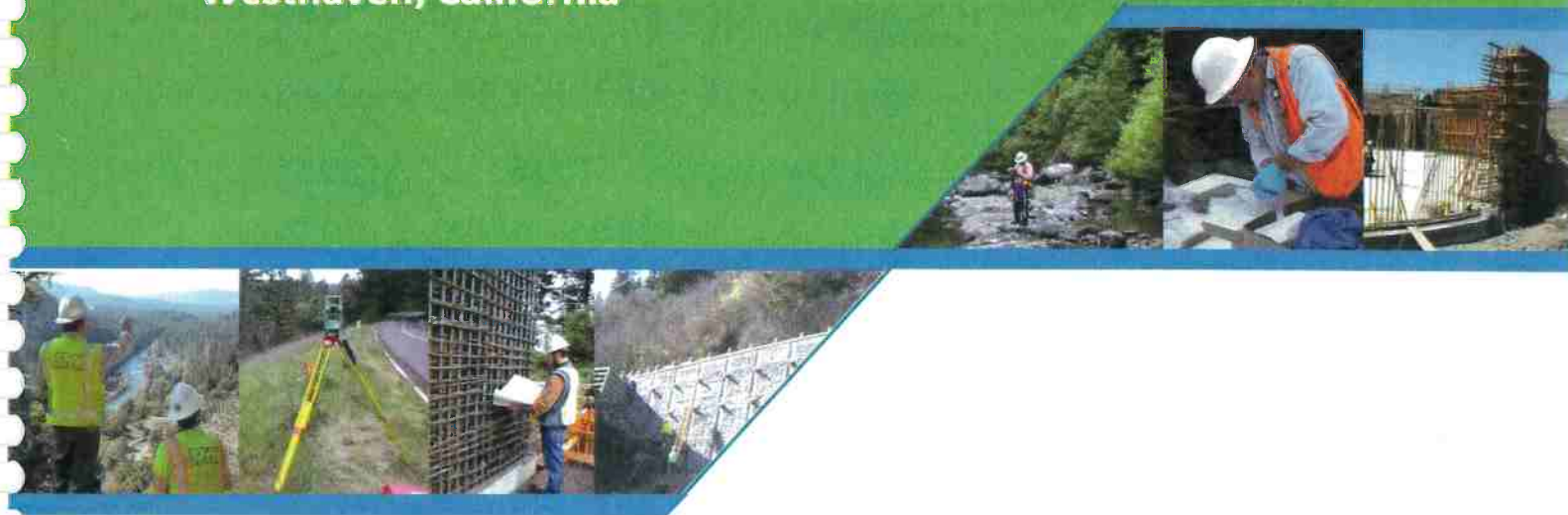
Biological and Wetland Assessment

Assessor's Parcel Numbers:

514-133-001 514-132-007

514-132-008 513-181-014

Westhaven, California



Prepared for:

Westhaven Community Services District

SN

August 2019

018193.100



Reference: 018193.100

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Prepared for:

Westhaven Community Services District

Prepared by:



1062 G St., Suite I
Arcata, CA 95521
707-822-5785

August 2019

QA/QC:SEC

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Abbreviations and Acronyms

C	Celsius		
ft	feet		
ft ²	square feet		
km	kilometer	G1/S1	critically imperiled species
mi	mile		heritage rank
ppt	parts per thousand	G2/S2	imperiled species heritage
			rank
APN	Assessor's parcel number	G3/S3	vulnerable species heritage
BCC	bird of conservation concern		rank
C	candidate	G4/S4	apparently secure species
CCA	California Coastal Act		heritage rank
CCC	California Coastal Commission	G5/S5	secure species heritage rank
CCR	California Code of Regulations	GIS	geographic information
CDEC	California Data Exchange		system
	Center	GPS	global positioning system
CDFW	California Department of Fish	IM	imperiled
	& Wildlife	IPaC	Information for Planning and
CESA	California Endangered Species		Conservation
	Act	LCP	Local Coastal Program
CFR	Code of Federal Regulations	MBTA	Migratory Bird Treaty Act
CNDDb	California Natural Diversity	NCCP	Natural Community
	Database		Conservation Planning
CRPR	California Rare Plant Rank	NEPA	National Environmental Policy
CT	control point		Act
CWA	Clean Water Act	NL	not listed wetland plant
D	delisted		species
DPS	distinct population segment	NMFS	National Marine Fisheries
E	endangered		Service
EPA	United States Environmental	NRCS	Natural Resources
	Protection Agency		Conservation Service
ERDC/CRREL	United States Army Engineer	NT	near threatened
	Research and Development	NPPA	Native Plant Protection Act
	Center/Cold Regions	NWI	National Wetlands Inventory
	Research and Engineering	OBL	obligate wetland plant
	Laboratory		species
ESHA	Environmentally sensitive	OHWM	ordinary high water mark
	habitat area	PEM1C	Palustrine emergent
ESU	evolutionary significant unit		persistent seasonally
FAC	facultative wetland plant		flooded/saturated
	species	PEM2C	Palustrine emergent
FACU	facultative-upland plant		nonpersistent seasonally
	species		flooded /saturated
FACW	facultative-wet wetland plant	PT	proposed threatened
	species	Redox	redoximorphic
FESA	Federal Endangered Species	RWQCB	Regional Water Quality
	Act		Control Board
FP	fully protected	S	sensitive

Abbreviations and Acronyms, Continued

SAA	Streambed Alteration Agreement
SSC	species of special concern
SWRCB	State Water Resources Control Board
T	threatened
TP	test pit
UCB	University of California, Berkeley
UPL	upland plant species
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
VU	vulnerable
WCSD	Westhaven Community Services District
WDR	Waste Discharge Requirement
WETS	Climate Analysis for Wetlands Tables
WL	watch list
WoS	waters of the State
WoUS	waters of the United States
WTP	water treatment plant

1.0 Introduction

SHN has prepared this combined biological resource assessment and wetland and other waters delineation for Westhaven Community Services District (WCSD) in Westhaven, California. The project study area addresses two sites: the well site and the water treatment site. The well site study area is in the “local” portion of the coastal zone while the water treatment site study area is outside the coastal zone (Figure 1). Fieldwork was performed by SHN staff soil scientists, botanists, and biologist.

1.1 Purpose

The purpose of this report is to evaluate the potential for special-status biological resources and potential jurisdictional wetlands and other waters at the project sites. The results of this study will be used to determine suitable locations for proposed groundwater wells and geotechnical borings and avoid or minimize impacts to special-status biological resources and potential jurisdictional wetlands and other waters.

1.2 Project Location

The project location is in the unincorporated community of Westhaven, California (Figure 1; United States Geological Survey [USGS] Crannell 7.5-minute Quadrangle (USGS, 2018); Township 08 north, Range 01 east, Sections 31 and 32 (in the Humboldt Meridian). The Assessor’s parcel numbers (APNs) are 514-132-007, 514-132-008, and 514-133-001 at the well site, with a 0.81-acre study area (Figure 2). The APN is 513-181-014 at the water treatment plant site with a 2.3-acre study area (Figure 3). The well site is approximately 1,200 feet east of US 101, while the water treatment site is 3,150 feet east of US 101 at the nearest point.

2.0 Project Description

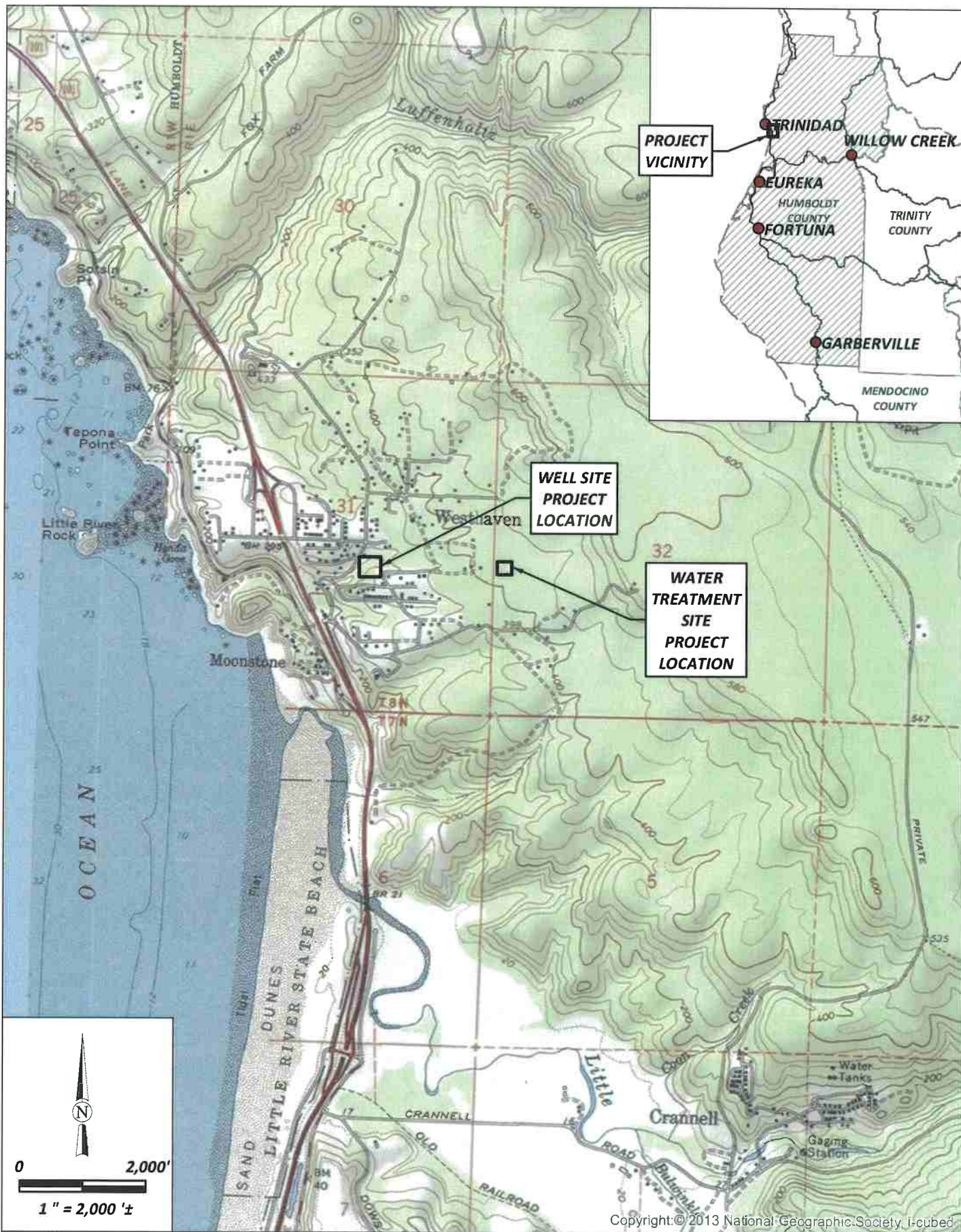
WCSD is a community water system serving approximately 467 people and 228 service connections, and has both groundwater and surface water as raw water sources. In December 2017, WCSD was issued a Compliance Order by the State Water Resources Control Board (SWRCB) for consistently exceeding maximum contamination levels of disinfection byproducts. The District is in the planning phase of determining the best solution to the exceedances. Potential solutions being considered at this time include 1) establishing additional groundwater wells to dilute the disinfection byproducts with additional groundwater, or 2) making improvements to the existing water treatment plant (WTP). To that end, the planning phase of the project proposes 1) the installation of several water wells on APNs 514-132-007, 514-132-008, and 514-133-001 (Appendix 1, Photo 1), and several geotechnical borings at the WTP (APN 513-181-014 [Appendix 1, Photo 2]) for potential WTP improvements that may be evaluated. Minor grading may be required on APNs 514-132-007, 514-132-008, and 514-133-001 to provide temporary access so that a drill rig can install the wells. No grading efforts are anticipated in order to facilitate the installation of the geotechnical borings.

3.0 Environmental Setting

3.1 Site Uses

These sites are current locations of an existing well and water tanks with a water treatment facility for the WCSD (Appendix 1, Photos 1 and 2).

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Westhaven Community Services District
Biological and Wetland Assessment
Westhaven, Humboldt County, California

Project Location

SHN 018193.100

August 2019

WD_Fig1_ProjectLocation

Figure 1

EXPLANATION

● OHWM POINT

○ TEST PIT

 1-PARAMETER WETLAND (ESHA)

 ORDINARY HIGH WATER MARK (OHWM)

 COUNTY GIS PARCELS

 CONTOURS (USGS NED, 5 FT. INTERVAL)

MAINTAINED AREA

 COMMUNITY TRAIL

 REDWOOD FOREST COMMUNITY (ESHA)

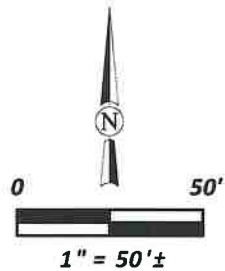
 NON-NATIVE SHRUB SPECIES WITH REDWOOD CANOPY

 RED ALDER RIPARIAN FOREST (ESHA)

 RED ALDER FOREST / RUBUS ASSOCIATION (ESHA)

 MIXED CONIFER

IMAGE SOURCE:
GOOGLE EARTH
5/26/2016



LAT: 41.035145
LON: -124.106792

APN: 514-132-008

APN: 514-132-007

OHWM2

OHWM #1
825 SQ. FT.

OHWM3

TP2

TP3

WETLAND #1
1,925 SQ. FT.

TP1

APN:
514-133-001

WELL PUMP HOUSE

LAT: 41.034130
LON: -124.107594

SOILS MAP UNIT: 258
MEGWILL & CANNONBALL SOILS
0 TO 5% SLOPES
(USDA/NRCS)

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Westhaven Community Services District
Biological and Wetland Assessment
Westhaven, Humboldt County, California

Study Area - Well Site

SHN 018193.100

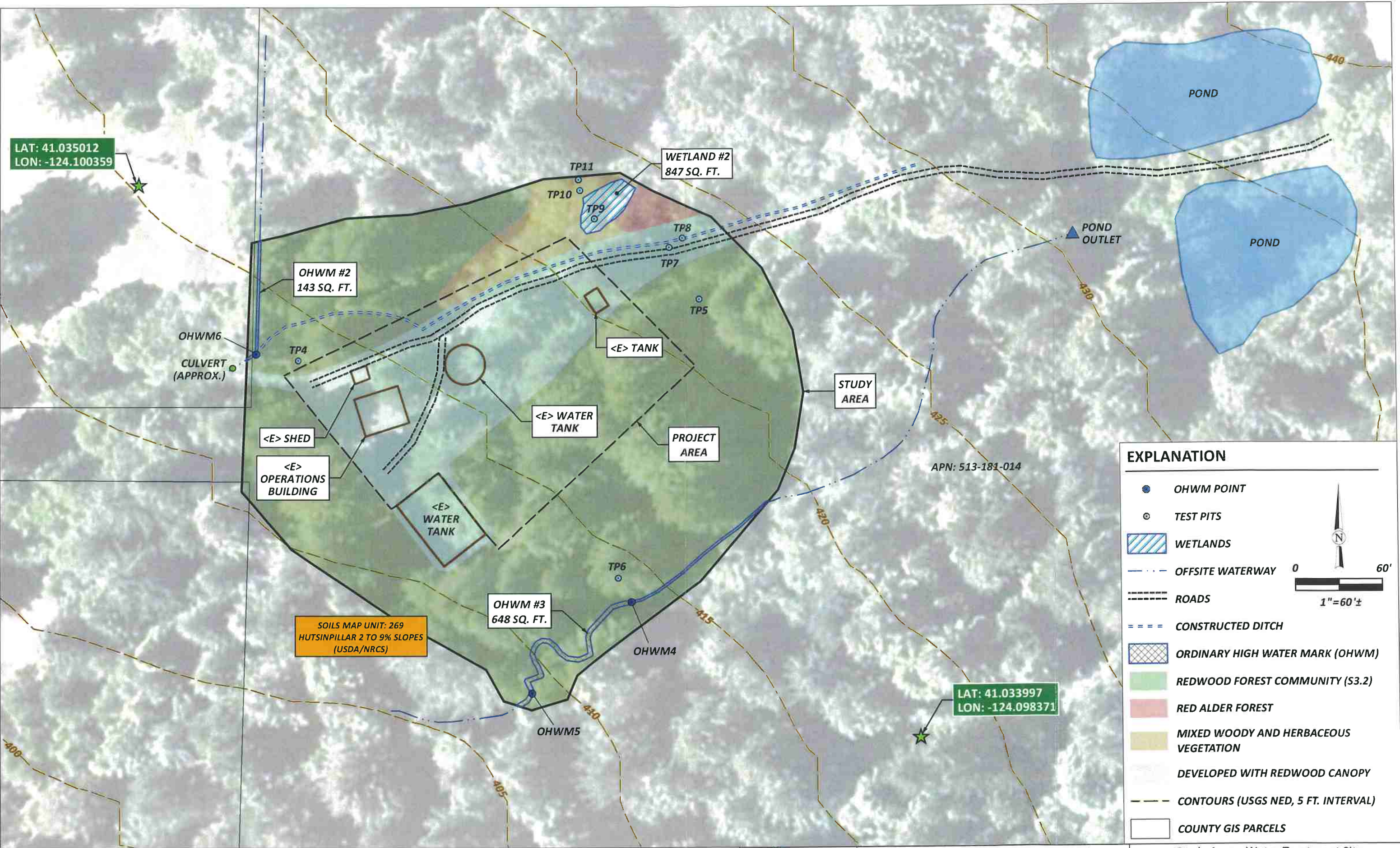
August 2019

WD_Fig2_StudyArea_WellSite

Figure 2

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EXPLANATION

- OHWM POINT
- TEST PITS
- WETLANDS
- OFFSITE WATERWAY
- ROADS
- CONSTRUCTED DITCH
- ORDINARY HIGH WATER MARK (OHWM)
- REDWOOD FOREST COMMUNITY (S3.2)
- RED ALDER FOREST
- MIXED WOODY AND HERBACEOUS VEGETATION
- DEVELOPED WITH REDWOOD CANOPY
- CONTOURS (USGS NED, 5 FT. INTERVAL)
- COUNTY GIS PARCELS

0 60'

1"=60'±

DUE TO THE THICK CANOPY COVERAGE, GPS ACCURACY RANGES FROM 3' TO 7'. DRAINAGES, ROADS, CONSTRUCTED DITCH LOCATIONS ARE ESTIMATED



3.2 Site Hydrology

The United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) Climate Analysis for Wetlands Table (WETS) method was used to determine the precipitation pattern prior to the wetland assessment compared to long-term precipitation records to establish norms. Certain aspects of the delineation are guided by using the WETS dataset. These norms can be compared with recent rainfall data records (Woodley Island, Eureka) to determine whether the field work was performed during a “below normal,” “normal,” or “above normal” rainfall period. The WETS method reviews current rainfall conditions for the previous three months prior to the initial site and test pit (TP) investigations (or the same month and two months prior if after the 15th; Table 1; USDA-NRCS, 2019a). The initial TP investigations occurred on April 3 and April 10, 2019. The 2019 rainfall data for January, February, and March were compared to the 30-year rainfall average at the Eureka Woodley Island weather station (1981-2010). If the current rainfall of each month is between 30% and 70% of the 1981-2010 precipitation average, it is a “normal” rainfall; if above 70%, it’s ranked “above normal”; if below 30%, it’s ranked “below normal.” The rainfall for this time period is considered “normal” (Table 1). The secondary TP investigation on April 18, 2019 uses 30-year data for the months February, March, and April, and was also conducted during a “normal” rainfall period (CDEC, 2019; USDA-NRCS, 2019a).

