**APPENDIX B:** Biological Resources

APPENDIX B.1: Biological Resources Assessment

# 161-070-034BIOLOGICAL RESOURCES ASSESSMENT CHEVRON STATION-REDWOOD MARKET 9120 AND 9200 OLD REDWOOD HIGHWAY

(APNs: 161-070-034 and 161-070-035)

WINDSOR, CA

## Prepared for:

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## 1.0 INTRODUCTION

## 1.1 SITE LOCATION

The Project Site is located on two parcels located at 9120 Old Redwood Highway (APN: 161-070-034; 0.63 acre) and 9200 Old Redwood Highway (APN: 161-070-035; 0.78 acre) (collectively the Project Site) in the Town of Windsor, Sonoma County, CA (Figure 1). There is a full-service gas station covering most of the parcel at 9120 Old Redwood Highway, and most of the parcel at 9200 Old Redwood Highway is undeveloped. Most of the surrounding lands have been developed for various uses including another full-service gas station to the south, food service and empty lot to the west, retail development to the northwest, and Redwood Highway (Highway 101) to the northwest and east (Figure 2).

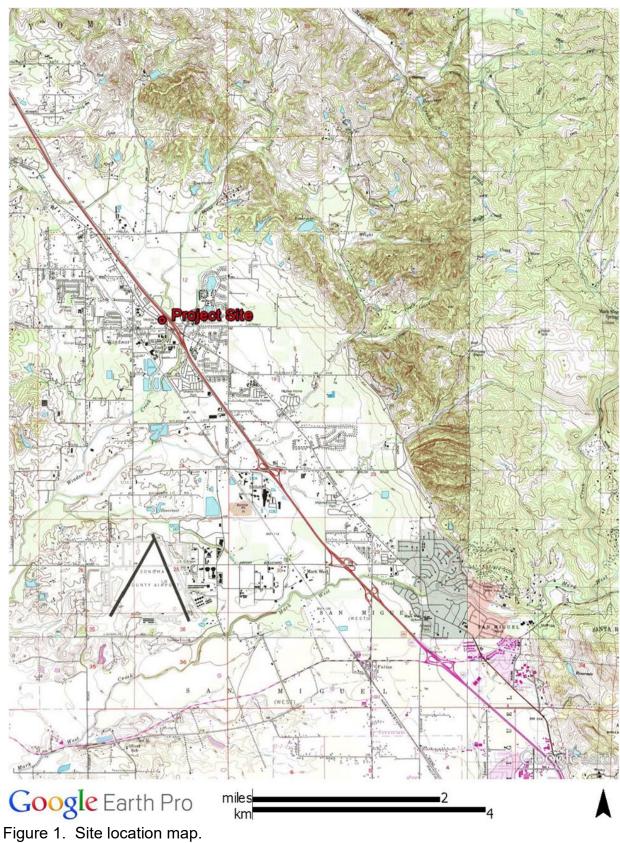
## 1.2 PROJECT DESCRIPTION

The Project will consist of the demolition of the existing convenience store and expansion of the existing gasoline pumps, construction of a new market/restaurant, construction of a new retail building, and demolition of the existing car wash facility and construction of a new car wash facility (Figure 3).

The existing convenience store at the Project Site will be demolished and a new approximately 6,270 sq. ft. market/restaurant and associated parking and seating will be constructed on the adjacent undeveloped area to the north of the existing station and market. Two additional pumps will be added to the east of the existing pumps on part of the area where the convenience store is currently located. The existing canopy covering the pumps will be extended over the new pumps.

An approximately 3,860 sq. ft. retail building and associated parking will be constructed in the undeveloped land to the west of the existing facility.

The existing car wash building will be demolished and a new approximately 2,314 sq. ft. car wash facility constructed to the east of the existing car wash building on property owned by the Town of Windsor (Town), which is being exchanged with the Town for property that the Applicant owns to the west of the existing gas station facility.



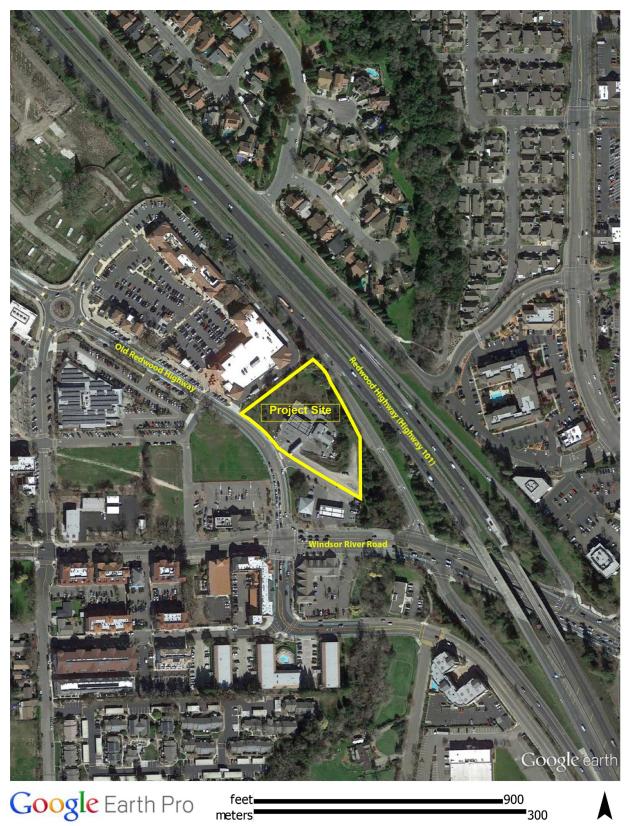


Figure 2. Site vicinity map.

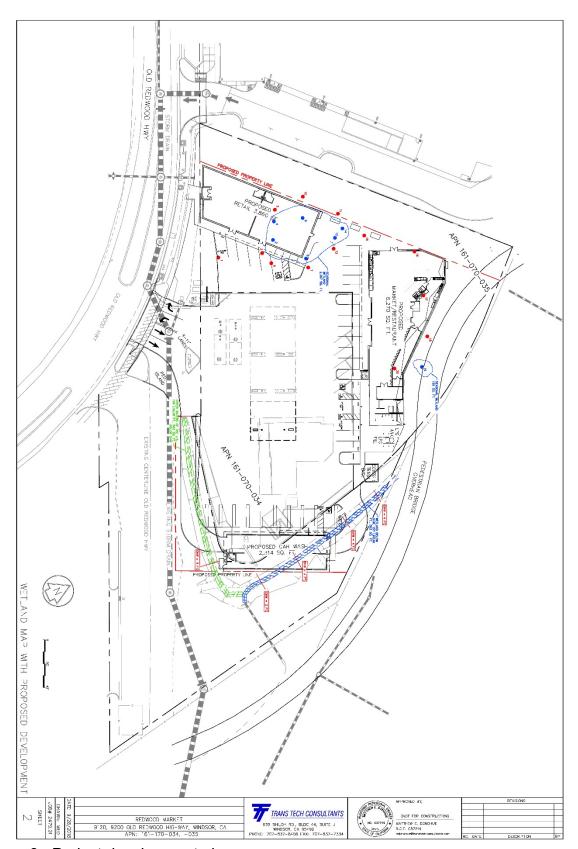


Figure 3. Project development plan.

## 1.3 Physical and Hydrologic Conditions

## 1.3.1 Topography and Drainage

The undeveloped parts of the subject parcels are relatively flat with a less than one percent grade from north to south. An intermittent drainage ditch occurs along the eastern boundary of the parcel at 9120 Old Redwood Highway.

## 1.3.2 Soils

The soil on most of the undeveloped areas of the two parcels is mapped as Cole silty clay loam, 0 to 1 percent slopes. The soil type along the eastern part of the parcel at 9120 Old Redwood Highway along the southern part of the site is mapped as Riverwash.

Cole series soils consist of somewhat poorly drained silt loams that have a dominantly clay subsoil (Miller 1972). These soils formed in alluvium from mixed sedimentary and basic rock and are found on alluvial fans. Riverwash soil consist of very recent depositions of gravel, sand, and silt alluvium along major streams and their tributaries (Miller 1972).

## 2.0 BIOLOGICAL RESOURCES

## 2.1 Vegetation

Vegetation surveys were conducted on March 13, April 3, April 27 and May 22 in 2015 by Mr. Charlie Patterson. The 2018 vegetation surveys were conducted by Dr. Ted P. Winfield on April 4, April 17 and May 7, 2018. The surveys were conducted following the U.S. Fish and Wildlife Service protocols<sup>1</sup> and the California Department of Fish and Wildlife protocols<sup>2</sup>. The entire Project Site was walked, and plant species observed and identifiable during each survey noted in a field notebook. The seasonal wetlands were thoroughly searched for possible presence of the federally and State-listed endangered Burke's goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*) and Sebastopol meadowfoam (*Limnanthes vinculans*), and many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*).

Reference sites were visited multiple times during the survey periods. Other botanists were also consulted about flowering of the target endangered plants at other sites on the Santa Rosa Plain to confirm that the target endangered plant species were also flowering at other sites throughout the Santa Rosa Plain.

Prior to conducting the field surveys, a list of special-status plant species reported to occur in the region was generated from the California Natural Diversity Database (CNDDB), and California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants for Santa Rosa, Sebastopol, Healdsburg, Two Rocks, and Cotati USGS Quadrangle maps, which defines the low-land areas of the Santa Rosa Plain.

The Project Site supports two primary vegetation types, non-native annual grassland and seasonal wetlands. Figure 4 shows the location of the seasonal wetland at the Project Site. A summary of the more common species observed in each of these vegetation types is presented below. Appendix A is a list of the plants observed during the surveys, and presents the dates that surveys were conducted at the reference sites.

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<sup>&</sup>lt;sup>1</sup> Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain. Modified from the September 23, 1996 Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants.

<sup>&</sup>lt;sup>2</sup> California Department of Fish and Wildlife (CDFW). Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. March 20, 2018.

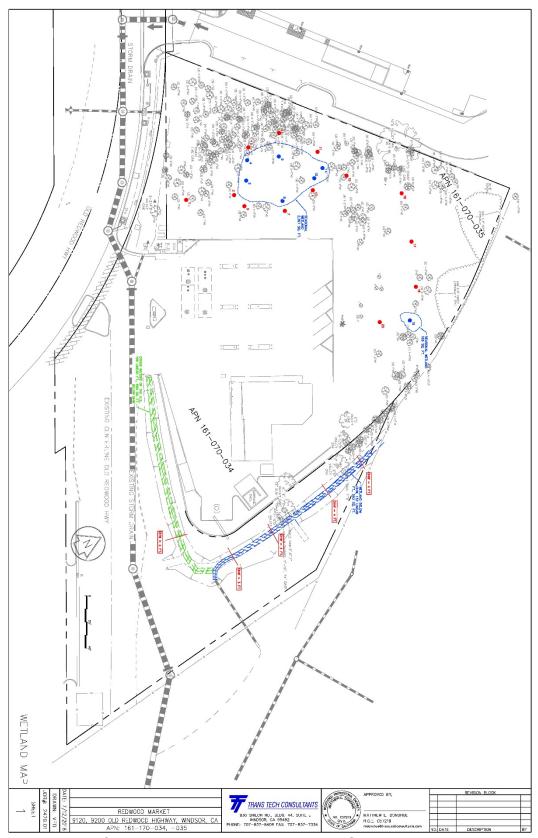


Figure 4. Location of seasonal wetlands at the Project Site.

## 2.1.1 Upland Habitat

The upland areas of the Project Site consisted primarily of non-native annual grasses and forbs. The common species observed in the survey included slender wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), ryegrass (*Festuca perennis*), brome fescue (*Festuca bromoides*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), annual bluegrass (*Poa annua*), rattlesnake grass (Briza maxima), hairy catsear (*Hypochaeris radicata*), subterranean clover (*Trifolium subterraneum*), spring vetch (*Vicia sativa*), field mustard (*Brassica rapa*), English plantain (*Plantago lanceolata*), red stemmed filaree (*Erodium cicutarium*), cut-leaf geranium (*Geranium dissectum*), and Himalayan blackberry (*Rubus armeniacus*).

Several native species also occurred throughout the upland areas, including California oatgrass (*Danthonia californica*), coyote brush (*Baccharis pilularis*), blue-eyed grass (*Sisyrinchium bellum*), and several species of oak trees (*Quercus agrifolia, Q. lobata, Q. Kelloggii and Q. wislizeni*).

## 2.1.2 Seasonal Wetlands

The seasonal wetlands were dominate primarily by non-native species, such as ryegrass, Mediterranean barley, little quaking grass (*Briza minor*), prickly ox-tongue (*Helminthotheca echioides*) and English plantain. The vegetation in the small isolated wetland on the east side of the survey area included several native species, including semaphore grass (*Pleuropogon californicus*), California oatgrass, slender rush (*Juncus tenuis*), and tall flatsedge (*Cyperus erogrostis*).

The unnamed drainage ditch along the frontage with Redwood Highway supports a sparse cover of plants usually found in wetlands, including pennyroyal (*Mentha pulegium*), tall flatsedge, dense sedge (*Carex densa*) along with facultative species, such as curly dock (*Rumex crispus*), and ryegrass. The other section of the ditch along the southwest side of the parcel where the gas station is located was dominated by a mixture of primarily upland and facultative species.

## 2.2 WILDLIFE

Wildlife species adapted to human presence and disturbance, such as broad-footed mole (*Scapanus latimanus*), shrews (*Sorex* sp.), and gophers (*Thomomys bottae*), are likely to frequent undeveloped areas of the Project Site. Other mammals, such as striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*) and opossum (*Didelphis virginiana*) may, on occasion, may also visit the Project Site.

A number of migratory song birds adapted to human disturbance may also occur at the project site, including the house finch (*Carpodacus mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*), and various sparrows.

## 2.3 SPECIAL-STATUS SPECIES

## 2.3.1 Special-status Plants

Special-status plant species are defined in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*<sup>3</sup> to include all plant species that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under FESA or candidates for possible future listing as threatened or endangered under FESA (50 CFR §17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 et seq.).
- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).
- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
  - Species considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Lists 1A, 1B and 2);
  - Species that may warrant consideration on the basis of local significance or recent biological information;
  - Some species included on the California Natural Diversity Database's (CNDDB) Special Plants, Bryophytes, and Lichens List (California Department of Fish and Game 2008).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

The California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants database search resulted in a total of forty-nine special-status plant species as occurring in the region covered by the five USGS Quadrangle maps. Appendix B presents the list of special-status plant species reported to occur in the region and their regulatory status. Appendix C lists the habitat

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<sup>&</sup>lt;sup>3</sup> California Department of Fish and Wildlife (CDFW). Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. March 20, 2018.

preference and potential for the special-status species reported to occur in the region to occur at the Site.

The known occurrence of special-status plants within two miles of the Project Site is illustrated in Figure 5.<sup>4</sup> Only one species of special-status plant species (narrow-anthered brodiaea, *Brodiaea leptandra*) is reported in the CNDDB to occur in the immediate vicinity of the Project Site. Other species of special-status plants reported to occur within two miles of the Project Site are shown on Figure 4 and listed along with their regulatory status in Table 1.

None of the other special-status species listed in Appendix C and reported to occur in upland grassland habitat or in marshes, swamps or other wetland habitat types in the region were observed at the Project Site during the 2015 and 2018 surveys.

Table 1. List of special-status plants and their regulatory status occurring within two miles of the Project Site based on CNDDB records.

Scientific Name	Common Name	Federal Status*	State Status*	CNPS Rank*
Blennosperma bakeri	Sonoma sunshine	E	E	1B.1
Brodiaea leptandra	narrow-anthered brodiaea			1B2
Downingia pusilla	dwarf downingia			2B.2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant			1B.2
Lasthenia burkei	Burke's goldfields	E	Е	1B.1
Microseris paludosa	marsh microseris			1B.2
Navarretia leucocephala ssp. bakeri	Baker's navarretia			1B.1
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Е	Е	1B.2

<sup>•</sup> Federal Status: E = Endangered; State Status: E = Endangered, R = Rare, T = Threatened CNPS Designations: List 1A = Species presumed extinct in California. List 1B = Species rare and endangered in California and elsewhere. List 2 = Species rare and endangered in California but more common elsewhere. List 3 = Species for which additional data are needed.

Three FESA- and CESA-listed endangered plants that were reported to occur within two miles of the Project Site:

- Burke's goldfields (*Lasthenia burkei*) federally and state endangered; occurs in vernal pools, meadows and seeps;
- Sonoma sunshine (*Blennosperma bakeri*) federally and state endangered; occurs in vernal pools and swales in valley and foothill grassland; and
- Many-flowered navarretia (Navarretia leucocephala ssp. plieantha) -- federally and state endangered; occurs in vernal pools, meadows and seeps.

<sup>&</sup>lt;sup>4</sup> CNDDB, October 2018.

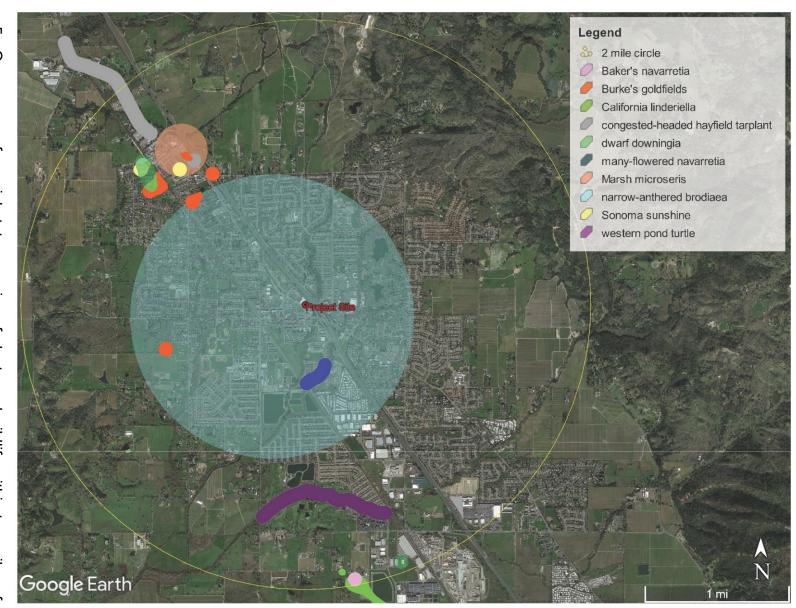


Figure 5. Occurrence of special-status species the Project Site based on CNDDB records. of plants and wildlife within two miles of

Burke's goldfields and Sonoma sunshine were observed to be flowering at reference sites during each of the survey periods in 2015 and 2018 but neither of these species were observed at the Project Site during the special-status plant surveys conducted at the site.

The known distribution of many-flowered navarretia is limited to a single site located in the vicinity of the Sonoma County Airport. Although reference sites for this species are essentially non-existent, this species is easily recognizable form and occurs in similar habitat at Burke's goldfields and Sonoma sunshine, and blooming period is the same as Burke's goldfields. No navarretia plants of any species have been observed at the Project Site during the multiple plant surveys conducted at the site.

The seasonal wetlands at the Project Site consist of shallow, slightly depressional areas north of the existing Chevron gas station, and do not provide suitable habitat for endangered plants found in seasonal wetland/vernal pool habitat on the Santa Rosa Plain. These wetland features likely pond from a few hours to a few days following rainfall events and do not provide the necessary longer-term wetland hydrology to support the endangered plants. The seasonal wetlands have been completely invaded by non-native annual grasses commonly found in disturbed and marginal seasonal wetlands in the region.

## 2.3.2 Special-status Wildlife

The potential occurrence of habitat for endangered or threatened animals, or fully protected animals was evaluated using data records from the most recent CNDDB. The Project Site is completely surrounded by development and, as a result, is unlikely to provide habitat for wildlife except for those species adapted to human presence and activity.

The Project Site is located north of designated Critical Habitat for the Sonoma County Distinct Population Segment of the California tiger salamander (CTS), and is designated in the Programmatic Biological Opinion as "May adversely affect listed plants, but would not adversely affect CTS." The Project Site is surrounded by development and the nearest known CTS breeding site, located at the Alton Lane Conservation Site, is approximately 5.47 miles south of the Project Site, and well outside the reported distance of 1.37 miles that CTS have been reported to migrate (Orloff 2011)<sup>6</sup>.

<sup>&</sup>lt;sup>5</sup> US Fish and Wildlife Service. 2007. Programmatic Biological Opinion (Programmatic) for U.S. Army Corps of Engineers (Corps) Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (Corps File Number 223420N).

<sup>&</sup>lt;sup>6</sup> Orloff, S.G. 2011. Movement patterns and migration distances in an upland population of California tiger salamander (*Ambystoma californiense*). Herpetological Conservation and Biology, 6 (2): 266-276.

The special-status wildlife species reported to occur within two miles of the Project Site are shown in Figure 5. Records for two species were found in the CNDDB records, the western pond turtle (*Emys marmorata*) and California linderiella (*Linderiella occidentalis*). The western pond turtle, a California species of special concern, is reported to occur along Pool Creek where it courses through the Windsor Golf Club, approximately 1.26 miles south of the Project Site. Habitat for the western pond turtle does not occur at the Project Site. The drainages at the southern end of the Project Site are ephemeral and appear to only flow for a short time period following rainfall events, and do not provide habitat for the western pond turtle.

The California linderiella, which occurs in seasonal aquatic habitats (e.g., vernal pools, swales, intermittent/ephemeral streams), does not have any formal federal or California regulatory status or designation. The nearest known occurrence is along and adjacent to a tributary to Windsor Creek, approximately 0.5 miles south of the Project Site. The drainages and seasonal wetlands at the Project Site are unlikely to provide habitat for the California linderiella due to limited periods of ponding.

## 3.0 PROJECT IMPACTS AND MITIGATION MEASURES

Project impacts to biological resources and measures to mitigate these impacts are described below. The significance of the anticipated impacts of the Project was evaluated following the criteria established in Appendix G of the CEQA Guidelines (California Natural Resources Agency 2010). According to these criteria, the Project would have a significant effect on a biological resource if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish
  or wildlife species or with established native resident or migratory wildlife corridors,
  or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The determination of impact significance is based on whether the particular impact is "substantial," which consists of three components: the magnitude and duration of the affect; the uniqueness of the affected resource; and the susceptibility of the affected resource to disturbance.

The following analysis of impacts addresses both direct and indirect effects to the affected biological resources resulting from the construction and operation of the proposed Project. This analysis is based on the Project plans, the current condition of the Project Site, and regulations and guidelines that cover the affected biological resources.

## 3.1 IMPACTS ON WETLANDS

Construction of the proposed Project could have a substantial direct and/or indirect effect on wetlands and other features subject to the regulatory authority of the U.S. Army Corps of Engineers and Regional Water Quality Control Board. This impact would be less than significant with mitigation.

<u>Impact.</u> The Project will directly affect approximately 0.059 acre (2,563 sq. ft.) of seasonal wetlands subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps), and subject to the jurisdiction of the Regional Water Quality Control Board (Regional Board) as waters of the State. The Project will also directly or indirectly affect approximately 157 linear ft. of an ephemeral drainage located on Town of Windsor property with an area below ordinary high water (OHW) of approximately 593 sq. ft. (0.014 ac), resulting in a total of approximately 0.073 acre (3,156 sq. ft.) of wetland habitat. The is another approximately 166 ft. of drainage ditch (waters of the U.S., non-wetland) located on Town of Windsor property and the area below OHW is approximately 665 sq. ft. (0.015 ac).

Mitigation. The mitigation for impacts to wetlands and drainage ditch would be satisfied through the purchase of the requisite amount of mitigation acreage as determined by the Corps and Regional Board. The mitigation ratio for impacts to jurisdictional wetlands would be determined in consultation with the Corps and Regional Board but would be a minimum of 1:1. Wetland mitigation credits are sold in 0.05-acre increments so assuming a 1:1 mitigation ratio the applicant would purchase 0.10 acre of mitigation credits from an agency approved mitigation bank.

Mitigation for impacts to the linear ditches will also include enhancement of an existing waterway in the Town of Windsor subject to approval by the Regional Board. Enhancement could include removal of existing exotic vegetation and planting native trees and shrubs.

## 3.3 IMPACTS ON SPECIAL-STATUS BIRDS AND MAMMALS

Construction of the proposed Project could have a substantial direct and/or indirect effect on special-status or otherwise protected birds. This impact would be less than significant with mitigation.

<u>Impact.</u> In addition to regulations protecting special-status bird species (federal and state Endangered Species Acts), most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, it is unlawful to destroy active nests, eggs, and young. Furthermore, California Fish and Game Code Section 3503.5 makes it unlawful to take, possess or destroy birds in the Falconiformes (birds of prey, vultures, eagles, falcons) and Strigiformes (owls) families, which can include nest disturbance from construction and other activities.

The Project Site provides marginal habitat for ground-nesting bird species and the trees in the undeveloped parts of the Project Site could also provide nesting habitat for birds. If birds were to nest at the Project Site during construction activities, construction-related activities, including noise, could either result in the destruction of nests or cause the birds to abandon nests with eggs or fledglings present in the nests. Such impacts to nesting birds would be considered significant, and mitigation would be required to reduce the impact to less than significant.

<u>Mitigation.</u> A qualified avian biologist will conduct passerine nest surveys prior to tree pruning, tree removal, ground disturbing activities, or construction activities at the Project Site within 30 days in initiation of such activities to locate any active nests on or adjacent to the Project Site. If land-clearing activities can be performed outside of the nesting season, that is, between August 16 and January 31, no preconstruction surveys for nesting birds are warranted.

Pre-construction surveys will be conducted no more than 30 days prior to the start of construction or ground disturbing activities if the activities occur during the nesting season (February 1 to August 15). Preconstruction surveys will be repeated at 15-day intervals until construction has started. Active nests will be identified, located, and described and protective measures will be implemented. Protective measures will include establishment of clearly delineated (i.e., Visi-barrier, orange construction fencing) 50-foot exclusion zones around each nest site. The active nest sites within exclusion zones will be monitored on a weekly basis throughout the nesting season to identify any signs of disturbance or nest abandonment. The barriers marking exclusion zones will remain in place until the young have left the nest and are foraging independently or if the nest is no longer active.

Construction of the proposed Project could have a substantial direct and/or indirect effect on special-status bats. This impact would be less than significant with mitigation.

<u>Impact.</u> The Project will result in the loss of potential roosting habitat for several special-status bat species. The special-status bat species that could occur in the area and possibly the Project Site include the pallid bat and hoary bat.

<u>Mitigation.</u> Prior to cutting of trees at the Project Site the Applicant will consult with a qualified bat biologist, who is defined as a bat biologist, who holds a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle and collect bats. Depending on the proposed timing of demolition of the existing structures and removal of the trees, and the bat biologist initial survey of the site, the necessary survey protocols will be identified and implemented by the bat biologist.

## APPENDIX A. LIST OF SPECIES OBSERVED DURING 2018 PLANT SURVEYS.

The following list is a combined list of species observed during surveys conducted by Mr. Charlie Patterson, Ms. Jane Valerius, and Dr. Ted P. Winfield. The following are references for the reports prepared by Mr. Patterson and Ms. Valerius.

Charles A. Patterson. 2015. Rare plant surveys for the vacant parcel at 9120 Old Redwood Highway, Windsor, Sonoma County A.P.N. 161-070-035. Letter report prepared for Mr. Matthew E. Donohue, Trans Tech Consultants, 930 Shiloh Road, Building 44, Suite J, Windsor, CA 95492, dated July 11, 2015.

Jane Valerius. 2016. Town of Windsor Study for a Downtown Pedestrian and Bicycle Crossing of U.S. 101: Phase I – Feasibility Study.

FAMILY	SCIENTIFIC NAME <sup>1</sup>	COMMON NAME
	GYMNOSPERMS	
CUPRESSACEAE - Cypress Family		
•	Sequoia sempervirens	redwood
	DICOTYLEDONS	
ANACARDIACEAE – Sumac Family		
•	Toxicodendron diversilobum	poison oak
APIACEAE - Carrot Family		
•	Conium maculatum*	poison hemlock
	Daucus carota*	Queen Anne's lace
	Daucus pusullus	wild carrot
	Foeniculum vulgare*	sweet fennel
	Torilis arvensis*	field hedge parsley
ASTERACEAE - Sunflower Family		
•	Anthemis cotula*	dog fennel
	Baccharis pilularis	coyote brush
	Carduus pycnocephalus*	Italian thistle
	Cichorium intybus *	chicory
	Cirsium arvense*	Canada thistle
	Cirsium vulgare*	bull thistle
	Delairea odorata*	Cape ivy
	Dittrichia graveolens	stinkwort
	Erigeron bonariensis*	flax-leaved horseweed
	Erigeron canadensis	horseweed
	Filago gallica*	filago
	Helminthotheca echioides *	bristly ox-tongue
	Hypochaeris glabra	smooth cats-ear
	Hypochaeris radicata *	hairy cat's-ear
	Lactuca serriola*	prickly lettuce
	Matricaria discoidea	pineapple weed
	Pseudognaphalium luteoalbum*	Jersey cudweed
	Senecio vulgaris *	common groundsel
	Sonchus asper*	spiny sowthistle
	Sonchus oleraceus*	sow thistle
	Silybum marianum*	milk thistle
	Taraxacum officinale *	dandelion
	Tragopogon porrifolius*	purple salsify
	Xanthium spinosum	spiny cocklebur
BERBERIDACEAE – Barberry Family	·	
	Bereris aquifolium	Oregon grape
BRASSICACEAE - Mustard Family		
	Brassica nigra*	black mustard
	Brassica rapa*	common mustard
	Lepidium nitidum	shining peppergrass
	Raphanus sativus*	wild radish
CARYOPHYLLACEAE – Pink Family		
	Stellaria media*	chickweed
CONVOLVULACEAE - Morning Glory Family		
<u> </u>	Convolvulus arvensis*	bindweed
EUPHORBIACEAE – Spurge Family		

<sup>&</sup>lt;sup>1</sup> Plant nomenclature follows The Jepson Manual: Higher Plants of California. Second Edition. B.G. Baldwin (convening editor). University of California Press, Berkeley, CA.

Note: \* indicates non-native species

Reference Sites, Observation Dates and Species in Flower at time of Reference Site Survey.

DATE	REFERENCE SITE	SPECIES
April 3, 2015	"Windmill" site	BLBA, LABU
April 12, 2015	Alton Lane Mitigation Site Hale Mitigation Bank	LIVI, BLBA LIVI
April 16 2015	Hale Mitigation Bank	LIVI, LABU
April 27, 2015	Alton Lane Mitigation Site Hale Mitigation Bank "Windmill" site	LIVI, BLBA, LABU LIVI, LABU BLBA, LABU
April 4, 2018	Carinalli-Todd Road Mitigation Bank Alton Lane Mitigation Site Alton North Conservation Site	LIVI, BLBA BLBA BLBA
April 12, 2018	Alton North Conservation Bank Alton Lane Mitigation Site Hazel Mitigation Bank Woodbridge Preserve	BLBA, LABU BLBA, LABU BLBA, LIVI BLBA
April 24, 2018	Alton North Conservation Bank Alton Lane Mitigation Site	LABU LABU, BLBA
April 25, 2018	Carinalli-Todd Road Mitigation Bank	LIVI, BLBA
May 8, 2018	Carinalli-Todd Road Mitigation Bank	LIVI, BLBA

Species: LIVI – Limnanthes vinculins (Sebastopol meadowfoam)

BLBA – *Blennosperma bakeri* (Sonoma sunshine) LABU – *Lasthenia burkei* (Burke's goldfields)

# APPENDIX B. SPECIAL-STATUS PLANT SPECIES REPORTED TO OCCUR IN THE REGION AND THEIR REGULATORY STATUS

Scientific Name	Common Name	FESA	CESA	CNPS
DICOT	S			
Amorpha californica var. napensis	Napa false indigo			1B.2
Amsinckia lunaris	bent-flowered fiddleneck			1B.2
Arctostaphylos densiflora	Vine Hill manzanita		E	1B.1
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita			1B.1
Astragalus claranus	Clara Hunt's milk-vetch	E	Т	1B.1
Balsamorhiza macrolepis	big-scale balsamroot			1B.2
Blennosperma bakeri	Sonoma sunshine	E	E	1B.1
Campanula californica	swamp harebell			1B.2
Castilleja uliginosa	Pitkin Marsh paintbrush		E	1A
Ceanothus confusus	Rincon Ridge ceanothus			1B.1
Ceanothus divergens	Calistoga ceanothus			1B.2
Ceanothus foliosus var. vineatus	Vine Hill ceanothus			1B.1
Ceanothus purpureus	holly-leaved ceanothus			1B.2
Ceanothus sonomensis	Sonoma ceanothus			1B.2
Centromadia parryi ssp. parryi	pappose tarplant			1B.2
Chorizanthe valida	Sonoma spineflower	E	Е	1B.1
Cordylanthus tenuis ssp. capillaris	Pennell's birds-beak	E	F	1B.2
Clarkia imbricata	Vine Hill clarkia	E	E	1B.1
Cuscuta obtusiflora var. glandulosa	Peruvian dodder			2B.2
Delphinium luteum	golden larkspur	Е	R	1B.1
Downingia pusilla	dwarf downingia		11	2B.2
Erigeron serpentinus	serpentine daisy			1B.3
Gilia capitata ssp. tomentosa	woolly-headed gilia			1B.1
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant			1B.1
Horkelia tenuiloba	thin-lobed horkelia			1B.2
Lasthenia burkei	Burke's goldfields	E	E	1B.1
Lasthenia californica ssp. bakeri	Baker's goldfields			1B.1
Layia septentrionalis	Colusa layia			1B.2
Legenere limosa	legenere			1B.1
Leptosiphon jepsonii	Jepson's leptosiphon			1B.1
Limnanthes vinculans	Sebastopol meadowfoam	E	E	1B.1
Microseris paludosa	marsh microseris			1B.1
·	Baker's navarretia			1B.2
Navarretia leucocephala ssp. bakeri		-		
Navarretia leucocephala ssp. plieantha Potentilla uliginosa	many-flowered navarretia	E	E	1B.2
Trifolium amoenum	Cunningham Marsh cinquefoil two-fork clover	E		1A 1B.1
				1B.1
Trifolium buckwestiorum	Santa Cruz clover			
Trifolium hydrophilum	saline clover			1B.2
Viburnum ellipticum	oval-leaved viburnum			2B.3
MONOCO				45.4
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	E		1B.1
Brodiaea leptandra	narrow-anthered brodiaea			1B.2
Calamagrostis crassiglumis	Thurber's reed grass			2B.1
Fritillaria liliacea	fragrant fritillary			1B.2
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	E	E	1B.1
Pleuropogon hooverianus	North Coast semaphore grass		Т	1B.1
Rhynchospora alba	white beaked-rush			2B.2
Rhynchospora californica	California beaked-rush			1B.1
Rhynchospora capitellata	brownish beaked-rush			2B.2
Rhynchospora globularis	round-headed beaked-rush			2B.1

FESA - Federal Endangered Species Act; CESA - California Endangered Species Act

T - Threatened; E - Endangered; R - Rare (California only); CNPS Designations: List 1A - Species presumed extinct in California. List 1B - Species rare and endangered in California and elsew here. List 2 - Species rare and endangered in California but more common elsew here. List 3 - Species for which additional data are needed.

# APPENDIX C. HABITAT PREFERENCE, AND POTENTIAL FOR THE SPECIAL-STATUS SPECIES TO OCCUR AT THE SITE.

Scientific Name	Common Name	Habitat	Occurrence at Project Site
DICOTS			
Amorpha californica var. napensis	Napa false indigo	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral	Unlikely. Habitat not present at project site.
Amsinckia lunaris	bent-flowered fiddleneck	Coastal bluff scrub; cismontane woodland; valley and foothill grassland	Unlikely. Habitat not present at project site.
Arctostaphylos densiflora	Vine Hill manzanita	Dwarf chaparral "barren" on sandy acidic soil	Unlikely. Habitat not present at project site.
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	Chaparral, cismontane woodland. Highly restricted endemic to red rhyolites in Sonoma County	Unlikely. Habitat not present at project site.
Astragalus claranus	Clara Hunt's milk-vetch	Chaparral (openings); cismontane woodland; valley and foothill grassland/serpentinite or volcanic, rocky, clay	Unlikely. Habitat not present at project site.
Balsamorhiza macrolepis	big-scale balsamroot	Chaparral; cismontane woodland; valley and foothill grassland/ sometimes serpentinite	Unlikely. Habitat not present at project site.
Blennosperma bakeri	Sonoma sunshine	Vernal pools, valley and foothill grassland. Vernal pools and swales	Unlikely. Not observed during plant surveys.
Campanula californica	swamp harebell	Bogs and fens; closed-cone coniferous forest; coastal prairie; meadows and seeps; marshes and swamps (freshwater); north coast coniferous forest	Unlikely. Habitat not present at project site.
Castilleja uliginosa	Pitkin Marsh paintbrush	Marshes and swamps (freshwater)	Unlikely. Habitat not present at project site.
Ceanothus confusus	Rincon Ridge ceanothus	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from volcanic or serpentine soils, dry shrubby slopes	Unlikely. Habitat not present at project site.
Ceanothus divergens	Calistoga ceanothus	Chaparral. Rocky, serpentine or volcanic sites	Unlikely. Habitat not present at project site.
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	Sandy acidic soil	Unlikely. Habitat not present at project site.
Ceanothus purpureus	holly-leaved ceanothus	Chaparral; volcanic substrates, slopes	Unlikely. Habitat not present at project site.
Ceanothus sonomensis	Sonoma ceanothus	Chaparral; south slopes	Unlikely. Habitat not present at project site.
Centromadia parryi ssp. parryi	pappose tarplant	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites	Unlikely. Not observed during plant surveys.
Chorizanthe valida	Sonoma spineflower	Coastal prairie (sandy)	Unlikely. Habitat not present at project site.
Clarkia imbricata	Vine Hill clarkia	Chaparral; valley and foothill grassland/acidic sandy loam)	Unlikely. Habitat not present at project site.

Cordylanthus tenuis ssp. capillaris	Pennell's birds-beak	Closed-cone coniferous forest, Chaparral	Unlikely. Habitat not present at project site.
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Marshes and swamps (freshwater)	Unlikely. Habitat not present at project site.
Delphinium luteum	golden larkspur	Chaparral; coastal prairie; coastal scrub/rocky	Unlikely. Habitat not present at project site.
Downingia pusilla	dwarf downingia	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools	Unlikely. Not observed during plant surveys.
Erigeron serpentinus	serpentine daisy	Chaparral (serpentinite, seeps)	Unlikely. Habitat not present at project site.
Gilia capitata ssp. tomentosa	woolly-headed gilia	Coastal bluff scrub, valley and foothill grasslands/serpentinite; rocky outcrops	Unlikely. Habitat not present at project site.
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides	Low. Not observed during plant surveys.
Hork elia tenuiloba	thin-lobed horkelia	Broadleaved upland forest, chaparral, valley and foothill grassland. Sandy soils; mesic openings	Unlikely. Habitat not present at project site.
Lasthenia burk ei	Burke's goldfields	meadows and seeps; vernal pools	Unlikely. Not observed during plant surveys.
Lasthenia californica ssp. bakeri	Baker's goldfields	Vernal pools, meadows and seeps. Most often in vernal pools and swales	Unlikely. Habitat not present at project site.
Layia septentrionalis	Colusa layia	Chaparral, cismontane woodland, valley and foothill grassland. Scattered colonies in fields and grassy slopes in sandy or serpentine soil	Unlikely. Habitat not present at project site.
Legenere limosa	legenere	Vernal pools	Unlikely. Habitat not present at project site.
Leptosiphon jepsonii	Jepson's leptosiphon	Chaparral, cismontane woodland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates	Unlikely. Habitat not present at project site.
Limnanthes vinculans	Sebastopol meadowfoam	Meadows and seeps, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam	Unlikely. Not observed during plant surveys.
Microseris paludosa	marsh microseris	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland	Unlikely. Habitat not present at project site.
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils	Unlikely. Not observed during plant surveys.

Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Vernal pools. Volcanic ash flow vernal pools	Unlikely. Not observed during plant surveys.
Potentilla uliginosa	Cunningham Marsh cinquefoil	Marshes and swamps/freshwater, permanent oligotrophic wetlands	Unlikely. Habitat not present at project site.
Trifolium amoenum	two-fork clover	Coastal bluff scrub; valley and foothill grassland (sometimes serpentinite)	Unlikely. Not observed during plant surveys.
Trifolium buckwestiorum	Santa Cruz clover	Coastal praire, mixed evergreen forest; grassy or disturbed areas	Unlikely. Habitat not present at project site.
Trifolium hydrophilum	saline clover	Marshes and swamps; valley and foothill grasslands (mesic, alkaline)	Unlikely. Habitat not present at project site.
Viburnum ellipticum	oval-leaved viburnum	Chaparral; cismontaine woodland; lower montane coniferous forest	Unlikely. Habitat not present at project site.
MONOCOTS			
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Marshes and swamps (freshwater); riparian scrub	Unlikely. Not observed during plant surveys.
Brodiaea leptandra	narrow-anthered brodiaea	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Volcanic substrates	Unlikely. Habitat not present at project site.
Calamagrostis crassiglumis	Thurber's reed grass	Coastal scrub (mesic); marshes and swamps (freshwater)	Unlikely. Habitat not present at project site.
Fritillaria liliacea	fragrant fritillary	Cismontane woodland; coastal prairie; coastal scrub; valley and foothill grassland/often serpentinite	Unlikely. Not observed during plant surveys.
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	Cismontane woodland; meadows and seeps, marshes and swamps (freshwater); mesic, sandy	Unlikely. Not observed during plant surveys.
Pleuropogon hooverianus	North Coast semaphore grass	Broadleafed upland forest; meadows and seeps; north coastal coniferous forest/open areas, mesic	Unlikely. Habitat not present at project site.
Rhynchospora alba	white beaked-rush	Bogs and fens; meadows and seeps; marshes and swamps (freshwater)	Unlikely. Habitat not present at project site.
Rhynchospora californica	California beaked-rush	Bogs and fens; lower mountain coniferous forest; meadows and seeps; marshes and swamps	Unlikely. Habitat not present at project site.
Rhynchospora capitellata	brownish beaked-rush	Wet meadows, fens, seeps, marshes	Unlikely. Not observed during plant surveys.
Rhynchospora globularis	round-headed beaked- rush	Marshes and swamps (freshwater)	Unlikely. Not observed during plant surveys.

**APPENDIX B.2: Arborist Report** 



## Redwood Market Arborist Report

Windsor, California

June 15, 2018

#### **PREFACE**

This report is an evaluation of trees growing on and adjacent to the Redwood Market (Chevron Station) project site at 9120 and 9200 Old Redwood Highway in Windsor, CA. The proposed project is in design phase with the Preliminary Grading and Drainage Plan reviewed for potential construction tree impact. Preliminary tree protection requirements and recommendations are provided within this report.

James MacNair, principal of MacNair and Associates, ISA Certified Arborist WE-0603A, and ISA Qualified Tree Risk assessor prepared this evaluation and report.

Unless expressed otherwise, the information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection. The inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in questions may not arise in the future.

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#### Assignment

This report is an evaluation of trees growing on and adjacent to the Redwood Market (Chevron Station) project site at 9120 and 9200 Old Redwood Highway in Windsor, CA. The proposed project is in design phase with the Preliminary Grading and Drainage Plan reviewed for potential construction tree impact. Preliminary tree protection requirements and recommendations are provided within this report.

The project site was evaluated on March 28 and 30, 2018.

The purpose of this evaluation is to:

- Identify the total number of trees greater than 6 inches in trunk diameter (at 4.5 feet above grade) present or near the proposed project limits;
- Assess the health and structural condition of the trees;
- Provide preliminary recommendations for construction protection procedures including recommended Tree Protection Zones (TPZ);
- Calculate the required mitigation trees based upon estimated tree removals for the Redwood Market portion of the project.
- Calculate the monetary value of the trees recommended for preservation using the <u>Guide for Plant Appraisal</u>, ISA Western Chapter <u>Species Classification and Group</u> <u>Assignment</u> booklet, and <u>the Tree Appraisal Form for Northern California</u>.

Forty-nine (49) trees are evaluated as part of this report with locations of the tree shown on the attached Tree Location and Numbering Plan (notated Landscape Plan). The evaluative data for the trees is provided in Tree Data Matrix Appendix A.

#### **Site Description:**

The project site is a traingularly shaped property with the topography flat and adjacent to the Hwy 101 Caltrans right-of-way on the east side and a commercial warhouse to the north. The evaluated trees are located in the areas surrounding the Chevron gas station and in the parking lot and car wash areas. The current plans indicate that areas on the northwest, west, and east sides of the property will be Town of Windsor property for future public development.

The native trees growing on the site are valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*). These oaks range from young seedling trees to semi-mature in age and vary in health and structural condition. The numerous, young oak seedlings form dense clusters on the northwest and north portions of the site. There is one mature valley oaks located on the north property line adjacent to the commerical warehouse. The evaluated trees are the larger diameter trees with trunks close to, or exceeding the six inch trunk diameter threshold required for protected tree status.

The trees have not been maintained with many having multiple trunk structures originating from sprouts from previously cut or mowed trees. Pit scale is attacking the valley oaks and

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affecting the overall health and vigor of the trees. The coast live oaks are generally in good health and vigor.

#### **Construction Impact and Mitigation Calculations:**

The proposed project is a retail site including ar restaurant/market, retail building, gas station, and a car wash. The preliminary grading and drainge plan indicate that most of the trees are located within the project construction and grading limits and require removal.

A total of 40 trees are designated for removal with 14 trees having protected tree status. The tree mitigation calculations are provided in Appendix B. The mitigation requirements are 28 24-inch box and 14 48-inch box trees. The in lieu fee equivilent is \$33,600.00. The landscape plan prepared by Donald MacNair (MacNair Landsccape Architecture) shows five (5) 48" box coast live oaks planted as mitigation trees. These mitigation trees reduce the in lieu equivilent fee to \$25,600.00.

There are seven protected trees identified as preserved with their respective tree protection zones as defined in Appendix A. These trees are #1 (7.5-inch valley oak), #2 (8-inch valley oak) #17 (25-inch valley oak), #20 (7-inch valley oak), #21 (16-inch coast live oak), #26 (7-inch coast live oak), and #43 (12-inch valley oak). With the exception of tree #2, these trees appear to be located a sufficent distance where tree protection fencing will be the primary requirement during construction of the Redwood Market portion of the project.

#### <u>Appraisal Calculations (Monetary Value)</u>

Estimates of the monetary value of the trees desingated for preservation have been prepared and are provided in Appendix D. These estimates use generalized assumptions for location and condition factors. The values established are intended as guide for value as defined in the Town of Windsor Tree Ordinance.

#### **Individual Tree Evaluations**

Following is a description of the various datum used in the evaluations.

#### Tree #:

The trees have been assigned a number as indicated on the attached site plan excerpts.

#### **Botanical and Common Names:**

The botanical name and common name are provided for each tree.

## Trunk Diamter (DBH) and # of Trunks:

DBH refers to the measurement of the trunk diameter at breast height (54 inches above grade). This measurement is useful to arborists providing quotations for tree maintenance work and evaluating tree growth over time.

The # of trunks notes single or multiple trunk trees. Trunks must occur at or below 54 inches above grade for tree to be considered as having multiple trunks for purposes of measurement.

#### Height and Crown Diameters:

These fields are approximate visual estimates of the tree's height and crown spread. Accuracy is within plus or minus 10% of the indicated measurement.

## Health and Structural Ratings and Descriptions:

The following chart describes the health and structural rating system used in the evaluation. It is a rating of relative conditions such as vigor, extent of decay, structure, and insect or disease problems. Good, fair, and moderate ratings indicate limited structural problems, acceptable vigor, and an absence of significant pest or disease problems. Poor and marginal ratings indicate serious health or structural problems especially if the tree is situated near structures or public areas. Trees rated as poor or marginal are often hazardous. This rating system is required as part of the Town of Windsor Tree Evaluation Requirements. Rating Chart:

Health Ratings			Structural Ratings
5	Excellent health		
4	Good health	4	Good structure
3	Fair health	3	Moderate structure
2	Marginal health	2	Marginal structure
1	Poor health	1	Poor structure

Trees may be rated between two conditions, such as 2.5 or 3.5. This indicates the tree does not precisely meet the criteria for either of the two categories and allows the rating system to be used as a continuum.

The Health Description and Defect Description fields describe the basis for the health and structural rating. The specific pests, disease, and structural defects observed are described and identified if possible.

This evaluation is of above ground structure only and additional defects may exist at the root collar. Often, larger mature and over-mature trees require a root collar examination to evaluate the primary structural roots and root collar for decay and disease.

#### Comments/Observations:

This is summary discussion of the health and structural ratings as well as identification of any significant pest or disease issues and structural defects or issues.

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#### Construction Impact:

An assessment of the construction impact to the individual tree.

#### Suitability for Preservation:

#### **Ratings Factors:**

<u>Tree Health</u>: Vigorous and healthy trees are better able to tolerate construction impacts including root loss or injury,

<u>Structural Condition</u>: Preserved trees should be structurally sound or have defects that can be effectively abated in areas near structures or high use areas.

<u>Tree Age and Species</u>: Older trees may have reduced ability to tolerate construction impacts and adapt to changed site conditions. Additionally, individual tree species have varying tolerances to environmental impacts and changes.

## Tree Protection Zone (TPZ Radius) and Critical Root Zone (CRZ Radius):

Tree protection distance established by trunk diameter as opposed to distances established by canopy edge. Generally, one inch of trunk diameter will equal one foot of protected distance from the tree. A 30-inch trunk diameter will establish a 30-foot radius TPZ. Modifications to the TPZ may occur. Over-mature trees or trees in poor or marginal health may require larger protected distances.<sup>1</sup>

The Critical Root Zone is the radial area around the trunk where all root impacts should be avoided or mitigated with specialized procedures. Typically, the critical root zone will be a radial distance equal to three times (3X) the trunk diameter.

## **Tree Management and Construction Protection Issues:**

Tree management goals for retained trees include the following:

- 1.) Pruning trees to improve structural form and prevent future defects.
- 2.) Establishing tree protection zones for clearance from construction zones. The recommended distances are based upon trunk diameters and conform to accepted industry standards for tree protection.
- 3.) All pruning work should be performed under the supervision of an ISA Certified Arborist (International Society of Arboriculture) and according to ANSI A300 Pruning Standards.
- 4.) Providing pest control and other cultural procedures to improve and maintain the health of the trees during and post-construction.

<sup>&</sup>lt;sup>1</sup> Matheny, Nelda and Clark, James. 1998. Trees and Development, A Technical Guide to Preservation of Trees During land Development. ISA, Champaign, IL.

### **Construction and Design Guidelines for Protection of Trees**

Development of the project infrastructure, including roads, utilities, drainage facilities, etc. will alter the natural terrain and affect existing trees growing close to the construction areas. Impacts will primarily occur as a result of the site grading requirements. The following guidelines are intended to minimize grading impacts and maximize tree survivability.

### 1.0 Tree Protection Zone

1.1 All construction activity (grading, filling, paving, landscaping) will respect a Tree Protection Zone (TPZ) around trees to be protected. The TPZ will be a distance of one-foot radial distance from the trunk for each one-inch of trunk diameter. Exceptions to this standard may occur depending upon the age and condition of individual trees.

### 2.0 Construction Inspections and Supervision

- 2.1. All arboricultural and related soil work shall be performed under the supervision of an International Society of Arboriculture (ISA) Certified Arborist, qualified landscape architect or biologist or a City designated representative.
- 2.2. All specified arboricultural work shall be completed prior to site grading (root pruning, canopy pruning, fencing, etc.)
- 2.3. The contractor is required to meet with the Supervising Arborist or City designated representative to review all the tree protection requirements.