**Table 1. WETS Rainfall Data
Westhaven CSD, Westhaven, CA**

Month	WETS data	Rank	Weight	Value
April 3 and April 10, 2019: TP Excavation				
March 2019	Normal	2	3	6
February 2019	Above Normal	3	2	6
January 2019	Normal	2	1	2
Total¹				14
April 18, 2019: TP Excavation				
April 2019	Normal	2	3	6
March 2019	Normal	2	2	4
February 2019	Above Normal	3	1	3
Total¹				13
1. A sum of 6-9 prior to site investigation is considered a drier than normal rainfall. 10-14 prior to site investigation is considered a normal rainfall. 15-18 prior to site investigation is considered above normal rainfall.				
Sources: CDEC, 2019; USDA-NRCS, 2019a				

In addition to using the WETS information, current and historical rainfall amounts can be compared starting at the beginning of the hydrologic year (starting October 1). The historical 1981-2010, 30-year average from October 1 through March is 33.40 inches compared to current 2018-2019 data of 36.63 inches. Comparing these two data sets shows the rainfall year starting from October 1 is 110% of normal. However, the WETS data indicates that the 2019 spring season, just prior to the delineation, experienced normal rainfall for the early April site visits.

3.3 National Wetlands Inventory

The United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) website has no wetlands inventoried within the study area (Appendix 2). This general categorization by the NWI is not intended for planning purposes because of the lack of ground-truthing. In their “Data Limitations, Exclusions and Precaution” disclaimer, it states that:

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high-altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.
(USFWS, 2019a)

The intention of this wetland and other waters delineation is to clarify original general NWI boundaries with the addition of onsite soils, hydrology, and vegetation mapping investigations.

4.0 Vegetation

The study area consists of two sites, the well site and the water treatment site. The well site is located on an elevated terrace with predominantly non-native grass and forb species including sweet vernal grass (*Anthoxanthum odoratum* [FACU]), rough bluegrass (*Poa trivialis* [FAC]), hairy cats ear (*Hypochaeris radicata* [FACU]), and redwood violet (*Viola sempervirens* [NL]) immediately adjacent to the well pump house. The northern portion of the well site slopes steeply to a perennial stream. The slope is dominated by coast redwood (*Sequoia sempervirens* [NL]), Douglas fir (*Pseudotsuga menziesii* [FACU]), Sitka spruce (*Picea sitchensis* [FAC]), western hemlock (*Tsuga heterophylla* [FACU]), western sword fern (*Polystichum munitum* [FACU]), and English ivy (*Hedera helix* [FACU]). Three environmentally sensitive habitat areas (ESHAs) were identified at the well site (Figure 2). The northeastern section of the well site terrace contains Red Alder Forest Vegetation Community (*Alnus rubra*/*Rubus* spp. Association [NL]) supporting salmonberry (*Rubus spectabilis* [FAC]), California blackberry (*Rubus ursinus* [FACU]), and Himalayan blackberry (*Rubus armeniacus* [FAC]). The forested slope consists of Redwood Forest Community (*Sequoia sempervirens*-*Pseudotsuga menziesii*/ *Polystichum munitum* association [G3/S3.2]) and the eastern portion of the ordinary high water mark (OHWM) consists of a Red alder riparian forest (*Alnus rubra* Forest Alliance [G3/S2.2]). The southeast area of the well site is not considered ESHA and consists of a narrow band of redwood canopy with non-native shrub and vine species dominating the understory. This is due to the impacts associated with existing development, adjacent residential development, and invasive species composition. The understory was observed to be predominantly English ivy and Himalayan blackberry. The northwestern and northern area of the well site supports mixed conifer forest, consisting of 35% Douglas fir, 35% Sitka spruce, 20% redwood, 5% western hemlock, and 5% red alder.

The water treatment site is located on an uplifted coastal terrace, and includes facilities to treat water for domestic use. Features specifically investigated for wetland conditions at this site included a man-made ditch, a localized depression within the terrace, and a sloped drainage. The vegetated man-made drainage ditch runs northeast-southwest along the access road on the main terrace, supporting sword fern alongside the project area. Vegetation observed alongside the drainage ditch was recently managed and string-trimmed. A depression to the northeast of the WTP study area on the main terrace supports red alder (*Alnus rubra* [FAC]), deer fern (*Struthiopteris spicant* [FAC]), salmonberry [FAC], and sword fern. The southern section of the WTP parcel on the sloped drainageway predominantly consists of coast redwood and sword fern. Figure 3 shows the location of the forested slope consisting of redwood forest (*Sequoia sempervirens* / *Polystichum munitum* Association [G3/S3.2]) in the study area. The area northeast of the project area consists of non-riparian red alder forest (*Alnus rubra*/ *Struthiopteris spicant* Association [G5/S4]). The main portion of the terrace has been graded and compacted with a graveled surface (Appendix 1, Photo 3). The

area adjacent to the non-riparian red alder forest consists of mixed woody and herbaceous vegetation and supports a mix of Semi-Natural Shrubland Stands and a non-classified herbaceous stand, predominantly supporting deer fern and western sword fern.

A complete list of plants observed within the study area is compiled in Table 3 in Appendix 3.

5.0 Geologic and Soil Composition

The project site is set on an uplifted Pleistocene-aged marine terrace, overlying the Franciscan Complex (Figure 1).

The underlying soils in the study areas have the USDA-NRCS classification for the well site Lepoil-Espa-Candymountain complex, 15 to 50 percent slopes (map unit 258), and for the water treatment site Hutsinpillar, 2-9 percent slopes, which are described below and mapped on Figures 2 and 3. The Hutsinpillar soils are rated as hydric. The actual soil description at each exploratory soil TP is included in the wetland determination data forms found in Appendix 4 with photos in Appendix 1.

258—Lepoil-Espa-Candymountain complex, 15 to 50 percent slopes

Map Unit Composition

Lepoil and similar soils: 35 percent

Espa and similar soils: 30 percent

Candymountain and similar soils: 25 percent

Minor components: 10 percent

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

Description of Lepoil

Setting

Landform: Marine terraces

Parent material: Mixed marine deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: loam

AB - 8 to 19 inches: loam

Bt1 - 19 to 35 inches: loam

Bt2 - 35 to 67 inches: clay loam

Properties and qualities

Slope: 15 to 50 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 49 to 59 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: High (about 11.2 inches)

Interpretive Groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: C

Ecological site: Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam an (F004BX121CA)

Hydric soil rating: No

Description of Espa

Setting

Landform: Marine terraces

Parent material: Mixed marine deposits derived from sedimentary rock

Typical profile

A - 0 to 16 inches: loam

BA - 16 to 22 inches: loam

Bt - 22 to 41 inches: loam

BC - 41 to 60 inches: fine sandy loam

Properties and qualities

Slope: 15 to 50 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 39 to 49 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: High (about 10.1 inches)

Interpretive Groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam an (F004BX121CA)

Custom Soil Resource Report 13

Hydric soil rating: No

Description of Candymountain

Setting

Landform: Marine terraces

Parent material: Mixed marine deposits derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

A - 1 to 11 inches: fine sandy loam
Bw - 11 to 54 inches: fine sandy loam
C - 54 to 68 inches: fine sand

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces,
marine deposits, sandy loam an (F004BX121CA)
Hydric soil rating: No

269—Hutsinpillar, 2 to 9 percent slopes

Map Unit Composition

Hutsinpillar and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hutsinpillar

Setting

Landform: Drainageways, marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Alluvium derived from sedimentary rock

Typical profile

Oi - 0 to 0 inches: slightly decomposed plant material
A - 0 to 13 inches: clay loam
Bg1 - 13 to 36 inches: clay loam
Bg2 - 36 to 62 inches: clay

Properties and qualities

Slope: 2 to 9 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 4 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 6w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes
(USDA-NRCS, 2019b)

6.0 Regulatory Setting

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of legislative acts. The following section summarizes the federal, State, and local regulations for special-status species, jurisdictional Waters of the U.S. and State of California, and other sensitive biological resources. This section provides a listing and overview of these federal, State and local laws; only select regulations will be applicable to this project.

6.1 Federal Laws

6.1.1 Section 401 and 404 of the Clean Water Act

Under Section 404 of the Clean Water Act (CWA; 33 U.S. Code [USC] 1344), as amended, the United States Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA) retain primary responsibility for regulating discharge of dredged or fill material into “navigable waters of the United States.” All discharges of dredged or fill material into jurisdictional waters of the United States (WoUS) that result in permanent or temporary losses of WoUS are regulated by the USACE. A permit from the USACE must be obtained before placing fill or grading in wetlands or other WoUS, unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities; EPA, 1948).

The USACE defines wetlands as “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” (USACE Environmental Laboratory, 1987). In other words, the USACE defines wetlands by the presence of all three wetland indicators: hydrophytic vegetation, hydric soils, and wetlands hydrology.

Waters of the U.S. are defined at 33 Code of Federal Regulations (CFR) Part 328 (USC, 1986). They include traditional navigable waters; relatively permanent, non-navigable tributaries of traditional navigable waters, and certain wetlands. Following recent court cases, the EPA and USACE published a memorandum entitled “Clean Water Act Jurisdiction” (USACE/EPA, 2008) to guide the determination of jurisdiction over WoUS, especially for wetlands. The applicability of Section 404 permitting over discharges to wetlands is therefore, a two-step process: 1) determining the areas that are wetlands, and 2) where a wetland is present, assessing

the wetland's connection to traditional navigable waters and non-navigable tributaries to determine whether the wetland is jurisdictional under the CWA. A wetland is considered jurisdictional if it meets certain specified criteria.

The USACE is required to consult with the USFWS and/or National Marine Fisheries Service (NMFS) under Section 7 of the Federal Endangered Species Act (FESA) if the action subject to CWA permitting could result in "Take" of federally listed species or an adverse effect to designated critical habitat. The project is within the jurisdiction of the Sacramento District of the USACE.

Section 401 of the CWA (33 USC 1341; EPA, 1977) requires that applicants for a federal license or permit obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The certification is obtained from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate. The responsibility for the protection of water quality in California rests with the SWRCB and its nine Regional Water Quality Control Boards (RWQCBs).

6.1.2 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC Sections 661-667e, March 10, 1934, as amended 1936, 1946, 1947, 1948, 1949, 1958, 1965, 1978, and 1995; USFWS, 1934) requires that whenever waters or channel of a stream or other body of water are proposed or authorized to be modified by a public or private agency under a federal license or permit, the federal agency must first consult with the USFWS and/or NMFS and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur (in this case the CDFW), with a view to conservation of birds, fish, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

If direct permanent impacts will occur to WoUS from a proposed project, then a permit from USACE under CWA Section 404 is required for the construction of the proposed project. USACE is required to consult with USFWS and/or NMFS as appropriate regarding potential impacts to federally-listed species under FESA. Such action may prompt consultation with CDFW, which would review the project pursuant to California Endangered Species Act (CESA) and issue a consistency letter with USFWS and/or NMFS, if required.

6.1.3 Rivers and Harbors Appropriation Act of 1899

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, and other structures across any navigable water. Placing obstructions to navigation outside established federal lines and excavating from or depositing material in such waters require permits from the USACE. Section 10 of the Rivers and Harbors Appropriation Act (33 USC 403; USC, 2006) prohibits the unauthorized obstruction or alteration of any navigable WoUS.

6.1.4 Federal Endangered Species Act

The United States Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend and within which they live. The USFWS and the NMFS are the designated federal agencies responsible for administering the FESA.

The FESA prohibits the "Take" of endangered or threatened wildlife species. A "Take" is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting,

wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1531, 50 CFR 17.3; USACE/EPA, 1973). An activity can be defined as a “Take” even if it is unintentional or accidental. Taking can result in civil or criminal penalties. Activities that could result in “Take” of a federally-listed species require an incidental “Take” authorization resulting from FESA Section 7 consultation or FESA Section 10 consultation. Plants are legally protected under the FESA only if “Take” occurs on federal land or from federal actions, such as, issuing a wetland fill permit.

A federal endangered species is one that is considered in danger of becoming extinct throughout all, or a significant portion, of its range. A federal threatened species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species proposed for listing as threatened or endangered. Proposed species are those for which a proposed rule to list as endangered or threatened has been published in the Federal Register. In addition to endangered, threatened, and proposed species, the USFWS maintains a list of candidate species. Candidate species are those for which the USFWS has on file sufficient information to support issuance of a proposed listing rule.

Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed endangered or threatened species may be present in the study area and determine whether the proposed project will have a potentially significant impact on such a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated or proposed to be designated for such species (16 USC 1536[3], [4]; USACE/EPA, 1973). Project-related impacts to species on the FESA endangered or threatened list would be considered significant and thus, would require mitigation.

6.1.5 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feather or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21; USFWS, 1918). The MBTA also prohibits disturbance and harassment of nesting migratory birds at any time during their breeding season. The USFWS is responsible for enforcing the MBTA (16 USC 703; USFWS, 1918). The migratory bird nesting season is generally considered to be between March 15 and August 15 within the study region.

6.2 State Laws

6.2.1 California Coastal Act

The California Coastal Act (CCA; California Public Resources Code Sections 30000 et seq.; CCC, 1976) was enacted by the State Legislature in 1976 to provide long-term protection of California’s 1,100-mile coastline. The mission of the California Coastal Commission (CCC), as the lead agency responsible for carrying out California’s coastal management program, is to plan for and regulate development in the coastal zone consistent with the policies of the CCA. The CCC has the same authority over federal activities and federally licensed or assisted activities in the coastal zone.

The CCA includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The policies of the CCA constitute the statutory standards applied to planning and regulatory decisions made by the CCC and by local governments, pursuant to the CCA.

The CCC regulates the alteration of wetlands within the Coastal Zone under jurisdiction of the CCA. The California Coastal Zone is broken into local coastal program (LCP) units that specifically oversee land use and management of resources within local government jurisdictions. CCC has delegated responsibility of regulating the CCA to the County of Humboldt through the approval of their LCP. However, the CCC has oversight authority over the LCP.

The California Public Resources Code, Division 20, CCA (2013), Section 30121 broadly defines wetlands as, “lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens” (CCC, 1976).

However, the CCC Administrative Regulations (Title 14 California Code of Regulations [CCR] Section 13577 (b)) provides a more explicit definition:

Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of water surface levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitat (CCC, 1989).

The 1994 CCC Procedural Guidance for the Review of Wetland Projects in California’s Coastal Zone provides the following information:

Although the U. S. Fish & Wildlife Service (FWS) classification system is complex, it does provide an objective method for identifying virtually any wetland landscape. Relative to the USACE definition, the FWS definition is generally regarded as being more inclusive in the classification and subsequent delineation of a wetland. This is because the FWS classification system defines a wetland by the presence of the proper hydrology and either the presence of hydric soils or hydrophytic vegetation, except in nonsoil areas, such as rocky intertidal areas, where only the presence of proper hydrology is required (CCC, 1994).

For purposes of delineation, a location with any of the three wetland parameters (hydrophytic vegetation, hydrology, or hydric soils) is considered a wetland as defined by the Coastal Act.

6.2.2 Porter-Cologne Water Quality Control Act

The State maintains independent regulatory authority over the placement of waste, including fill, into waters of the State (WoS) under the Porter-Cologne Water Quality Control Act (SWRCB, 1969). WoS are defined by the Porter-Cologne Water Quality Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWRCB protects all waters in its regulatory scope,

but has special responsibility for isolated wetlands and headwaters. WoS are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact WoS are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge to WoS, then the local RWQCB has the option to regulate such activities under its state authority in the form of waste discharge requirements (WDRs) or certification of WDRs. Water Quality Order No. 2004-0004-DWQ specifies general WDRs for dredge or fill discharges to waters deemed by the USACE to be outside of federal jurisdiction under Section 404 of the CWA.

6.2.3 California Endangered Species Act

The State of California enacted the CESA in 1984. The CESA is similar to the FESA but pertains to state-listed endangered and threatened species. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened and endangered species designated under state law (California Fish and Game Code [CFG] 2070). Section 2080 of the CFGC prohibits "Take" of any species that the commission determines to be an endangered or threatened species. "Take" is defined in Section 86 of the CFGC as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The State and federal lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. CESA regulations are also somewhat different from the FESA in that the State regulations included threatened, endangered, and candidate plants on non-federal lands within the definition of "Take." CESA allows for "Take" incidental to otherwise lawful development projects.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the study area and determine whether the proposed project will have a potentially significant impact on such species. Project-related impacts to species on the CESA endangered or threatened list (or, in addition, designated by the CDFW as a "Species of Special Concern," which is a level below threatened or endangered status) would be considered significant and would require mitigation.

6.2.4 California Environmental Quality Act

California Environmental Quality Act (CEQA) Guidelines Sections 15125(c) and 15380(d) provide that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Thus, CEQA provides the ability to protect a species from potential project impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

The CNPS maintains a list of plant species native to California whose populations that are significantly reduced from historical levels, occur in limited distribution, or are otherwise rare or threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS, 2019). Taxa with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, and 3 in the CNPS inventory consist of plants that meet the definitions of the CESA of the CFGC, are eligible for state listing, and meet the definition of Rare or Endangered under CEQA Guidelines Sections 15125(c) and 15380(d). Some taxa with a

CRPR 4 may meet the definitions of the CESA of the CFGC. CRPR 4 populations may qualify for consideration under CEQA if they are peripheral or disjunct populations; represent the type locality of the species; or exhibit unusual morphology and/or occur on unusual substrates.

Additionally, CDFW maintains lists of special animals and plants. These lists include a species conservation ranking status from multiple sources, including FESA, CESA, and federal departments with unique jurisdictions, CNPS, and other non-governmental organizations. Based on these sources, CDFW assigns a heritage rank to each species according to their degree of imperilment (as measured by rarity, trends, and threats). These ranks follow NatureServe's Heritage Methodology, in which all species are listed with a G (global) and S (state) rank. Species with state ranks of S1-S3 are also considered highly imperiled.

CEQA Guidelines checklist IV(b) calls for the consideration of riparian habitats and sensitive natural communities. Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. However, these communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by CDFW (i.e., the CNDDDB and VegCAMP programs) or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA (California Code of Regulations [CCR]: Title 14, Div. 6, Chap. 3, Appendix G; CNRA, 1970).

Although sensitive natural communities do not (at present) have legal protection, CEQA calls for an assessment of whether any such resources would be affected, and requires a finding of significance if there will be substantial losses. High-quality occurrences of natural communities with heritage ranks of 3 or lower are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents (such as general plans) often identify these resources as well. Avoidance, minimizations, or mitigation measures should be implemented if project-affected stands of rare vegetation types or natural communities are considered high-quality occurrences of the given community.

As a trustee agency under CEQA, CDFW reviews potential project impacts to biological resources, including wetlands. In accordance with the CEQA thresholds of significance for biological resources, areas that meet the state criteria of wetlands and could be impacted by a project must be analyzed. Pursuant to CFGC Section 2785, CDFW defines wet areas as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools."

6.2.5 California Fish and Game Code Section 1600

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC (CDFW, 1994). Any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake, generally requires a Streambed Alteration Agreement (SAA).