### 3.0 Tree Protection Fencing

- 3.1 Fencing at a minimum of four feet in height and clearly marked to prevent inadvertent encroachment by heavy machinery shall be installed either at the edge of the Tree Protection Zone (TPZ), or at the edge of the construction zone if the construction zone protrudes into the TPZ. The Supervising Arborist or City designated representative shall approve location of fencing. All fencing shall be in place prior to any site grading.
- 3.2. Contractor shall maintain the protection fencing and prohibit all access to fenced areas by construction personnel or equipment until all site work is completed.
- 3.3. All structures including construction trailers, equipment storage areas and any other construction traffic are prohibited within fenced areas. Burning or debris piles are prohibited within fenced areas. No materials, equipment, spoils, waste, or washout water shall be deposited or stored within fenced areas. Fences may not be moved without written permission of the Supervising Arborist or City designated representative.
- 3.4 If temporary access within a fenced area is determined to be necessary, then a six-inch layer of redwood bark fiber shall be placed in all areas requiring access. This requirement for mulching shall apply to all areas within the fenced area. If equipment

access is required, then the mulch shall be overlaid with interlocking metal plates of sufficient thickness to adequately distribute bearing load.

### 4.0 Demolition/Site Clearing

- 4.1 Any tree removal work within 50 feet of a TPZ shall be reviewed by a qualified arborist. Trees requiring removal shall be felled away from protected trees. Roots of trees to be removed may require pruning with approved root cutting equipment prior to felling if intermingled with roots of retained trees.
- 4.2 Excavation equipment shall operate from outside the TPZ. Brush and wood chips generated from tree and brush removal shall be placed in the TPZ To a uniform depth of six inches.
- 4.3 All required pruning shall conform to the pruning section of these guidelines.
- 4.4 All brush removal shall be performed with hand equipment when within the TPZ.

### 5.0 Site Grading, Trenching, and Root Pruning

- 5.1 Keep site grading within designated construction zones. Grading cuts or trenching within the TPZ of a retained tree trunk requires special trenching procedures. Trenches shall be dug manually or with the use of a root cutting machine, rock cutter, or other approved root-pruning equipment. This root-pruning trench shall be placed one foot inside the edge of the grading cut. The depth of the trench shall equal the depth of the grading cut to a maximum depth of 40 inches.
- 5.2 A trench may be mechanically dug toward a tree until the edge of the TPZ is reached. From the edge of the TPZ, the special trenching procedures shall apply.
- 5.3 Underground utilities, drain, and irrigation lines shall be routed outside the TPZ. When lines must cross the TPZ, the lines shall be bored or tunneled through the area at a depth approved by the supervising arborist. In these instances, a single shared utility conduit shall be used to reduce impacts to trees.
- 5.4. Any roots one inch in diameter or larger requiring removal shall be cut cleanly in sound tissue. The roots and surrounding soil shall be moistened and covered with a thick mulch (4") to prevent desiccation. No pruning seals or paints shall be used on wounds. Cut and exposed roots shall be protected from drying. A water absorbent material (i.e. burlap) shall be secured at the top of the trench and shall be draped over the exposed roots. This material shall be kept moistened and soil shall be replaced as soon as practicable.
- 5.5 Use of retaining walls will be encouraged to protect retained trees.
- 5.5. Fill placement areas covering 30% or more of the TPZ of trees larger than 24 inches dbh and over one foot in depth shall be mitigated with a retaining wall or well. Installation of

aeration systems may also be required depending upon the extent, depth, and type of the fill. Structural soils may be appropriate for use as a fill material.

### 6.0 Foundation Construction

6.1. Foundation construction within the TPZ of retained trees is recommended to be either a pier and grade beam construction which bridges root areas, cantilevered structures, or raised foundations using pier footings.

### 7.0 Site Drainage

7.1 All grading shall be designed to provide positive drainage away from the base of the tree trunk, and not create ponding within the TPZ.

### 8.0 Pruning and Cabling

- 8.1 Any tree pruning, cabling, or other similar activity which may be proposed as part of site construction will be included on site plans and be reviewed by a qualified arborist or City representative.
- 8.2 Pruning methods shall conform to the ANSI A300 Pruning Standards.

### Post-Construction Recommendations:

Retained trees impacted by construction are recommended to receive the following cultural procedures:

### 1.0 Drip Irrigation System:

An in-line emitter drip system is recommended for placement at edge of the canopy drip line for trees subject to construction impact. The emitters shall have a 2-gallon per hour flow rate and be spaced at 24 inches on center. This system shall be installed for all trees deemed important to preserve.

Irrigate one time per month from May through September for ten hours. If excessive run-off occurs reduce run time by 50% and repeat application in two days.

### 2.0 Fertilization:

Post-construction a slow release nitrogen formulation shall be applied in non-graded areas in a 10-foot wide band at the canopy edge. Rate of application shall be .5-pound actual nitrogen per 1000 square feet. Timing of application is in November after winter rains have begun. The supervising arborist shall determine additional fertilization requirements.

### 3.0 Mulch Application:

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Apply a four to six inch depth of bark mulch below and 10 feet beyond canopy where appropriate.

### Landscaping

The following guidelines apply to landscaping around native oak trees.

### **Planting Issues:**

- a.) Do not plant within 10' of the trunk. Use deep mulches (4") in this area.
- b.) Do not allow irrigation to spray on trunk or within a 15' radius of the trunk.
- c.) Do not plant lawn or high water requiring groundcovers. Use drought tolerant plants that require minimal irrigation.
- d.) Irrigation frequencies should be no more than once every three weeks May through November. Choose irrigation systems that best fit the needs of the plants. This can be drip (with multiple emitters), bubblers, or low volume spray heads.
- e.) Do not over plant. Use wide plant spacing to increase the drought tolerance of the plants and to limit competition with the oak.
- f.) Fertilize only in late winter and only as needed. Plants naturally adaptive to oak woodlands will require minimal fertilization.

Appendix A

Tree Assessment Data Matrix

Redwood Market Tree Data Matrix
Tree Evaluation and Preliminary Construction Impact Assessment

4.0 = good health 4.0 = good condition

Health Rating Key: 3.0 = fair health Structural Rating Key: 3.0 = moderate condition Construction Impact Code: RC= Removal Due to Construction

2.5 = marginal to fair health 2.5 = marginal to moderate condition SI= Significant Potential Impact 2.0 = marginal health 2.0 = marginal condition MI= Moderate Impact

1.5 = poor to marginal health 1.5 = poor to marginal condition LI= Limited Impact

1.0 = poor health 1.0 = poor condition

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
1	valley oak ( <i>Quercus</i> <i>lobata</i> )	1	7.5						44.2	7.5	20'±	15'±	3.0	2.5	Young tree with closely spaced, multiple limb attachments forming at 7'. Twiggy growth with pit scale present.	Fair	Yes	Located off-site area. Located approximately 8' from project limits	10'	3'	МІ
2	valley oak	2	4.5	7.0					54.4	8.3	18'±	15'±	3.0	2.0	Low, two trunk structure with included trunk attachment and seam. Pit scale observed.	Marginal	Yes	Located close to future utility area.	10'	3'	МІ
3	coast live oak (Quercus agrifolia )	4	1.0	2.0	2.0	2.0	2.0	3.0	20.4	5.1	10'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
4	coast live oak	3	2.0	3.0	4.0				22.8	5.4	12'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
5	coast live oak	3	3	3.5	3.5				26.3	5.8	15'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
6	coast live oak	3	4.5	5	6				63.8	9.0	20'±	12'±	4.0	2.0	Co-dominant trunks forming at grade. Upright form. Vigor and foliage density are good.	Marginal	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
7	valley oak	1	5						19.6	5.0	20'±	10'±	3.0		Single trunk structure with no significant structural defects. Twiggy growth with pit scale present.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
8	valley oak	3	4	5	5				51.8	8.1	20'±	12'±	3.0		Three trunk structure forming from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
9	coast live oak	6	1	2	3	3	4		30.6	6.2	15'±	12'±	4.0	2.0	Dense, multiple trunk structure forming from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
10	valley oak	1	4.5						15.9	4.5	20'±	8'±	3.0	3.0	Single trunk structure with no significant structural defects. Growing in area of dense small diameter trees. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
11	valley oak	2	4.5	4.5					31.8	6.4	22'±	10'±	3.0	2.5	Low, co-dominant trunk structure forming at grade with wide attachment. Growing in area of dense small diameter trees. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
12	valley oak	2	4	5.5					36.3	6.8	20'±	12'±	3.0	2.5	Low two-trunk structure with seam at trunk attachment. Vertical, upright crown form. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
13	valley oak	4	1.5	2	3.5	6			42.8	7.4	25'±	20'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Fair	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
14	valley oak	2	4	4					25.1	5.7	20'±	10'±	3.0	2.5	Co-dominant trunks forming at grade. Upright form. Vigor and foliage density are good.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
15	valley oak	1	5.5						23.7	5.5	20'±	10'±	3.0	2.5	Single trunk structure with no significant structural defects. Twiggy growth with pit scale present. Growing adjacent to trees #14 and #16.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
16	valley oak	4	2	2.5	3.5	4			30.2	6.2	20'±	15'±	3.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
17	valley oak	6	5	8	8	10	10	16	478.1	24.7	40'±	50'±	3.0	2.5	Mature tree with multiple trunks forming at grade. 16" trunk has upright form, while others have corrected leans. Dense bamboo growing around trees with lower trunk obscured. Vigor is moderately low with probable pit scale.	Fair	Yes	Located 28' from proposed project limits and 10' from estimated location of future storm drain.	25'	8'	LI

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
18	coast live oak	3	6.5	6.5	7.5				110.5	11.9	18'±	20'±	4.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
19	valley oak	3	2.5	3.5	4				27.1	5.9	20'±	12'±	3.0	2.5	Low, three-trunk structure forming from basal sprouts at grade. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
20	valley oak	3	2	4	5				35.3	6.7	12'±	12'±	3.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	Yes	Located 11' from project grading limits. Limited impact expected.	8'	2'	LI
21	coast live oak	5	6	7	7	8	8.5		212.1	16.4	22'±	30'±	4.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Located at fence line. Vigor and foliage density are good.	Fair	Yes	Located 15' from storm water infiltration area. Limited impact expected.	18'	4'	LI
22	valley oak	3	1.25	4	4				26.3	5.8	18'±	12'±	3.0	2.5	Multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
23	Canary Island date palm ( <i>Phoenix</i> canariensis)	1	24						452.2	24.0	18'±	20'±	4.0	3.0	Young palm in good vigor and no structural issues.	Good	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
24	valley oak	1	5.5						23.7	5.5	20'±	8'±	3.0	3.0	Single trunk structure with no significant structural defects. Vigor is moderately low with probable pit scale. Located adjacent to fence.	Fair	No	Located 15' from storm water infiltration area. No impact expected.	6'	1.5	NI
25	valley oak	2	4	4					25.1	5.7	20'±	10'±	3.0	2.0	Co-dominant trunks forming at grade. Vigor is moderately low with probable pit scale. Located adjacent to fence.	Marginal	No	Located 15' from storm water infiltration area. No impact expected.	6'	1.5	Ni
26	coast live oak	2	3	6					35.3	6.7	12'±	10'±	4.0	2.5	Low, two-trunks structure with leaning, asymmetrical crown to west. Vigor and foliage density are good. Located adjacent to fence.	Fair	Yes	Located 15' from storm water infiltration area. No impact expected.	8'	2'	NI
27	valley oak	3	4	4	5				44.7	7.5	18'±	8'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
28	valley oak	1	12						113.0	12.0	30'±	15'±	3.0	3.0	Semi-mature tree with single trunk structure. Closely spaced, multiple limb attachments form at 10'. Vigor is moderately low with probable pit scale. Ivy growing on trunk.	Fair	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
29	valley oak	1	12						113.0	12.0	30'±	25'±	3.0	3.0	Semi-mature tree with single trunk structure. Closely spaced, multiple limb attachments form at 15'. Symmetrical crown form. Vigor is moderately low with probable pit scale. Ivy growing on trunk.	Fair	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
30	coast live oak	1	7.5						44.2	7.5	22'±	20'±	4.0	2.5	Single trunk structure, originally a basal sprout. Growing through chain link fence. Vigor and foliage density are good.	Fair to Moderate	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
31	coast live oak	3	3	3	3				21.2	5.2	12'±	10'±	4.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Fair to Moderate	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
32	valley oak	1	5.5						23.7	5.5	20'±	12'±	3.0	3.0	Single trunk structure with no significant structural defects. Twiggy growth with pit scale present.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
33	coast live oak	3	10.5	12	12				312.6	20.0	22'±	30'±	4.0	2.5	Low, multiple trunk structure with the two 12" trunks having a partially included trunk attachment. Symmetrical crown form. Ivy growing on tree.	Fair to Moderate	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
34	coast live oak	1	7.5						44.2	7.5	18'±	20'±	4.0	3.0	Shaded tree with moderate lean. No significant structural defects. Growing at edge of drainage. Vigor and foliage density are moderate.	Moderate to good.	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
35	coast live oak	1	6						28.3	6.0	15'±	12'±	4.0	3.0	Single trunk structure with closely spaced, multiple limb attachments forming at 5'. No significant structural defects observed. Vigor and foliage density are moderate. Ivy	Moderate to good.	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
36	coast live oak	2	4	4					25.1	5.7	15'±	10'±	4.0	3.0	Young tree with two trunk structure. Vigor and foliage density are good.	Moderate to good.	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
37	coast live oak	1	5						19.6	5.0	15'±	10'±	4.0	3.0	Young tree with two trunk structure. Vigor and foliage density are good.	Moderate to good.	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
38	coast live oak	3	3	3	4				26.7	5.8	10'±	10'±	3.0	3.0	Young tree with two trunk structure. Vigor and foliage density are good. Poison oak growing on tree.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
39	coast live oak	3	7	7.5	8				132.9	13.0	30'±	35'±	1.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Extensive ivy and poison oak. Vigor is low with extensive crown dieback occurring.	Poor	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
40	coast live oak	6	7	8	10	10	13	14	532.2	26.0	30'±	35'-40'±	3.0	2.0	Multiple trunks forming at 2' with included attachments with deep seam. Wide crown form. Vigor and foliage density are moderately low.	Marginal	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
41	valley oak	1	8						50.2	8.0	20'±	30'±	3.0	2.0	Horizontal trunk form due to shading from tree #40. Extends to southeast. Vigor is moderately low with probable pit scale.	Marginal	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
42	valley oak	2	7	8.5					95.2	11.0	30'±	20'±	3.0	2.5	Low two-trunk structure with seam at trunk attachment. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
43	valley oak	3	6	7	7				105.2	11.6	25'±	25'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Unions are not yet included. Vigor is moderately low with probable pit scale.	Fair	Yes	Appears to be outside project limits in future Town property.	12'	4'	LI
44	Raywood ash ( <i>Fraxinus angustifolia</i> 'Raywood'	1	12						113.0	12.0	25'±	25'±	3.0	2.5	Single trunk structure with closely spaced, multiple limb attachments forming at 10'. No significant structural defects observed. Vigor and foliage density are moderately low. Located in small planter.	Fair	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
45	coast live oak	1	7						38.5	7.0	15'±	10'±	4.0	2.0	Leaning, asymmetrical form due to heavy pruning. Previously topped. Volunteer seedling. Good vigor and foliage density.	Marginal	Yes	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
46	Chinese elm ( <i>Ulmus</i> parvifolia )	1	7						38.5	7.0	18'±	12	4.0	2.0	Single trunk structure previously topped. Vigor and foliage density are moderate. 4" elm nearby.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC

Tree #	Species	Trunks	Trunk #1 Diameter @ 4.5' (inches)	#2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter		Structural Rating		Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
47	Raywood ash	1	9						63.6	9.0	20'±	18'±	3.0	2.0	Single trunk structure with closely spaced, multiple limb attachments forming at 6'. Vigor and foliage density are moderately low. Located in small planter.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
48	Raywood ash	1	7.5						44.2	7.5	18'±	15'±	3.0	2.0	Single trunk structure with closely spaced, multiple limb attachments forming at 5'. Vigor and foliage density are moderately low. Located in small planter.	Marginal	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC
49	Raywood ash	4	4	4	5	6			73.0	9.6	15'±	12'±	3.0	1.0	Multiple trunk structure originating from basal sprouts at grade. Very poor structure.	Poor	No	Located within, or adjacent to, proposed project grading and construction limits. Removal required.			RC

Appendix B

Tree Mitigation Chart

### Redwood Market Tree Mitigation Chart Appendix B

### Redwood Market Tree Mitigation Chart

5.0= excellent health

4.0 = good health 4.0 = good condition

Health Rating Key: 3.0 = fair health Structural Rating Key: 3.0 = moderate condition

2.5 = marginal to fair health2.5 = marginal to moderate2.0 = marginal health2.0 = marginal condition1.5 = poor to marginal health1.5 = poor to marginal condition

1.0 = poor health 1.0 = poor condition

Tree#	Species	# of Trunks	Equivalent Trunk Diameter	Health Rating	Structural Rating	Replacement Ratio*	Required Replacement Inches
6	coast live oak	3	9.0	4.0	2.0	0.5	4.5
13	valley oak	4	7.4	3.0	2.5	0.5	3.7
18	coast live oak	3	11.9	4.0	2.0	0.5	5.9
28	valley oak	1	12.0	3.0	3.0	1.0	12.0
29	valley oak	1	12.0	3.0	3.0	1.0	12.0
30	coast live oak	1	7.5	4.0	2.5	1.0	7.5
33	coast live oak	3	20.0	4.0	2.5	1.0	20.0
34	coast live oak	1	7.5	4.0	3.0	1.0	7.5
35	coast live oak	1	6.0	4.0	3.0	1.0	6.0
39	coast live oak	3	13.0	1.0	2.0	0.5	6.5
40	coast live oak	6	26.0	3.0	2.0	0.5	13.0
41	valley oak	1	8.0	3.0	2.0	0.5	4.0
42	valley oak	2	11.0	3.0	2.5	0.5	5.5
45	coast live oak	1	7.0	4.0	2.0	0.5	3.5

	Total Repla	cement Inches:	112	In Lieu Equivalent	
	olacement Tree R ernate 36" boxes		28	\$11,200.00	\$400.00 per 24" box
Min	nimum 48" Box Re	equirements***	14	\$22,400.00	\$1,600.00 per 48" box

Total: \$33,600.00

# of 48" Box Mitigation Trees Shown on Landscape Plan: 5 \$8,000.00

Net Mitigation In Lieu Amount: \$25,600.00

Appendix C

Site and Tree Images



View of northwest section of property. Tree #1 (valley oak) is in foreground.



Tree #2 (valley oak) is on left with area of dense small diameter coast live oaks.



Tree #7 (valley oak in foreground) with view to west.



Area of very dense small diameter valley oak and cost live oaks on northwest side of property (within future Town section).



Common multiple trunk structure forming at grade from sprouts from previously mowed seedling.



View to north corner with mature valley oak (#17) in distance.



Tree #17 on left and area in north portion of site.



Dense grove of acacia (A. decurrens) in north portion of site.



Trees growing along fence line with Caltrans ROW.



Young Canary Island date palm near parking area.



Two semi-mature valley oaks (#28 and #29).



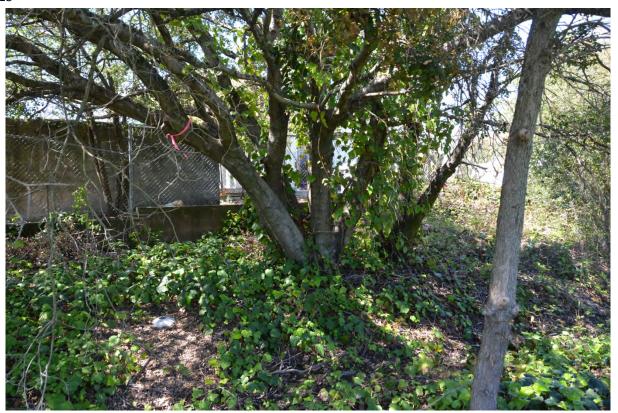
Small coast live oaks near fence and drainage swale on east side of project.



Coast live oaks on east side in area of dense ivy and poison oak.



Coast live oaks on east side. Tree #39 on left is rated in poor condition due to extensive crown dieback.



Base of coast live oak #40 with defective multiple trunk structure.



Tree #43 (valley oak) appears to away from grading limits, although not shown on survey plan.

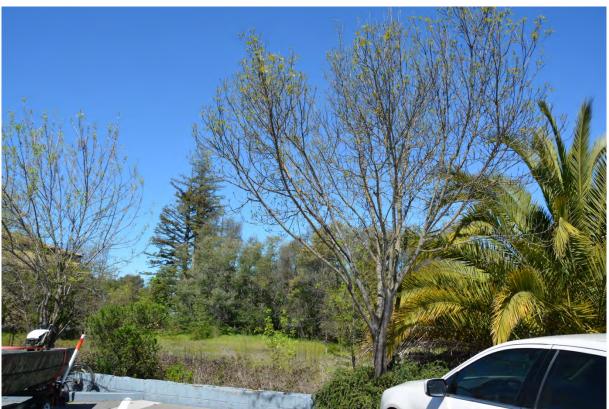


Small elm and volunteer coast live oak on right in parking lot planter.



Mature Raywood ash in small landscape planter.





Smaller, drought stressed Raywood ash in planters on north side of parking area.

Appendix D

**Appraisal Calculation Worksheet** 

#### Redwood Market - Tree Appraisal Table (Appendix D)

#### **Redwood Market Appraisal Calculations**

Trees Requiring Tree Protection

Tree #	Species	Condition	Trunk Diameter (Equivalent)	Location	Site	Contribution	Placement	Species Rating	Replacement Tree Size (in.) (Average)	Replacement	Replacement Tree Cost	Installatio n Cost	Installed Tree Cost	Unit Tree Cost	Appraised Trunk Area (TA) (or adjusted TA)	Basic Tree Cost	Appraised Value	Appraised Value (rounded)
1	valley oak	70%	7.5	27%	70%	5%	5%	90%	1.69	2.24	\$172.73	\$250.00	\$422.73	\$188.72	44.16	\$8,333.11	\$1,399.96	\$1,400
2	valley oak	60%	8.3	27%	70%	5%	5%	90%	1.69	2.24	\$172.73	\$250.00	\$422.73	\$188.72	54.08	\$10,205.66	\$1,469.61	\$1,500
17	valley oak	70%	24.7	40%	70%	30%	20%	90%	1.69	2.24	\$172.73	\$250.00	\$422.73	\$188.72	478.92	\$90,381.31	\$22,776.09	\$22,800
20	valley oak	60%	6.7	27%	70%	5%	5%	90%	1.69	2.24	\$172.73	\$250.00	\$422.73	\$188.72	35.24	\$6,650.19	\$957.63	\$1,000
21	coast live	70%	16	30%	70%	10%	10%	90%	2.2	3.8	\$172.73	\$250.00	\$422.73	\$111.24	200.96	\$22,355.74	\$4,225.24	\$4,200
26	coast live	70%	6.7	27%	70%	5%	5%	90%	2.2	3.8	\$172.73	\$250.00	\$422.73	\$111.24	35.24	\$3,920.11	\$658.58	\$700
43	valley oak	70%	11.6	30%	70%	10%	10%	90%	1.69	2.24	\$172.73	\$250.00	\$422.73	\$188.72	105.63	\$19,934.29	\$3,767.58	\$3,800

Total: \$35,400

**Appraised Value** = Basic Tree Cost x Species Rating x Condition x Location

Basic Value = Unit Tree Cost x Appraised Trunk Area (TA or ATA)

Condition = Structural integrity and health rating (rating assigned based upon the following

factors: roots, trunk, scaffold branches, smaller branches and twigs, and foliage.)

Location = Mean of site, contribution, and placement ratings.

Installed Tree Cost = The cost to buy and install the largest normally available

transplantable tree in the Western Region.