The term "stream," which includes creeks and rivers, is defined in the CCR as follows: "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 (14 CCR 1.72; CNRA, 1987).

In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as “on, or pertaining to, the banks of a stream”; therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFW, 1994). Removal of riparian vegetation also requires an SAA from the CDFW.

6.2.6 California Fish and Game Code Sections 3503 and 3513

According to Section 3503 of the CFGC it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except English sparrows [*Passer domesticus*] and European starlings [*Sturnus vulgaris*]). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds-of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the “Take” or possession of any migratory non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “Take” by the CDFW (CDFW, 1998).

6.2.7 Fully Protected Species and Species of Special Concern

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced with possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at Sec. 5515, amphibian and reptiles at Sec. 5050, birds at Sec. 3511, and mammals at Sec. 4700) dealing with “fully protected” species states that these species “...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species,” (CDFW, 1998) although “Take” may be authorized for necessary scientific research. This language makes the “fully protected” designation the strongest and most restrictive regarding the “Take” of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize “Take” resulting from recovery activities for state-listed species.

Species of special concern (SSC) are broadly defined as animals not listed under the CESA, but that are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under CESA and cumbersome recovery efforts that might ultimately be required. This designation is also intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although the SSC designation provides no special legal status, they are given special consideration under CEQA during project review.

Table 2 in Appendix 3 includes potentially-occurring federal and State-listed species and SSC animals that may occur in the study area.

6.2.8 Native Plant Protection Act of 1973

The Native Plant Protection Act (NPPA) of 1973 (Sec.1900-1913 of the CFGC, CDFW, 1998) includes provisions that prohibit the taking of endangered or rare native plants from the wild and a salvage requirement for landowners. The CDFW administers the NPPA and generally regards as “rare” many plant species included on Lists 1A, 1B, 2A, 2B, 3, and 4 of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2019).

Table 1 in Appendix 3 includes potentially-occurring endangered or rare native plants that may occur in the study area (including CNPS lists).

6.2.9 Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act of 1991 is an effort by the State of California, and numerous private and public partners that is broader in its orientation and objectives than the CESA and FESA (refer to discussions above). The primary objective of the NCCP Act is to conserve natural communities at the ecosystem scale while accommodating compatible land use. The NCCP Act seeks to anticipate and prevent the controversies and gridlock caused by species listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process (CDFW, 1998).

6.3 Local Regulations

6.3.1 Humboldt County General Plan

The Humboldt County General Plan for Areas Outside the Coastal Zone (Humboldt County, 2017) includes policies and standards regarding sensitive and critical habitats, stream channels, streamside management areas, wetlands and other areas, and other sensitive and critical habitats for areas outside the coastal zone (at the WTP site).

6.3.2 Humboldt County General Plan Volume II Trinidad Area Plan of the Humboldt County Local Coastal Program

The Trinidad Area Plan (Humboldt County, 2007) includes policies for identification of ESHAs, permitted uses in wetlands, wetland buffers, road construction within watersheds containing wetlands, and coastal streams, riparian vegetation and marine resources.

7.0 Methodology

7.1 Biological Assessment Methodology

A search of the California Natural Diversity Database (CDFW, 2019), California Native Plant Society (CNPS, 2019) rare plant inventory, and the USFWS Information for Planning and Conservation (IPaC) (USFWS, 2019b) for known special-status plant and animal species within the Crannell and adjacent 7.5-minute quadrangles, resulted in 65 special-status plant species and 53 special-status animal species. Of these, 17 special-status plant species, and 7 special-status animal species have a moderate or higher potential of occurring within the study area and one (1) animal species was present (*Accipiter cooperii*; See Appendix 3, Tables 1 and 2 for special-status plant and animal species potentially occurring within the survey area). The remaining species have limited or no suitable habitat within the study area.

Each species was evaluated for its potential to occur within the study area according to the following criteria:

- 1) **None.** Species listed as having “none” with regard to their potential to occur within the study area are those species for which:
 - there is no suitable habitat present in the study area. (Habitats in the study area are unsuitable for the species requirements [e.g., elevation, hydrology, plant community, disturbance regime, etc.]
- 2) **Low.** Species listed as having a “low” potential to occur within the study area are those for which:
 - there is no known record of occurrence in the vicinity of the study area; and
 - there is marginal or very limited suitable habitat present in the study area.

- 3) **Moderate.** Species listed as having a “moderate” potential to occur within the study area are those species for which:
 - there is a known record of occurrence in the vicinity of the study area; and
 - there is suitable habitat present in the study area.
- 4) **High.** Species listed as having a “high” potential to occur within the study area are those species for which:
 - there is a known record of occurrence in the vicinity of the study area (there are many records and/or records in close proximity); and
 - there is highly suitable habitat present in the study area.
- 5) **Present.** Species listed as “present” in the study area are those species for which:
 - the species was observed in the study area during the investigations.

Using information about sensitive species potentially present in the project area, SHN undertook botanical and biological surveys in an attempt to determine if any of these species were located, or have the potential to be located within or adjacent to the project area, and if project activities would have any adverse impacts to individuals or habitat.

7.1.1 Biological Investigation

Field surveys were conducted on March 29, April 10, May 10, and June 28, 2019 for all special-status species potentially present (Appendix 3, Table 1 and Table 2) in the study area. Each survey was conducted over the course of two hours and covered the entire project area and associated study areas. (See Figure 2 and Figure 3).

In addition to surveying for target species, a list of all botanical and animal species encountered was compiled. Plants were identified to the lowest taxonomic level possible to distinguish special-status species from others. A list of observed botanical species is attached as Appendix 3, Table 3. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al., 2012), and subsequent online revisions (UCB, 2019). A list of observed animal species is attached as Appendix 3, Table 4.

7.2 Wetland Assessment Methodology

Wetland delineation methods described in *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE, 2010) were used to identify potential wetlands and other waters. The routine method for wetland delineation described in the USACE 1987 manual was used to identify potential wetlands within the study area. The USACE method relies on a three-parameter approach, in which criteria for hydrophytic vegetation, hydric soils, and wetland hydrology must each be met (present at the point of field investigation) to conclude that an area qualifies as a wetland. Additionally, the CCC requires only one of the three wetland parameters to be met to qualify as a wetland as defined by the Coastal Act. Therefore, mapping at the well study area (in the coastal zone) reflects both CCC and USACE requirements by showing areas meeting one, two, and three parameters. Wetland mapping at the WTP site (outside the coastal zone) is based on the USACE three-parameter approach.

Hydrophytic vegetation refers to plant species known to be adapted to wetland sites. To classify the hydrophytic plants onsite, the most recent *Western Mountains, Valleys, and Coast 2016 Regional Wetland*

Plant List was used (USACE, 2016). Hydric soils are those formed under saturated conditions, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA, 2018). Wetland hydrology is demonstrated through direct evidence (primary indicators) or indirect evidence (secondary indicators) of flooding, ponding, or saturation for a significant portion of the growing season (USACE, 2010).

Prior to conducting the field investigation, SHN staff reviewed the USGS topographic quadrangle map (Figure 1); Google Earth (Google Earth, 2016); USDA-NRCS Web Soil Survey website (USDA, 2019b); and NWI map (USFWS, 2019a; Appendix 2). Prior to the TP investigation, a preliminary site investigation was performed to view existing hydrology. During the subsequent TP subsurface investigation, sample points were characterized at each pit for the aforementioned botanical, hydrological, and soil parameters.

Wetland TP locations were selected to:

- achieve appropriate coverage and characterization of wetland and upland habitats,
- document potential changes in the vegetative community (such as, a shift in the dominant species), and
- determine the approximate boundary line between wetlands and uplands by evaluating the extent of key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation).

At the well study area, sub-meter accuracy was obtained for test pits and ordinary highwater mark (OHWM) using a Galaxy Tablet Active 2 SM-T390 with a Trimble global positioning system (GPS) R1 antenna with an external antenna booster. Due to closed canopy in areas, we were unable to obtain sub-meter accuracy for the wetland boundary using GPS equipment. The wetland boundary was delineated using a survey tape-off of two fixed points of the well shed and triangulated to establish the eastern edge of the wetland boundary. The western edge was determined by a community trail which passes along the western boundary of the study area.

At the WTP study area, however, due to heavier redwood overstory, we were unable to obtain sub-meter accuracy for all the test pit, OHWM, and wetland boundary points. Two GPS with sub-meter accuracy were used on different days to attempt sub-meter accuracy: the Trimble Pro 6t GPS antenna connected to a Panasonic Toughbook CF-19 with geographic information system (GIS) software and the Galaxy Tablet Active 2 SM-T390 with a Trimble GPS R1 antenna with an external antenna booster. The accuracy ranged from three to seven feet. Several fixed locations (for example fence angles and buildings) were marked as control points (CTs), but were not used because of limited visibility on aerial imagery. A few GPS point locations were corrected by using on the ground knowledge and measurements of the area and matching these up with locations visible on aerial imagery. As recommended by San Francisco USACE staff, approximate, less than sub-meter points of wetland and OHWM boundaries are acceptable if sub-meter accuracy GPS equipment or survey tape triangulations are not feasible (USACE, 2019), if the alternative methods are discussed in the wetland report.

7.3 Vegetation Methodology

Prior to the field investigation, a review of plant species reported to be within the project area was performed by querying the "Consortium of California Herbaria" (Consortium of California Herbaria, 2019) database records and "Calflora" (Calflora, 2019) observations. Absolute percent cover of each plant species was visually estimated within the sample point and within each vegetation stratum. The tree stratum was inspected at a 30-foot radius centered on the sample point, and the herb and sapling/shrub strata at a 5-

foot radius. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al., 2012) in addition to the online Jepson Interchange (University of California, Berkeley, 2019) for verification of species whose taxonomy may have changed since its publication. For plant species classification, see Section 4.0 Vegetation.

The wetland indicator status of plant species for this investigation was based on the USACE *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* (USACE, 2016). Synonyms were checked for species that did not appear on the USACE wetland plant list. Plant species were classified as:

- Obligate (OBL)—almost always occurs in wetlands
- Facultative-wet (FACW)—usually occurs in wetlands, but may occur in non-wetlands
- Facultative (FAC)—occurs in wetlands and non-wetlands
- Facultative-upland (FACU)—usually occurs in non-wetlands, but may occur in wetlands
- Upland (UPL)—almost never occurs in wetlands
- Not listed (NL)—scored as an upland plant and calculated as such on wetland determination forms.

The 50/20 method¹ was applied to each stratum to determine the dominant plant species and to satisfy the hydrophytic vegetation criteria. If hydric soils and wetland hydrology were present, the prevalence index² was applied. The occurrence and type of plant cover determine whether jurisdictional areas are identified as satisfying the vegetation criteria of a wetland or other waters. Those sites with little or no hydrophytic plant cover, or other sites not capable of supporting hydrophytic plant communities in normal circumstances, are identified as other waters, provided they have an OHWM.

7.4 Soils Methodology

Soils were field verified for the presence or absence of hydric conditions. All TPs were dug to a minimum depth of 17 inches, and the thickness of each soil horizon was measured. The Munsell Soil Color Chart (Kollmorgen Instruments Corporation, 1998) was referenced to determine the colors of the moist soil matrix and redoximorphic (redox) features (if present). Soils were closely inspected for hydric soil indicators, as defined by the NRCS “Field Indicators of Hydric Soils in the United States” (Version 8.2; USDA-NRCS, 2018). Once a three-parameter wetland zone was established, its boundary was determined using a soil probe and the use of alpha, alpha-dipyridyl reagent.

7.5 Hydrology Methodology

The presence (or lack) of wetland hydrology indicators was determined by direct observations for surface and groundwater during TP excavations on April 3, 10, and 18, 2019, in addition to indirect hydrologic indicators (such as, water marks, drift deposits, sediment deposits, alpha, alpha-dipyridyl reaction, drainage patterns, geomorphic placement, water-stained leaves, and similar features). Indicators of extended period saturation would include oxidized rhizospheres surrounding living roots or the presence of reduced iron or sulfur in the soil profile. A site location must contain at least one primary indicator or two secondary indicators to qualify for the hydrology parameter.

¹ The 50/20 rule: for each stratum of the plant community, dominant species are the most abundant species that (when ranked in descending order of abundance and cumulatively totaled) immediately exceed 50% of total dominance measure for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum (USACE, 2010).

² The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot or other sampling unit, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (absolute percent cover).

7.6 Ordinary High Water Mark Methodology

For purposes of Section 404 of the CWA, the lateral limits of federal jurisdiction over non-tidal water bodies, in the absence of adjacent wetlands, extend to the OHWM. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. For purposes of Sections 9 and 10 of the Rivers and Harbors Act of 1899, the lateral extent of federal jurisdiction, which is limited to the traditional navigable waters of the United States, extends to the OHWM, whether or not adjacent wetlands extend landward of the OHWM (USACE, 2014).

USACE regulations define the term OHWM for the purposes of the CWA lateral jurisdiction as follows:

The term "ordinary high water mark" means 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 at 33 CFR 328.3(e).

The OHWM in non-perennial streams corresponds with the boundaries of the active channel, which are typically expressed by some combination of three primary indicators: a topographic break in slope, change in sediment characteristics, and change in vegetation characteristics (USACE, 2014). The following supporting features should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable (USACE, 2014):

- Drift/wrack
- Erosion/scour
- Bank undercutting
- Root exposure
- Point bars
- Water staining
- Litter removal
- Silt deposits
- Shelving
- Headcut/knickpoint
- Macroinvertebrates

Not all drainageways with OHWM features are considered to be jurisdictional, as noted in the Code of Federal Regulations 33 CFR Section 328.3, which states *"For clarification it should be noted that we generally do not consider the following waters to be "Waters of the United States" ...a) Non-tidal drainage and irrigation ditches excavated on dry land."* This statement was used for reference on OHWM determination on a man-made constructed ditch found in the water treatment site.

8.0 Discussion and Results

8.1 Biological Results and Discussion

The habitat adjacent to the WTP site and within the study area at the well site consists of an undeveloped but previously logged stand of second- and third-growth coast redwood and Sitka spruce forest surrounded by suburban development (see Appendix 1, Photos 1-8). A depressed, somewhat linear channel running along the center of the flat slough area at the WTP site was dominated by hydrophytic vegetation (see wetland delineation results). The habitat surrounding the study area is generally similar to and contiguous with the study area habitat. During the survey, 74 plant species and 11 animal species were observed within the project area and surrounding buffer (See Appendix 3, Table 3 and 4). Of the plant species observed, 64% were native, reflecting the past land use of the study area for water infrastructure development, and the

surrounding development. The study area is dominated by coast redwood, sword fern, English ivy, deer fern, red alder, salmon berry, and thimble berry (*Rubus parviflorus* [FACU]), among others. All dominant species within the study area are upland, Facultative-upland, or Facultative-wetland plants, designated as Facultative (FAC) or drier species.

Animal species typical of a redwood forest were present within the study area. The habitat within the study area could support a variety of animal species for nesting and foraging, although it is not considered unique or critical habitat. A few large stumps remain from mature trees that may provide habitat for bats and other small mammals.

8.1.1 Natural Communities

Several special-status natural communities exist within and surrounding the study area. Three special-status natural communities were identified at the well site: Red alder forest (*Alnus rubra*/*Rubus* spp. Association [G5/S4, CDFW Sensitive Association]), Red alder riparian forest Community (*Alnus rubra* Forest alliance [G3/S2.2]), and Redwood Forest Community (Figure 2). Red alder forest is ranked G5/S4 and is not considered a sensitive community, however the red alder/*Rubus* Association observed adjacent to the well site is considered a sensitive natural community association by CDFW.

One special-status natural community was identified at the treatment site - Redwood Forest Community. Red alder forest (*Alnus rubra* Forest Alliance [G5/S4]) was observed at the WTP site, but is not considered to be a sensitive natural community because it does not meet the criteria for sensitive associations, nor is it located within a riparian area. The main portion of the terrace at the water treatment site has been graded and compacted with a graveled surface (Appendix 1, Photo 2; Figure 3).

8.1.2 Special-status Plant Species

Based on a review for special-status plant species, 65 special-status plant species have been reported from the region consisting of the Crannell quadrangle and surrounding quadrangles (Rodgers Peak, Bald Hills, Trinidad, Panther Creek, Tyee City, Arcata North, and Blue Lake). Of the special-status plant species reported for the region, 48 plant species are considered to have low or no potential to occur within the study area and 17 plant species have a moderate or high potential of occurring within the study area. Species with a moderate or high potential for occurrence within the study area are described below.

Twisted horsehair lichen (*Bryoria spiralifera*) is a lichen in the Parmeliaceae family. It is neither State nor federally listed, but has a California Rare Plant Rank (CRPR) of 3.2 and a heritage rank of G3/S1S2. Its elevation range is reported from 0 to 30 meters above sea level. This species is reported from north coast coniferous forests and usually on conifers. Although suitable habitat may exist within the study area for this species, it was not detected.

Northern clustered sedge (*Carex arcta*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S1. Its elevation range is reported from 60 to 1,405 meters above sea level. Within its range state-wide, its blooming period is reported as June through September. This species is reported from bogs and fens and north coast coniferous forests. Within the nine-quad search, the closest Rarefind occurrence is approximately 4 miles to the south. Although suitable habitat may exist within the study area for this species, it was not detected.

Bristle-stalked sedge (*Carex leptalea*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S1. Its elevation range is reported from 3

to 1,395 meters above sea level. Within its range state-wide, its blooming period is reported as March through July. This species is reported from bogs and fens, meadows and seeps, marshes and swamps, but is primarily found in bogs and wet meadows. The closest Rarefind occurrence reported is from 2 miles to the north near Trinidad. Although suitable habitat may exist within the study area for this species, it was not detected.

Lyngbye's sedge (*Carex lyngbyei*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S3. Its elevation range is reported from 0 to 200 meters above sea level. Within its range state-wide, its blooming period is reported as April through August. This species is reported from brackish or freshwater marshes and swamps. Although suitable habitat may exist within the study area for this species, it was not detected.

Green yellow sedge (*Carex viridula*) is a perennial herb in the Cyperaceae family. It is neither State nor federally listed, but has a CRPR of 2B.3 and a heritage rank of G5T5/S2. Its elevation range is reported from 0 to 1,705 meters above sea level. Within its range state-wide, its blooming period is reported as June through July. This species is reported from bogs, fens, marshes, freshwater swamps, and north coast coniferous forests. Although suitable habitat may exist within the study area for this species, it was not detected.

Pacific golden saxifrage (*Chrysosplenium glechomifolium*) is a perennial herb in the Saxifragaceae family. It is neither State nor federally listed, but has a CRPR of 4.3 and a heritage rank of G5/S3. Its elevation range is reported from 10 to 220 meters above sea level. Within its range state-wide, its blooming period is reported as February through June. This species is reported from north coast coniferous forest and riparian forest along streambanks, sometimes seeps, and sometimes roadsides. Although suitable habitat may exist within the study area for this species, it was not detected.

Oregon goldthread (*Coptis laciniata*) is a perennial herb in the Ranunculaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G4/S3. Its elevation range is reported from 0 to 1,000 meters above sea level. This species is reported from north coast conifer forests, meadows and seeps, and on mesic sites such as moist streambanks. Although suitable habitat may exist within the study area for this species, it was not detected.

Coast fawn lily (*Erythronium revolutum*) is a perennial herb in the Liliaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G4G5/S3. Its elevation range is reported from 0 to 1,600 meters above sea level. Within its range state-wide, its blooming period is reported as March through July. This species is reported from bogs, fens, broadleaved upland forests, north coast coniferous forests, and mesic streambanks. Although suitable habitat may exist within the study area for this species, it was not detected.

Harlequin lotus (*Hosackia gracilis*) is a perennial herb in the Fabaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G4/S3. Its elevation range is reported from 0 to 700 meters above sea level. Within its range state-wide, its blooming period is reported as March through July. This species is reported from broadleaved upland forests, coastal bluff scrub, coastal prairie, coastal scrub, meadows, seeps, marshes and swamps, north coast coniferous forests, and valley and foothill grassland habitats. Although suitable habitat may exist within the study area for this species, it was not detected.

Western lily (*Lilium occidentale*) is a perennial bulbiferous herb in the Liliaceae family. It is both State and federally listed as endangered, and has a CRPR of 1B.1 and a heritage rank of G1/S1. Its elevation range is

reported from 2 to 185 meters above sea level. Within its range state-wide, its blooming period is reported as June and July. This species is reported from bogs and fens, coastal bluff scrub, coastal prairie, coastal scrub, freshwater marshes and swamps, and from north coast coniferous forest openings. Within these habitat types, it is most common on well-drained old beach washes overlain with windblown alluvium and organic topsoil, usually near margins of Sitka spruce. This species is very susceptible to soil compaction and texture and is extremely susceptible to herbivory and encroachment by invasive species. Within the nine-quad search, the closest Rarefind occurrence is approximately 5 miles to the southeast. Although suitable habitat may exist within the study area for this species, it was not detected.

Heart-leaved twayblade (*Listera cordata*) is a perennial herb in the Orchidaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G5/S4. Its elevation range is reported from 5 to 1,370 meters above sea level. Within its range state-wide, its blooming period is reported as February through July. This species is reported from lower montane coniferous forests, north coast coniferous forests, bogs, and fens. Although suitable habitat may exist within the study area for this species, it was not detected.

Running-pine (*Lycopodium clavatum*) is a fern in the Lycopodiaceae family. It is neither State nor federally listed, but has a CRPR of 4.3 and a heritage rank of G5/S3. Its elevation range is reported from 45 to 1,225 meters above sea level. Within its range state-wide, its blooming period is reported as July through September. This species is reported from bogs, fens, marshes, swamps, and wetlands. Within the nine-quad search, there are numerous Rarefind occurrences with the closest located 1.5 miles to the east. Although suitable habitat may exist within the study area for this species, it was not detected.

Marshall's saxifrage (*Micranthes marshallii*) is a perennial herb in the Saxifragaceae family. It is neither State nor federally listed, but has a CRPR of 4.3 and a heritage rank of G5/S3. Its elevation range is reported from 90 to 2,130 meters above sea level. Within its range state-wide, its blooming period is reported as March through August. This species is reported from riparian forests and rocky streambanks. Although suitable habitat may exist within the study area for this species, it was not detected.

Leafy-stemmed mitrewort (*Mitellastrum caulescens*) is a perennial herb in the Saxifragaceae family. It is neither State nor federally listed, but has a CRPR of 4.2 and a heritage rank of G5/S4. Its elevation range is reported from 5 to 1,700 meters above sea level. Within its range state-wide, its blooming period is reported as March through October. This species is reported from broadleaved upland forest, lower montane coniferous forests, meadows, seeps, and north coast coniferous forests. Although suitable habitat may exist within the study area for this species, it was not detected.

Howell's montia (*Montia howellii*) is an annual herb in the Montiaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G3G4/S2. Its elevation range is reported from 0 to 835 meters above sea level. Within its range state-wide, its blooming period is reported as March through May. This species is reported from vernal mesic meadows and seeps, north coast coniferous forests, and sometimes roadside habitats. Although suitable habitat may exist within the study area for this species, it was not detected.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) is a perennial herb in the Malvaceae family. It is neither State nor federally listed, but has a CRPR of 1B.2 and a heritage rank of G5T2/S2. Its elevation range is reported from 5 to 1,255 meters above sea level. Within its range state-wide, its blooming period is reported as March through August. This species is reported from coastal bluff scrub, coastal prairie, north

coast coniferous forests, and roadcuts. Within the nine-quad search, numerous Rarefind occurrences are reported, with the nearest close to the town of McKinleyville, 5.5 miles south of the study area. Although suitable habitat may exist within the study area for this species, it was not detected.

Alpine marsh violet (*Viola palustris*) is a perennial herb in the Violaceae family. It is neither State nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G5/S1S2. Its elevation range is reported from 0 to 150 meters above sea level. Within its range state-wide, its blooming period is reported as March through August. This species is reported from swampy and shrubby places in coastal scrub or coastal bogs. Although suitable habitat may exist within the study area for this species, it was not detected.

Surveys were conducted at a seasonally-appropriate time for all of the plant species expected to potentially occur within the study area. Surveys of the study area did not locate sensitive botanical species within the study area. It is unlikely that any species were missed; however, the findings in this report represent a "snapshot in time" and it is possible that false negative surveys for rare plant species could occur. This report documents the 2019 field investigations, and the findings presented here are based on best professional judgment.

8.1.3 Special-status Animal Species

Based on a review of special-status animal species, 53 special-status animal species have been reported with the potential to occur in the project region. Of the special-status animal species potentially occurring in the region, 45 animal species are considered to have a no or low potential to occur at the project site, 7 species have a moderate to high potential to occur at the project site, and one (1) species was present (*Accipiter cooperii*). Species with a moderate or high potential for occurrence within the study area are described below.

8.1.3.1 Amphibians

The northern red-legged frog (*Rana aurora*) inhabits humid forests, woodlands, grasslands, and streambanks usually near dense riparian cover. They are generally near permanent water, but can be found far from water in damp woods and meadows during the non-breeding season. Habitat does exist within the study area for this species, although it was not detected. If it were to occur, this species would be expected to be near the riparian areas and associated vegetation.

The Southern torrent salamander (*Rhyacotriton variegatus*) occupies lower montane coniferous and riparian forest, old-growth, and coastal redwood habitats in cold well-shaded permanent streams, particularly with splash zones with moss-covered rocks within trickling water. Some habitat does exist for this species within the study area, although it was not detected.

8.1.3.2 Birds

The Cooper's hawk (*Accipiter cooperii*) builds stick platform nests in crotches of riparian deciduous trees and second-growth conifers near streams. Of all the raptors, it's most associated with urbanized landscapes. Habitat does exist within the study area for this species, and it was detected within the study area.

The olive-sided flycatcher (*Contopus cooperi*) is found in Montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds. Their nest is an open cup of twigs, rootlets, and lichens, placed near the tip of a horizontal branch of a tree. Habitat does exist within the study area for this species, although it was not detected.

The northern spotted owl (*Strix occidentalis caurina*) nests in tree cavities or broken off tops of trees in dense sections of old forest, well protected from open sky by a dense tree canopy. This species can travel over a mile from the nest site for foraging. Some suitable foraging habitat exists for this species in the vicinity of the study area. The nearest known activity center is approximately 1.8 miles to the northeast of the study area.

The osprey (*Pandion haliaetus*) is found near ocean shores, bays, freshwater lakes, and larger streams. Their nests are built in treetops within 15 miles of a good fish-producing body of water. Although habitat does exist within the study area for this species, it was not detected.

8.1.3.3 Fishes

No special-status fish species are considered to have moderate or high probability to occur within the vicinity of the project area.

8.1.3.4 Insects

No special-status insect species are considered to have moderate or high probability to occur within the vicinity of the project area.

8.1.3.5 Mammals

The silver-haired bat (*Lasionycteris noctivagans*) is primarily a coastal and montane forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Habitat does exist within the study area for this species, although it was not detected.

The long-eared myotis (*Myotis evotis*) can be found in all woodland and forested habitats from sea level to about 9,000 feet. Nursery colonies are often in buildings, crevices, spaces under bark, and snags. Some habitat does exist for this species within the study area. The site visit was conducted mid-day and had a low probability of detecting this species if it was present. The snags and stumps within the study area offer the most likely habitat for this species.

8.1.3.6 Reptiles

No special-status reptile species are considered to have moderate or high probability to occur within the vicinity of the project area.

One special-status animal species was detected during the biological survey (March 29, 2019). It is possible that other special-status species could be found within the project area at some point. One nest structure within APN 514-132-008 was observed, identified as a probable American Crow (*Corvus brachyrhynchos*) nest, but not observed as active at the time. A Steller's jay (*Cyanocitta stelleri*) was observed carrying nest material to a secluded location adjacent to the project site, although no nest locations were identified at the time of the survey. Section 11.0 Recommendations may be used as guidance for protection of special-status species including nesting birds. This Assessment documents the 2019 field investigations, and the findings presented here are based on best professional judgment.

8.2 Wetland Results and Discussion

Wetland field investigations were conducted on April 3, 10, and 18, 2019. A total of three TPs were excavated at the well site to characterize the project area that was not already characterized with an OHWM. TP examination results were recorded for soils, vegetation, and hydrology on USACE Wetland

Determination Data Forms (Appendix 4). The well site is in the CCC jurisdiction, which considers only one-parameter to qualify as a wetland. TP1 was the only test pit at the well site within a wetland and is a one-parameter CCC wetland (Wetland #1, Figure 2). TP2 was excavated at a geomorphic low, thought to be the one likely spot on the terrace above the perennial stream to have wetland potential. TP3 was excavated within a location that represents typical conditions on the terrace.

Seven TPs were excavated on the water treatment project site, which is out of the CCC jurisdiction. TPs 4, 5, 6, 7, 8, and 9 were excavated in areas that had potential to be within wetlands either from the presence of hydrology, vegetation, or geomorphic depressions that were found within the project area. Only TP9 contained all three USACE wetland parameters (Wetland #2). TP10 and 11 were excavated as paired plots to TP9 to help determine the boundary of this wetland.

Tables 2 and 3 summarize the type, location, and descriptions of the TPs and wetlands. The discussion sections below for each TP describe the physical features and considerations of the site, followed by a data section that summarizes information from the completed Wetland Determination Data Forms located in Appendix 4. See Figures 2 and 3 for TP locations and Appendix 1 for photos of the study area.

8.2.1 TP1 (Wetland #1-CCC)

8.2.1.1 Discussion

TP1 was excavated on April 3, 2019 at the well site, on the hillslope west of the pump house. The vegetation suggested a possible one-parameter wetland and is also identified as an ESHA (See Figure 2 and Appendix 1, Photo 3). The hillslope has a soil fill layer that likely was placed when the wellhouse slab was constructed. Native soil was encountered at 18 inches. Only the hydrophytic vegetation parameter was met, and is, therefore, not considered a USACE wetland site, but it does qualify as a CCC one-parameter wetland.

8.2.1.2 Data TP1

The vegetation parameter contained the tree and sapling/shrub and woody vine strata. The dominant tree stratum species was the red alder [FAC]. The dominant shrub stratum species was the salmonberry [FAC] and Himalayan blackberry [FAC]. The dominant woody vine stratum species was English Ivy [FACU]. Therefore, TP1 meets the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.2 TP2

8.2.2.1 Discussion

TP2 was excavated on April 3, 2019 within the well site study area, at a geographic low point contained in a flat area within the slope below the pump house and above the perennial stream. The localized depression appears to have been created by the rootball of a windthrown tree. (Appendix 1, Photo 4). No parameters were found at this location and therefore, it is not considered a USACE or CCC wetland.

8.2.2.2 Data TP2

The vegetation parameter contained the tree, sapling/shrub, herb, and woody vine strata. The dominant tree species were the western hemlock [FACU] and the Douglas fir [FACU]. The dominant shrub species was red huckleberry (*Vaccinium parvifolium* [FACU]) and salal (*Gaultheria shallon* [FACU]). The dominant species in the herb stratum was western sword fern [FACU]. The dominant species in the woody vine stratum was English ivy [FACU]. Therefore, TP2 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.3 TP3

8.2.3.1 Discussion

TP3 was excavated on April 3, 2019 at the upper terrace where the existing well pumphouse is located and was chosen to typify the conditions of this terrace. No parameters were found at this pit and is, therefore, not considered a USACE or CCC wetland site.

8.2.3.2 Data TP3

The vegetation parameter contained the tree, sapling/shrub, and herb stratum. The dominant tree species was the coast redwood [NL]. The dominant shrub stratum species was red huckleberry [FACU]. The dominant species in the herb stratum was western sword fern [FACU] and redwood sorrel (*Oxalis oregano* [FACU]). The dominant species in the woody vine stratum was English ivy [FACU]. Therefore, TP3 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.4 TP4

8.2.4.1 Discussion

TP4 was excavated on April 10, 2019 and is located at the water treatment site. TP4 is in a low spot that can overflow from the intermittent stream during high rainfall near OHWM Point #6. On April 10, surface water was observed, but not during an initial survey in January 2019 (See Figure 3; Appendix 1, Photo 5). Only two parameters were observed (hydrophytic vegetation and hydrology); therefore, TP4 is not considered to be a USACE wetland site. This site is not within the coastal zone.

8.2.4.2 Data TP4

The vegetation parameter contained the tree, sapling/shrub, and herb stratum. The dominant tree species were the red alder [FAC] and the Douglas fir [FACU]. The dominant shrub species was the salmonberry [FAC] and Himalayan blackberry [FAC]. The herb stratum was dominated by the western sword fern [FACU] and the Pacific rush (*Juncus effusus ssp. pacificus* [FACW]). Therefore, TP4 meets the hydrophytic vegetation parameter.

The hydrology parameter was present due to two observed primary indicators: A2 (High Water Table at 1 inch), A3 (Saturation). Two secondary indicators were also observed: D2 (Geomorphic Position) and D5 (FAC-Neutral Test).

No hydric soil indicators were observed.

8.2.5 TP5

8.2.5.1 Discussion

TP5 was excavated on April 10, 2019 and is located at the water treatment site. TP5 is in a geomorphic depression thought to have been created by tree throw (See Figure 3; Appendix 1, Photo 6). This site was chosen as the most likely site on the upper terrace that could potentially contain a wetland due to its topographic depression. No parameters were observed, and therefore, TP5 is not considered to be a USACE wetland site. This site is not within the coastal zone.

8.2.5.2 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratum. The dominant tree species were red alder [FAC] and coast redwood [NL]. The dominant shrub stratum species were the evergreen huckleberry (*Vaccinium ovatum* [FACU]) and salal [FACU]. The dominant species in the herb stratum was deer fern [FAC]. Therefore, TP5 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.6 TP6

8.2.6.1 Discussion

TP6 was excavated on June 10, 2019, in a geomorphic depression near a drainage culvert southeast of the water treatment facility. This site is below the water treatment site in the perennial stream flood plain (Appendix 1, Photo 7). No parameters were observed, and therefore, TP6 is not considered to be a USACE wetland site. This site is not within the coastal zone.

8.2.6.2 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratum. The dominant tree stratum species was coast redwood [NL]. The dominant shrub stratum species was cascara (*Frangula purshiana* [FAC]). The herb stratum was dominated by redwood sorrel [FAC]. Therefore, TP6 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.7 TP7

8.2.7.1 Discussion

TP7 was excavated on April 18, 2019. This pit is located on the sidewall of the constructed ditch which runs along the northern side of the access road (See Figure 3 and Appendix 1, Photo 8). No parameters were observed, and therefore, TP7 is not considered to be a USACE wetland site. This site is not within the coastal zone.

8.2.7.2 Data

The vegetation parameter contained the tree and herb stratum. The dominant tree species were coast redwood [NL] and Douglas fir [FACU]. The herb stratum was predominately deer fern [FAC] and western sword fern [FACU]. Therefore, TP7 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.2.8 TP8

8.2.8.1 Discussion

TP8 was excavated 14 feet east of TP7 in a low spot in the constructed ditch on April 18, 2019 (Appendix 1, Photo 8). Only one parameter was observed (hydrology), and therefore, TP8 is not considered to be a USACE wetland site. This site is not within the coastal zone.

8.2.8.2 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratum. The dominant tree species

were coast redwood [NL] and Douglas fir [FACU]. The dominant shrub species was salmonberry [FAC]. The herb stratum was dominated by deer fern [FAC]. Therefore, TP8 does not meet the hydrophytic vegetation parameter.

The hydrology parameter was present due to one primary indicator (A1-Surface water at 1-inch depth) and the secondary indicator (D2 -Geomorphic Position).

No hydric soil indicators were observed.

8.2.9 TP9, TP10, TP11 paired plots (Wetland #2-USACE)

8.2.9.1 Discussion

TP9, TP10, and TP11 were excavated on April 18, 2019. TP9 is approximately 45-feet northwest of TP7, north of the access road. This pit was excavated at the edge of a ponded area (Figure 3; Appendix 1, Photo 9). All three parameters were observed (hydrophytic vegetation, hydrology and hydric soils), and it is therefore considered a USACE wetland. These pits are not with the coastal zone. TP10 is approximately 18 feet northwest of TP9 and was excavated as a paired pit to find the edge of the upland/ wetland boundary. The vegetation parameter was not met, although the hydrology and hydric soil parameters were present. TP11 was excavated to more concisely find the edge of the boundary and is approximately five feet from TP10. No wetland parameters were found at TP11, and it is therefore out of the wetland boundary (Appendix 1, Photo 10).

8.2.9.2 TP9 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratus. The dominant tree species was the Pacific wax myrtle (*Morella californica* [FACW]). The dominant shrub species were salmonberry [FAC] and salal [FACU]. The dominant species in the herb stratum was deer fern [FAC]. Therefore, TP9 meets the hydrophytic vegetation parameter.

The hydrology parameter was present due to two primary indicators: A1 (Surface Water 2-inches deep) and C4 (Presence of Reduced Iron-positive reaction to the alpha, alpha-dipyridyl). One secondary indicator was observed: D2 (Geomorphic Position).

The soil horizon did not meet the A12 indicator (Thick Dark Surface), because it was a half-color-chip off from the indicator value. The reaction to the alpha, alpha-dipyridyl within the top 12 inches is an "other" indicator of presence of reduced iron for a hydric soil indicator. Because of the combination of these two factors and the presence of surface water, it was determined that the hydric soil parameter was met.

8.2.9.3 TP10 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratus. The dominant tree species were the Pacific wax myrtle [FACW] and coast redwood [NL]. The dominant shrub species were cascara [FAC] and salal [FACU]. The herb stratum was dominated by deer fern [FAC] and Pacific sword fern [FACU]. Therefore, TP10 does not meet the hydrophytic vegetation parameter.

The hydrology parameter was present due to two primary indicators: A2 (High Water at 7-inches deep) and A3 (Saturation to surface).

The hydric soil parameter was met with the following indicators: A11 (Depleted Dark Surface) and the F3 (Depleted Matrix).

8.2.9.4 TP11 Data

The vegetation parameter contained the tree, sapling/shrub, and herb stratus. The dominant tree stratum species was coast redwood [NL]. The dominant shrub stratum species was salal [FACU]. The herb stratum was dominated by deer fern [FAC]. Therefore, TP11 does not meet the hydrophytic vegetation parameter.

No hydrology or hydric soil indicators were observed.