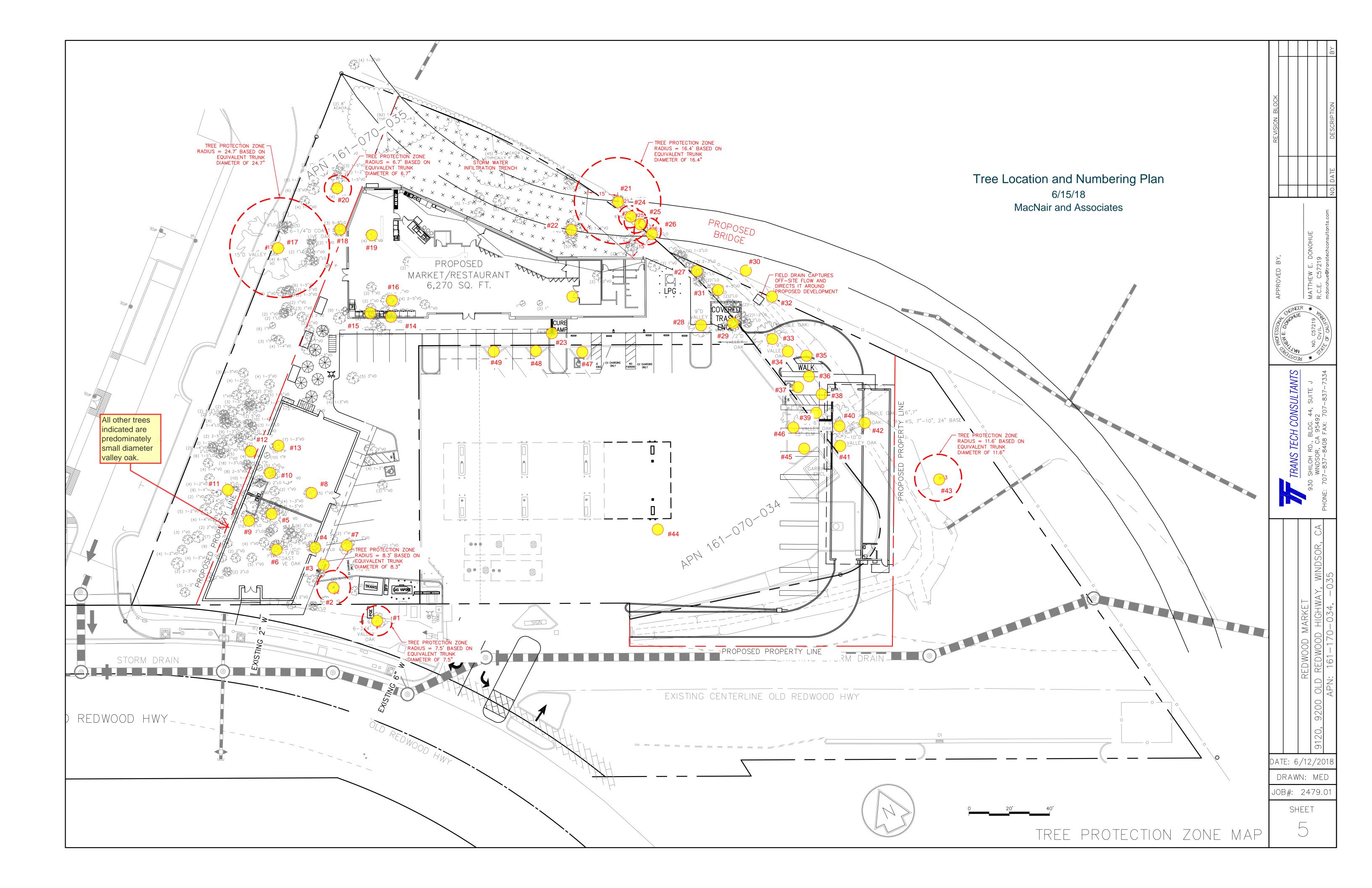
Unit Tree Cost = The cost per unit trunk area of an installed replacement tree as established

by the Regional Supplement.

Appraised Trunk Area (TA) = Cross-sectional trunk area measured at 4.5 feet above grade (dbh) in square inches.

Adjusted TA = Adjusted trunk area for trees greater than a 30 inch diameter.

**Species Factor** = regional rating of the appraised tree species.



APPENDIX B.2: Updated Arborist Report



### Redwood Market Arborist Report

Windsor, California

April 14, 2021

### **PREFACE**

This arborist report is an update to a previous report submitted in April 2018 and provided an evaluation of trees growing on and adjacent to the Redwood Market (Chevron Station) project site at 9120 and 9200 Old Redwood Highway in Windsor, CA. This updated report assesses potential construction tree impact and required mitigation calculations for removed protected status trees. Tree protection requirements and recommendations are provided within this report, and tree appraisal calculations for protected trees designated for preservation.

James MacNair, principal of MacNair and Associates, ISA Certified Arborist WE-0603A, ISA Tree Risk Assessment Qualified, and ASCA Tree and Plant Appraisal Qualified, prepared this evaluation and report.

Unless expressed otherwise, the information contained in this report covers only those items that were examined andreflects the condition of those items at the time of inspection. The inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that the trees' problems or deficiencies in question may not arise in the future.

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### **Assignment**

This arborist report is an update to a previous report submitted in April 2018 and provided an evaluation of trees growing on and adjacent to the Redwood Market (Chevron Station) project site at 9120 and 9200 Old Redwood Highway in Windsor, CA. This updated report assesses potential construction tree impact and required mitigation calculations for removed protected status trees. Tree protection requirements and recommendations are provided within this report and tree appraisal calculations for protected trees designated for preservation.

The project site was evaluated on March 28 and 30, 2018. The purpose of this evaluation is to:

- Identify the total number of trees greater than 6 inches in trunk diameter (at 4.5 feet above grade) present or near the proposed project limits;
- Assess the health and structural condition of the trees;
- Provide preliminary recommendations for construction protection procedures, including recommended Tree Protection Zones (TPZ);
- Calculate the required mitigation trees based upon estimated tree removals for the Redwood Market portion of the project.
- Calculate the trees' monetary value recommended for preservation using the <u>Guide</u> for Plant Appraisal 10<sup>th</sup> Edition (Current Edition).

Forty-nine (49) trees are evaluated as part of this report, with the tree's locations shown on the attached Tree Protection Zone Plan. The evaluative data for the trees is provided in Tree Data Matrix Appendix A.

### **Site Description:**

The project site is a triangularly shaped property with the topography flat and adjacent to the Hwy 101 Caltrans right-of-way on the east side and a commercial warehouse to the north. The evaluated trees are located in the areas surrounding the Chevron gas station and in the parking lot and car wash areas. The current plans indicate that areas on the northwest, west, and east sides of the property will be Town of Windsor property for future public development.

The native trees growing on the site are valley oak (*Quercus lobata*) and coast live oak (*Quercus agrifolia*). These oaks range from young seedling trees to semi-mature in age and vary in health and structural condition. The numerous young oak seedlings form dense clusters on the northwest and north portions of the site. There is one mature valley oak located on the north property line adjacent to the commercial warehouse. The evaluated trees are the larger diameter trees with trunks close to or exceeding the six-inch trunk diameter threshold required for protected tree status.

The trees have not been maintained, with many having multiple trunk structures originating from sprouts from previously cut or mowed trees. Pit scale is attacking the valley oaks and affecting the overall health and vigor of the trees. The coast live oaks are generally in good health and vigor.

### **Construction Impact and Mitigation Calculations:**

The proposed project is a retail site including a restaurant/market, retail building, gas station, and car wash. The preliminary grading and drainage plan indicate that most of the trees are located within the project construction and grading limits and require removal.

A total of 45 trees are designated for removal, with 17 trees having protected tree status. The tree mitigation calculations are provided in Appendix B. The mitigation requirements are ten 24-inch box and five 48-inch box trees. The landscape plan provides sufficient trees in 36 and 48-inch boxes so that there are no in-lieu fees required.

There are four protected trees identified as preserved with their respective tree protection zones as defined in Appendix A. All these trees appear to be located asufficient distance where tree protection fencing will be the primary requirement during the construction of the Redwood Market portion of the project. Certain trees near the future car wash will require pruning for clearance from the car wash.

### <u>Appraisal Calculations (Monetary Value)</u>

Estimates of the monetary value of the trees designated for preservation have been prepared and are provided in Appendix D. The values established are intended as guide for value as defined in the Town of Windsor Tree Ordinance. The Guide for Plant Appraisal 10<sup>th</sup> Edition is used for the reproductive cost calculations.

### **Individual Tree Evaluations**

Following is a description of the various datum used in the evaluations.

### Tree #:

The trees have been assigned a number as indicated on the attached site plan excerpts.

### **Botanical and Common Names:**

The botanical name and common name are provided for each tree.

### DBH and # of Trunks:

DBH refers to the measurement of the trunk diameter at breast height (54 inches above grade). This measurement is useful to arborists providing quotations for tree maintenance work and evaluating tree growth over time.

The # of trunks notes single or multiple trunk trees. Trunks must occur at or below 54 inches above grade for the tree to be considered having multiple trunks for measurement purposes.

### Height and Crown Diameters:

These fields are approximate visual estimates of the tree's height and crown spread. Accuracy is within plus or minus 10% of the indicated measurement.

### Health and Structural Ratings and Descriptions:

The following chart describes the health and structural rating system used in the evaluation. It is a rating of relative conditions such as vigor, the extent of decay, structure, and insect or disease problems. Good, fair, and moderate ratings indicate limited structural problems, sufficient vigor, and an absence of significant pest or disease problems. Poor and marginal ratings indicate serious health or structural problems, especially if the tree is situated near structures or public areas. Trees rated as poor or marginal are often hazardous. This rating system is required as part of the Town of Windsor Tree Evaluation Requirements. Rating Chart:

Healt	h Ratings	Structura	al Ratings
5	Excellent health		
4	Good health	4	Good structure
3	Fair health	3	Moderate structure
2	Marginal health	2	Marginal structure
1	Poor health	1	Poor structure

Trees may be rated between two conditions, such as 2.5 or 3.5. This indicates the tree does not precisely meet the criteria for either of the two categories and allows the rating system to be used as a continuum.

The Health Description and Defect Description fields describe the basis for the health and structural rating. The specific pests, diseases, and structural defects observed are described andidentified if possible.

This evaluation is of the above-ground structure only, and additional defects may exist at the root collar. Often, larger mature and over-mature trees require a root collar examination to evaluate the primary structural roots and root collar for decay and disease.

### Observations:

This is a summary discussion of the health and structural ratings as well as identification of any significant pest or disease issues and structural defects or issues.

### Construction Impact:

An assessment of the construction impact to the individual tree.

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### Suitability for Preservation:

### **Ratings Factors:**

<u>Tree Health</u>: Vigorous and healthy trees are better able to tolerate construction impacts including root loss or injury,

<u>Structural Condition</u>: Preserved trees should be structurally sound or have defects that canbe effectively abated in areas near structures or high-use areas.

<u>Tree Age and Species</u>: Older trees may have reduced ability to tolerate construction impacts and adapt to changed site conditions. Additionally, individual tree species have varying tolerances to environmental impacts and changes.

### <u>Tree Protection Zone (TPZ Radius) and Critical Root Zone (CRZ Radius):</u>

Tree protection distance established by trunk diameter as opposed to distances established by canopy edge. Generally, one inch of trunk diameter will equal one foot of protected distance from the tree. A 30-inch trunk diameter will establish a 30-foot radius TPZ. Modifications to the TPZ may occur. Over-mature trees or trees in poor or marginal health may require larger protected distances.

The Critical Root Zone is the radial area around the trunk where all root impacts should be avoided or mitigated with specialized procedures. Typically, the critical root zone will be a radial distance equal to three times (3X) the trunk diameter.

### **Tree Management and Construction Protection Issues:**

Tree management goals for retained trees include the following:

- 1.) Pruning trees to improve structural form and prevent future defects.
- 2.) Establishing tree protection zones for clearance from construction zones. The recommended distances are based upon trunk diameters and conform to accepted industry standards for tree protection.
- 3.) All pruning work should be performed under the supervision of an ISA Certified Arborist (International Society of Arboriculture) and according to ANSI A300 Pruning Standards.
- 4.) Providing pest control and other cultural procedures to improve and maintain the health of the trees during and post-construction.

### **Construction and Design Guidelines for Protection of Trees**

Development of the project infrastructure, including roads, utilities, drainage facilities, etc. will alter the natural terrain and affect existing trees growing close to the construction areas.

Impacts will primarily occur as a result of the site grading requirements and underground utility installations. The following procedures are recommended to maximize tree survivability.

### 1. Tree Protection Zone and Critical Root Zone

1.1. All construction activity (grading, filling, paving, landscaping) will respect a Tree Protection Zone (TPZ) around trees to be protected. The TPZ will typically be a distance of a one-foot radial distance from the trunk for each one-inch of trunk diameter. Exceptions to this standard may occur depending upon the age, condition, and species tolerance of individual trees. The Critical Root Zone is the radial area around the trunk where all root impacts should be avoided or mitigated with specialized procedures. Typically, the critical root zone will be a radial distance equal to three times (3X) the trunk diameter.

### 2. <u>Construction Observations and Supervision</u>

- 2.1. All arboricultural and related soil work should be performed under the observation of an International Society of Arboriculture (ISA) Certified Arborist (Supervising Arborist), or Client designated representative.
- 2.2. All specified arboricultural work should be completed prior to site grading (root pruning, crown pruning, fencing, etc.)
- 2.3. The contractor is required to meet with the Supervising Arborist or Client designated representative to review the tree protection requirements, including work procedures, access routes, and storage areas.

### 3. Tree Protection Fencing

- 3.1. Fencing at a minimum of four feet in height and clearly marked to prevent inadvertent encroachment by heavy machinery should be installed either at the edge of the Tree Protection Zone (TPZ), the crown drip line (whichever is further from the trunk), or at the edge of the construction zone, if the construction zone protrudes into the TPZ. The Supervising Arborist, or Client designated representative, should approve the location of the fencing. All fencing should be in place prior to any site grading. Fences may not be relocated or removed without the written permission of the Supervising Arborist or Client designated representative.
- 3.2. Bilingual (English/Spanish) signage with a contact phone number shall be attached to the fencing in multiple locations with the following language:

# Tree Preservation Area Entry Prohibited without Authorization

by...

3.3. Install trunk protection measures for trees within 10 feet of construction activities, which as a minimum shall include the installation of ½ in. closed cell foam padding around the truck of each tree from soil grade to a height of 6 ft. above grade. 2" x 4" x 6' wood planks shall be installed ontop of the padding and secured with metal straps in at least two locations. No fasteners or other invasive hardware shall be driven into the protected trees. (This may not be applicable)

- 3.4. Contractor should maintain the protection fencing and prohibit all access to fenced areas by construction personnel or equipment until all site work is completed.
- 3.5. All structures including construction trailers, equipment storage areas and any other construction traffic are prohibited within fenced areas. Burning or debris piles are prohibited within fenced areas. No materials, equipment, spoil, waste, or washout water should be deposited or stored within fenced areas. Fences may not be moved without written permission of the Supervising Arborist or Client designated representative.
- 3.6. If temporary access within a fenced area is determined to be necessary, then a sixinch layer of bark mulch or gravel should be placed in all areas requiring access. This requirement for mulching should apply to all areas within the fenced area and subject to access. If equipment access is required, then the mulch should be overlaid with metal plates of sufficient thickness to adequately distribute bearing load.

### 4. Demolition/Site Clearing

- 4.1. The following work must be accomplished before any demolition or site clearing activity occurs within 50 feet of protected trees.
- 4.2. The demolition contractor is required to meet with the project arborist or designated client representative at the site prior to beginning work to review all work procedures, access and haul routes, and tree protection measures.
- 4.3. The limits of all tree protection zones shall be staked in the field.
- 4.4. Tree(s) to be removed that have branches extending into the canopy of tree(s) to remain must be removed by a qualified arborist and not by demolition or construction contractors. The qualified arborist shall remove the tree in a manner that causes no damage to the tree(s) and understory to remain.
- 4.5. Any brush clearing required within the tree protection zone shall be accomplished with hand-operated equipment.
- 4.6. Trees to be removed shall be felled so as to fall away from tree protection zones and to avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees. This may be accomplished by cutting through the roots by hand, with a vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root-pruning equipment. [Note: If possible, show areas where root cutting is required on the demolition plan.]
- 4.7. Trees to be removed from within the tree protection zone shall be removed by a qualified arborist. The trees shall be cut near ground level and the stump ground out.
- 4.8. All downed brush and trees shall be removed from the tree protection zone\_either by hand or with equipment sitting outside the tree protection zone. Extraction shall occur by lifting the material out, not by skidding it across the ground.
- 4.9. Brush shall be chipped and placed in the tree protection zone to a depth of 6 inches.
- 4.10. Structures and underground features to be removed within the tree protection zone shall use the smallest equipment possible and operate from outside the tree

- protection zone. The consultant shall be on site during all operations within the tree protection zone to monitor demolition activity.
- 4.11. All trees shall be pruned in accordance with the provided Pruning Specifications.
- 4.12. A 6-foot chainlink fence with posts sunk into the ground\_shall be erected to enclose the tree protection zone
- 4.13. Any damage to trees due to demolition activities shall be reported to the consulting arborist within 6 hours so that remedial action can be taken. Timeliness is critical to tree health.
- 4.14. If temporary haul or access roads must pass over the root area of trees to be retained, a road bed of 6 inches\_of mulch or gravel shall be created to protect the soil. The road bed material shall be replenished as necessary to maintain a 6-inch depth.

#### 5. Site Grading, Trenching, and Root Pruning

- 5.1. Keep site grading within designated construction zones. Grading cuts or trenching within the TPZ of a retained tree trunk requires special trenching procedures. Trenches should be dug manually with an air spade or with the use of a root cutting machine, rock cutter, or other approved root-pruning equipment. This root-pruning trench should be placed one foot inside the edge of the grading cut or trench edge. The depth of the trench should equal the depth of the grading cut to a maximum depth of 40 inches. All work that is expected to encounter roots must be monitored by the Supervising Arborist or Client designated representative.
- 5.2. A trench may be mechanically dug toward a tree until the edge of the TPZ is reached. From the edge of the TPZ, the special trenching procedures should apply.
- 5.3. Underground utilities, drain, and irrigation lines should be routed outside the TPZs. When lines must cross the TPZ, the lines should be bored or tunneled through the area at a depth approved by the supervising arborist. In these instances, a single shared utility conduit should be used to reduce impacts to trees.
- 5.4. Any roots one inch in diameter or larger requiring removal should be cut cleanly in sound tissue. The roots and surrounding soil should be moistened and covered with a thick mulch (4") to prevent desiccation. No pruning seals or paints should be used on wounds. Cut and exposed roots should be protected from drying. A water absorbent material (i.e. burlap) should be secured at the top of the trench and draped over the exposed roots. This material should be kept moistened and the soil replaced as soon as practicable.
- 5.5. Porous pavements are recommended for use within the TPZ. Construction of the pavement sub-base should avoid grading cuts where possible.

#### 6. Site Drainage

6.1. All grading shall be designed to provide positive drainage away from the base of the tree trunk, and not create ponding within the TPZ.

# 7. Pruning and Cabling

- 7.1. Any tree pruning, cabling, or other similar activity which may be proposed as part of site construction will be included on site plans and be reviewed by a qualified arborist or Client designated representative.
- 7.2. Pruning methods shall conform to the ANSI A 300-2001 Pruning Standard Practices and performed by an ISA Certified Arborist or Certified Tree Worker. Cabling or other support systems shall conform to the ANSI A 300 (part 3)-2000 Standard Practices

## 8. <u>Tree Damage Mitigation</u>

- 8.1. Trees damaged or significantly impacted during construction shall be evaluated by the Supervising Arborist or Client designated representative. Proper mitigation measures shall be specified and may include:
- 8.2. Pruning of damaged and dead wood.
- 8.3. Installation of a drip irrigation system to provide supplemental irrigation for three to five seasons following damage.
- 8.4. Proper low nitrogen fertilization timed to growth response and phenological development of the tree.
- 8.5. Periodic risk assessment of tree.
- 8.6. Replacement of tree per client requirements.
- 8.7. Alleviation of severe compaction by vertical mulching with augers or hydraulic soil probes.
- 8.8. Alleviation of surface compaction by light cultivation or raking and the application of mulch.

Appendix A

Tree Assessment Data Matrix

Redwood Market Tree Data Matrix
Tree Evaluation and Preliminary Construction Impact Assessment

4.0 = good health 4.0 = good condition

Health Rating Key: 3.0 = fair health Structural Rating Key: 3.0 = moderate condition Construction Impact Code: RC= Removal Due to Construction

2.5 = marginal to fair health 2.5 = marginal to moderate condition SI= Significant Potential Impact

2.0 = marginal health2.0 = marginal conditionMI= Moderate Impact1.5 = poor to marginal health1.5 = poor to marginal conditionLI= Limited Impact

1.0 = poor health 1.0 = poor condition NI = No Impact Expected

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
1	valley oak ( <i>Quercus</i> <i>lobata</i> )	1	7.5						44.2	7.5	20'±	15'±	3.0	2.5	Young tree with closely spaced, multiple limb attachments forming at 7'. Twiggy growth with pit scale present.	Fair	Yes	Located off-site area. Located approximately 8' from project limits	10'	3'	МІ
2	valley oak	2	4.5	7.0					54.4	8.3	18'±	15'±	3.0	2.0	Low, two trunk structure with included trunk attachment and seam. Pit scale observed.	Marginal	Yes	Located within project grading and construction limits. Removal required.			RC
3	coast live oak (Quercus agrifolia)	4	1.0	2.0	2.0	2.0	2.0	3.0	20.4	5.1	10'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within project grading and construction limits. Removal required.			RC
4	coast live oak	3	2.0	3.0	4.0				22.8	5.4	12'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within project grading and construction limits. Removal required.			RC
5	coast live oak	3	3	3.5	3.5				26.3	5.8	15'±	12'±	4.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within project grading and construction limits. Removal required.			RC
6	coast live oak	3	4.5	5	6				63.8	9.0	20'±	12'±	4.0	2.0	Co-dominant trunks forming at grade. Upright form. Vigor and foliage density are good.	Marginal	Yes	Located within project grading and construction limits. Removal required.			RC
7	valley oak	1	5						19.6	5.0	20'±	10'±	3.0	3.0	Single trunk structure with no significant structural defects. Twiggy growth with pit scale present.	Fair	No	Located within project grading and construction limits. Removal required.			RC
8	valley oak	3	4	5	5				51.8	8.1	20'±	12'±	3.0	2.0	Three trunk structure forming from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	No	Located within project grading and construction limits. Removal required.			RC
9	coast live oak	6	1	2	3	3	4		30.6	6.2	15'±	12'±	4.0	2.0	Dense, multiple trunk structure forming from basal sprouts at grade. Vigor and foliage density are good.	Marginal	No	Located within project grading and construction limits. Removal required.			RC

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
10	valley oak	1	4.5						15.9	4.5	20'±	8'±	3.0	3.0	Single trunk structure with no significant structural defects. Growing in area of dense small diameter trees. Vigor is moderately low with probable pit scale.	Fair		Located within project grading and construction limits. Removal required.			RC
11	valley oak	2	4.5	4.5					31.8	6.4	22'±	10'±	3.0	2.5	Low, co-dominant trunk structure forming at grade with wide attachment. Growing in area of dense small diameter trees. Vigor is moderately low with probable pit scale.	Fair	No	Located within project grading and construction limits. Removal required.			RC
12	valley oak	2	4	5.5					36.3	6.8	20'±	12'±	3.0	2.5	Low two-trunk structure with seam at trunk attachment. Vertical, upright crown form. Vigor is moderately low with probable pit scale.	Fair		Located within project grading and construction limits. Removal required.			RC
13	valley oak	4	1.5	2	3.5	6			42.8	7.4	25'±	20'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Fair	Yes	Located within project grading and construction limits. Removal required.			RC
14	valley oak	2	4	4					25.1	5.7	20'±	10'±	3.0	2.5	Co-dominant trunks forming at grade. Upright form. Vigor and foliage density are good.	Fair	No	Located adjacent to LPG tank. Removal required.			RC
15	valley oak	1	5.5						23.7	5.5	20'±	10'±	3.0	2.5	Single trunk structure with no significant structural defects. Twiggy growth with pit scale present. Growing adjacent to trees #14 and #16.	Fair	No	Located 10' from propane fill zone.	8'	2'	МІ
16	valley oak	4	2	2.5	3.5	4			30.2	6.2	20'±	15'±	3.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	No	Located adjacent to LPG tank. Removal required.			RC
17	valley oak	6	5	8	8	10	10	16	478.1	24.7	40'±	50'±	3.0	2.5	Mature tree with multiple trunks forming at grade. 16" trunk has upright form, while others have corrected leans. Dense bamboo growing around trees with lower trunk obscured. Vigor is moderately low with probable pit scale.	Fair	Yes	Located 20' from location of future storm drain.	25'	8'	и
18	coast live oak	3	6.5	6.5	7.5				110.5	11.9	18'±	20'±	4.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Marginal	Yes	Located at least 25' from grading limits.	12'	3'	NI
19	valley oak	3	2.5	3.5	4				27.1	5.9	20'±	12'±	3.0	2.5	Low, three-trunk structure forming from basal sprouts at grade. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	No	Located at least 25' from grading limits.	8'	2'	NI

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
20	valley oak	3	2	4	5				35.3	6.7	12'±	12'±	3.0	2.0	Multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Marginal	Yes	Located at least 25' from grading limits.	8'	2'	NI
21	coast live oak	5	6	7	7	8	8.5		212.1	16.4	22'±	30'±	4.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Located at fence line. Vigor and foliage density are good.	Fair	Yes	Located 20' from car wash driveway and fill zone.	18'	4'	П
22	valley oak	3	1.25	4	4				26.3	5.8	18'±	12'±	3.0	2.5	Multiple trunk structure originating from basal sprouts at grade. Vigor is moderately low with probable pit scale.	Fair	No	Located within project grading and construction limits. Removal required.			RC
23	Canary Island date palm ( <i>Phoenix</i> canariensis)	1	24						452.2	24.0	18'±	20'±	4.0	3.0	Young palm in good vigor and no structural issues.	Good	No	Located within project grading and construction limits. Removal required.			RC
24	valley oak	1	5.5						23.7	5.5	20'±	8'±	3.0	3.0	Single trunk structure with no significant structural defects. Vigor is moderately low with probable pit scale. Located adjacent to fence.	Fair	No	Located 10' from car wash driveway and fill zone.	6'	2'	LI
25	valley oak	2	4	4					25.1	5.7	20'±	10'±	3.0	2.0	Co-dominant trunks forming at grade. Vigor is moderately low with probable pit scale. Located adjacent to fence.	Marginal	No	Located 5' from car wash driveway and fill zone.	6'	2'	Ш
26	coast live oak	2	3	6					35.3	6.7	12'±	10'±	4.0	2.5	Low, two-trunks structure with leaning, asymmetrical crown to west. Vigor and foliage density are good. Located adjacent to fence.	Fair	Yes	Located adjancet to car wash drveway. Removal likely required.	6'	2'	NI
27	valley oak	3	4	4	5				44.7	7.5	18'±	8'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	No	Located within project grading and construction limits. Removal required.			RC
28	valley oak	1	12						113.0	12.0	30'±	15'±	3.0	3.0	Semi-mature tree with single trunk structure. Closely spaced, multiple limb attachments form at 10'. Vigor is moderately low with probable pit scale. Ivy growing on trunk.	Fair	Yes	Located within project grading and construction limits. Removal required.			RC
29	valley oak	1	12						113.0	12.0	30'±	25'±	3.0	3.0	Semi-mature tree with single trunk structure. Closely spaced, multiple limb attachments form at 15'. Symmetrical crown form. Vigor is moderately low with probable pit scale. Ivy growing on trunk.	Fair	Yes	Located within project grading and construction limits. Removal required.			RC