8.3 Ordinary High Water Mark (OHWM)

OHWM #1 was observed at the well site in the perennial stream 140 feet north of the well pump house (Figure 2). Three OHWM delineation data sheets were completed to describe this perennial stream: OHWM Point #1, OHWM Point #2, and OHWM Point #3 (Appendix 4). The cross-sections of these points were used to define the area for OHWM #1. The NWI map does not include this stream in its mapped riparian areas (Appendix 2).

At the water treatment site, there are three drainageways (Figure 3). One drainage is a man-made ditch (non-jurisdictional) and was constructed to prevent surface flow at the northern uphill section of the access road near the pond from flowing down the road. It directs this initial surface water along the north side of the road and into the second drainageway (OHWM #2), which is a natural drainage with intermittent flows documented by OHWM Point #6. The constructed ditch was not considered to have an OHWM, because it would not ordinarily support surface flow across the dry land (See discussion under Section 7.6 OHWM Methodology regarding non-tidal drainage ditches excavated on dry land).

The third drainageway at the water treatment site (OHWM #3) is a natural perennial stream, south of the treatment plant. The outflow of the two ponds east of the site connects into this stream. Two OHWM delineation sheets were completed (Appendix 4, OHWM Point #4 and OHWM Point #5) to describe the streams area.

9.0 Conclusions

9.1 Biological results

There are 65 special-status botanical species reported within the region consisting of the study area's quadrangle (Crannell) and the surrounding topographic quadrangles (CDFW, 2019; CNPS, 2019; USFWS, 2019b). This section summarizes conclusions based on the research and field investigations documented.

Of the 65 special-status botanical species, 17 species listed in Appendix 3, Table 1, are considered to have a moderate or higher potential to occur within the study area. A botanical survey was conducted on April 10, April 18, May 10, and June 28, 2019; however, no special-status botanical species were observed. The survey was conducted at a seasonally-appropriate time for all of the special-status botanical species expected to exist within the survey area (See Section 8.1.2 Special-Status Plant Species).

There are 53 special-status animal species reported within the region consisting of the study area's quadrangle (Crannell) and the surrounding topographic quadrangles (CDFW, 2019; USFWS, 2019b). Of the 53 special-status animal species, 7 species listed in Appendix 3, Table 2, are considered to have a moderate or higher potential to occur within the study area and one species was present. A survey was conducted on April 10, 2019 and one special-status animal species was observed (*Accipiter cooperii*). Although potential habitat exists for a number of special-status species, they were not detected within the study area (See Section 8.1.3 Special-status Animal Species).

Three sensitive natural communities were identified at the well site - Red alder forest *Rubus* Association (*Alnus rubra*/*Rubus* spp. Association [G5S4, CDFW Sensitive]), Red alder riparian forest Community (*Alnus rubra* Forest alliance [G3/S2.2], and Redwood Forest Community (*Sequoia sempervirens*-*Pseudotsuga menziesii*/*Polystichum munitum* Association [G3 S3.2]) (Figure 2). One special-status natural community was identified at the water treatment site - Redwood Forest Community (*Sequoia sempervirens*/*Polystichum munitum* Association [G3 S3.2]).

See Section 11.0 Recommendations for measures to reduce potential impacts to special-status species, natural communities, and wetlands during implementation of the proposed project.

9.2 Wetland and OHWM Results

This region experienced an above-average winter rainfall, but a normal spring rainfall season (Section 3.2 Site Hydrology). The well site study area is within both the USACE and the CCC jurisdictions, and the water treatment site is only within the USACE jurisdiction. Because the CCC may consider 1, 2, or 3 parameters to identify a wetland, Table 2 describes the number and type of parameters for each TP. The USACE considers three-parameters as a wetland. Figures 2 and 3 indicate wetland and OHWM boundaries.

**Table 2. TP Parameter Results, April 3, April 10, and April 18, 2019
Westhaven CSD, Westhaven, CA**

TP Number	Parameters Met	Parameter Type	Latitude/Longitude	Jurisdiction
Well Site (within CCC Jurisdiction)				
TP1	1	Hydrophytic Vegetation	41.034274°/-124.107338°	CCC ¹
TP2	0	None	41.034726°/-124.107174°	None
TP3	0	None	41.034649°/-124.106957°	None
Water Treatment Site (not within CCC Jurisdiction)				
TP4	2	Hydrophytic Vegetation, Hydrology	41.034687°/-124.099947°	None
TP5	0	None	41.034820°/-124.098946°	None
TP6	0	None	41.034287°/-124.099137°	None
TP7	0	None	41.034917°/-124.099024°	None
TP8	1	Hydrology	41.034936°/-124.098991°	None
TP9	3	Hydrophytic Vegetation, Hydrology, Hydric Soils	41.034968°/-124.099214°	USACE ²
TP10	2	Hydrology, Hydric Soils	41.035022°/-124.099252°	None
TP11	0	None	41.035042°/-124.099256°	None
1. CCC: California Coastal Commission 2. USACE: U.S. Army Corps of Engineers				

Following the CCC one-, two-, and three-parameter guidelines for the well site, there is one wetland area found within the well site study area: Wetland #1 with 1,925 square feet (sf²; Figure 2; Table 3). It is based on the one-parameter hydrophytic vegetation dominance, associated with the Red alder/*Rubus* Association vegetation community.

There is one USACE wetland within the water treatment site study area: Wetland #2 with 847 sf² (Figure 3; Table 3). It is not within the CCC jurisdiction. Wetland #2 is a low depression that retains surface runoff. It appears that soil removed from the excavated drainage ditch was placed between the ditch and the

wetland, creating a berm that retains water runoff rather than allowing it to drain into the constructed ditch. Test pits were excavated to determine the northern extent of the boundary on April 18, 2019. The complete boundary of the wetland was refined during the June 28, 2019 site visit, when a 16-inch depth soil probe was used to investigate the subsurface soils. Alpha, alpha-dipyridyl reagent was applied to the upper soil horizons obtained from the probe to determine whether reduced iron was present, in addition to looking for other hydric soil indicators. Hydrophytic vegetation was also used to help refine the boundary. Elevation had a strong correlation to where reactive alpha, alpha-dipyridyl in the soils occurred and therefore, was indicative of the wetland boundary.

One 825 ft² OHWM was identified at the well study area (OHWM #1) in the perennial stream north of the well pump house (Figure 2, Table 3). Two OHWMs were identified at the water treatment study area (143 ft² OHWM #2 and 648 ft² OHWM #3; Figure 3, Table 3).

Table 3 describes the type, location, and size of the wetlands and OHWMs.

**Table 3. Wetland Delineation Results, April 3, April 10, and April 18, 2019
Westhaven CSD, Westhaven, CA**

Waterbodies	Test Pits	Cowardin Type	Latitude/Longitude	Area (square feet)
Wetland#1	TP1	PEM2C ¹	41.034291°/-124.107273°	1,925
Wetland#2	TP9	PEM1C ²	41.034968°/-124.099214°	847
OHWM #1	OHWM Pt1-3	NA	41.034888°/-124.107190°	825
OHWM #2	OHWM Pt6	NA	41.034696°/-124.100054°	143
OHWM #3	OHWM Pt4-5	NA	41.034166°/-124.099202°	648
Total				4,405
1. PEM2C: Palustrine emergent nonpersistent seasonally flooded				
2. PEM1C: Palustrine emergent persistent seasonally flooded				

10.0 Limitations

The conclusions in this report represent a “snapshot in time” and it is possible that some species were not present at the time of the fieldwork. This report documents the investigation by using the best professional judgment of SHN’s soil scientists, botanists, and biologist.

11.0 Recommendations

SHN recommends that the following measures be implemented at the project site to minimize the potential impacts to special-status plant and animal species, sensitive natural communities, and wetlands:

- Equipment and construction personnel should stay within the approved work area during construction;
- Temporary fencing should be installed around the permitted construction work area, to prevent accidental incursion into wetlands or streams;
- If impacts to special-status resources cannot be avoided while still accomplishing project objectives, these impacts should be mitigated at a ratio or in a manner to be determined by consultation with the appropriate regulatory agency;

- Minor impacts from project-related activities at the well site to the surrounding special-status natural communities could be mitigated through the removal of invasive species such as English ivy;
- Where project construction activities occur within close proximity, as defined in the Humboldt County General Plan and the Trinidad Area Plan to special-status resources, these resources should be demarcated by high visibility construction fencing during the project construction period in a manner sufficient to avoid unintentional impacts. If revegetation is needed as part of the project, native plant species should be used;
- Best management practices identified in the project description should be incorporated during construction to prevent runoff and potential discharge into wetland and OHWM areas;
- To avoid potential impacts to nesting birds, in accordance with the Migratory Bird Treaty Act, one of the following shall be implemented:
 - Conduct vegetation removal and other ground disturbance activities associated with any construction activities between late August and mid-March, when birds are not typically nesting, or
 - If vegetation removal or ground-disturbing activity is to take place during the nesting season (March 15 to August 15 for most birds), a qualified biologist shall conduct a pre-construction nesting bird survey. Pre-construction surveys for nesting pairs, nests, and eggs shall occur within the construction limits and within 100 feet (200 feet for raptors) of the construction limits. If active nests are encountered, species-specific measures shall be prepared by a qualified biologist in consultation with the USFWS and CDFW and implemented to prevent abandonment of the active nest.
- Project activities near the riparian area at the WTP site that provides amphibian habitat should occur from July 15 through October 31, to minimize potential impacts to these species;
- If excavation that requires dewatering occurs as part of project activities, dewatering pump intakes should be fitted with a filter basket or screen to prevent impacts to aquatic wildlife that may have entered the excavated area; and
- Retain large stumps and snags for wildlife habitat (e.g. roosting bats).

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Site Photographs

1



Photo 1: Existing well pump house and potential well drilling location on APN 514-132-007.



Photo 2: Existing water tank and vicinity of proposed geotechnical boring on APN 513-181-014.



Photo 3: TP1 on hillslope below the well pumphouse and Wetland #1/ESHA site location.



Photo 4: TP2 localized depression on lower bench above perennial stream at well study area.



Photo 5: TP4 surface water overflow at WTP site looking northwest towards OHWM Point #6.



Photo 6: TP5 on upper terrace at WTP in geomorphic depression looking towards existing water tank.



Photo 7: TP6 below culvert draining water treatment site.



Photo 8: TP7 (yellow handle) and TP8 (blue handle) looking west along constructed ditch at WTP site.



Photo 9: TP9 (Wetland #2) taken on 4-18-19 at WTP site.



Photo 10: TP11 (yellow handle in front) and TP10 (black handle in background) looking towards TP9-Wetland #2 at WTP. TP 10 is approximately two feet higher in elevation than TP 9.

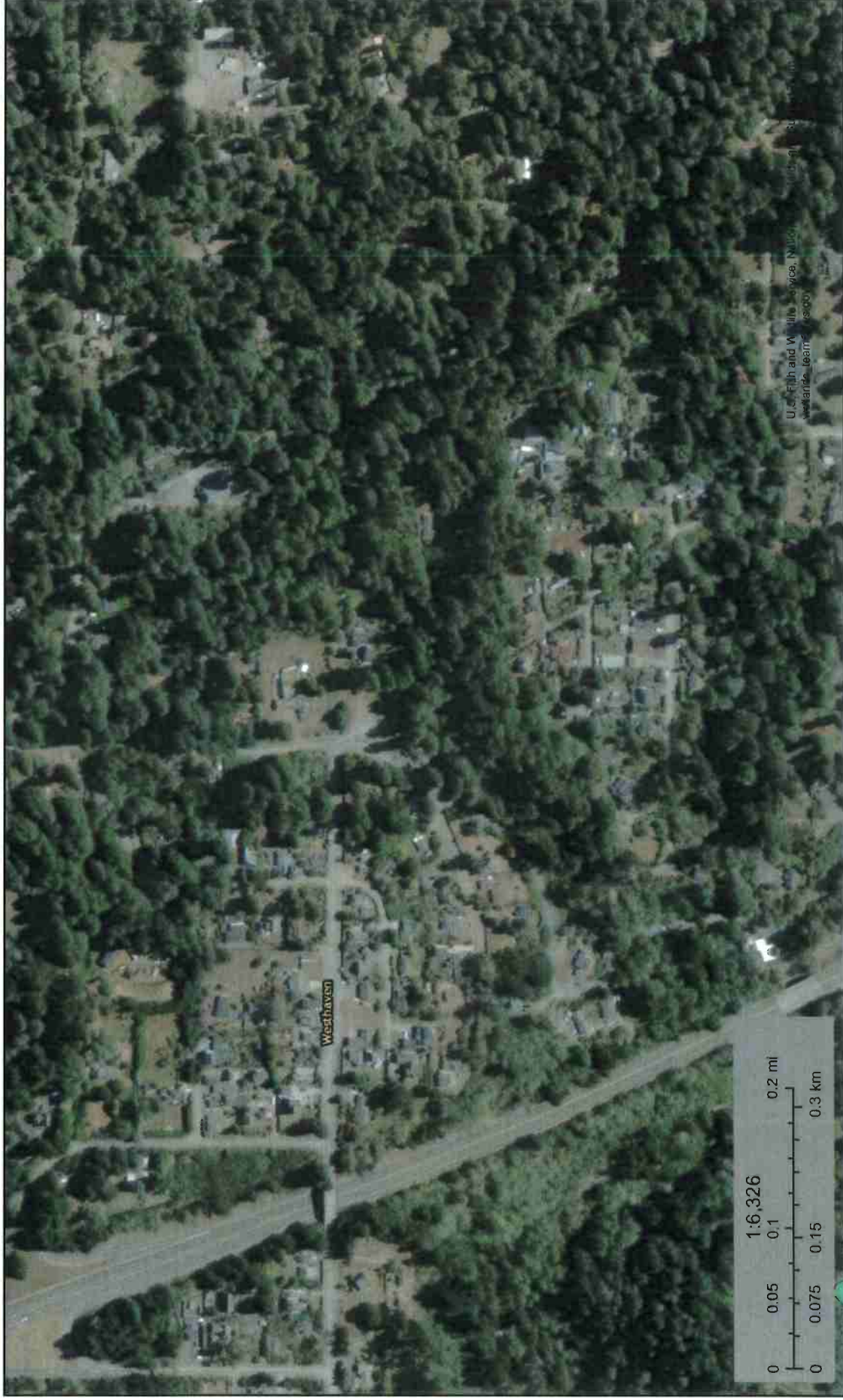
**National Wetlands
Inventory**

2



U.S. Fish and Wildlife Service
National Wetlands Inventory

Westhaven CSD



April 2, 2019

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

**Plant and Animal
Species List**

3

<p align="center">Table 1 Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC Westhaven Community Services District 4/8/2019 Crannell and Surrounding 7.5-min Quadrangles</p>											
Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	Nyctaginaceae	None	None	G4G5-T2	S1	1B.1	June-Oct.	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. Usually the plant closest to the ocean. 0-10 m.	None
<i>Angelica lucida</i>	sea-watch	Apiaceae	None	None	G5	S3	4.2	May-Sept.	Coastal strand	Coastal bluff scrub, coastal dunes, scrub, & salt marshes. 0-150 m	None
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	Fabaceae	None	None	G4T4	S4	4.3	April-July	Chaparral, cismontane woodland, lower montane conifer forest.	Open grassy hillsides, gravelly flats in valleys, and gravel bars of stream beds. 30-825 m.	Low
<i>Astragalus umbraticus</i>	Bald Mountain milk-vetch	Fabaceae	None	None	G4	S2	2B.3	May-Aug.	Cismontane woodland, Lower montane coniferous forest.	Sometimes roadside. 150-1,250 m.	None
<i>Bryoria pseudocapillaris</i>	false gray horsehair lichen	Parmeliaceae	None	None	G3	S2	3.2	Lichen	Coastal dunes, No. Coast conif. forest (immediate coast).	Usually on conifers. 0-90 m.	None
<i>Bryoria spirallifera</i>	twisted horsehair lichen	Parmeliaceae	None	None	G3	S1S2	1B.1	Lichen	No. coast coniferous forest.	Usually on conifers. 0-30 m.	Moderate
<i>Calamagrostis bolanderi</i>	Bolander's reed grass	Poaceae	None	None	G4	S4	4.2	May-August	Closed-cone & no. coast coniferous and broadleaved upland forest, coastal scrub, marshes, swamps, meadows and seeps, bogs and fens.	Mesic sites. 0-455 m.	Low

SW

Table 1 Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC Westhaven Community Services District 4/8/2019 Crannell and Surrounding 7.5-min Quadrangles											
Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Cardamine angulata</i>	seaside bittercress	Brassicaceae	None	None	G5	S1	2B.1	Jan.-July	Lower montane, conifer forest, N. coast conifer forest, wetland	Wet areas, streambanks. 90-155 m.	Low
<i>Carex arcta</i>	northern clustered sedge	Cyperaceae	None	None	G5	S1	2B.2	June–Sept.	Bogs and fens, No. Coast conifer forest.	Mesic sites. 0-3,200 m.	Moderate
<i>Carex buxbaumii</i>	Buxbaum's sedge	Cyperaceae	None	None	G5	S3	4.2	March–August	Bogs and fens, meadows and seeps, marshes and swamps.	Mesic sites. 3-3,300 m.	Low
<i>Carex lenticularis</i> var. <i>limnophila</i>	lagoon sedge	Cyperaceae	None	None	G5T5	S1	2B.2	June–August	Bogs and fens, marshes and swamps, north coast coniferous forest.	Lakeshores, beaches. Often in gravelly substrates. 0-6 m.	Low
<i>Carex leptalea</i>	bristle-stalked sedge	Cyperaceae	None	None	G5	S1	2B.2	March–July	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1,395 m.	Moderate
<i>Carex lyngbyei</i>	Lyngbye's sedge	Cyperaceae	None	None	G5	S3	2B.2	April–August	Marsh & swamp (brackish or freshwater).	0-200 m.	Moderate
<i>Carex saliniformis</i>	deceiving sedge	Cyperaceae	None	None	G2	S2	1B.2	June	Coastal prairie & scrub, meadows, seeps, marshes, swamps (coastal salt).	Mesic sites. 2-230 m.	Low
<i>Carex viridula</i> ssp. <i>viridula</i>	green yellow sedge	Cyperaceae	None	None	G5T5	S2	2B.3	June–July	Bogs and fens, marshes and swamps (freshwater), north coast coniferous forest.	Mesic sites. 0-1,705 m.	Moderate

SW

Table 1 Regionally-Occurring Special-Status Plant Species Scoping List CNDDDB, CNPS, IPaC Westhaven Community Services District 4/8/2019 Crannell and Surrounding 7.5-min Quadrangles											
Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Castilleja ambigua</i> var. <i>ambigua</i>	Johnny-nip	Orobanchaceae	None	None	G4T5	S4	4.2	March-Aug	Coastal bluff scrub, coastal scrub, coastal prairie, marshes and swamps, valley and foothill grassland, vernal pool margins.	0-435 m.	Low
<i>Castilleja litoralis</i>	Oregon coast paintbrush	Orobanchaceae	None	None	G3	S3	2B.2	June	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.	None
<i>Castilleja mendocinensis</i>	Mendocino Coast paintbrush	Orobanchaceae	None	None	G2	S2	1B.2	April-August	Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dunes.	Often on sea bluffs or cliffs in coastal bluff scrub or prairie. 3-70 m.	Low
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	Orobanchaceae	None	None	G4?T2	S2	1B.2	June-Oct.	Coastal salt marsh.	Usually in coastal salt marsh with <i>Salicornia</i> , <i>Distichlis</i> , <i>Jaumea</i> , <i>Spartina</i> , etc. 0-10 m.	None
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	Saxifragaceae	None	None	G5	S3	4.3	Feb.-June	North Coast coniferous forest, riparian forest.	Streambanks, sometimes seeps, sometimes roadsides. 10-220 m.	Moderate
<i>Coptis laciniata</i>	Oregon goldthread	Ranunculaceae	None	None	G4	S3	4.2	March-May	North coast conifer forest, meadows and seeps.	Mesic sites such as moist streambanks. 0-1,000 m.	Moderate

Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC Westhaven Community Services District 4/8/2019 Crannell and Surrounding 7.5-min Quadrangles											
Scientific Name	Common Name	Family	FedList	CallList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Discelium nudum</i>	naked flag moss	Discliac eae	None	None	G4G5	S1	2B.2	Moss	Coastal bluff scrub.	Moist silty clay to fine sandy banks in somewhat shaded sites.	Low
<i>Eleocharis parvula</i>	small spikerush	Cyperac eae	None	None	G5	S4	4.3	July-August	Marsh & swamp, salt marsh, wetland	In coastal salt marshes.	Low
<i>Empetrum nigrum</i>	black crowberry	Ericaceae	None	None	G5	S1?	2B.2	July-August	Coastal bluff scrub and coastal prairie.	3-15 m.	Low
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	Onagraceae	None	None	G4	S4	4.3	July-Sept.	Broadleaved upland forest, North Coast coniferous forest.	Sandy or rocky. 45-1,800 m.	Low
<i>Erigeron bloomeri</i> var. <i>nudatus</i>	Waldo daisy	Asteraceae	None	None	G5T4	S3	2B.3	June-July	Lower montane coniferous forest, upper montane coniferous forest.	In open areas on dry rocky outcrops on serpentine. 730-1,740 m.	Low
<i>Erysimum menziesii</i>	Menzies' wallflower	Brassicaceae	E	E	G1	S1	1B.1	March-Sept.	Coastal dunes.	Localized on dunes and coastal strand. 0-35 m.	None
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	None	None	G4G5	S2	2B.2	March-June	Cismontane woodland, Meadows and seeps.	Sometimes serpentine, rocky, openings. 100-1,150 m.	Low
<i>Erythronium revolutum</i>	coast fawn lily	Liliaceae	None	None	G4G5	S3	2B.2	March-July	Bogs and fens, Broadleaved upland forest, North Coast coniferous forest.	Mesic streambanks. 0-1,600 m.	Moderate

SW

Table 1 Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC Westhaven Community Services District 4/8/2019 Crannell and Surrounding 7.5-min Quadrangles											
Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Fissidens pauperculus</i>	minute pocket moss	Fissidentaceae	None	None	G3?	S2	1B.2	Lichen	North coast coniferous forest, Redwood.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1,024 m.	Low
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	Polemoniaceae	None	None	G5T3	S2	1B.2	April-August	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland.	5-1,665 m.	None
<i>Gilia millefoliata</i>	dark-eyed gilia	Polemoniaceae	None	None	G2	S2	1B.2	April-July	Coastal dunes.	1-60 m.	None
<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	American glehnia	Apiaceae	None	None	G5T5	S3	4.2	May-August	Coastal Dunes	0-20 m.	None
<i>Hosackia gracilis</i>	harlequin lotus	Fabaceae	None	None	G4	S3	4.2	March-July	Broadleaf upland forest, coast bluff scrub, coast prairie, coast scrub, closed-cone scrub, conifer forest, meadow, seep, marsh & swamp, N. coast conifer forest, valley & foothill grassland.	Wetlands and roadsides. 0-700 m.	Moderate
<i>Lilium latibracteata</i>	California globe mallow	Malvaceae	None	None	G2G3	S2	1B.2	June-August	Chaparral (montane), Lower montane and North Coast coniferous forest (mesic), Riparian scrub (streambanks).	Often in burned areas. 60-2,000m.	Low

<p>Table 1</p> <p>Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC</p> <p>Westhaven Community Services District 4/8/2019</p> <p>Crannell and Surrounding 7.5-min Quadrangles</p>											
Scientific Name	Common Name	Family	FedList	CallList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Juncus nevadensis var. inventus</i>	Sierra rush	Juncaceae	None	None	G5T3T4	S1	2B.2	July-Nov.	Bogs and fens.	0-10 m.	Low
<i>Kopsiopsis hookeri</i>	small groundcone	Orobanchaceae	None	None	G4?	S1S2	2B.3	April-August	North Coast coniferous forest.	90-885 m.	None
<i>Lathyrus gladiolus</i>	sticky pea	Fabaceae	None	None	G3	S3	4.3	April-June	Cismontane woodland.	In oak woodlands upland from the coastal redwood forests, and along roadsides.	Low
<i>Lathyrus japonicus</i>	seaside pea	Fabaceae	None	None	G5	S2	2B.1	May-August	Coastal dunes.	3-65 m.	None
<i>Lathyrus palustris</i>	marsh pea	Fabaceae	None	None	G5	S2	2B.2	March-August	Bogs, fens, lower montane conifer forest, marsh, swamp, no. coast conifer forest, coastal prairie and scrub.	Moist coastal areas.	Low
<i>Layia carnosa</i>	beach layia	Asteraceae	E	E	G2	S2	1B.1	March-July	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0-30m.	None
<i>Lilium occidentale</i>	western lily	Liliaceae	E	E	G1	S1	1B.1	June-July	Coastal scrub, freshwater marsh, bogs & fens, coastal bluff scrub, coast prairie, N. coast conifer forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.	Moderate

SW

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Scientific Name	Common Name	Family	FedList	CallList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Listera cordata</i>	heart-leaved twayblade	Orchidaceae	None	None	G5	S4	4.2	Feb.-July	Lower montane conifer forest, north coast conifer forest.	Bogs and fens, 5-1,370 m.	Moderate
<i>Lycopodium clavatum</i>	running-pine	Lycopodiaceae	None	None	G5	S3	4.1	June-Sept.	Lower montane conifer forest, north coast conifer forest, marsh &swamp.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1,225 m.	Moderate
<i>Lycopus uniflorus</i>	northern bugleweed	Lamiaceae	None	None	G5	S4	4.3	July-Sept.	Bogs and fens, marshes and swamps, wetlands.	Wet places. 5-2000 m.	Low
<i>Micranthes marshallii</i>	Marshall's saxifrage	Saxifragaceae	None	None	G5	S3	4.3	March-August	Riparian forest	Rocky streambanks. 90-2,130 m.	Moderate
<i>Mitellastracaulescens</i>	leafy-stemmed mitrewort	Saxifragaceae	None	None	G5	S4	4.2	March-Oct.	Broadleaf upland forest, lower montane conifer forest, meadow & seep, N. coast conifer forest.	Mesic sites. 5-1,700 m.	Moderate
<i>Moneses uniflora</i>	woodnymph	Ericaceae	None	None	G5	S2	2B.2	May-July	Broadleaved upland forest, North Coast coniferous forest.	50-260 m.	Low
<i>Montia howellii</i>	Howell's montia	Montiaceae	None	None	G3G4	S2	1B.1	March-June	Meadows, seeps, No. Coast coniferous forest, Vernal pools.	Vernally mesic sites, sometimes roadsides.0-835m.	Moderate
<i>Oenothera wolffii</i>	Wolf's evening-primrose	Onagraceae	None	None	G2	S1	1B.1	May-Oct.	Coastal bluff scrub, coastal dunes, coastal prairie, low montane conifer forest.	Sandy substrates; usually mesic sites. 3-800 m.	Low

<p>Table 1</p> <p>Regionally-Occurring Special-Status Plant Species Scoping List CNDDb, CNPS, IPaC</p> <p>Westhaven Community Services District 4/8/2019</p> <p>Crannell and Surrounding 7.5-min Quadrangles</p>											
Scientific Name	Common Name	Family	FedList	CallList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	Asteraceae	None	None	G4T4	S2S3	2B.2	Jan.-August	Coastal scrub, north coast coniferous forest.	Often along roadsides. 30-915 m.	Low
<i>Piperia candida</i>	white-flowered rein orchid	Orchidaceae	None	None	G3	S3	1B.2	May-Sept.	North Coast and lower montane coniferous forest, broadleaved upland forest.	Sometimes serpentine. Forest duff, mossy banks, rock outcrops, muskeg. 45-1,615 m.	Low
<i>Pityopus californicus</i>	California pinefoot	Ericaceae	None	None	G4G5	S4	4.2	March-August	Broadleaved upland forest, upper montane and, North coast coniferous forest, low montane coniferous forest.	Deep shade with few understory species, often under layer of duff, in rocky to clay loam soil. 15-2,225 m.	Low
<i>Pleuropogon refractus</i>	nodding semaphore grass	Poaceae	None	None	G4	S4	4.2	March-August	Meadow & seep, low montane conifer forest, North coast coniferous forest, riparian forest.	Mesic sites along streams, grassy flats in shaded redwood groves. 0-1,600 m.	Low
<i>Polemonium carneum</i>	Oregon polemonium	Polemoniaceae	None	None	G3G4	S2	2B.2	April-Sept.	Coastal prairie, coastal scrub, lower montane coniferous forest.	0-1,830 m.	Low
<i>Ribes laxiflorum</i>	trailing black currant	Grossulariaceae	None	None	G5	S4	4.3	March-July	North Coast coniferous forest.	Sometimes roadsides. 5-1,395 m.	Low
<i>Romanzoffia tracyi</i>	Tracy's romanzoffia	Boraginaceae	None	None	G4	S2	2B.3	March-May	Coastal bluff scrub, coastal scrub.	Rocky sites. 15-300 m.	Low

SNV

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Scientific Name	Common Name	Family	FedList	CalList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	Malvaceae	None	None	G3	S3	4.2	March-August	Broadleaved upland forest, coast prairie, coast scrub, North coast coniferous forest, riparian.	Woodlands and clearings near coast; often in disturbed areas. 0-730 m.	Low
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	Malvaceae	None	None	G5T2	S2	1B.2	March-August	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1,255 m.	Moderate
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	Malvaceae	None	None	G5T1	S1	1B.2	June-August	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest.		Low
<i>Silene scouleri ssp. scouleri</i>	Scoulers catchfly	Caryophyllaceae	None	None	G5T4T5	S2S3	2B.2	June-August	Coastal bluff scrub, coastal prairie, valley and foothill grassland	0-600 m.	Low
<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliate laceflower	Saxifragaceae	None	None	G5T5	S2S3	3.2	June-August	Lower montane coniferous forest, north coast coniferous forest.	Forest edge; moist shady banks. 170-1,500 m.	Low
<i>Trichodon cylindricus</i>	cylindrical trichodon	Ditrichaceae	None	None	G4	S2	2B.2	Moss	Broadleaved upland forest, upper montane coniferous forest.	Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1,500 m.	Low

Table 1

**Regionally-Occurring Special-Status Plant Species Scoping List CNDDDB, CNPS, IPaC
Westhaven Community Services District 4/8/2019
Crannell and Surrounding 7.5-min Quadrangles**

Scientific Name	Common Name	Family	FedList	CallList	GRank	SRank	RPlant Rank	Bloom Period	General Habitat	Micro-Habitat	Potential of Occurrence
<i>Usnea longissima</i>	Methuselah's beard lichen	Parmeliaceae	None	None	G4	S4	4.2	lichen	North coast coniferous forest, broadleaved upland forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1,465 m.	Low
<i>Viola palustris</i>	alpine marsh violet	Violaceae	None	None	G5	S1S2	2B.2	March-August	Coastal scrub, bogs and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.	Moderate

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)

C: candidate

FP: fully protected

CT: candidate threatened

PT: proposed threatened

D: delisted

SSC: species of special concern

DPS: distinct population segment

T: threatened

E: endangered

WL: watch list

ESU: evolutionarily significant unit

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)

G1/S1: critically imperiled

G2/S2: imperiled

G3/S3: vulnerable

G4/S4: apparently secure

G5/S5: secure

Table 2
Westhaven Community Services District
April 2019
CNDDDB, IPaC Animal scoping list
Cranell and Surrounding 7.5-min Quadrangles

Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
Amphibians								
<i>Ascaphus truei</i>	Pacific tailed frog	None	None	SSC	G4	S3S4	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Low
<i>Plethodon elongatus</i>	Del Norte salamander	None	None	NT	G4	S3	Old-growth associated species with optimum conditions in the mixed conifer/hardwood ancient forest ecosystem. Cool, moist, stable microclimate, a deep litter layer, closed multi-storied canopy, dominated by large, old trees.	Low
<i>Rana aurora</i>	northern red-legged frog	None	None	SSC, S	G4	S3	Humid forests, woodlands, grasslands, and streamides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Moderate
<i>Rana boylei</i>	foothill yellow-legged frog	None	CT	SSC, S, NT	G3	S3	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Low
<i>Rhyacotriton variegatus</i>	southern torrent salamander	None	None	SSC, S	G3G4	S2S3	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old-growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	Moderate
Birds								
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	G5	S4	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Present
<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	G5	S4	Ponderosa pine, black oak, riparian deciduous, mixed conifer & Jeffrey pine habitat. Prefers riparian. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft of water.	Low

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Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
<i>Ardea herodias</i>	great blue heron	None	None	S	G5	S4	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites close to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Low
<i>Asio flammeus</i>	short-eared owl	None	None	SSC	G5	S3	Live in large, open areas with low vegetation, including prairie and coastal grasslands, heathlands, meadows, shrubsteppe, savanna, tundra, marshes, dunes, and agricultural areas.	None
<i>Botaurus lentiginosus</i>	American bittern	None	None	None	G4	S3S4	In winter they move to areas where water bodies don't freeze, especially near the coast, where they occasionally use brackish marshes. Usually build their nests among thick stands of cattails, bulrushes, and sedges that grow out of shallow water.	None
<i>Brachyramphus marmoratus</i>	marbled murrelet	T	E	S	G3G4	S1	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	None
<i>Cerorhinca monocerata</i>	rhinoceros auklet	None	None	WL	G5	S3	Off-shore islands and rocks along the California coast. Nests in a burrow on undisturbed, forested and unforested islands, and probably in cliff caves on the mainland.	None
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	T	None	SSC, BCC	G3T3	S2S3	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	None
<i>Charadrius montanus</i>	mountain plover	None	None	SSC	G3	S2S3	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground & flat topography. Prefers grazed areas & areas with burrowing rodents.	None
<i>Coccyzus americanus</i>	yellow-billed cuckoo	T	E	S, BCC	G5T2T3	S1	Use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes.	None
<i>Contopus cooperi</i>	olive-sided flycatcher	None	None	SSC	G4	S4	Winters at forest edges and clearings where tall trees or snags are present. Nest is an open cup of twigs, rootlets, and lichens, placed out near tip of horizontal branch of a tree.	Moderate

SW

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Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
<i>Egretta thula</i>	snowy egret	None	None	None	G5	S4	Nest in colonies on thick vegetation in isolated places. During the breeding season, feed in estuaries, saltmarshes, tidal channels, shallow bays, and mangroves. They winter in mangroves, saltwater lagoons, freshwater swamps, grassy ponds, and temporary pools, and forage on beaches, shallow reefs, and wet fields.	None
<i>Elanus leucurus</i>	white-tailed kite	None	None	FP	G5	S3S4	Rolling foothills and valley margins w/scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low
<i>Falco peregrinus anatum</i>	American peregrine falcon	D	D	FP	G4T4	S3S4	Elevations up to about 12,000 feet, as well as along rivers and coastlines or in cities. Any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains.	Low
<i>Fratercula cirrhata</i>	tufted puffin	None	None	SSC	G5	S1S2	Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.	None
<i>Haliaeetus leucocephalus</i>	bald eagle	D	E	FP	G5	S3	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Low
<i>Nycticorax nycticorax</i>	black-crowned night heron	None	None	None	G5	S4	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Low
<i>Oceanodroma furcata</i>	fork-tailed storm-petrel	None	None	SSC, S	G5	S1	Colonial nester on small, offshore islets. Forages over the open ocean, usually well offshore. Birds choose offshore islets which provide nesting crannies beneath rocks or sod for burrowing.	None
<i>Pandion haliaetus</i>	osprey	None	None	S, WL	G5	S4	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in treetops within 15 miles of a good fish-producing body of water.	Moderate

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Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
<i>Pelecanus occidentalis californicus</i>	California brown pelican	D	D	FP	G4T3T4	S3	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	None
<i>Phalacrocorax auritus</i>	double-crested cormorant	None	None	WL	G5	S4	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	None
<i>Ptychoramphus aleuticus</i>	Cassin's auklet	None	None	SSC, BCC	G4	S2S4	Pelagic species, nests in burrows on offshore islands.	None
<i>Rallus obsoletus obsoletus</i>	California Ridgway's rail	E	E	FP	G5T1	S1	Saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	None
<i>Riparia riparia</i>	bank swallow	None	T	S	G5	S2	Colonial nester; primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	None
<i>Strix occidentalis caurina</i>	northern spotted owl	T	T	S	G3T3	S2S3	Nests in tree cavities or broken off tops of trees in dense section of old forest, well protected from open sky by a dense tree canopy. This species can travel over a mile for foraging.	Moderate
Fish								
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	VU, S, SSC	G4	S4	Found in Pacific Coast streams north of San Luis Obispo Co., however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temps 12-18 C. Ammocoetes need soft sand or mud.	Low
<i>Eucyclogobius newberryi</i>	tidewater goby	E	None	SSC, VU	G3	S3	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	None

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<i>Oncorhynchus clarkii clarkii</i>	coast cutthroat trout	None	None	VU, SSC, S	G4T4	S3	Small coastal streams from the Eel River to the Oregon border. Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Low
<i>Oncorhynchus kisutch pop. 2</i>	coho salmon - southern Oregon / northern						Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California.	Low
<i>Oncorhynchus mykiss irideus pop. 16</i>	steelhead - northern California DPS	T	T	None	G4T2Q	S2?	Aquatic, California coastal river basins from Redwood Creek to and including the Gualala River. Below natural and manmade impassable barriers. Excavates in gravel for spawning.	Low
<i>Oncorhynchus mykiss irideus pop. 36</i>	summer-run steelhead trout	T	None	None	G5T2T3Q	S2S3	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS. Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	Low
<i>Oncorhynchus tshawytscha pop. 17</i>	chinook salmon - California coastal ESU							
		None	None	SSC	G5T4Q	S2		Low
		T	None	None	G5	S1	South of the Klamath River to and including the Russian River.	Low
<i>Oncorhynchus tshawytscha pop. 30</i>	chinook salmon - upper Klamath and Trinity Rivers ESU	None	None	SSC	G5	S1S2	Aquatic, upper Klamath and Trinity Rivers, Below natural and manmade impassable barriers. Cool, fast flowing water, deep with coarse gravel.	None
<i>Spirinchus thaleichthys</i>	longfin smelt	C	T	SSC	G5	S1	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	None