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
30	coast live oak	1	7.5						44.2	7.5	22'±	20'±	4.0	2.5	Single trunk structure, originally a basal sprout. Growing through chain link fence. Vigor and foliage density are good.	Fair to Moderate	Yes	Located 20' from construction limits. Ni impact expected.	8'	2'	NI
31	coast live oak	3	3	3	3				21.2	5.2	12'±	10'±	4.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Vigor and foliage density are good.	Fair to Moderate	No	Located within project grading and construction limits. Removal required.			RC
32	valley oak	1	5.5						23.7	5.5	20'±	12'±	3.0	3.0	Single trunk structure with no significant structural defects. Twiggy growth with pit scale present.	Fair	No	Located 20' from construction limits. Ni impact expected.	8'	2'	NI
33	coast live oak	3	10.5	12	12				312.6	20.0	22'±	30'±	4.0	2.5	Low, multiple trunk structure with the two 12" trunks having a partially included trunk attachment. Symmetrical crown form. Ivy growing on tree.	Fair to Moderate	Yes	Located approximatly 8' to 10' from construction limts. Clearance pruning likely required.	20'	6'	МІ
34	coast live oak	1	7.5						44.2	7.5	18'±	20'±	4.0	3.0	Shaded tree with moderate lean. No significant structural defects. Growing at edge of drainage. Vigor and foliage density are moderate.	Moderate to good.	Yes	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	8'	2'	МІ
35	coast live oak	1	6						28.3	6.0	15'±	12'±	4.0		Single trunk structure with closely spaced, multiple limb attachments forming at 5'. No significant structural defects observed. Vigor and foliage density are moderate. Ivy growing on tree.	Moderate to good.	Yes	Located 15' from construction area.	6'	2'	NI
36	coast live oak	2	4	4					25.1	5.7	15'±	10'±	4.0	3.0	Young tree with two trunk structure. Vigor and foliage density are good.	Moderate to good.	No	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	6'	2'	МІ
37	coast live oak	1	5						19.6	5.0	15'±	10'±	4.0	3.0	Young tree with two trunk structure. Vigor and foliage density are good.	Moderate to good.	No	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	6'	2'	MI
38	coast live oak	3	3	3	4				26.7	5.8	10'±	10'±	3.0		Young tree with three trunk structure. Vigor and foliage density are good. Poison oak growing on tree.	Fair	No	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	6'	2'	МІ
39	coast live oak	3	7	7.5	8				132.9	13.0	30'±	35'±	1.0	2.0	Low, multiple trunk structure originating from basal sprouts at grade. Extensive ivy and poison oak. Vigor is low with extensive crown dieback occurring.	Poor	Yes	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	12'	3'	МІ

Tree #	Species	# of Trunks	Trunk #1 Diameter @ 4.5' (inches)	Trunk #2	Trunk #3	Trunk #4	Trunk #5	Trunk #6	Total Stem Area	Equivalent Trunk Diameter	Crown Height	Crown Diameter	Health Rating	Structural Rating	Comments/Observations	Suitability for Preservation (Based Upon Condition)	Protected Tree Status	Construction Impact Assessment	Tree Protection Zone) (Radius in Feet)	Critical Root Zone (Radius in feet)	Impact Code
40	coast live oak	6	7	8	10	10	13	14	532.2	26.0	30'±	35'-40'±	3.0	2.0	Multiple trunks forming at 2' with included attachments with deep seam. Wide crown form. Vigor and foliage density are moderately low.	Marginal	Yes	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	20'	6'	МІ
41	valley oak	1	8						50.2	8.0	20'±	30'±	3.0	2.0	Horizontal trunk form due to shading from tree #40. Extends to southeast. Vigor is moderately low with probable pit scale.	Marginal	Yes	Located approximatly 8' to 10' fro construction limts. Clearance pruning likely required.	8'	2'	МІ
42	valley oak	2	7	8.5					95.2	11.0	30'±	20'±	3.0	2.5	Low two-trunk structure with seam at trunk attachment. Upright crown form. Vigor is moderately low with probable pit scale.	Fair	Yes	Located 15' from construction area.	12'	4'	Ni
43	valley oak	3	6	7	7				105.2	11.6	25'±	25'±	3.0	2.5	Low, multiple trunk structure originating from basal sprouts at grade. Unions are not yet included. Vigor is moderately low with probable pit scale.	Fair	Yes	Located at least 25' from grading limits.	12'	4'	Ц
44	Raywood ash ( <i>Fraxinus angustifolia</i> 'Raywood'	1	12						113.0	12.0	25'±	25'±	3.0	2.5	Single trunk structure with closely spaced, multiple limb attachments forming at 10'. No significant structural defects observed. Vigor and foliage density are moderately low. Located in small planter.	Fair		Located within project grading and construction limits. Removal required.			RC
45	coast live oak	1	7						38.5	7.0	15'±	10'±	4.0	2.0	Leaning, asymmetrical form due to heavy pruning. Previously topped. Volunteer seedling. Good vigor and foliage density.	Marginal	Yes	Located within project grading and construction limits. Removal required.			RC
46	Chinese elm ( <i>Ulmus</i> parvifolia )	1	7						38.5	7.0	18'±	12	4.0	2.0	Single trunk structure previously topped. Vigor and foliage density are moderate. 4" elm nearby.	Marginal	No	Located within project grading and construction limits. Removal required.			RC
47	Raywood ash	1	9						63.6	9.0	20'±	18'±	3.0	2.0	Single trunk structure with closely spaced, multiple limb attachments forming at 6'. Vigor and foliage density are moderately low. Located in small planter.	Marginal		Located within project grading and construction limits. Removal required.			RC
48	Raywood ash	1	7.5						44.2	7.5	18'±	15'±	3.0	2.0	Single trunk structure with closely spaced, multiple limb attachments forming at 5'. Vigor and foliage density are moderately low. Located in small planter.	Marginal		Located within project grading and construction limits. Removal required.			RC
49	Raywood ash	4	4	4	5	6			73.0	9.6	15'±	12'±	3.0	1.0	Multiple trunk structure originating from basal sprouts at grade. Very poor structure.	Poor	No	Located within project grading and construction limits. Removal required.			RC

Appendix B

Tree Mitigation Chart

#### Redwood Market Tree Mitigation Chart Appendix B

## Redwood Market Tree Mitigation Chart

5.0= excellent health

4.0 = good health 4.0 = good condition

Health Rating Key: 3.0 = fair health Structural Rating Key: 3.0 = moderate condition
2.5 = marginal to fair health 2.5 = marginal to moderate

2.0 = marginal health
2.0 = marginal condition
1.5 = poor to marginal health
1.5 = poor to marginal condition

1.0 = poor health 1.0 = poor condition

Tree#	Species	# of Trunks	Equivalent Trunk Diameter	Health Rating	Structural Rating	Replacement Ratio*	Required Replacement Inches
2	valley oak	2	8.3	3.0	2.0	0.5	4.2
6	coast live oak	3	9.0	4.0	2.0	0.5	4.5
13	valley oak	4	7.4	3.0	2.5	0.5	3.7
28	valley oak	1	12.0	3.0	3.0	1.0	12.0
29	valley oak	1	12.0	3.0	3.0	1.0	12.0
45	coast live oak	1	7.0	4.0	2.0	0.5	3.5

	Total Replacement Inches:	40	In Lieu Equivalent	
24" Box Rep	placement Tree Requirements **	10	\$4,000.00	\$400.00 per 24" box
Min	imum 48" Box Requirements***	5	\$8,000.00	\$1,600.00 per 48" box

Total: \$12,000.00

# of 36" Box Mitigation Trees Shown on Landscape Plan: 4 \$3,200.00
# of 48" Box Mitigation Trees Shown on Landscape Plan: 7 \$11,200.00

Net Mitigation In Lieu Amount: \$0.00

Appendix C

Site and Tree Images



View of northwest section of property. Tree #1 (valley oak) is in foreground.



Tree #2 (valley oak) is on left with area of dense small diameter coast live oaks.



Tree #7 (valley oak in foreground) with view to west.



Area of very dense small diameter valley oak and cost live oaks on northwest side of property (within future Town section).



Common multiple trunk structure forming at grade from sprouts from previously mowed seedling.



View to north corner with mature valley oak (#17) in distance.



Tree #17 on left and area in north portion of site.



Dense grove of acacia (A. decurrens) in north portion of site.



Trees growing along fence line with Caltrans ROW.



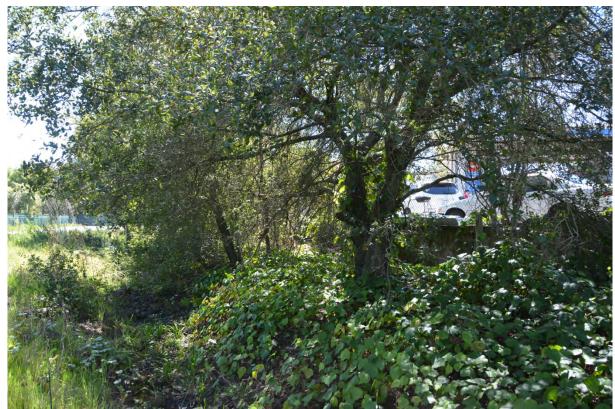
Young Canary Island date palm near parking area.



Two semi-mature valley oaks (#28 and #29).



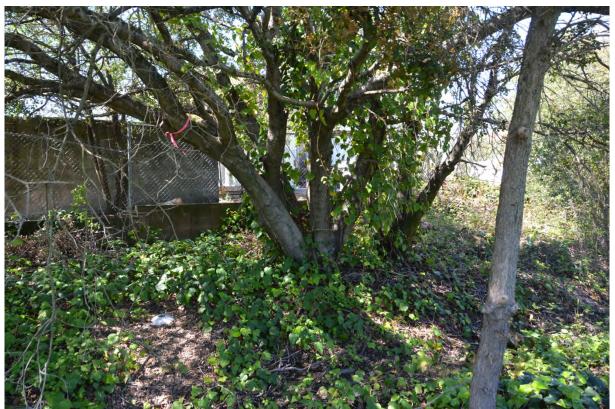
Small coast live oaks near fence and drainage swale on east side of project.



Coast live oaks on east side in area of dense ivy and poison oak.



Coast live oaks on east side. Tree #39 on left is rated in poor condition due to extensive crown dieback.



Base of coast live oak #40 with defective multiple trunk structure.



Tree #43 (valley oak) appears to away from grading limits, although not shown on survey plan.

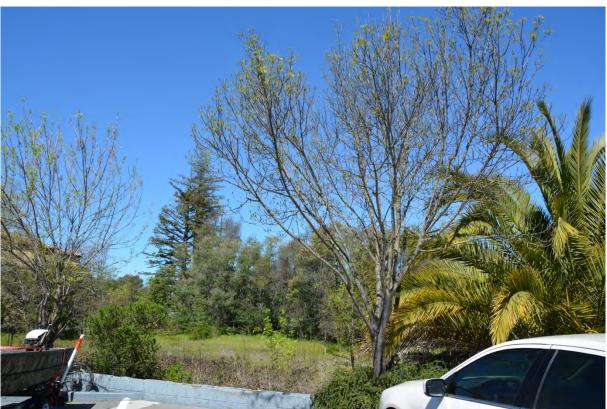


Small elm and volunteer coast live oak on right in parking lot planter.



Mature Raywood ash in small landscape planter.





Smaller, drought stressed Raywood ash in planters on north side of parking area.

Appendix D

**Appraisal Calculation Worksheet** 

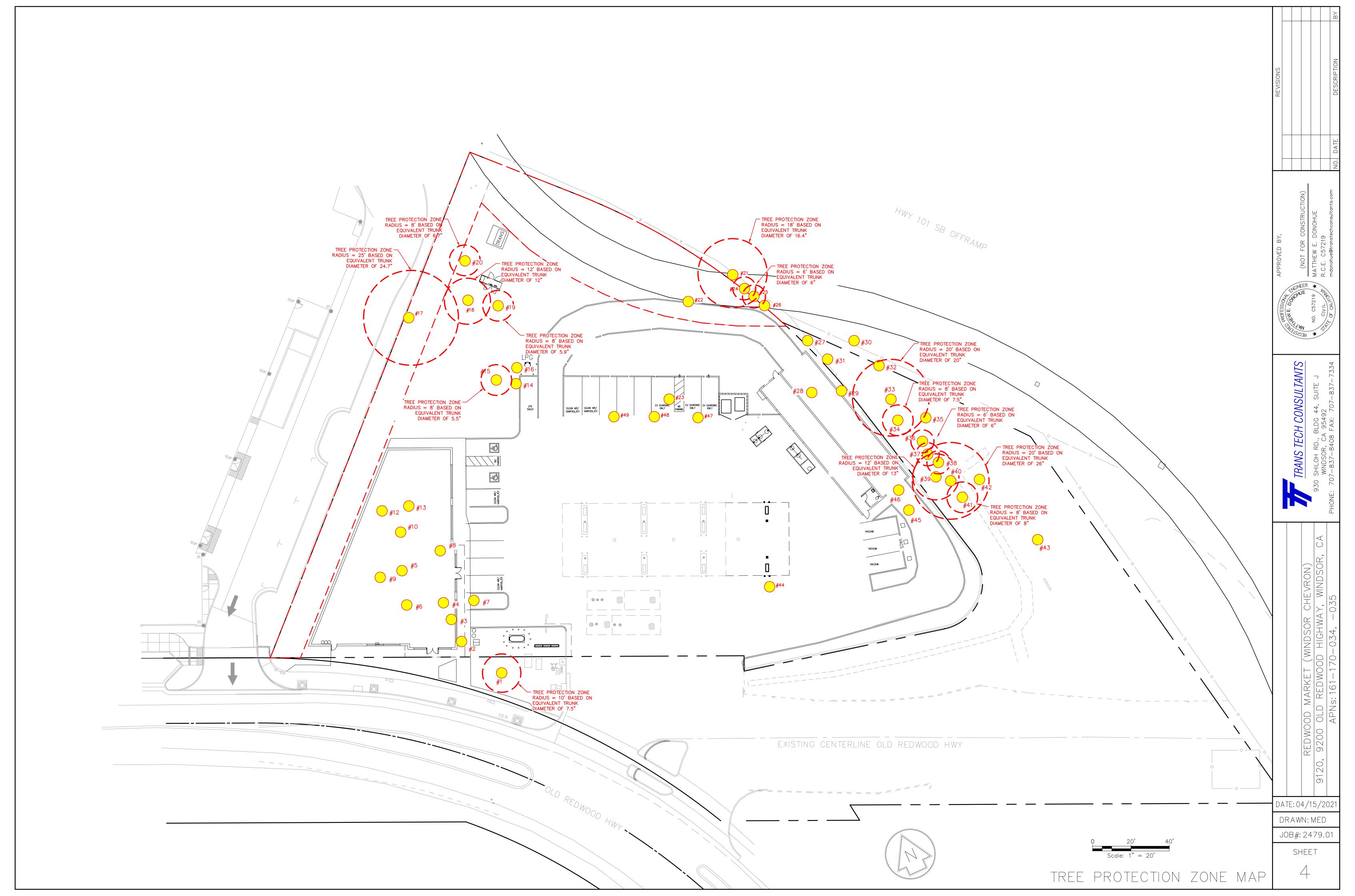
# Redwood Market Appraisal Calculation - Appendix D 10th Edition Reproduction Method Trunk Formula Technique- Data and Calculations

tatus, and Ed	quivalent Trunk Diameter)					Deprecia	tion Factors					Rep	olacement Tre	ee and Calculation	ons			Additional Costs <sup>2</sup>	
Tree Number	Species	Trunk Diameter at 4.5 ft (inches) <sup>1</sup>	Cross-Sectional Area	Health Rating	Structure Rating	Form Rating	Condition Rating:	Functional Limitations <sup>2</sup>	External Limitations	Replacement Tree Species	Box Container Size	Trunk Diameter	Cross- Sectional Area	Replacement Tree Cost	Unit Tree Cost	Basic Reproduction Cost:	Depreciated Reproduction Cost:	Replacement Tree Installation Cost	Total Reproduction Cost
Preserved '	Trees																		
1	valley oak	7.5	44	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 3,164.06	\$ 996.68	\$ 450.00	\$ 1,446.68
15	valley oak	5.5	24	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,701.56	\$ 535.99	\$ 450.00	\$ 985.99
17	valley oak	24.7	478	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 34,256.25	\$ 10,790.72	\$ 450.00	\$ 11,240.72
18	coast live oak	11.9	111	70%	50%	50%	57%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 7,917.19	\$ 2,018.88	\$ 450.00	\$ 2,468.88
19	valley oak	5.9	27	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,940.63	\$ 611.30	\$ 450.00	\$ 1,061.30
20	valley oak	6.7	35	70%	50%	70%	63%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 2,531.25	\$ 721.41	\$ 450.00	\$ 1,171.41
21	coast live oak	16.4	212	70%	65%	65%	67%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 15,201.56	\$ 4,560.47	\$ 450.00	\$ 5,010.47
24	valley oak	5.5	24	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,701.56	\$ 535.99	\$ 450.00	\$ 985.99
25	valley oak	5.7	25	70%	50%	70%	63%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,800.00	\$ 513.00	\$ 450.00	\$ 963.00
26	coast live oak	6.7	35	70%	65%	65%	67%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 2,531.25	\$ 759.38	\$ 450.00	\$ 1,209.38
30	coast live oak	7.5	44	70%	65%	65%	67%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 3,164.06	\$ 949.22	\$ 450.00	\$ 1,399.22
32	valley oak	5.5	24	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,701.56	\$ 535.99	\$ 450.00	\$ 985.99
33	coast live oak	20.0	313	70%	65%	65%	67%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 22,401.56	\$ 6,720.47	\$ 450.00	\$ 7,170.47
34	coast live oak	7.5	44	70%	70%	70%	70%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 3,164.06	\$ 996.68	\$ 450.00	\$ 1,446.68
35	coast live oak	6.0	28	70%	70%	70%	70%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 2,025.00	\$ 637.88	\$ 450.00	\$ 1,087.88
36	coast live oak	5.7	25	70%	70%	70%	70%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,800.00	\$ 567.00	\$ 450.00	, , , , , , , , , , , , , , , , , , , ,
37	coast live oak	5.0	20	70%	70%	70%	70%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,406.25	\$ 442.97	\$ 450.00	\$ 892.97
38	coast live oak	5.8	27	70%	70%	70%	70%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 1,912.50	\$ 602.44	\$ 450.00	\$ 1,052.44
39	coast live oak	13.0	133	20%	50%	70%	47%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 9,520.31	\$ 1,999.27	\$ 450.00	\$ 2,449.27
40	coast live oak	26.0	533	70%	50%	70%	63%	50%	90%	coast live oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 38,137.50	\$ 10,869.19	\$ 450.00	\$ 11,319.19
41	valley oak	8.0	50	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 3,600.00	\$ 1,134.00	\$ 450.00	\$ 1,584.00
42	valley oak	11.0	95	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 6,820.31	\$ 2,148.40	\$ 450.00	\$ 2,598.40
43	valley oak	11.6	105	70%	70%	70%	70%	50%	90%	valley oak	24"	2.0	3	\$ 225.00	\$ 71.62	\$ 7,537.50	\$ 2,374.31	\$ 450.00	\$ 2,824.31

\$ 62,371.62

 $<sup>^{1}</sup>$  Combined cross-sectional inches of individual stems and converted to a single stem equivalent diameter.

<sup>&</sup>lt;sup>2</sup> Superadequacy depreciation (high density of trees on site)



ver\TransTech\projects\2479.01\_9120 Old Redwood Hwy, Windsor, CA\dwg\BASE-39 2479.dwg, 4/15/2021 8

APPENDIX B.3: Preliminary Wetlands Delineation

# PRELIMINARY ADVISORY ASSESSMENT WATERS OF THE UNITED STATES CHEVRON STATION-REDWOOD MARKET 9120 OLD REDWOOD HIGHWAY WINDSOR, SONOMA COUNTY, CA

# Prepared for:

Mr. Peter VanAlyea Redwood Oil Company 50 Professional Center Drive Rohnert Park, CA 94928

# Prepared by:

Ted P. Winfield, Ph.D. Ted Winfield & Associated 1455 Wagoner Drive Livermore, CA 94550

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TIGORE II TREEMINARY ADVIOURT AGGEOGNIENT GORIGOTOTIAL WAT TOR THE OTHERWOOD	**12001. OIT L12

# 1.0 SUMMARY

This report presents the results of a preliminary advisory assessment of the possible presence of features subject to the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act on two parcels located at 9120 Old Redwood Highway (APN: 161-070-034; 0.63 acre) and 9200 Old Redwood Highway (APN: 161-070-035; 0.78 acre) (collectively the Project Site) in the Town of Windsor, Sonoma County, CA.

There is a full-service gas station covering most of the parcel at 9120 Old Redwood Highway, and most of the parcel at 9200 Old Redwood Highway is undeveloped. Most of the surrounding lands have been developed for various uses including another full-service gas station, food service, retail development, and Redwood Highway (Highway 101).

The field survey for the preliminary advisory assessment at the Survey area was conducted on April 23, 2018. The presence and approximate boundaries of jurisdictional wetlands were determined using the routine on-site determination methodology as specified in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Version (Version 2.0)* (Arid West Manual). The wetland status of the plant encountered at each sample point during the field survey was determined using the *State of California 2016 Wetland Plant List*.

The total wetland acreage is approximately 3,156 sq. ft. (0.073 ac) and includes two seasonal wetlands and the bottom area below OHW along an unnamed drainage ditch that occurs along the southwestern boundary of the site. There is another section of a closed-in drainage channel that joins with this unnamed drainage ditch at the opening to a culvert at the southwest corner of the site, which is approximately 166 ft. in length and the area below OHW is approximately 665 sq. ft. (0.015 ac).

# 2.0 INTRODUCTION

## 2.1 SITE LOCATION AND DESCRIPTION

The survey area is located on two parcels located at 9120 Old Redwood Highway (APN: 161-070-034; 0.63 acre) and 9200 Old Redwood Highway (APN: 161-070-035; 0.78 acre) (collectively the Project Site) in the Town of Windsor, Sonoma County, CA (Figure 1). There is a full-service gas station covering most of the parcel at 9120 Old Redwood Highway, and most of the parcel at 9200 Old Redwood Highway is undeveloped. Most of the surrounding lands have been developed for various uses including another full-service gas station to the south, food service and empty lot to the west, retail development to the northwest, and Redwood Highway (Highway 101) to the northwest and east (Figure 2).

## 2.2 PHYSICAL AND HYDROLOGIC CONDITIONS

# 2.2.1 Topography and Drainage

The undeveloped parts of the subject parcels are relatively flat with a less than one percent grade from north to south. An intermittent drainage ditch occurs along the eastern boundary of the parcel at 9120 Old Redwood Highway.

# 2.2.2 Soils

The soil on most of the undeveloped areas of the two parcels is mapped as Cole silty clay loam, 0 to 1 percent slopes (Figure 3). The soil type along the eastern part of the parcel at 9120 Old Redwood Highway along the southern part of the site is mapped as Riverwash (Figure 3).

Cole series soils consist of somewhat poorly drained silt loams that have a dominantly clay subsoil (Miller 1972). These soils formed in alluvium from mixed sedimentary and basic rock and are found on alluvial fans. Riverwash soil consist of very recent depositions of gravel, sand, and silt alluvium along major streams and their tributaries (Miller 1972). Cole silty clay loam and Riverwash are on the list of hydric soils for California.

<sup>&</sup>lt;sup>1</sup> SoilWeb, online digital soil survey.



3

Figure 1. Site location map.





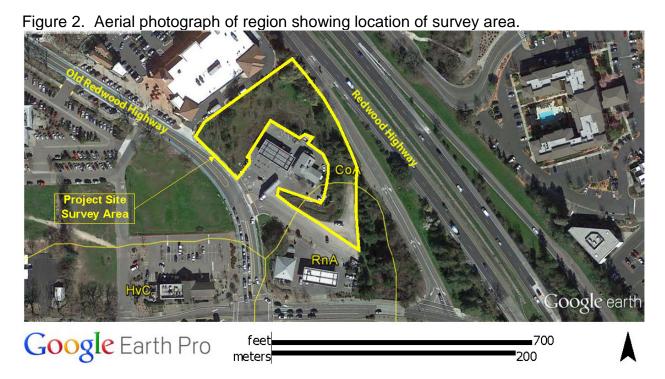


Figure 3. Soils map of Project Site survey area.

# 3.0 REGULATORY BACKGROUND

## 3.1 **DEFINITIONS**

### 3.1.1 Waters of the United States

Waters of the United States include "lakes, rivers, intermittent streams, mudflats, sandflats, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds the use, destruction, and/or degradation of which could affect interstate or foreign commerce" [Section 33, Code of Federal Regulations, Part 328.3(a)(3)].

The lateral extent of the Corps of Engineers' jurisdiction over lakes and drainages with defined beds and banks is the ordinary high water mark (OHW). Jurisdiction extends beyond ordinary high water where adjacent wetlands are present.

# 3.1.2 Wetlands

For the Corps of Engineers to regulate an area as a wetland under the Clean Water Act it must be "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 CFR 328.3(b)]. Three criteria determine whether or not an area satisfies the definition under "normal circumstances." Under normal circumstances, hydrophytic vegetation, hydric soils, and a wetland hydrologic regime must be present for an area to be a wetland.

**Hydrophytic Vegetation.** Hydrophytic vegetation is dominated by plants adapted to wetland inundation or saturated soils because of physiological and reproductive adaptations. The U. S. Fish and Wildlife Service's National Wetlands Inventory has used field observations, expert opinion, and technical documents to identify wetland plant species and has developed wetland species lists which identify species which occur in wetlands.<sup>2</sup>

An area is considered vegetated if it has at least five percent vegetative cover. Indicators of hydrophytic vegetation include dominance of the vegetation by plant species with a wetland indicator status using absolute cover and the "50/20" rule; a prevalence indicator of 3.0 or less using numeric assignments to each indicator status (OBL = 1, FACW = 2, FAC = 3, FACU = 5, UPL = 5); or plant morphological adaptations such as adventitious roots, shallow root systems, including those on FACU species as long as they are detected on at least 50 percent of the FACU plants if the site is characterized by hydric soils and wetland hydrologic function.

**Hydric Soils.** Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the

<sup>&</sup>lt;sup>2</sup> Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. State of California 2016 Wetland Plant List. (http://wetland-plants.usace.army.mil/)

upper part (Federal Register, July 13, 1994). Field indicators for identifying hydric soils are described in NRCS (2010) and summarized in the Arid West Manual.

The site is located in the Mediterranean California (LRR C) subregion of the Arid West Region. In non-sandy soils, prolonged anaerobic conditions cause chemical reactions, evidence of which can include sulfidic material, reduced soil conditions, an aquic or peraquic moisture regime, a gleyed soil matrix chroma, bright mottles and/or low matrix chroma, and iron and/or manganese concretions.

Although the physical properties described to assess the presence of hydric soils have not changed the new supplement for the Arid West Region lists several new hydric soil indicators that employ horizon thickness, soil matrix characteristics, the abundance and distinctness or prominence of redoximorphic features, and microtopography in setting indicator names. The indicators most likely to occur in soils in the region include a depleted matrix (indicator F3), a redox dark surface (F6), a depleted dark surface (F7), redox depressions (F8), and vernal pools (V9).

**Wetland Hydrology.** Wetland hydrologic function or "hydrology" implies periodic inundation or soil saturation to the surface for some period during the growing season. Areas which have seasonally inundated or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met (soils with compacted surfaces may be inundated but remain unsaturated because of extremely low infiltration rates).

Areas that are inundated or saturated between five percent and 12.5 percent of the growing season may or may not be wetlands. The growing season for the central part of Sonoma County is defined in the Soil Survey for Sonoma County (Miller 1972) as between 230 and 260 days, but observations in the field indicate that some plant growth occurs year around.

In order for there to be wetland hydrology, the ground must be saturated and/or inundated for a minimum of five percent of the growing season, which would be between approximately 12 and 13 consecutive days using the estimated growing season from the county soil survey. Based on field observations of mid-winter plant growth (emergence of herbaceous plants; new crown development from perennial rootstocks; bud burst, leaf elongation, and flower development on woody plants) at the project site, the actual growing season for natural and naturalized vegetation is probably year around, which means that for wetland hydrology to be present the area must be inundated and/or saturated for a minimum of 18 consecutive days.

In addition to surface water and saturated soils (within the root zone) several other forms of field evidence indicate that a site may exhibit wetland hydrologic function. Such evidence includes water-matted plant material and water-stained leaves; cracks associated with shrink-swell soils; sediment and drift deposits; deep cattle hoof prints and soil "pedestals" standing above the surrounding ground (indicating periods of long saturation during the cattle grazing season); algal staining or crusts; water marks; drift

lines; eggs of frogs, salamanders and other amphibians that breed in water; freshwater clams, snails; and other aquatic invertebrates; crayfish burrows.

# 4.0 METHODS

The status and the limit of the wetland in the survey area were determined using procedures for routine on-site determination as described in the *Regional Supplement to the Corps of Engineers' Wetland Manual; Arid West Region (Version 2.0)* (U. S. Army Corps of Engineers 2008) on April 23, 2018. At most sample locations, a series of paired sample sites distributed across the survey area were established and data on plant cover, soil characteristics and signs of hydrology were collected at each of the sample sites and recorded in a field notebook. Sample sites were located in areas that were dominated by OBL, FACW or FAC species and that showed surface indicators of hydrology.

The preliminary advisory wetland map was prepared by Trans Tech Consultants using the field survey base map prepared during the field survey.

#### 5.0 POTENTIAL JURISDICTIONAL WETLANDS

The location and extent of the possible jurisdictional features occurring at the Survey area is shown on Figure 4. A full-scale version of Figure 4 is appended to this report in Appendix B. Appendix A contains the field data sheets (Wetland Determination Data Form – Arid West Region). Appendix B is the full-scale map of the site showing the preliminary extent of jurisdictional wetlands.

#### 5.1 GENERAL VEGETATION DESCRIPTION

#### 5.1.1 Upland Habitat

The upland areas of the survey area consisted primarily of non-native annual grasses and forbs. The common species observed in the survey included slender wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), ryegrass (*Festuca perennis*), brome fescue (*Festuca bromoides*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), annual bluegrass (*Poa annua*), rattlesnake grass (Briza maxima), hairy catsear (*Hypochaeris radicata*), subterranean clover (*Trifolium subterraneum*), spring vetch (*Vicia sativa*), field mustard (*Brassica rapa*), English plantain (*Plantago lanceolata*), red stemmed filaree (*Erodium cicutarium*), cut-leaf geranium (*Geranium dissectum*), and Himalayan blackberry (*Rubus armeniacus*).

Several native species also occurred throughout the upland areas, including California oatgrass (*Danthonia californica*), coyote brush (*Baccharis pilularis*), blue eyed grass (*Sisyrinchium bellum*), and several species of oak trees (*Quercus agrifolia*, *Q. lobata*, *Q. Kelloggii and Q. wislizeni*).

#### 5.1.2 Seasonal Wetlands

The seasonal wetlands were dominate primarily by non-native species, such as ryegrass, Mediterranean barley, little quaking grass (*Briza minor*), prickly ox-tongue (*Helminthotheca echioides*) and English plantain. The vegetation in the small isolated wetland on the east side of the survey area included several native species, including semaphore grass (Pleuropogon californicus), California oatgrass, slender rush (*Juncus tenuis*), and tall flatsedge (*Cyperus erogrostis*).

The unnamed drainage ditch along the frontage with Redwood Highway supports a sparse cover of plants usually found in wetlands, including pennyroyal (*Mentha pulegium*), tall flatsedge, dense sedge (*Carex densa*) along with facultative species, such as curly dock (*Rumex crispus*), and ryegrass. The other section of the ditch along the southwest side of the parcel where the gas station is located was dominated by a mixture of primarily upland and facultative species.

#### 5.2 POTENTIAL JURISDICTIONAL WETLANDS

The occurrence of seasonal wetlands potentially subject to the Corps' jurisdiction was limited to separate seasonal wetlands located along the northern end of the survey area and sections of the unnamed drainage ditch (Figure 4). The larger of the two seasonal

wetlands covers approximately 2,397 sq. ft. (0.055) and the smaller seasonal wetland covers approximately 166 sq. ft. (0.004 ac) for a total of 2,563 sq. ft. (0.059 ac). The section of the unnamed drainage ditch in the survey area is approximately 157 ft. and the area below ordinary high water (OHW) is approximately 593 sq. ft. (0.014 ac) (Figure 4). Wetlands are restricted to the bottom of the channel.

The total wetland acreage, therefore, is approximately 3,156 sq. ft. (0.073 ac). The remaining section of the other drainage ditch is approximately 166 ft. and the area below OHW is approximately 665 sq. ft. (0.015 ac). Table 1 provides a summary of presence or absence of indicators at each of the sample points.

Table 1. Summary of indicators present at each sample point.

	Indicators Pr			
Sample Point	Hydric Vegetation	Hydric Soils	Wetland Hydrology	Wetland Sample Point
1				
2	X	X	X	X
3		X	X	
4	X	X	X	X
5	X	X		
6		X		
7				
8	X	X	X	X
9	X	X	X	X
10				
11				
12	X	X	X	X
13				
14	X	X	X	X
15				
16	X			
17				
18				
19	X	X	X	X
20				



Figure 4. Preliminary advisory assessment jurisdictional map for the Chevron-Windsor Site.

#### 6.0 REFERENCES CITED

Miller, V.C. 1972. Soil survey of Sonoma County. U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the University of California Agricultural Experiment Station.

- U. S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers' Wetland Manual; Arid West Region (Version 2.0). Wetlands Regulatory Assistance Program. ERDC/EL TR-08-28, September 2008.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRDC). 2010. Field indicators of hydric soils in the United States. A guide for identifying and delineating hydric soils, version 7.0. L.M. Vasilas, B.W. Hurt and C.V. Noble (eds). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

# **APPENDIX A. FIELD DATA SHEETS**

Project/Site: 9120 Old Redwood Highway	(	City/County:	Windsor,	, Sonoma Count	V Samp	oling Date:	April 2	3, 2018
Applicant/Owner: Redwood Oil Company				State:(	CA Samp	oling Point:		1
Investigator(s): T. Winfield		Section, To	wnship, Rar	nge:				
Landform (hillslope, terrace, etc.): low terrace		Local relief	(concave, c	convex, none): slig	ghtly concav	<u>re</u> Slo	ope (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38.</u>	548790°		Long: -122.810	)891°	Datı	um: WS0	G 84
Soil Map Unit Name: Cole silty clayloam, 0 to 1 percent				-				
Are climatic / hydrologic conditions on the site typical for this ti								
Are Vegetation, Soil, or Hydrology sign	-			Normal Circumsta			✓ No	)
Are Vegetation, Soil, or Hydrology nat				eded, explain any				
SUMMARY OF FINDINGS – Attach site map sh						•	eatures	s, etc.
Hydrophytic Vegetation Present? Yes No _	<b>√</b>			_				
Hydric Soil Present? Yes No			e Sampled		_	N - /		
Wetland Hydrology Present? Yes No	_	With	in a Wetlan	ia? Ye	s	NO <u>V</u>	-	
Remarks:		•						
VEGETATION – Use scientific names of plants								
·		Dominant	Indicator	Dominance Tes	t worksheet:			
		Species?		Number of Domi				
1				That Are OBL, F	ACW, or FAC	;:	<u>l                                      </u>	(A)
2				Total Number of			2	<b>(D)</b>
3				Species Across	Ali Strata:		2	(B)
		= Total Co		Percent of Domi That Are OBL, F			:0	(A/R)
Herb Stratum (Plot size: 1m^2)								(٨/٥)
1. Bryza maxima		X		Prevalence Inde			h . h	
2. Festuca perennis		X		Total % Cov				
Phalaris aquatica     Plantago lanceolata				OBL species FACW species				
5. Vicia sativa				FAC species				
		= Total Co		FACU species				_
Herb Stratum (Plot size:)				UPL species	20	x 5 =	100	_
1				Column Totals:	60	(A)	235	_ (B)
2				Prevalence	e Index = B/A	. = 3	92	
3				Hydrophytic Ve			.52	
4.       5.				Dominance	_			
6.				Prevalence				
7					cal Adaptation			ting
8				data in R Problematic	Remarks or on		,	m)
Manda Vina Chahana (Diat sina)	60	= Total Co	ver	Problematic	пушорпушо	vegetation	(Explaii	11)
Woody Vine Stratum (Plot size:) 1				<sup>1</sup> Indicators of hy	dric soil and w	vetland hyd	drology m	nust
2				be present, unle				
		= Total Cov	ver	Hydrophytic				
% Bare Ground in Herb Stratum 40 % Cover o				Vegetation Present?	Yes	No _	1	
Remarks:	. 5.500 01						<u> </u>	

SOIL Sampling Point: \_\_\_\_1

	cription: (Describe	to the depth				or confir	n the absence	e of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	x Feature: %	S Type <sup>1</sup>	Loc²	Texture	Remarks
		70	Color (moist)		Туре	LUC		
0-0.2	10YR4/2						fill	mixed fill material
0.2-1.3	10YR4/2	1	LOYR3/3	>5%	<u>C</u>	<u>M</u>	loam	faint mottles
	-						-	
	-						-	
	-							
	oncentration, D=De					d Sand G		ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	cable to all L	RRs, unless othe	rwise note	ed.)		Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy Red					Muck (A9) (LRR C)
	pipedon (A2)		Stripped M		= .			Muck (A10) (LRR B)
	istic (A3)		Loamy Mud	-	. ,			ced Vertic (F18)
	en Sulfide (A4) d Layers (A5) ( <b>LRR</b>	<b>C</b> )	Loamy Gle Depleted M	•	(F2)			Parent Material (TF2) · (Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )	0)	Redox Dar		(F6)		Other	(Explain in Remarks)
	d Below Dark Surfa	ce (A11)	Depleted D		. ,			
-	ark Surface (A12)	,	Redox Dep				3Indicators	s of hydrophytic vegetation and
Sandy N	Mucky Mineral (S1)		Vernal Poo	ls (F9)			wetland	hydrology must be present,
-	Gleyed Matrix (S4)						unless	disturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soi	il Present? Yes No _✓
Remarks:								
faint mot	tloc							
	.ties							
HYDROLO	GY							
	drology Indicators							
_	cators (minimum of		check all that ann	lv)			Seco	ondary Indicators (2 or more required)
Surface	•	one required,	Salt Crust	-				Water Marks (B1) (Riverine)
l <del></del>	ater Table (A2)		Biotic Cru	` '				Sediment Deposits (B2) (Riverine)
Saturati			Aquatic In		e (B13)			Drift Deposits (B3) (Riverine)
	Marks (B1) ( <b>Nonrive</b>	rino)	Hydrogen					Drainage Patterns (B10)
· <del></del>	nt Deposits (B2) ( <b>N</b> o	•				Livina Ro		Dry-Season Water Table (C2)
	posits (B3) (Nonrive		Presence		_	_		Crayfish Burrows (C8)
	Soil Cracks (B6)	J	Recent Iro		•	•		Saturation Visible on Aerial Imagery (C9)
	on Visible on Aerial	Imagery (B7)				2 00110 (0		Shallow Aquitard (D3)
	Stained Leaves (B9)		Other (Ex	,	,			FAC-Neutral Test (D5)
Field Obser				P.G				
Surface Wat		Yes No	Depth (ir	rches).				
Water Table			Depth (ir					
Saturation P			Depth (in Depth (in				land Hydrolo	gy Present? Yes No✓
	pillary fringe)	162 140	Deptil (iii	iches)		_   ••••	ialiu Hyulolog	gy Fresent: TesNOV
	corded Data (strear	n gauge, mon	itoring well, aerial	photos, pr	evious ins	pections),	, if available:	
Remarks:								
no surfac	e hydrology in	dicators						
	,							

Project/Site: 9120 Old Redwood Highway	(	City/County	Windsor	, Sonoma County	Sampling Date: April 23, 2018
Applicant/Owner: Redwood Oil Company				State: CA	Sampling Point:2
Investigator(s): T. Winfield	;	Section, To	wnship, Raı	nge:	
Landform (hillslope, terrace, etc.): low terrace		Local relief	(concave, o	convex, none): slightly	<u>concave</u> Slope (%): <1%
Subregion (LRR): Mediterranean California (LRR C)					
Soil Map Unit Name: Cole silty clayloam, 0 to 1 percent					
Are climatic / hydrologic conditions on the site typical for this t					
Are Vegetation, Soil, or Hydrology sig	-				" present? Yes ✓ No
Are Vegetation, Soil, or Hydrology nat				eded, explain any ansv	
SUMMARY OF FINDINGS – Attach site map sl					
Hydrophytic Vegetation Present? Yes <u>√</u> No					
Hydric Soil Present? Yes   ✓ No			e Sampled		√ No
Wetland Hydrology Present? Yes <u>✓</u> No		with	in a Wetlar	id? fes	<u>v</u> NO
Remarks:					
VEGETATION – Use scientific names of plants					
		Dominant	Indicator	Dominance Test wo	rksheet:
		Species?		Number of Dominant	
1				That Are OBL, FACW	/, or FAC: (A)
2				Total Number of Dom	
3				Species Across All St	rata: <u>3</u> (B)
4				Percent of Dominant	
Herb Stratum (Plot size: 1m^2)		= Total Co	vei	That Are OBL, FACW	/, or FAC: <u>67</u> (A/B)
1. Hordeum marinum ssp. gussoneanum	20	X	<u>FAC</u>	Prevalence Index we	orksheet:
2. Festuca perennis	15	X	FAC	Total % Cover of	: Multiply by:
3. Phalaris aquatica		X			x 1 =0
4. Rumex crispus					x 2 = <u>0</u>
5. Geranium dissectum					39 x 3 = 117
Herb Stratum (Plot size:)		= Total Co	ver	UPL species	$     \begin{array}{ccc}             10 & x & 4 & = & 40 \\             1 & x & 5 & = & 5     \end{array} $
1				Column Totals:	
2				Column Fotalo.	<u>30 (//) 102 (B)</u>
3		·	-		ex = B/A =3.24
4				Hydrophytic Vegeta	
5				✓ Dominance Test	
6				Prevalence Index	c is ≤3.0° daptations¹ (Provide supporting
7					rks or on a separate sheet)
8		= Total Co		Problematic Hyd	rophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size:)	30	- Total Co	vei		
1					soil and wetland hydrology must
2				be present, unless dis	sturbed or problematic.
-		= Total Co	ver	Hydrophytic Vegetation	
% Bare Ground in Herb Stratum 50 % Cover of	of Biotic Cr	rust			/es/ No
Remarks:				ı	
Absolute cover: 20% of 50 = 10% cover					

Depth Color (	Matrix moist) %	Co	Redo	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.3 10YR4/1		10YR			C	M	loam	- Romano
<u> </u>	<u> </u>	1011	13/4	2370		171	loam	_
								<del></del>
		<u> </u>						
				_				
								<del></del>
								)
Type: C=Concentratio						d Sand G		Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators	(Applicable i		•		ea.)			ors for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1) Histic Epipedon (A2	)\	_	Sandy Red					m Muck (A9) (LRR C)
Black Histic (A3)	2)	_	<ul><li>Stripped M</li><li>Loamy Mud</li></ul>		J (E1)			m Muck (A10) ( <b>LRR B</b> ) duced Vertic (F18)
Hydrogen Sulfide (A	14)	_	_ Loamy Muc _ Loamy Gle	-				d Parent Material (TF2)
Stratified Layers (A		_	_ Loamy old _ Depleted M	-	(1 2)			ner (Explain in Remarks)
1 cm Muck (A9) (LI		·	Redox Dar	, ,	(F6)		0	
Depleted Below Da			_ Depleted D		` '			
Thick Dark Surface	,		_ Redox Dep					ors of hydrophytic vegetation and
Sandy Mucky Mine	ral (S1)		_ Vernal Poo	ols (F9)			wetla	and hydrology must be present,
Sandy Gleyed Mate							unles	ss disturbed or problematic.
Restrictive Layer (if p	esent):							
Туре:								
Depth (inches):							Hydric S	Soil Present? Yes <u>√</u> No
• •							Hydric S	Soil Present? Yes <u>√</u> No
Depth (inches):							Hydric S	Soil Present? Yes <u>√</u> No
Depth (inches): Remarks:							Hydric S	Soil Present? Yes <u>√</u> No
Depth (inches):							Hydric S	Soil Present? Yes <u>√</u> No
Depth (inches):	dicators:		ck all that app	ly)				Soil Present? Yes ✓ No
Depth (inches):	dicators:		ck all that app Salt Crust				Se	
Depth (inches):	dicators: mum of one re			t (B11)			Se	econdary Indicators (2 or more required)
Depth (inches):	dicators: mum of one re		Salt Crust	t (B11) st (B12)	es (B13)		Se	econdary Indicators (2 or more required) _ Water Marks (B1) ( <b>Riverine</b> )
Depth (inches):  Remarks:  YDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table (	dicators: mum of one red	quired; chec - - -	Salt Crust Biotic Cru	t (B11) st (B12) nvertebrate	, ,		Se	econdary Indicators (2 or more required) Water Marks (B1) ( <b>Riverine</b> ) Sediment Deposits (B2) ( <b>Riverine</b> )
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)	dicators: mum of one red A2) Nonriverine)	quired; chec - - - -	Salt Crust Biotic Cru Aquatic In	t (B11) est (B12) envertebrate s Sulfide O	dor (C1)	Living Ro	Se	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (mini  Surface Water (A1)  High Water Table (  Saturation (A3)  Water Marks (B1) (	dicators: mum of one red A2) Nonriverine) (B2) (Nonriver	quired; chec - - - -	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized	t (B11) est (B12) envertebrate s Sulfide O	dor (C1) res along	-	<u>Se</u>  ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)
Depth (inches):	dicators: mum of one red A2) Nonriverine) (B2) (Nonriverine)	quired; chec - - - -	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I	t (B11) st (B12) nvertebrate Sulfide Oo Rhizosphe	dor (C1) res along ed Iron (C	1)	<u>Se</u>  ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)
Depth (inches):	dicators: mum of one red A2) Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6)	quired; chec - - - - - - - - - -	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In Presence Recent Iro	t (B11) list (B12) livertebrate li Sulfide Oo Rhizosphe of Reduce	dor (C1) res along ed Iron (Co on in Tille	1)	Se S	econdary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits  Drift Deposits (B3)  Surface Soil Crack	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image	quired; chec - - - - - - - - - - - - - - - - - - -	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In Presence Recent Iro	t (B11) st (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti	dor (C1) res along ed Iron (Ca on in Tille (C7)	1)	ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits  Drift Deposits (B3)  Surface Soil Cracks Inundation Visible of	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image	quired; chec - - - - - - - - - - - - - - - - - - -	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In Presence Recent Iro Thin Mucl	t (B11) st (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti	dor (C1) res along ed Iron (Ca on in Tille (C7)	1)	ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Shallow Aquitard (D3)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits  Drift Deposits (B3)  Surface Soil Cracks  Inundation Visible of Water-Stained Lear  Field Observations:	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (s (B6) on Aerial Image /es (B9)	quired; chec - - - rine) _ - - ry (B7) _	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In Presence Recent Iro Thin Mucl	t (B11) ast (B12) avertebrate Sulfide Or Rhizosphe of Reduce on Reducti k Surface ( plain in Re	dor (C1) ares along ad Iron (C4 on in Tille (C7) amarks)	t) d Soils (C	ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Shallow Aquitard (D3)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Drift Deposits (B3)  Surface Soil Cracks Inundation Visible of Water-Stained Lea  Field Observations:  Surface Water Present	dicators: mum of one real A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (s (B6) on Aerial Image ves (B9)  Yes	quired; chec -          No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Iro Thin Mucl ✓ Other (Ex	t (B11) list (B12) livertebrate l Sulfide Or Rhizosphe of Reduce on Reducti k Surface ( plain in Re	dor (C1) res along ed Iron (C- on in Tille (C7) emarks)	ł) d Soils (C	ots (C3)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Shallow Aquitard (D3)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Drift Deposits (B3)  Surface Soil Cracks Inundation Visible ( Water-Stained Lear  Field Observations:  Surface Water Present?	Monriverine) (B2) (Nonriverine) (B6) (Nonriverine) (B6) (B6) (Monriverine) (Monriverin	quired; chec	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In Presence Recent Inc Thin Mucl  Other (Ex  Depth (in	t (B11) list (B12) livertebrate li Sulfide Oo Rhizosphe of Reduce on Reducti lik Surface ( plain in Re linches):nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	l) d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits  Drift Deposits (B3)  Surface Soil Crack: Inundation Visible ( Water-Stained Lea  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  (includes capillary fringer	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image /es (B9)  Yes Yes Yes	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Surface Soil Cracks Inundation Visible ( Water-Stained Lea  Field Observations:  Surface Water Present?  Saturation Present?	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image /es (B9)  Yes Yes Yes	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  PYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Drift Deposits (B3)  Surface Soil Crack: Inundation Visible of Water-Stained Lea  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  (includes capillary fringed Describe Recorded Date)	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image /es (B9)  Yes Yes Yes	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits  Drift Deposits (B3)  Surface Soil Crack: Inundation Visible ( Water-Stained Lea  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  (includes capillary fringer	dicators: mum of one red A2)  Nonriverine) (B2) (Nonriverine) (Nonriverine) (S (B6) on Aerial Image /es (B9)  Yes Yes Yes	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  IYDROLOGY  Wetland Hydrology In  Primary Indicators (min)  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Drift Deposits (B3)  Surface Soil Crack: Inundation Visible of Water-Stained Lea  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  (includes capillary fringed Describe Recorded Date)	Monriverine) (B2) (Nonriverine) (B6) (Nonriverine) (B6) (Nonriverine) (B9) Yes Yes Yes 2) a (stream gauge	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)
Depth (inches):  Remarks:  YDROLOGY  Wetland Hydrology In  Primary Indicators (min  Surface Water (A1)  High Water Table ( Saturation (A3)  Water Marks (B1) ( Sediment Deposits (B3)  Drift Deposits (B3)  Surface Soil Cracks Inundation Visible ( Water-Stained Lear  Field Observations:  Surface Water Present?  Water Table Present?  Saturation Present?  Cincludes capillary fringed  Describe Recorded Date  Remarks:	Monriverine) (B2) (Nonriverine) (B6) (Nonriverine) (B6) (Nonriverine) (B9) Yes Yes Yes 2) a (stream gauge	ry (B7) No	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Thin Mucl ✓ Other (Ex  Depth (ir Depth (ir	t (B11) list (B12) nvertebrate Sulfide Oo Rhizosphe of Reduce on Reducti k Surface ( plain in Re nches): nches):	dor (C1) res along ed Iron (Coon in Tille (C7) emarks)	d Soils (C	ots (C3)6)	econdary Indicators (2 or more required)  Water Marks (B1) (Riverine)  Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)  Drainage Patterns (B10)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9  Shallow Aquitard (D3)  FAC-Neutral Test (D5)