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Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
<i>Thaleichthys pacificus</i>	eulachon	T	None	None	G5	S3	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	None
Insects								
<i>Bombus caliginosus</i>	obscure bumble bee	None	None	VU	G4?	S1S2	Coastal areas from Santa Barbara county to north to Washington state. Food plant genera include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindelia</i> and <i>Phacelia</i> .	Low
<i>Bombus occidentalis</i>	western bumble bee	None	None	S, IM	G2G3	S1	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Low
Mammals								
<i>Antrozous pallidus</i>	pallid bat	None	None	SSC, S	G5	S3	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low
<i>Aplodontia rufa humboldtiana</i>	Humboldt mountain beaver	None	None	None	G5TNR	SNR	Coast Range in southwestern Del Norte County and northwestern Humboldt County. Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	Low
<i>Arborimus albipes</i>	white-footed vole	None	None	SSC	G3G4	S2	Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs. Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	Low
<i>Arborimus pomio</i>	Sonoma tree vole	None	None	SSC, NT	G3	S3	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	Low

Table 2
Westhaven Community Services District
April 2019
CNDDDB, IPaC Animal scoping list
Crannell and Surrounding 7.5-min Quadrangles

Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
<i>Erethizon dorsatum</i>	North American porcupine	None	None	None	G5	S3	Forested habitats in the Sierra Nevada, Cascade, and Coast Ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.	Low
<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None	None	G5	S3S4	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	Moderate
<i>Martes caurina humboldtensis</i>	Humboldt marten	None	CE	SSC, S	G5T1	S1	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Low
<i>Myotis evotis</i>	long-eared myotis	None	None	S	G5	S3	Found in all brush, woodland and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Moderate
<i>Pekania pennanti</i>	fisher - West Coast DPS	None	T	SSC, S	G5T2T3Q	S2S3	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	None
Mollusks								
<i>Margaritifera falcata</i>	western pearlshell	None	None	None	G4G5	S1S2	Aquatic. Prefers lower velocity waters.	Low
Reptiles								
<i>Emys marmorata</i>	western pond turtle	None	None	SSC, S, VU	G3G4	S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Low

Table 2
Westhaven Community Services District
April 2019
CNDDDB, IPaC Animal scoping list
Crannell and Surrounding 7.5-min Quadrangles

Scientific Name	Common Name	FedList	CallList	Other Status	GRank	SRank	Habitats	Potential of Occurrence
1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)								
C:	candidate			FP: fully protected			S: sensitive	
CT:	candidate threatened			PT: proposed threatened			VU: vulnerable	
D:	delisted			SSC: species of special concern			NT: near threatened	
DPS:	distinct population segment			T: threatened			BCC: bird of conservation concern	
E:	endangered			WL: watch list			IM: imperiled	
ESU:	evolutionarily significant unit							
2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)								
G1/S1:	critically imperiled							
G2/S2:	imperiled							
G3/S3:	vulnerable							
G4/S4:	apparently secure							
G5/S5:	secure							

Table 3
Plants Observed at Study Site April 3, April 10, April 18, May 10, and June 28, 2019
Westhaven Community Services District
Westhaven, CA

Scientific Name	Common Name	Indicator 2016 ¹	California Native?
<i>Anthoxanthum odoratum</i>	sweet vernal grass	NL	N ²
<i>Acer macrophyllum</i>	big leaf maple	FACU	Y ³
<i>Agrostis stolonifera</i>	creeping bentgrass	FAC	N
<i>Alnus rubra</i>	red alder	FAC	Y
<i>Asarum caudatum</i>	wild ginger	FACU	Y
<i>Bromus diandrus</i>	rip-gut brome	NL	N
<i>Bromus hordeaceus</i>	soft brome	FACU	N
<i>Carex bolanderi</i>	Bolander's Sedge	FAC	Y
<i>Carex gracilior</i>	slender sedge	NL	Y
<i>Carex obnupta</i>	slough sedge	OBL	Y
<i>Crocsmia X crocosmiiflora</i>	crocsmia	FAC	N
<i>Cynosurus echinatus</i>	dogtail grass	NL	N
<i>Cynoglossum grande</i>	Pacific hound's tongue	NL	Y
<i>Cytisus scoparius</i>	Scotch broom	NL	N
<i>Dicentra formosa</i>	Pacific bleeding hearts	FACU	Y
<i>Epilobium ciliatum</i>	fringed willow herb	FACW	Y
<i>Equisetum arvense</i>	field horsetail	FAC	Y
<i>Festuca bromoides</i>	brome fescue	FAC	N
<i>Frangula purshiana</i> ssp. <i>purshiana</i>	cascara	FAC	Y
<i>Galium aparine</i>	cleavers	FACU	Y
<i>Galium divaricatum</i>	Lamarck's bedstraw	FACU	N
<i>Gaultheria shallon</i>	salal	FACU	Y
<i>Geranium dissectum</i>	cut leaf geranium	NL	N
<i>Hedera helix</i>	English ivy	FACU	N
<i>Heuchera micrantha</i>	crevice alumroot	NL	Y
<i>Hypochaeris radicata</i>	hairy cat's ear	FACU	N
<i>Ilex aquifolium</i>	English holly	FACU	N
<i>Iris douglasiana</i>	Douglas iris	NL	Y
<i>Juncus bufonius</i>	toad rush	FACW	Y
<i>Juncus occidentalis</i>	western rush	FACW	Y
<i>Juncus patens</i>	gray rush	FACW	Y
<i>Leontodon saxatilis</i>	hawkbit	FACU	N
<i>Lotus corniculatus</i>	bird's foot trefoil	FAC	N
<i>Luzula comosa</i>	hairy woodrush	FAC	Y
<i>Lysichiton americanus</i>	skunk cabbage	OBL	Y
<i>Lysimachia latifolia</i>	pacific star flower	FACW	Y
<i>Maianthemum racemosum</i>	false Solomon's seal	FAC	Y

Table 3
Plants Observed at Study Site April 3, April 10, April 18, May 10, and June 28, 2019
Westhaven Community Services District
Westhaven, CA

Scientific Name	Common Name	Indicator 2016 ¹	California Native?
<i>Mentha pulegium</i>	pennyroyal	OBL	N
<i>Whipplea Modesta</i>	modesty	NL	Y
<i>Morella californica</i>	Wax myrtle	FACW	Y
<i>Oxalis oregana</i>	redwood sorrel	FACU	Y
<i>Pectiantia ovalis</i>	coastal miterwort	FACW	Y
<i>Picea sitchensis</i>	Sitka spruce	FAC	Y
<i>Poa annua</i>	annual blue grass	FAC	N
<i>Poa trivialis</i>	rough blue grass	FAC	Y
<i>Polystichum munitum</i>	western sword fern	FACU	Y
<i>Prosartes hookeri</i>	Hooker's fairy bells	NL	Y
<i>Pseudotsuga menziesii</i>	Douglas Fir	FACU	Y
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern	NL	Y
<i>Ranunculus repens</i>	creeping buttercup	FAC	N
<i>Rhododendron occidentale</i> var. <i>occidentale</i>	western azalea	FAC	Y
<i>Rubus armeniacus</i>	Himalayan blackberry	FAC	N
<i>Rubus parviflorus</i>	thimble berry	FACU	Y
<i>Rubus spectabilis</i>	salmon berry	FAC	Y
<i>Rubus ursinus</i>	California blackberry	FACU	Y
<i>Sequoia sempervirens</i>	coast redwood	NL	Y
<i>Spergularia rubra</i>	red sandspurry	FAC	N
<i>Sonchus asper</i>	spiny sowthistle	FACU	N
<i>Sonchus oleraceus</i>	common sowthistle	UPL	N
<i>Stachys ajugoides</i>	bugle hedgenettle	OBL	Y
<i>Stellaria media</i>	chickweed	FACU	N
<i>Struthiopteris spicant</i>	deer fern	FAC	Y
<i>Taraxacum officinale</i>	red-seeded dandelion	FACU	N
<i>Tellima grandiflora</i>	fragrant fringe cup	FACU	Y
<i>Tolmiea menziesii</i>	pig-a-back plant	FAC	Y
<i>Trientalis latifolia</i>	western starflower	FACW	Y
<i>Trifolium repens</i>	white clover	FAC	N
<i>Trifolium hirtum</i>	rose clover	NL	N
<i>Trifolium subterraneum</i>	subterranean clover	NL	N
<i>Trillium ovatum</i>	western trillium	FACU	Y
<i>Tsuga heterophylla</i>	western hemlock	FACU	Y
<i>Vaccinium ovatum</i>	evergreen huckleberry	FACU	Y
<i>Vaccinium parvifolium</i>	red huckleberry	FACU	Y
<i>Viola sempervirens</i>	redwood violet	NL	Y
Percent California Native			64%

Table 3

Plants Observed at Study Site April 3, April 10, April 18, May 10, and June 28, 2019
Westhaven Community Services District
Westhaven, CA

Scientific Name	Common Name	Indicator 2016 ¹	California Native?
<p>1. Indicators are abbreviated as follows:</p> <p>OBL: Obligate FACW: Facultative wet FAC: Facultative FACU: Facultative upland UPL: Upland NL: Not listed</p> <p>2. N: No 3. Y: Yes</p>			

Table 4
Animal Species Observed 4/3 and 4/10/19
Westhaven Community Services District
Westhaven, CA

Scientific Name	Common Name	Family	Nesting Habit	Listed?
Birds				
<i>Selasphorus sasin</i>	Allen's Hummingbird	Trochilidae	Cup nest on horizontal branches, often near shady streams	NL ¹
<i>Ixoreus naevius</i>	Varied Thrush	Turdidae	Cup nest in small tree or shrub usually in mature forest understory	NL
<i>Cyanocitta stelleri</i>	Steller's jay	Corvidae	Bulky cup nest on a horizontal branch of conifer	NL
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	Paridae	Cavity nester, variety of heights	NL
<i>Corvus corax</i>	Common raven	Corvidae	Basket nest of twigs on cliffs, trees, or human made structures	NL
<i>Troglodytes hiemalis</i>	Winter wren	Troglodytidae	Dome nests or inside natural cavities	NL
<i>Regulus satrapa</i>	Golden-crowned Kinglet	Regulidae	Cup nest near the top of a conifer tree.	NL
<i>Corvus brachyrhynchos</i>	American crow	Corvidae	Stick nest in the crotch of branches usually in the top third or quarter of the tree.	NL
<i>Accipiter cooperii</i>	Cooper's Hawk	Accipitridae	Stick nest in a crotch of branches or on horizontal branch about 2/3 up a tree.	WL ²
<i>Certhia americana</i>	Brown creeper	Certhiidae	Cup nest wedged in a loose piece of bark on a tree trunk.	NL
Mollusks				
<i>Ariolimax columbianus</i>	Banana slug	Ariolimacidae	Lays eggs under logs or in leaves	NL
1. NL: Not Listed 2. WL: Watch List				

**Wetland and OHWM
Delineation Data Forms**

4

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

Project/Site: Westhaven CSD Well Site City/County: Westhaven/Humboldt Sampling Date: April 3, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP1
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC.31
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): none Slope (%): 15
 Subregion (LRR): A, MLRA 4B Lat: 41.034274 Long: -124.107338 Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u>	No <u>✓</u>
Hydric Soil Present?	Yes <u> </u>	No <u>✓</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>✓</u>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus incana</u>	<u>90</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Sequoia sempervirens</u>	<u>5</u>	<u> </u>	<u>NL</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet:
Total Cover = <u>95</u>				
Sapling/Shrub Stratum (Plot size: <u>5</u>)				Total % Cover of: <u> </u> Multiply by: <u> </u>
1. <u>Rubus spectabilis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	OBL species <u> </u> x 1 = <u> </u>
2. <u>Rubus parviflorus</u>	<u>1</u>	<u> </u>	<u>FACU</u>	FACW species <u> </u> x 2 = <u> </u>
3. <u>Rubus cuneatus</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	FAC species <u> </u> x 3 = <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u> </u> x 4 = <u> </u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL species <u> </u> x 5 = <u> </u>
Total Cover = <u>11</u>				Column Totals: <u> </u> (A) <u> </u> (B)
Herb Stratum (Plot size: <u> </u>)				Prevalence Index = B/A = <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Woody Vine Stratum (Plot size: <u>30</u>)				Hydrophytic Vegetation Present? Yes <u>✓</u> No <u> </u>
1. <u>Hedera helix</u>	<u>17</u>	<u>Y</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover = <u>17</u>				
% Bare Ground in Herb Stratum <u>100</u>				
Remarks: <u>Summaring landscape has large amounts of H. helix.</u>				

SOIL

Sampling Point: TPI

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹			
0-1	duff							
0-2	7.5YR 2.5/1	100					Fill material, zones of	
2-17	7.5YR 3/3	60	not redox-				different colors envelope	
	10YR 3/3	25	imported					
	5YR 4/6	5	material				old piece of brick?	
	10YR 5/6	10					blow out from elsewhere	
17-24	7.5YR 3/4	90	10YR 3/3	10	C	m	native soil covered above this layer	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks: This is a 1" layer photoed over from man-made slab for well placement on counter native @ 18" of burned material @ contact.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5) <input checked="" type="checkbox"/>
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

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

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

Saturation Present? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

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

Project/Site: Westhaven CSD Well Site City/County: Westhaven/Humboldt Sampling Date: April 3, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP2
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A, MLRA 4B Lat: 41.034726 Long: -124.107174 Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>✓</u>
Hydric Soil Present?	Yes <u> </u> No <u>✓</u>		
Wetland Hydrology Present?	Yes <u> </u> No <u>✓</u>		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Tsuga heterophylla</u>	<u>10</u>		<u>FACU</u>	
2. <u>Sequoia sempervirens</u>	<u>50</u>	<u>X</u>	<u>NL</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. <u>Pseudotsuga menziesii</u>	<u>20</u>	<u>X</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. <u> </u>				
5. <u> </u>				
<u>80</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u> </u>	<u>5</u>	<u>X</u>	<u>FACU</u>	
2. <u>Veronica parvifolium</u>	<u>2</u>	<u>X</u>	<u>FACU</u>	OBL species <u> </u> x 1 = <u> </u>
3. <u>Gaultheria shallon</u>	<u>2</u>	<u>X</u>	<u>FACU</u>	FACW species <u> </u> x 2 = <u> </u>
4. <u> </u>				FAC species <u> </u> x 3 = <u> </u>
5. <u> </u>				FACU species <u> </u> x 4 = <u> </u>
<u>9</u> = Total Cover				UPL species <u> </u> x 5 = <u> </u>
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: <u> </u> (A) <u> </u> (B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index = B/A = <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u>Clethra albanica</u>	<u>1</u>		<u>FAC</u>	
4. <u>Vista sempervirens</u>	<u>1</u>		<u>NL</u>	
5. <u>Tallium ovatum</u>	<u>1</u>		<u>FACU</u>	
6. <u>Polystichum minus</u>	<u>30</u>	<u>X</u>	<u>FACU</u>	
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
<u>30</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>✓</u>
1. <u>Hedera helix</u>	<u>73</u>	<u>X</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>			
<u>73</u> = Total Cover				
% Bare Ground in Herb Stratum <u>68</u>				
Remarks: <u>Landscape has large amounts of H helix</u>				

SOIL

Sampling Point: TP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-5	du ff						L	Faint contrast
0-7	10YR 7/2	80	10YR 3/3	20	C	m	SL	Many roots w/ small rounded gravel
7-24"	10YR 3/3	60	2.5Y 6/2	21%	D	m	SL	w/ small rounded gravel
		10	10YR 5/4	40	C	m		gravel

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

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

Hydric Soil Present? Yes _____ No ☒

Remarks: Tree throw depression soil disturbed. Faint contrast 5-7" horizon
(Δh = 0, Δv = 1, Δcwr = 1)

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5) <u>NO</u>
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project/Site: Westhaven CSD Well Site City/County: Westhaven/Humboldt Sampling Date: April 3, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP3
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slight depr. Slope (%): 10
 Subregion (LRR): A, MLRA 4B Lat: 41.034049 Long: -124.106957 Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>Sequoia sempervirens</u>	<u>80</u>	<u>Y</u>	<u>NL</u>	
2. <u>Pseudotsuga amabilis</u>	<u>15</u>		<u>FACU</u>	
3. <u> </u>				
4. <u> </u>				
<u>95</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub Stratum (Plot size: <u> </u>) 1. <u>Vaccinium parvifolium</u> <u>T</u> <u>Y</u> <u>FACU</u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u>				
<u>10</u> = Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) <u> </u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u> </u>) 1. <u>Polystichum minium</u> <u>10</u> <u>X</u> <u>FACU</u> 2. <u>Vicia sempervirens</u> <u>T</u> <u> </u> <u>NL</u> 3. <u>Oxalis oregana</u> <u>5</u> <u>Y</u> <u>FACU</u> 4. <u> </u> <u>T</u> <u> </u> <u>FACU</u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u>				
<u>45</u> = Total Cover				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
Woody Vine Stratum (Plot size: <u> </u>) 1. <u>Hedera helix</u> <u>40</u> <u>Y</u> <u>FACU</u> 2. <u> </u> 3. <u> </u>				
<u>80</u> = Total Cover				
% Bare Ground in Herb Stratum <u> </u>				
Remarks: <u>Surrounding landscape has large amounts of H. helix</u>				

SOIL

Sampling Point: TP3

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

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-0.5	dark							
0.5-4.5	10YR 2/2	45					L	Faint contrast
	10YR 3/3	55						
4.5-9	7.5YR 2.5/3	100					SL	
9-16	7.5YR 3/3	80	7.5YR 4/4	20	C	m	SL	w/occ. charcoal & rounded pebble
					Faint contrast			occ. 3/3 inclusions
16-21+	10YR 4/4	99	10YR 5/3	1	D	m	SEL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Upper terrace pit, native soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5) <u>NO</u>
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

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

Project/Site: Westhaven CSD Treatment Site City/County: Westhaven/Humboldt Sampling Date: April 10 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP4
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): drainage way (hillside) Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): A, MLRA 4B Lat: 41.0347110 Long: -124.1000470 Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u>✓</u>	No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>✓</u>	
Wetland Hydrology Present?	Yes <u>✓</u>	No <u> </u>	
Remarks: <u>Recently weed whacked / string trimmed. Low spot that nearby stream can flow into during high rainfall.</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Alnus rhombifolia</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Pseudotsuga menziesii</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: <u>5</u>)				Total % Cover of: <u>50</u> = Total Cover
1. <u>Rubus spectabilis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
2. <u>Vaccinium cereum</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Rubus armeniacus</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Herb Stratum (Plot size: <u>5</u>)				<u>50</u> = Total Cover
1. <u>Rubus armeniacus</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>✓</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Polygala maritima</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Juncus effusus</u>	<u>22</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Oenanthe serotensis</u>	<u>7</u>	<u>N</u>	<u>OBL</u>	
5. <u>Blechnum sp.</u>	<u>8</u>	<u>N</u>	<u>FAC</u>	
6. <u>Athyrium filix-femina</u>	<u>1</u>	<u>N</u>	<u>NL</u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Woody Vine Stratum (Plot size: <u> </u>)				<u>48</u> = Total Cover
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>✓</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
% Bare Ground in Herb Stratum <u>32</u>				<u> </u> = Total Cover
Remarks:				

Sampling Point: TP 41

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: Westhaven CSD Treatment Site City/County: Westhaven/Humboldt Sampling Date: April 10 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP5
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 10
 Subregion (LRR): A, MLRA 4B Lat: 41.034412° Long: -124.098969° Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Tree-throw pit next to tank.</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)
1. <u>Alnus rubra</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Sequoia sempervirens</u>	<u>50</u>	<u>Y</u>	<u>NL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>65</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Vaccinium ovalifolium</u>	<u>7</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Gaultheria phillyifolia</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>12</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Pyrola asarifolia</u>	<u>3</u>	_____	<u>FACU</u>	
2. <u>Parthenocissus vitacea</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>18</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>82</u>				
Remarks: <u>Tree growth of Bryon</u>				