Project/Site: 9120 Old Redwood Highway		City/County	Windsor	r, Sonoma Count	ty Sa	ampling Dat	e: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sa	ımpling Poir	nt:	3
Investigator(s): T. Winfield		Section, To	wnship, Ra	inge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>								
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	.548790°		Long: -122.810	0891°	D	atum: WS	G 84
Soil Map Unit Name: Cole silty clayloam, 0 to 1 percent				=				
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrology sig	-			"Normal Circumsta			✓ N	о
Are Vegetation, Soil, or Hydrology na	turally pro	blematic?	(If ne	eeded, explain any	answers ir	n Remarks.	)	
SUMMARY OF FINDINGS - Attach site map s	howing	samplin	g point l	ocations, tran	sects, ir	nportant	feature	s, etc.
Hydrophytic Vegetation Present? Yes No	✓	Is th	e Sampled	l Area				
Hydric Soil Present? Yes _ ✓ No Wetland Hydrology Present? Yes _ ✓ No		with	in a Wetlaı	nd? Ye	es	No <u>√</u>		
Wetland Hydrology Present? Yes ✓ No Remarks:								
Tomano.								
VEGETATION – Use scientific names of plants	s.							
		Dominant Species?		Dominance Te				
1				Number of Dom That Are OBL, F			1	(A)
2.								(/
3				Total Number of Species Across			2	(B)
4				Percent of Dom	inant Speci	ies		
Herb Stratum (Plot size: 1m^2 )		= Total Co	ver	That Are OBL, F			50	(A/B)
1. Festuca perennis	20	X	FAC	Prevalence Ind	lex worksh	eet:		
2. Phalaris aquatica		X		Total % Co			tiply by:	
3. Bromus hordeaceus				OBL species				
4. Festuca bromoides				FACW species	-	x 2 = _	0	_
5. Briza minor	1		FAC	FAC species				_
		= Total Co	ver	FACU species				_
Herb Stratum (Plot size:)				UPL species		x 5 = _		_ (5)
1 2				Column Totals:	46	(A) _	163	(B)
3				Prevalenc	e Index = I	B/A =	3.54	_
4.				Hydrophytic Vo	egetation I	ndicators:		
5				Dominance				
6				Prevalence				
7				Morphologi	cal Adaptat Remarks or	tions¹ (Prov on a separ	ide suppor	rting
8				Problemation			,	
Woody Vine Stratum (Plot size: )	46	= Total Co	ver		, , ,	Ü	` '	,
1				<sup>1</sup> Indicators of hy				must
2				be present, unle	ess disturbe	ed or proble	matic.	
		= Total Co	ver	Hydrophytic				
% Bare Ground in Herb Stratum54	of Biotic C	rust		Vegetation Present?	Yes_	No	<b>√</b>	
Remarks:						_ <del></del>		
Absolute cover: 20% of 46 = ~10% cover								
Absolute Cover. 20/0 01 40 - 10/0 COVE								

Depth	Matrix			ox Feature	S			·
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.3	10YR4/2		10YR4/4	>5%	С	M	loam	
	-		-	_				
	-		-	_	-			<del></del>
							-	
¹Type: C=C	oncentration D=De	pletion. RM	=Reduced Matrix, C	S=Covered	d or Coate	ed Sand G	rains. <sup>2</sup> Loc	eation: PL=Pore Lining, M=Matrix.
			LRRs, unless other					for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy Red	lox (S5)			1 cm N	luck (A9) ( <b>LRR C</b> )
Histic E	pipedon (A2)		Stripped M					luck (A10) (LRR B)
Black H	istic (A3)		Loamy Mu	cky Minera	l (F1)		Reduce	ed Vertic (F18)
Hydroge	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)		Red Pa	arent Material (TF2)
· <del></del>	d Layers (A5) ( <b>LRR</b>	C)	✓ Depleted N				Other (	Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,			
	d Below Dark Surfa	ce (A11)	Depleted D				31	of levelor also the constation and
_	ark Surface (A12)  Mucky Mineral (S1)		Redox Dep Vernal Poo		F8)			of hydrophytic vegetation and hydrology must be present,
-	Gleyed Matrix (S4)		veillai Foc	ns (F9)				isturbed or problematic.
	Layer (if present):						1 11000 01	otarboa or problemate.
	, , ,							
· · · —	ches):						Hydric Soil	Present? Yes √ No
Remarks:	onoo).						11,411.0 00.1	. 1000iii. 100 <u></u> 110 <u></u>
remane.								
HYDROLO	ACV							
	drology Indicators							
_			d. abaal, all that ass	1			0	dam, Indiantana (O an manna na mainad)
		one require	d; check all that app					dary Indicators (2 or more required)
_	Water (A1)		Salt Crus	,				/ater Marks (B1) (Riverine)
	ater Table (A2)		Biotic Cru		(D40)			ediment Deposits (B2) (Riverine)
Saturati	, ,		Aquatic Ir		, ,		·	rift Deposits (B3) (Riverine)
	Marks (B1) (Nonrive	•	Hydrogen			Links - De		rainage Patterns (B10)
	nt Deposits (B2) (No				_	_		ry-Season Water Table (C2)
	posits (B3) (Nonriv	erine)	Presence				· · · · · · · · · · · · · · · · · · ·	rayfish Burrows (C8)
	Soil Cracks (B6)	lana a a a a . (D		on Reducti		a Solis (Ci		aturation Visible on Aerial Imagery (C9)
	ion Visible on Aerial			k Surface (	,			hallow Aquitard (D3)
	Stained Leaves (B9)		✓ Other (Ex	piain in Re	emarks)	-	F/	AC-Neutral Test (D5)
Field Obser		.,	N 5 " "					
Surface Wat			No Depth (ir					
Water Table			No Depth (ir					,
Saturation P		Yes	No Depth (ir	nches):		Wet	land Hydrology	/ Present? Yes No
Describe Re	pillary fringe) corded Data (strear	m gauge, m	onitoring well, aerial	photos, pr	evious ins	spections).	if available:	
	,	0 0 7	9			. ,		
Remarks:								
	والمساسمين							
water-ma	atted mulch							

Project/Site: 9120 Old Redwood Highway	C	city/County	Windsor	, Sonoma County	Sampling Date: April 23, 2018
					Sampling Point: 4
Investigator(s): T. Winfield					
Landform (hillslope, terrace, etc.): low terrace					
Subregion (LRR): Mediterranean California (LRR C)					
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent				-	
Are climatic / hydrologic conditions on the site typical for this ti			,		
Are Vegetation, Soil, or Hydrology sign	•	·			resent? Yes <u>√</u> No
Are Vegetation, Soil, or Hydrology natu				eded, explain any answer	
SUMMARY OF FINDINGS – Attach site map sh					
The decided by Venetating Brownia.					
Hydrophytic Vegetation Present? Yes ✓ No _ Hydric Soil Present? Yes ✓ No _			e Sampled		
Wetland Hydrology Present? Yes   ✓ No		with	in a Wetlan	d? Yes <u>√</u>	No
Remarks:		I			
VECETATION Lies exicutific names of plants					
VEGETATION – Use scientific names of plants		Dominant	Indicator	Dominance Test works	-haati
		Dominant Species?		Number of Dominant Sp	
1					or FAC:1 (A)
2				Total Number of Domina	ant
3				Species Across All Strat	_
4				Percent of Dominant Sp	ecies
Herb Stratum (Plot size: 1m^2 )		= Total Co	ver		or FAC:50
1. Festuca perennis	30	X	FAC	Prevalence Index work	sheet:
2. Phalaris aquatica		Х		Total % Cover of:	Multiply by:
3. Hordeum marinum ssp. gussoneanum	5		FAC	OBL species	x 1 =0
4. Rumex crispus	5		FAC		x 2 =0
5				FAC species 40	
Herb Stratum (Plot size:)		= Total Co	ver	FACU species10	
1				UPL species  Column Totals: 50	x = 0
2.				Column Totals:	) (A) <u>160</u> (B)
3				Prevalence Index	= B/A = <u>3.20</u>
4				Hydrophytic Vegetatio	n Indicators:
5				Dominance Test is	
6				Prevalence Index is	
7				Morphological Adap data in Remarks	otations <sup>1</sup> (Provide supporting or on a separate sheet)
8					phytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size:)	50	= Total Co	ver		
1					and wetland hydrology must
2				be present, unless distu	rbed or problematic.
_		= Total Co	ver	Hydrophytic	
% Bare Ground in Herb Stratum 50	f Biotic Cri	ust		Vegetation Present? Yes	s_√_ No
Remarks:				<u> </u>	
Absolute cover: 20% of 50 = 10% cover					
located at the edge; decision based on prese	ence of	FAC spe	cies as u	nderstory and pres	sence of wetland
hydrology.					, c co or madama

US Army Corps of Engineers

Depth	Matrix	•	th needed to docu	ox Feature		or commi	ii tile abselice t	or mulcators.)
(inches)	Color (moist)	%	Color (moist)	<u> %</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/1+		10YR3/4	>5%	С	М	loam	
						-		
				_		-		
					-	-		
<sup>1</sup> Type: C=C	concentration. D=D	epletion. RM=	Reduced Matrix, C	S=Covered	d or Coate	ed Sand G	rains. <sup>2</sup> Loca	ation: PL=Pore Lining, M=Matrix.
			LRRs, unless othe					for Problematic Hydric Soils <sup>3</sup> :
Histosol	l (A1)		Sandy Red	ox (S5)			1 cm M	uck (A9) ( <b>LRR C</b> )
	pipedon (A2)		Stripped M	atrix (S6)				uck (A10) ( <b>LRR B</b> )
Black H			Loamy Mu	-				ed Vertic (F18)
	en Sulfide (A4)	D (0)	Loamy Gle	-	(F2)			rent Material (TF2)
	d Layers (A5) ( <b>LR</b> uck (A9) ( <b>LRR D</b> )	R C)	✓ Depleted M Redox Dar		(E6)		Other (i	Explain in Remarks)
	ed Below Dark Surf	ace (A11)	Depleted D		` '			
	ark Surface (A12)	(****)	Redox Dep				<sup>3</sup> Indicators of	of hydrophytic vegetation and
Sandy N	Mucky Mineral (S1	)	Vernal Poo	ls (F9)			wetland h	nydrology must be present,
	Gleyed Matrix (S4)						unless dis	sturbed or problematic.
Restrictive	Layer (if present)	):						
• • •								,
Depth (in	nches):		<del></del>				Hydric Soil I	Present? Yes <u>√</u> No
HYDROLO	ncv							
		***						
_	drology Indicato		t about all that ann	lv)			Socon	dany Indicators (2 or more required)
-	: Water (A1)	one required	d; check all that app					dary Indicators (2 or more required)
	ater Table (A2)		Salt Crust Biotic Cru	` '				ater Marks (B1) ( <b>Riverine</b> ) ediment Deposits (B2) ( <b>Riverine</b> )
Saturati	,		Aquatic Ir		s (B13)			rift Deposits (B3) ( <b>Riverine</b> )
	Marks (B1) ( <b>Nonri</b> v	verine)	Hydrogen					rainage Patterns (B10)
	nt Deposits (B2) (I	•				Living Ro		y-Season Water Table (C2)
	posits (B3) (Nonri		Presence		_	-		ayfish Burrows (C8)
	Soil Cracks (B6)	,	Recent Iro					aturation Visible on Aerial Imagery (C9)
Inundati	ion Visible on Aeri	al Imagery (B	7) Thin Mucl	k Surface (	(C7)		Sh	nallow Aquitard (D3)
Water-S	Stained Leaves (B	9)	✓ Other (Ex	plain in Re	emarks)		FA	AC-Neutral Test (D5)
Field Obser	rvations:							
Surface Wat	ter Present?	Yes	No Depth (ir	nches):		_		
Water Table	Present?	Yes	No Depth (ir	nches):		_		
Saturation P	pillary fringe)		No Depth (ir					Present? Yes No
Describe Re	ecorded Data (stre	arn gauge, mo	onitoring well, aerial	pnotos, pr	evious ins	spections)	, it available:	
Remarks:								
water-ma	atted mulch							

Project/Site: 9120 Old Redwood Highway	(	City/County	: Windsor	, Sonoma County	y Sampli	ing Date: Apr	il 23, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sampli	ing Point:	5
Investigator(s): T. Winfield	;	Section, To	wnship, Ra	nge:			
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relief	(concave,	convex, none): slig	thtly concave	Slope (S	%): <u>&lt;1%</u>
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38.</u>	.548790°		Long: -122.810	891°	Datum: <u>V</u>	NSG 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent							
Are climatic / hydrologic conditions on the site typical for this t	ime of yea	ar? Yes	✓ No	(If no, expla	in in Remarks	.)	
Are Vegetation, Soil, or Hydrology sig	nificantly o	disturbed?	Are "	Normal Circumstar	nces" present?	' Yes <u>√</u>	No
Are Vegetation, Soil, or Hydrology nat	urally pro	blematic?	(If ne	eded, explain any	answers in Re	marks.)	
SUMMARY OF FINDINGS - Attach site map sl	nowing	samplin	g point l	ocations, trans	sects, impo	ortant featu	res, etc.
Hydrophytic Vegetation Present? Yes ✓ No		la 4h		A			
Hydric Soil Present? Yes <u>✓</u> No			ie Sampled iin a Wetlar		s N	in 1	
Wetland Hydrology Present? Yes No	<u>√</u>	With	iii a wetiai	10:	· "	<u> </u>	
Remarks:							
VEGETATION – Use scientific names of plants							
		Dominant	Indicator	Dominance Tes	t worksheet:		
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Domii	nant Species		
1				That Are OBL, F	ACW, or FAC:	2	(A)
2				Total Number of			
3				Species Across A	All Strata:	3	(B)
4		= Total Co		Percent of Domir		67	(4.45)
Herb Stratum (Plot size: 1m^2)		- Total CC	ivei	That Are OBL, F	ACW, or FAC:	6/	(A/B)
1. Plantago lanceolata	15	X	FAC	Prevalence Inde	ex worksheet:		
2. Festuca bromoides		X				Multiply by:	
3. <u>Festuca perennis</u>		X		OBL species			
4. Rumex crispus			FAC	FACW species _ FAC species			
5				FAC species _			<del></del>
Herb Stratum (Plot size:)		= Total Co	ver	UPL species		x = 5 = 50 $x = 5 = 5$	
1				Column Totals:			
2						. ,	(-/
3						= 3.33	
4				Hydrophytic Ve	_	ators:	
5				Dominance T			
6				Morphologic		1 (Provide sun	norting
7						a separate she	
0		= Total Co	ver	Problematic	Hydrophytic V	egetation1 (Exp	plain)
Woody Vine Stratum (Plot size:)		. Total oc					
1				<sup>1</sup> Indicators of hyd be present, unles			y must
2					oo alotarbea or	problematio.	
		= Total Co	ver	Hydrophytic Vegetation			
% Bare Ground in Herb Stratum55	f Biotic Cr	rust	<u></u>	Present?	Yes <u>√</u>	No	-
Remarks:							
Absolute cover: 20% of 45 = ~10% cover							

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

Depth	Matrix (assist)	0'		x Feature		1 2	- 	Dame !
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type'	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/1+	·	10YR3/4	>5%	<u>C</u>	M	loam	
			-					
		<del></del>		-				
							-	
							<u> </u>	
<sup>1</sup> Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, CS	S=Covere	d or Coat	ed Sand G		cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all	LRRs, unless othe	rwise not	ed.)		Indicators	s for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy Red	. ,			· <del></del>	Muck (A9) (LRR C)
	pipedon (A2)		Stripped Ma					Muck (A10) ( <b>LRR B</b> )
	istic (A3)		Loamy Muc	-				ced Vertic (F18)
	en Sulfide (A4) d Layers (A5) ( <b>LRR</b> (	C)	Loamy Gley ✓ Depleted M		(FZ)			Parent Material (TF2) (Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )	<b>3</b> )	Redox Dark		(F6)		Other	(Explain in Kemarks)
	d Below Dark Surfac	e (A11)	Depleted D		` '			
	ark Surface (A12)	,	Redox Dep				<sup>3</sup> Indicators	s of hydrophytic vegetation and
Sandy N	Mucky Mineral (S1)		Vernal Poo	s (F9)			wetland	hydrology must be present,
	Bleyed Matrix (S4)						unless o	disturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soi	I Present? Yes No
Remarks:								
JVDBOLO	CV							
IYDROLO								
•	drology Indicators:		di abaak all that anni				Sana	nder (Indicators (2 or more required)
		ne require	d; check all that appl	-				ndary Indicators (2 or more required)
	Water (A1)		Salt Crust	, ,				Water Marks (B1) (Riverine)
	ater Table (A2) on (A3)		Biotic Crus		o (D12)			Sediment Deposits (B2) (Riverine)  Drift Deposits (B3) (Riverine)
	on (A3) larks (B1) ( <b>Nonriver</b>	ino)	Aquatic III					Orainage Patterns (B10)
	nt Deposits (B2) ( <b>No</b>	,	Oxidized F		, ,	Living Po	<del></del>	Dry-Season Water Table (C2)
	posits (B3) (Nonrive	,	Presence		-	_		Crayfish Burrows (C8)
	Soil Cracks (B6)	·····o)	Recent Iro					Saturation Visible on Aerial Imagery (C9)
	on Visible on Aerial	lmagery (B				00110 (0		Shallow Aquitard (D3)
	stained Leaves (B9)	inagery (D	Other (Ex		. ,		·	FAC-Neutral Test (D5)
Field Obser	, ,						<u></u>	(-0)
Surface Wat		'es	No Depth (in	ches):				
Water Table			No Depth (in					
Saturation P			No Depth (in				tland Hydrolog	gy Present? Yes No✓_
(includes cap	oillary fringe)							
Describe Re	corded Data (stream	gauge, m	onitoring well, aerial	photos, pr	evious in	spections)	), if available:	
Remarks:								
no indica	tors of surface	hydrolo	gy indicators; s	oils not	t satura	ited wh	en visited s	several days after rain event.

Project/Site: 9120 Old Redwood Highway	(	City/County	Windsor	, Sonoma Count	Samp	oling Date: _/	April 23,	, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Samp	oling Point: _	6	
Investigator(s): T. Winfield	;	Section, To	wnship, Raı	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relief	(concave,	convex, none): sli	ghtly concav	<u>/e</u> Slop	oe (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.810	0891°	Datur	m: WSG	84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent								
Are climatic / hydrologic conditions on the site typical for this t								
Are Vegetation, Soil, or Hydrology sig	-			Normal Circumsta			/ No	
Are Vegetation, Soil, or Hydrology nat				eded, explain any				
SUMMARY OF FINDINGS – Attach site map sl			•			,	atures,	etc.
Hydrophytic Vegetation Present? Yes No								
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No			e Sampled					
Wetland Hydrology Present? Yes No		with	in a Wetlar	nd? Ye	es	No <u> </u>		
Remarks:								
VEGETATION – Use scientific names of plants	•							-
<u> </u>		Dominant	Indicator	Dominance Tes	st workshoot			
		Species?		Number of Dom				
1				That Are OBL, F			(A	A)
2				Total Number of	Dominant			
3				Species Across	All Strata:	3	(E	B)
4				Percent of Dom				
Herb Stratum (Plot size: 1m^2 )		= Total Co	ver	That Are OBL, F	FACW, or FAC	): <u>33</u>	<u>}</u> (A	A/B)
1. Phalaris aquatica	25	X	FACU	Prevalence Ind	ex workshee	t:		
2. Festuca perennis	15	X	FAC	Total % Co	ver of:	Multiply	/ by:	
3. <u>Festuca bromoides</u>	10	X	FACU	OBL species				
4				FACW species				
5				FAC species FACU species		· ·		
Herb Stratum (Plot size:)		= Total Co	ver	UPL species				
1		·		Column Totals:			185	(B)
2						( )		(=)
3					e Index = B/A		70	
4		-	-	Hydrophytic Ve	_			
5				Dominance				
6				Prevalence	al Adaptation		eupportin	na
7		-			Remarks or on			y
8		= Total Co	vor	Problemation	Hydrophytic	Vegetation <sup>1</sup>	(Explain)	1
Woody Vine Stratum (Plot size:)		- Total Co	VCI					
1				<sup>1</sup> Indicators of hy be present, unle				st
2		-	-	•	ss disturbed t		,ic.	
		= Total Co	ver	Hydrophytic Vegetation				
% Bare Ground in Herb Stratum 50	of Biotic Cr	ust		Present?	Yes	No	✓	
Remarks:								
Absolute cover: 20% of 50 = 10% cover								

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

Depth	Matrix			ox Feature			_	
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc <sup>2</sup>	<u>Texture</u>	Remarks
0-1.2	10YR4/1+		10YR3/4	>5%	<u>C</u>	<u>M</u>	loam	
				_		-		_
				_		<del></del>		
				_				
¹Type: C=C	oncentration D=De	nletion RM	Reduced Matrix, C	S=Covere	d or Coate	ed Sand G	rains <sup>2</sup> Loca	tion: PL=Pore Lining, M=Matrix.
			LRRs, unless othe			04 04.14 0		or Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Red		·		1 cm Mu	uck (A9) (LRR C)
	pipedon (A2)		Stripped M	. ,				uck (A10) ( <b>LRR B</b> )
	istic (A3)		Loamy Mu		al (F1)			d Vertic (F18)
Hydroge	en Sulfide (A4)		Loamy Gle		(F2)			rent Material (TF2)
	d Layers (A5) ( <b>LRR</b>	C)	✓ Depleted M				Other (E	Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,			
	d Below Dark Surfa	ce (A11)	Depleted D		, ,		31	f broder also the constation and
	ark Surface (A12)  Mucky Mineral (S1)		Redox Dep Vernal Poo		F8)			f hydrophytic vegetation and ydrology must be present,
-	Gleyed Matrix (S4)		veman oc	ns (1 <i>5)</i>				turbed or problematic.
	Layer (if present):							tarboa or problematio.
Type:	, , ,							
	ches):						Hydric Soil F	Present? Yes ✓ No
Remarks:							,	
IYDROLO	GY drology Indicators							
			d; check all that app	ls.A			Sacard	lary Indicators (2 or more required)
-		one required						lary Indicators (2 or more required)
	Water (A1) ater Table (A2)		Salt Crust	, ,				ater Marks (B1) ( <b>Riverine</b> ) diment Deposits (B2) ( <b>Riverine</b> )
Saturati	` '		Biotic Cru Aquatic Ir	. ,	oc (P13)			ft Deposits (B3) ( <b>Riverine</b> )
	Marks (B1) ( <b>Nonrive</b>	rino)	Aquatic ii					ainage Patterns (B10)
·	nt Deposits (B2) ( <b>N</b>	•			. ,	Living Roo		/-Season Water Table (C2)
	posits (B3) (Nonriv			of Reduce	_	_		ayfish Burrows (C8)
	Soil Cracks (B6)	J()				ed Soils (Co		turation Visible on Aerial Imagery (C9)
	ion Visible on Aeria	Imagery (B		k Surface		(3		allow Aquitard (D3)
	Stained Leaves (B9)			plain in Re	` '			C-Neutral Test (D5)
Field Obser				•				
Surface Wat	ter Present?	Yes	No Depth (ir	nches):				
Water Table		· ·	No Depth (ir					
Saturation P			No Depth (ir				land Hydrology	Present? Yes No ✓
		m gauge, mo	nitoring well, aerial	photos, pr	evious in:	spections),	, if available:	
Remarks:								
no indica	tors of surface	hydrolo	av indicators s	coile not	tcatura	ted wh	an visitad sa	veral days after rain event.
no mulca	tors or surract	. riyurulu	5y mulcaturs, S	וטוו נווטפ	. satul c	iteu Will	CII VISILEU SE	veral days after falli event.