SOIL

Sampling Point: TP 5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-0								DUFF OM
0-11	10YR 2/1	100					L	Moist soil
11-14	10YR 3/2	99	2.5Y 6/2	1	D	M	L	
14-24*	10YR 3/2	93	2.5Y 6/2	7	D	M	SCL	
			7.5YR 9/1	<1	C	M		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Below 12" depth possible AAG material (Water 18" is not available)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ 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) *in n*
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes _____ No ☒ Depth (inches): 22"Saturation Present? Yes _____ No ☒ Depth (inches): 19"
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

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

Project/Site: Westhaven CSD Treatment Site City/County: Westhaven/Humboldt Sampling Date: April 10 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP 6
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 8
 Subregion (LRR): A, MLRA 4B Lat: _____ Long: _____ Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>✓</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>✓</u>
Hydric Soil Present?	Yes _____ No <u>✓</u>	
Wetland Hydrology Present?	Yes _____ No <u>✓</u>	
Remarks: <u>Below drainage culvert outflow from treatment facility</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Sequoia sempervirens</u>	<u>90</u>	<u>Y</u>	<u>NL</u>	
2. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____				
4. _____				
5. _____				
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Fraxinus purpurea</u>	<u>1</u>	<u>Y</u>	<u>FAC</u>	
2. _____				
3. _____				
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Oxalis oregana</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Proserpinaca hookeri</u>	<u>1</u>		<u>NL</u>	
3. <u>Polygonum minimum</u>	<u>5</u>		<u>FACU</u>	
4. <u>Polygonum spicatum</u>	<u>7</u>		<u>FAC</u>	
5. <u>Stachys arvensis</u>	<u>1</u>		<u>NL</u>	
6. <u>Thalictrum ovatum</u>	<u>3</u>		<u>FACU</u>	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
% Bare Ground in Herb Stratum <u>45%</u>				
Remarks:				

Sampling Point: TPL

HYDROLOGY

Wetland Hydrology Indicators:US Army Corps of Engineers

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

Project/Site: Westhaven CSD Treatment Plant City/County: Westhaven/Humboldt Sampling Date: April 10 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: 702
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): drainage ditch Local relief (concave, convex, none): none Slope (%): 10
 Subregion (LRR): A, MLRA 4B Lat: _____ Long: _____ Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>✓</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>✓</u>
Hydric Soil Present?	Yes _____ No <u>✓</u>	
Wetland Hydrology Present?	Yes _____ No <u>✓</u>	
Remarks: <u>Side wall of constructed drainage ditch</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. <u>Quercus macrocarpa</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Quercus agrifolia</u>	<u>12</u>	<u>Y</u>	<u>NL</u>	
3. <u>Alnus incana</u>	<u>4</u>		<u>FAC</u>	
4. _____				
<u>56</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Blechnum spicant</u>	<u>13.2</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rubus ursinus</u>	<u>3.2</u>		<u>FACU</u>	
3. <u>Polypodium monophyllum</u>	<u>4%</u>	<u>Y</u>	<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>20</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>80%</u>				
Remarks: <u>Wet Bayou, in Palo Verde area Recently string trimmed</u>				

SOIL

Sampling Point: TP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (Inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-5	10YR 7/2	100				CL	
5-8	5YR 5/6	70	2.5Y 6/1	30	D	m SCL	
8-22	2.5Y 5/6	50	2.5Y 6/1	50	D	m SCL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Starting 5' depth bore on constructed ditch 20" deep. Surface water flowing @ 1" depth. Position 100' from ditch 20" below 12"

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5) no
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>20</u>
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

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

Project/Site: Westhaven CSD Treatment Plant City/County: Westhaven/Humboldt Sampling Date: April 18, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP8
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): Drainage way Local relief (concave, convex, none): Concave Slope (%): 7
 Subregion (LRR): A, MLRA 4B Lat: _____ Long: _____ Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>✓</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>✓</u>
Hydric Soil Present?	Yes _____ No <u>✓</u>	
Wetland Hydrology Present?	Yes <u>✓</u> No _____	
Remarks: <u>In constructed drainage ditch</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. <u>Alnus rubra</u>	<u>7</u>		<u>FAC</u>	
2. <u>Populus alba</u>	<u>15</u>	<u>y</u>	<u>FACU</u>	
3. <u>Salix lasiolepis</u>	<u>20</u>	<u>y</u>	<u>NL</u>	
4. _____				
		<u>42</u> = Total Cover		
Sapling/Shrub Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Rubus spectabilis</u>	<u>1</u>	<u>x</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
		<u>1</u> = Total Cover		
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Oenothera sp.</u>	<u>12</u>	<u>y</u>	<u>FAC</u>	
2. _____				
3. <u>Rubus</u>	<u>1</u>		<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
		<u>13</u> = Total Cover		
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>✓</u>
1. _____				
2. _____				
		_____ = Total Cover		
% Bare Ground in Herb Stratum <u>87%</u>				
Remarks: <u>Recently string trimmed</u>				

SOIL

Sampling Point: 770

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5YR 4/6	100					SL	
2-8	7.5YR 5/6	17	5YR 5/6	8	C	m	CL	
			10YR 3/3	5	C	m		
			2.5Y 6/3	10	D	m		
8-11	7.5YR 5/6	80	5YR 5/6	20	D	m	CL	
11-22	7.5YR 5/8	55	8.5Y 6/2	45	D	m	SCL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks: no a.a.d. reaction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>1</u>
Water Table Present?	Yes _____ No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No _____	Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks: no a.a.d. reaction

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

Project/Site: Westhaven CSD Treatment Plant City/County: Westhaven/Humboldt Sampling Date: April 18, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP9
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 6
 Subregion (LRR): A, MLRA 4B Lat: _____ Long: _____ Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u>✓</u> No _____	Is the Sampled Area within a Wetland? Yes <u>✓</u> No _____
Hydric Soil Present?	Yes <u>✓</u> No _____	
Wetland Hydrology Present?	Yes <u>✓</u> No _____	
Remarks: <u>Low depression</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
1. <u>Morella californica</u>	<u>75</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Pseudotsuga menziesii</u>	<u>2</u>			
3. _____				
4. _____				
<u>77</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>5</u>)				
1. <u>Rubus spectabilis</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Gaultheria shallon</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
<u>5</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				
1. <u>Rubus ursinus</u>	<u>1</u>		<u>FACU</u>	
2. <u>Blechnum spicant</u>	<u>18</u>	<u>Y</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>19</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>81%</u>				
Remarks:				

Sampling Point: TP9

HYDROLOGY

Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: Westhaven CSD Treatment City/County: Westhaven/Humboldt Sampling Date: April 8, 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP 10
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): hillslope/terrace Local relief (concave, convex, none): none Slope (%): 8
 Subregion (LRR): A, MLRA 4B Lat: 41.034608 Long: -124.106969 Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>✓</u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>✓</u>
Hydric Soil Present?	Yes <u>✓</u> No <u> </u>		
Wetland Hydrology Present?	Yes <u>✓</u> No <u> </u>		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Morella californica</u>	<u>45</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Sequoia sempervirens</u>	<u>28</u>	<u>Y</u>	<u>NL</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>73</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Gaultheria shallon</u>	<u>9</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rubus spectabilis</u>	<u>1</u>	<u>Y</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Fraxinus purshiana</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	FACW species <u>45</u> x 2 = <u>90</u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u>14</u> x 3 = <u>42</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u>15</u> x 4 = <u>60</u>
<u>14</u> = Total Cover				UPL species <u>28</u> x 5 = <u>140</u>
				Column Totals: <u>102</u> (A) <u>332</u> (B)
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index = B/A = <u>3.25</u>
1. <u>Blechnum spicatum</u>	<u>9</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Rubus ursinus</u>	<u>1</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Polystichum munifolium</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>15</u> = Total Cover				
Woody Vine Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>✓</u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
% Bare Ground in Herb Stratum <u>85%</u>				
Remarks:				

SOIL

Sampling Point: TP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
<u>(-1)-0</u>							<u>duff</u>
<u>0-5</u>	<u>10YR 3/2</u>	<u>100</u>					<u>L</u>
<u>5-7</u>	<u>2.5Y 4/2</u>	<u>80</u>	<u>10YR 5/6</u>	<u>20</u>	<u>C</u>	<u>m</u>	<u>SicL</u>
<u>7-11</u>	<u>2.5Y 4/2</u>	<u>65</u>	<u>10YR 5/6</u>	<u>35</u>	<u>C</u>	<u>m</u>	<u>SicL</u>
<u>11-17</u>	<u>10YR 6/8</u>	<u>70</u>	<u>10YR 4/2</u>	<u>30</u>	<u>D</u>	<u>m</u>	<u>SicL</u>

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: no a-a direction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5) <u>no</u>
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

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

Water Table Present? Yes ☒ No ☐ Depth (inches): 7"

Saturation Present? Yes ☒ No ☐ Depth (inches): to surface

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Westhaven CSD Treatment Plant City/County: Westhaven/Humboldt Sampling Date: April 10 2019
 Applicant/Owner: Westhaven CSD State: CA Sampling Point: TP11
 Investigator(s): CW, SR Section, Township, Range: T 08N 001E SEC 31
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A, MLRA 4B Lat: _____ Long: _____ Datum: WSG 84
 Soil Map Unit Name: Lepoil-Espa-Candymountain Complex NWI classification: None

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

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

Hydrophytic Vegetation Present?	Yes _____ No <u>✓</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>✓</u>
Hydric Soil Present?	Yes _____ No <u>✓</u>	
Wetland Hydrology Present?	Yes _____ No <u>✓</u>	
Remarks: _____		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Quercus laevis</u>	<u>50</u>	<u>Y</u>	<u>NL</u>	
2. <u>Pinus strobus</u>	<u>7</u>	<u>N</u>	<u>FAC</u>	
3. <u>Pseudotsuga menziesii</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Morella caroliniana</u>	<u>8</u>	<u>N</u>	<u>FACW</u>	
<u>75</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>5</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Quercus laevis</u>	<u>75</u>	<u>X</u>	<u>FACU</u>	
2. <u>Rubus spectabilis</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
<u>77</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Eleocharis acicularis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Rubus ursinus</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>6</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>94%</u>				
Remarks: _____				

SOIL

Sampling Point: TP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-12	10YR 5/2	100					Profile layer
12-17	2.5Y 5/4	94	10YR 5/6	6	IC	m	SCL

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Remarks: NO + reaction to acid w/in 12 inches

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5) <u>no</u>
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

OHWL Delineation Cover SheetPage 1 of 2Project: Weslaven Wetland/Bio ReportDate: 4/03/19Location: OHWL 1Investigator(s): SR**Project Description:****Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

well shaded, perennial, some small wood debris in channel, gravel substrate

Off-site Information

Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp ($> 60^\circ$) | ☒ Moderate ($30-60^\circ$) | ☐ Gentle ($< 30^\circ$) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	10	20	20	48	2	
Below OHWM	—	5	15	40	40	

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	40	60	70	30
Below OHWM	70	25	35	15

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Westhaven Wetland/Bio ReportDate: 04/03/19Location: OHWM # 3Investigator(s): SR**Project Description:****Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Numerous pieces of woody debris up and downstream (mostly small to large branches and fallen tree trunks)
Little to no evidence for recent disturbance

Off-site Information

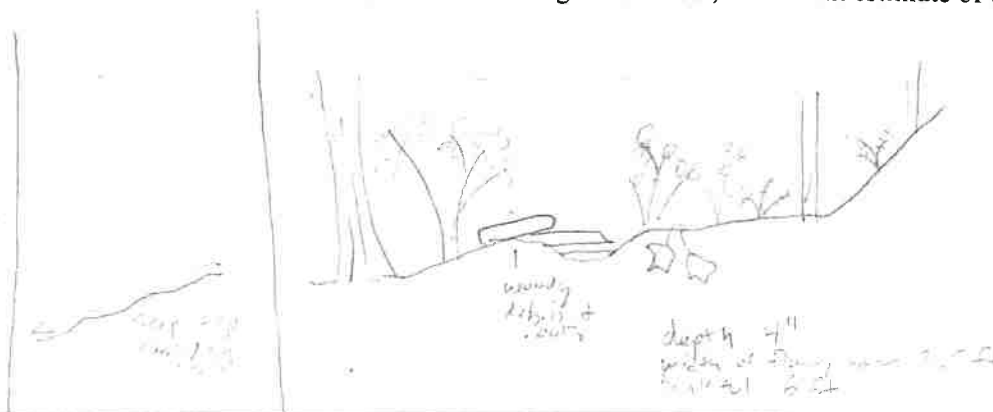
Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp ($> 60^\circ$) | ☒ Moderate ($30-60^\circ$) | ☐ Gentle ($< 30^\circ$) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	40	45	10	5	—	
Below OHWM	45	55				

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	90	70	70	30
Below OHWM	70	80	90	10

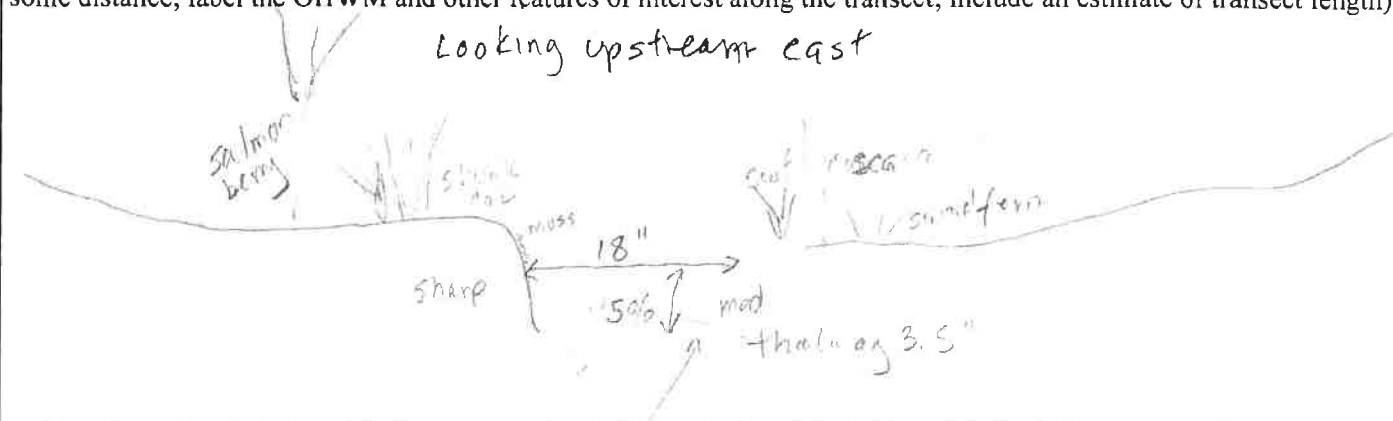
Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Westhaven CSDDate: 4/10/19Location: South of project boundaryInvestigator(s): Cindy Wilcox**Project Description:****Describe the river or stream's condition (disturbances, in-stream structures, etc.):**Native drainage in woodland areaSkunk cabbage, cascara, redwood, sword fern, false Solomon'sSeal, fairy lantern, salal, deer fern, salmon berry, maiden fernsome English ivy**Off-site Information****Remotely sensed image(s) acquired?** ☐ Yes ☒ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:**Hydrologic/hydraulic information acquired?** ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:**List and describe any other supporting information received/acquired:**

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp ($> 60^\circ$) | ☒ Moderate ($30-60^\circ$) | ☐ Gentle ($< 30^\circ$) | ☐ None

Notes/Description:

Native stream channel south of project area

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	70	30	—	—	—	Y
Below OHWM	20	80	10	—	—	N

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	20	30	0	90
Below OHWM	30	15	55	10 (duff)

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Westhaver CSDDate: 4/10/19Location: OHWM #5Investigator(s): SR**Project Description:****Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Woody debris in stream, lots of cobbles, very well shaded. Some undercutting near debris, clear water running. No noticeable disturbances

Off-site Information

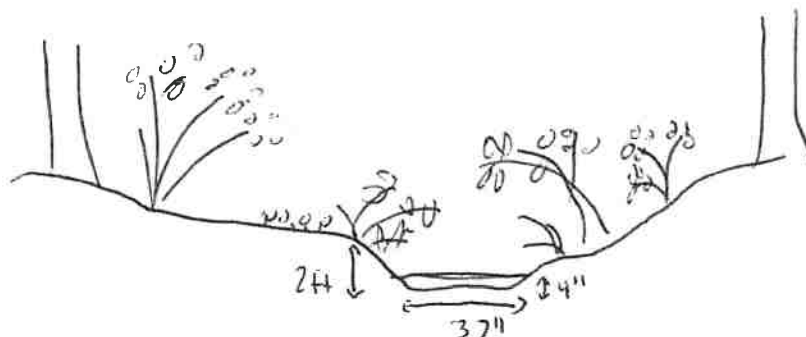
Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

DS, up, ST, VLT
Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWL and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWL: ☐ Sharp ($> 60^\circ$) | ☐ Moderate ($30-60^\circ$) | ☒ Gentle ($< 30^\circ$) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWL

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWL	—	—	20	80	—	
Below OHWL	30	10	40	20	—	

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWL

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWL	30	70	80	20
Below OHWL	60	70	90	10

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Westhaven CSD 018193Date: 4/10/19Location: Treatment PlantInvestigator(s): Cindy Wilcox**Project Description:****Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Streamway along N property line. Excavated drainage ditch merges from east 10' upstream. TP4 where out flow pools. Stream flows off property, under 4th St. & into wetland area ~ 200' west of prop line. Joseph Salter saw no drainage in January 2019.

Off-site Information

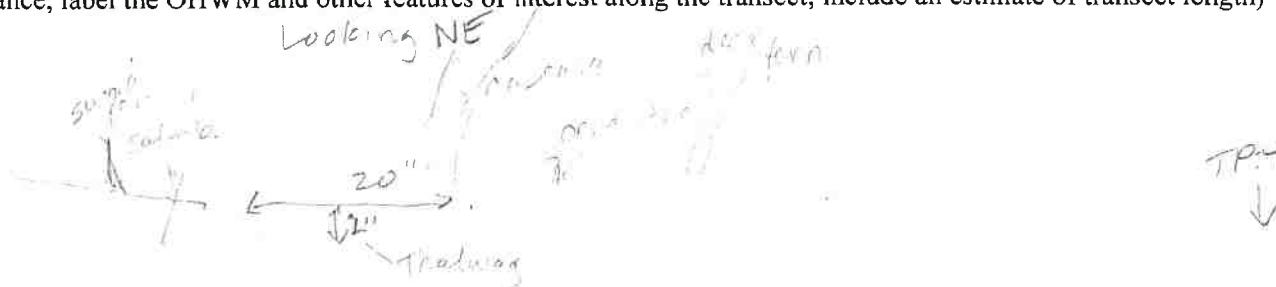
Remotely sensed image(s) acquired? ☐ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☐ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp ($> 60^\circ$) | ☐ Moderate ($30-60^\circ$) | ☒ Gentle ($< 30^\circ$) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	70	30	0	1	0	N
Below OHWM	35	55	9	2	0	N

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	60	5	20	15
Below OHWM	10	10	3	97

Notes/Description:

Sediment, perennials, deer fern, sword fern, etc.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation



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