Project/Site: 9120 Old Redwood Highway	Windsor	, Sonoma Count	Samp	oling Date: _	April 23	3, 2018		
Applicant/Owner: Redwood Oil Company				State:	CA Samp	oling Point:		7
Investigator(s): T. Winfield	;	Section, To	wnship, Rar	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relief	(concave, o	convex, none): sli	ghtly concav	<u>/e</u> Slo	pe (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38.</u>	548790°		Long: -122.810	)891°	Datu	m: WSC	3 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent				-				
Are climatic / hydrologic conditions on the site typical for this ti								
Are Vegetation, Soil, or Hydrology sign	-			Normal Circumsta			/ No	)
Are Vegetation, Soil, or Hydrology nati				eded, explain any				
SUMMARY OF FINDINGS – Attach site map sh							atures	s, etc.
Hydrophytic Vegetation Present? Yes No _			<u> </u>		<u>.</u>			
Hydric Soil Present? Yes No			e Sampled			/		
Wetland Hydrology Present? Yes No	_	with	in a Wetlan	id? Ye	s I	No <u>▼</u>	-	
Remarks:								-
VEGETATION – Use scientific names of plants								
<u> </u>		Dominant	Indicator	Dominance Tes	st worksheet:			
		Species?		Number of Dom				
1				That Are OBL, F				(A)
2				Total Number of	Dominant			
3				Species Across	All Strata:	2	<u> </u>	(B)
4				Percent of Domi			_	
Herb Stratum (Plot size: 1m^2)		= Total Co	ver	That Are OBL, F	FACW, or FAC	): <u>5</u> 0	0	(A/B)
1. Phalaris aquatica	30	X	FACU	Prevalence Ind	ex workshee	t:		
2. Festuca perennis	10	X	FAC	Total % Cov	ver of:	Multiply	y by:	_
3. <u>Hypochaeris radicata</u>				OBL species				
4. Briza minor				FACW species				
5		·		FAC species FACU species				-
Herb Stratum (Plot size:)		= Total Co	ver	UPL species				-
1				Column Totals:			158	– (B)
2						. ,		_ , ,
3					e Index = B/A		76	
4				Hydrophytic Ve	_			
5				Dominance				
6				Prevalence	al Adaptation		sunnort	ina
7					Remarks or on			iiig
8		= Total Co	·····	Problemation	: Hydrophytic	Vegetation <sup>1</sup>	(Explain	n)
Woody Vine Stratum (Plot size:)	72	- Total Co	VCI					
1				<sup>1</sup> Indicators of hy be present, unle				ıust
2					ss disturbed t	л ргоыетта	uc.	
-		= Total Co	ver	Hydrophytic Vegetation				
% Bare Ground in Herb Stratum 58	f Biotic Cr	ust		Present?	Yes	No	✓	
Remarks:								
Absolute cover: 20% of 42 = ~8% cover								

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the i	ndicator	or confirm	n the absence	of indicators.)
Depth	Matrix			x Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2		10YR3/3	>5%	С	M	loam	faint mottles
				-				
				_				
<sup>1</sup> Type: C=Co	ncentration, D=Dep	oletion, RM=	Reduced Matrix, C	S=Covered	d or Coate	ed Sand G	rains. <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
	ndicators: (Applic							for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Red		•		1 cm N	Muck (A9) ( <b>LRR C</b> )
	ipedon (A2)		Stripped Ma					Muck (A10) ( <b>LRR B</b> )
Black His			Loamy Muc	, ,	I (F1)			ed Vertic (F18)
	n Sulfide (A4)		Loamy Gle	-				arent Material (TF2)
	Layers (A5) (LRR	C)	Depleted M		,			(Explain in Remarks)
	ck (A9) ( <b>LRR D</b> )	,	Redox Darl	, ,	(F6)		<del>_</del>	,
Depleted	Below Dark Surfac	ce (A11)	Depleted D	ark Surfac	e (F7)			
Thick Da	rk Surface (A12)		Redox Dep	ressions (	F8)		<sup>3</sup> Indicators	of hydrophytic vegetation and
Sandy M	lucky Mineral (S1)		Vernal Poo	ls (F9)			wetland	hydrology must be present,
Sandy G	leyed Matrix (S4)						unless d	isturbed or problematic.
Restrictive L	ayer (if present):							
Type:								
Depth (inc	ches):						Hydric Soil	Present? Yes No _✓_
Remarks:	,							
faint mott	tles							
HYDROLO	GY							
	Irology Indicators							
-				I\			0	adam (Indicators (2 or record required)
-	ators (minimum of o	one required		•				ndary Indicators (2 or more required)
Surface	` ,		Salt Crust	` '				/ater Marks (B1) (Riverine)
	ter Table (A2)		Biotic Cru					ediment Deposits (B2) (Riverine)
Saturatio			Aquatic In	vertebrate	s (B13)			rift Deposits (B3) (Riverine)
Water Ma	arks (B1) ( <b>Nonrive</b> i	rine)	Hydrogen	Sulfide O	dor (C1)		D	rainage Patterns (B10)
Sedimen	t Deposits (B2) (No	nriverine)	Oxidized F	Rhizosphe	res along	Living Roo	ots (C3) D	ry-Season Water Table (C2)
Drift Dep	osits (B3) (Nonrive	erine)	Presence	of Reduce	ed Iron (C	4)	c	rayfish Burrows (C8)
Surface	Soil Cracks (B6)		Recent Iro	n Reducti	on in Tille	d Soils (Co	6) <u> </u>	aturation Visible on Aerial Imagery (C9)
Inundatio	on Visible on Aerial	Imagery (B7	) Thin Muck	Surface (	(C7)		s	hallow Aquitard (D3)
Water-St	tained Leaves (B9)		Other (Ex	plain in Re	emarks)		F.	AC-Neutral Test (D5)
Field Observ	vations:		· · · · · ·	•				, ,
Surface Water		/es N	lo Depth (in	ches).				
Water Table			lo Depth (in					5 10 V
Saturation Pr		res N	lo Depth (in	iches):		weti	land Hydrolog	y Present? Yes No _✓
(includes cap Describe Rec	corded Data (strean	n gauge, mor	nitoring well. aerial	photos. pr	evious ins	pections)	if available:	
		J		, , pi		,		
Damarilia								
Remarks:								
no indicat	ors of surface	hydrolog	y indicators; s	oils not	satura	ted who	en visited s	everal days after rain event.
		, 0	. , -					,

Project/Site: 9120 Old Redwood Highway	(	City/County:	Windsor,	, Sonoma Count	Sam	pling Date:	April 23	3, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sam	pling Point:	{	3
Investigator(s): T. Winfield		Section, To	wnship, Rar	nge:				
Landform (hillslope, terrace, etc.): low terrace		Local relief	(concave, c	convex, none): sli	ghtly conca	ve Slo	pe (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38.</u>	548790°		Long: <u>-122.81</u> (	0891°	Datu	ım: WSC	3 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent	slopes			NWI	classification:	PEM2		
Are climatic / hydrologic conditions on the site typical for this ti	ime of yea	ar? Yes	✓ No	(If no, expl	ain in Remark	(s.)		
Are Vegetation, Soil, or Hydrology sign	nificantly o	disturbed?	Are "	Normal Circumsta	inces" presen	it? Yes	✓ No	)
Are Vegetation, Soil, or Hydrology nat	urally prol	blematic?	(If ne	eded, explain any	answers in F	Remarks.)		
SUMMARY OF FINDINGS – Attach site map sh	nowing	sampling	g point lo	ocations, tran	sects, imp	oortant fe	atures	s, etc.
Hydrophytic Vegetation Present? Yes ✓ No _		la 4h	. Commission	Avec				
Hydric Soil Present? Yes ✓ No _			e Sampled in a Wetlan		es	No		
Wetland Hydrology Present? Yes <u>✓</u> No		With	iii a woaan					
Remarks:								
<b>VEGETATION – Use scientific names of plants</b>	<b>.</b>							
		Dominant		Dominance Tes	st worksheet	:		
<u>Tree Stratum</u> (Plot size:)		Species?		Number of Dom That Are OBL, F			)	<b>(\( \)</b>
2						J		(^)
3.				Total Number of Species Across		2	2	(B)
4								( )
Herb Stratum (Plot size: 1m^2 )		= Total Co	ver	Percent of Dom That Are OBL, F			00	(A/B)
Herb Stratum (Plot size: 1m^2)  1. Festuca perennis	30	V	EAC	Prevalence Ind	ex workshee	at•		
Hordeum marinum ssp. gussoneanum		X		Total % Co			ly by:	
3. Helminthotheca echioides				OBL species			-	
4. Phalaris aquatica				FACW species				
5. Convolvulus arvensis	t		NI/UPL	FAC species				_
		= Total Co	ver	FACU species				_
Herb Stratum (Plot size:)  1				UPL species				- (D)
2				Column Totals:	60	(A)	185	_ (B)
3.				Prevalenc	e Index = B/A	A = <u>3</u>	.08	_
4				Hydrophytic Ve	_			
5				Dominance				
6				Prevalence	Index is ≤3.0 cal Adaptatio		aunnart	lina
7					cai Adaptation Remarks or or			ing
8		= Total Cov		Problemation	Hydrophytic	Vegetation	<sup>1</sup> (Explaiı	n)
Woody Vine Stratum (Plot size:)		- Total Co	VEI					
1				<sup>1</sup> Indicators of hy be present, unle				ıust
2					ss disturbed	or problema	ilic.	
-		= Total Co	ver	Hydrophytic Vegetation				
% Bare Ground in Herb Stratum 40	f Biotic Cr	rust		Present?	Yes <u></u>	No		
Remarks:								
Absolute cover: 20% of 60 = 12% cover								

Depth	Matrix			ox Feature	S		ii tile abselice	or murcators.
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2		10YR3/4	>5%	С	M	loam	
				_				
	-	_	-	_				
					-			
¹Tvpe: C=C	oncentration. D=De	pletion. RM	=Reduced Matrix, C	S=Covered	d or Coate	ed Sand G	rains. <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.
			LRRs, unless other					for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy Red	lox (S5)			1 cm N	Muck (A9) ( <b>LRR C</b> )
Histic E	pipedon (A2)		Stripped M					Muck (A10) (LRR B)
Black H	istic (A3)		Loamy Mu	cky Minera	l (F1)		Reduc	ed Vertic (F18)
Hydroge	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)		Red Pa	arent Material (TF2)
	d Layers (A5) ( <b>LRR</b>	C)	✓ Depleted M				Other (	(Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,			
	d Below Dark Surfa	ce (A11)	Depleted D				31	of levels and the second of the second
_	ark Surface (A12)		Redox Dep Vernal Poo		F8)			of hydrophytic vegetation and hydrology must be present,
-	Mucky Mineral (S1) Gleyed Matrix (S4)		veillai Foo	ns (F9)				isturbed or problematic.
	Layer (if present):						1 11000 0	istance of problematic.
	, , ,							
· · · —	ches):						Hydric Soil	Present? Yes √ No
Remarks:	onoo).						11,411.000.1	
remane.								
HYDROLO	ocv							
_	drology Indicators		d. abaal, all that ass	1			0	dom la dioatore (O on more no minod)
	-	one require	d; check all that app					ndary Indicators (2 or more required)
_	Water (A1)		Salt Crust	,				/ater Marks (B1) (Riverine)
	ater Table (A2)		Biotic Cru		(D.10)			ediment Deposits (B2) (Riverine)
Saturati	, ,		Aquatic Ir		, ,			rift Deposits (B3) (Riverine)
	Marks (B1) (Nonrive	•	Hydrogen			Linda a Da		rainage Patterns (B10)
	nt Deposits (B2) (N				_	-		ry-Season Water Table (C2)
	posits (B3) (Nonriv	erine)	Presence				<del></del>	rayfish Burrows (C8)
	Soil Cracks (B6)	lman mam . (D		on Reducti		a Solis (Ci		aturation Visible on Aerial Imagery (C9)
	ion Visible on Aerial			k Surface (	,		· · · · · · · · · · · · · · · · · · ·	hallow Aquitard (D3)
	Stained Leaves (B9)		✓ Other (Ex	piain in Re	emarks)		F	AC-Neutral Test (D5)
Field Obser		.,	N 5 " "					
Surface Wat			No Depth (ir					
Water Table			No Depth (ir					,
Saturation P		Yes	No Depth (ir	nches):		Wet	land Hydrology	y Present? Yes <u>√</u> No
Describe Re	pillary fringe) corded Data (strear	m gauge. m	onitoring well, aerial	photos pr	evious ins	spections).	if available:	
. ,	(	5 - 5-,	J : 1, 2.2.1 <b>0</b> .1			/,		
Remarks:								
	وادا ممالم معد							
water-ma	atted mulch							

Project/Site: 9120 Old Redwood Highway	(	City/County:	Windsor	, Sonoma County	Samplin	g Date: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State: <i>C/</i>	Samplin	g Point:	9
Investigator(s): T. Winfield	{	Section, Tov	wnship, Ra	nge:			
Landform (hillslope, terrace, etc.): low terrace							
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.8108	91°	Datum: WS	SG 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent				_			
Are climatic / hydrologic conditions on the site typical for this t							
Are Vegetation, Soil, or Hydrology sig	-			Normal Circumstan			lo
Are Vegetation, Soil, or Hydrology nat							
SUMMARY OF FINDINGS - Attach site map sl	howing	samplin	g point l	ocations, trans	ects, impor	tant feature	s, etc.
Hydrophytic Vegetation Present? Yes ✓ No							
Hydric Soil Present? Yes _ ✓ No			e Sampled n a Wetlar		✓ No		
Wetland Hydrology Present? Yes   ✓ No		withi	n a wenar	id? fes	NO		
Remarks:							
VEGETATION – Use scientific names of plants							
		Dominant	Indicator	Dominance Test	workshoot:		
		Species?		Number of Domin			
1				That Are OBL, FA		2	(A)
2				Total Number of D	Dominant		
3				Species Across A		2	(B)
4				Percent of Domina	ant Species		
Herb Stratum (Plot size: 1m^2)		= Total Cov	/er	That Are OBL, FA	CW, or FAC:	100	(A/B)
1. Festuca perennis	20	X	FAC	Prevalence Index	worksheet:		
2. Cyperus eragrostis		X		Total % Cove	er of:	Multiply by:	
3. Hordeum marinum ssp. gussoneanum				OBL species _	x	1 =0	
4. Festuca bromoides	1		FACU	FACW species _			
5. Bromus hordeaceus				FAC species _			
		= Total Cov	/er	FACU species _			
Herb Stratum (Plot size:)  1. Convolvulus arvensis	t		NI/UPI	UPL species _		5 = 0	
2				Column Totals: _	47 (A	) 123	(B)
3				Prevalence	Index = B/A =	2.62	
4				Hydrophytic Veg	etation Indica	tors:	
5				✓ Dominance T			
6				✓ Prevalence Ir			
7				Morphologica		(Provide suppo separate sheet)	
8				Problematic H		. ,	
Woody Vine Stratum (Plot size:)	47	= Total Cov	/er		.,	J-1011-11 (-11-p-1	,
1				<sup>1</sup> Indicators of hydi	ric soil and wet	and hydrology	must
2				be present, unless	s disturbed or p	roblematic.	
		= Total Cov	/er	Hydrophytic			
% Bare Ground in Herb Stratum53 % Cover of	of Biotic Cr	ust		Vegetation Present?	Yes √	No	
Remarks:				110001111			
Absolute cover: 20% of 47 = ~9% cover							

(inches)         Color (moist)           0-1.2         10YR4/2	) %	Color (moist)	ox Feature: %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2 1011/4/2		10YR3/4		C	M	loam	Nomento
	<del></del>	10113/4			IVI	<u> 10a111</u>	
Type: C=Concentration, D=[ Hydric Soil Indicators: (App					ed Sand Gr		ion: PL=Pore Lining, M=Matrix.  r Problematic Hydric Soils <sup>3</sup> :
	plicable to all i	•		eu.)			•
Histosol (A1) Histic Epipedon (A2)		Sandy Red Stripped M					ck (A9) ( <b>LRR C</b> ) ck (A10) ( <b>LRR B</b> )
Black Histic (A3)		Loamy Mu		I (F1)			Vertic (F18)
Hydrogen Sulfide (A4)		Loamy Gle	-				ent Material (TF2)
Stratified Layers (A5) ( <b>LR</b>	RR C)	✓ Depleted M	-	(/			kplain in Remarks)
1 cm Muck (A9) ( <b>LRR D</b> )		Redox Dar	. ,	(F6)			,
Depleted Below Dark Sur		Depleted D	ark Surfac	e (F7)			
Thick Dark Surface (A12)	)	Redox Dep	oressions (I	F8)			hydrophytic vegetation and
Sandy Mucky Mineral (S1		Vernal Poo	ols (F9)				drology must be present,
Sandy Gleyed Matrix (S4	•					unless dist	urbed or problematic.
Restrictive Layer (if present							
Type:							
Depth (inches):						Hydric Soil Pr	resent? Yes <u>√</u> No
YDROLOGY							
Wetland Hydrology Indicato	ors:						
Primary Indicators (minimum	of one required	; check all that app	ly)			Seconda	ary Indicators (2 or more required)
Surface Water (A1)		Salt Crus	t (B11)			Wat	M I (D4) (D1 I )
		Biotic Cru	-+ (D40)				er Marks (B1) ( <b>Riverine</b> )
High Water Table (A2)			IST (B12)				er Marks (B1) (Riverine) iment Deposits (B2) (Riverine)
High Water Table (A2) Saturation (A3)		Aquatic Ir		s (B13)		Sed	
Saturation (A3) Water Marks (B1) ( <b>Nonri</b>		Aquatic Ir Hydrogen	nvertebrate Sulfide Od	dor (C1)		Sed Drift Drai	iment Deposits (B2) ( <b>Riverine</b> ) Deposits (B3) ( <b>Riverine</b> ) nage Patterns (B10)
Saturation (A3)		Aquatic Ir Hydrogen Oxidized	nvertebrate Sulfide Oo Rhizosphe	dor (C1) res along	_	Sed Drift Drai ots (C3) Dry-	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr	(Nonriverine)	Aquatic Ir Hydrogen Oxidized Presence	nvertebrate Sulfide Oo Rhizosphe of Reduce	dor (C1) res along ed Iron (C4	1)	Sed Drift Drai ots (C3) Dry- Cra	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6)	(Nonriverine)	Aquatic Ir Hydrogen Oxidized Presence Recent Iron	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Tille	1)	Sed Drift Drai ots (C3) Dry Cray s) Satu	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9)
Saturation (A3)  Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Iro ) Thin Muc	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction k Surface (	dor (C1) res along ed Iron (C4 on in Tille C7)	1)	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Iron	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction k Surface (	dor (C1) res along ed Iron (C4 on in Tille C7)	1)	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Ir Thin Muc	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re	dor (C1) res along d Iron (C4 on in Tille C7) emarks)	t) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present?	(Nonriverine) riverine) rial Imagery (B7	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Muci _ ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( pplain in Re	dor (C1) res along d Iron (C4 on in Tille C7) emarks)	t) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present?	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reduction k Surface ( plain in Re anches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu Sha FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present?	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Muci _ ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reduction k Surface ( plain in Re anches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu Sha FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)

Project/Site: 9120 Old Redwood Highway		City/Cou	nty: Windsor	, Sonoma County	Samplin	g Date: Apri	l 23, 2018
Applicant/Owner: Redwood Oil Company				State:	A Sampling	g Point:	10
Investigator(s): T. Winfield		Section,	Township, Ra	nge:			
Landform (hillslope, terrace, etc.): <u>low terrace</u>							
Subregion (LRR): Mediterranean California (LRR C)	Lat: _38	.548790	)°	Long: -122.8108	891°	Datum: V	VSG 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percen							
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology si	-						No
Are Vegetation, Soil, or Hydrologyn							
SUMMARY OF FINDINGS - Attach site map							res, etc.
Hydrophytic Vegetation Present? Yes No	o <b>√</b>						
Hydric Soil Present? Yes No			s the Sampled vithin a Wetlar		No	./	
Wetland Hydrology Present? Yes No	o <u> </u>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	illiiii a vveliai	id? Tes	NO		
Remarks:							
VEGETATION – Use scientific names of plant				1			
Tree Stratum (Plot size:)			ant Indicator s? Status	Dominance Test			
1. Quercus lobata				Number of Domin That Are OBL, FA		0	(A)
2.							_ ( )
3.				Total Number of E Species Across A		3	(B)
4				,			_ 、 ,
	100			Percent of Domina That Are OBL, FA		0	(A/B)
(1 lot 3i2c. <u>1111 2</u> )	2	V	FACU	Prevalence Index			
Festuca bromoides     Bromus diandris				Total % Cove		Multiply by:	
-				OBL species			
3				FACW species _			
5.				FAC species _			
				FACU species _			
Herb Stratum (Plot size:)				UPL species		5 = 0	
1. Convolvulus arvensis				Column Totals: _	<u> </u>	)0	(B)
2				Dravalanaa	Index - D/A -		
3					Index = B/A =		
4				Hydrophytic Veg Dominance T		1015.	
5				Prevalence Ir			
6				Morphologica		(Provide supr	oortina
7 8				data in Re	marks or on a	separate shee	et)
	3			Problematic H	Hydrophytic Ve	getation¹ (Exp	olain)
Woody Vine Stratum (Plot size:)							
1				<sup>1</sup> Indicators of hydrony be present, unless			y must
2				·			
		= Total	Cover	Hydrophytic Vegetation			
% Bare Ground in Herb Stratum97	of Biotic C	rust		Present?	Yes	No <u>√</u>	_
Remarks:				•			
Absolute cover (Herb Stratum): 20% of 3 =	~1% co	ver					
20,000	_,,,,						

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

(inches)	Matrix	0/	Redo	x Feature		12	T 4	Developin
	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type'	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2		10YR3/3	>5%	<u>C</u>	_M	loam	faint mottles
	-							
<sup>1</sup> Type: C=Ce	oncentration, D=Dep	letion, RM=	Reduced Matrix, CS	S=Covere	d or Coate	ed Sand G	rains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Application	able to all	LRRs, unless other	rwise not	ed.)		Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histosol	` '		Sandy Redo	, ,				Muck (A9) (LRR C)
	pipedon (A2)		Stripped Ma					Muck (A10) ( <b>LRR B</b> )
	istic (A3)		Loamy Muc	-				ced Vertic (F18)
	en Sulfide (A4)	• \	Loamy Gley		(F2)			Parent Material (TF2)
	d Layers (A5) ( <b>LRR 0</b> uck (A9) ( <b>LRR D</b> )	•)	Depleted Mark	. ,	(E6)		Other	(Explain in Remarks)
	d Below Dark Surface	e (A11)	Nedox Dark		,			
	ark Surface (A12)	<i>(</i>	Redox Depr		. ,		<sup>3</sup> Indicators	of hydrophytic vegetation and
	Mucky Mineral (S1)		Vernal Pool		,			hydrology must be present,
Sandy G	Gleyed Matrix (S4)						unless o	disturbed or problematic.
Restrictive I	Layer (if present):							
Type:			<u></u>					
Depth (in	ches):						Hydric Soi	I Present? Yes No✓
Remarks:								
	GY drology Indicators:							
Wetland Hy		ne required	d; check all that appl	y)			Seco	ndary Indicators (2 or more required)
Wetland Hyd	drology Indicators:	ne required	d; check all that apple					ndary Indicators (2 or more required) Vater Marks (B1) (Riverine)
Wetland Hyd Primary India Surface	drology Indicators: cators (minimum of o	ne required		(B11)			V	
Wetland Hyd Primary India Surface High Wa Saturatio	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3)	•	Salt Crust Biotic Crus Aquatic Inv	(B11) st (B12) vertebrate			V S	Vater Marks (B1) ( <b>Riverine</b> ) Sediment Deposits (B2) ( <b>Riverine</b> ) Orift Deposits (B3) ( <b>Riverine</b> )
Wetland Hyd Primary India Surface High Wa Saturatia Water M	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri	ne)	Salt Crust Biotic Crus Aquatic In Hydrogen	(B11) st (B12) vertebrate Sulfide O	dor (C1)		V S C	Vater Marks (B1) ( <b>Riverine</b> ) Sediment Deposits (B2) ( <b>Riverine</b> ) Orift Deposits (B3) ( <b>Riverine</b> ) Orainage Patterns (B10)
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Nor	ne) nriverine)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F	(B11) st (B12) vertebrate Sulfide O	dor (C1) res along	-	V 5 1 1 ots (C3) 1	Water Marks (B1) ( <b>Riverine</b> ) Sediment Deposits (B2) ( <b>Riverine</b> ) Orift Deposits (B3) ( <b>Riverine</b> ) Orainage Patterns (B10) Ory-Season Water Table (C2)
Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimer Drift Dep	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Nor posits (B3) (Nonriver	ne) nriverine)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F	(B11) st (B12) vertebrate Sulfide O Rhizosphe	dor (C1) res along ed Iron (C	4)	V E E ots (C3) E	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8)
Wetland Hyderimary Indice Surface High Was Saturation Water M Sedimer Drift Dep Surface	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriver Soil Cracks (B6)	ne) nriverine) rine)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence o	(B11) st (B12) vertebrate Sulfide Or Rhizosphe of Reduce n Reducti	dor (C1) res along ed Iron (Co on in Tille	4)	V E C ots (C3) E	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hydelight Primary Indices Surface High Was Saturation Water Market Sedimer Drift Dep Surface Inundation	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriver Soil Cracks (B6) ion Visible on Aerial II	ne) nriverine) rine)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence o Recent Iro Thin Muck	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface (	dor (C1) res along ed Iron (Co on in Tille C7)	4)	V C C ots (C3) C C	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Primary Indic  Surface  High Wa  Saturatic  Water M  Sedimer  Drift Dep  Surface  Inundatic  Water-S	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Nor posits (B3) (Nonriver Soil Cracks (B6) ion Visible on Aerial In Stained Leaves (B9)	ne) nriverine) rine)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence o	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface (	dor (C1) res along ed Iron (Co on in Tille C7)	4)	V C C ots (C3) C C	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hyderimary India Surface High Wa Saturation Water M Sedimer Drift Dep Surface Inundation Water-S Field Obser	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Nor posits (B3) (Nonriver Soil Cracks (B6) ion Visible on Aerial In Stained Leaves (B9) reations:	ne) nriverine) rine) magery (B	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp	(B11) st (B12) vertebrate Sulfide Or Rhizosphe of Reduce n Reducti Surface ( blain in Re	dor (C1) res along d Iron (Coon in Tille C7) emarks)	4) d Soils (C	V C C ots (C3) C C	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydelian Primary India Surface High Water Mater Surface Inundation Water-S Field Obser Surface Water	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriver Soil Cracks (B6) ion Visible on Aerial In Stained Leaves (B9) rvations:	ne) nriverine) rine) magery (B	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Control Recent Iro Thin Muck Other (Exp	(B11) st (B12) vertebrate Sulfide Or Rhizosphe of Reduce n Reducti Surface ( blain in Re	dor (C1) res along d Iron (Ci on in Tille C7) marks)	4) d Soils (C	V C C ots (C3) C C	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydelian Primary India Surface High Water Management Sedimer Drift Dep Surface Inundati Water-S Field Obser Surface Water Table	drology Indicators: cators (minimum of or Water (A1) eter Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriveri Soil Cracks (B6) ion Visible on Aerial In Stained Leaves (B9) rvations: ter Present? Yes	ne) nriverine) rine) magery (B	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Thin Muck Other (Exp	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches):	dor (C1) res along ed Iron (C- on in Tille C7) emarks)	4) d Soils (C		Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary India Surface High Water Management Sedimer Drift Dep Surface Inundati Water-S Field Obser Surface Water Table Saturation Page	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriver Soil Cracks (B6) on Visible on Aerial In Stained Leaves (B9) rvations: ter Present? Present? Ye present? Ye present? Ye present? Ye present? Ye present? Ye present?	ne) nriverine) rine) magery (B	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Control Recent Iro Thin Muck Other (Exp	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches):	dor (C1) res along ed Iron (C- on in Tille C7) emarks)	4) d Soils (C		Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hyderimary Indices Surface High Water Mater Mater Sedimer Surface Inundative Water-Sedimer Surface Water-Sedimer Surface Water-Sedimer Surface Water Table Saturation Period (includes care)	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonriveri nt Deposits (B2) (Non posits (B3) (Nonriver Soil Cracks (B6) on Visible on Aerial In Stained Leaves (B9) rvations: ter Present? Present? Ye present? Ye present? Ye present? Ye present? Ye present? Ye present?	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary Indices Surface High Water Mater Mater Sedimer Surface Inundative Water-Sedimer Surface Water-Sedimer Surface Water-Sedimer Surface Water Table Saturation Period (includes care)	drology Indicators: cators (minimum of orwater (A1) ater Table (A2) on (A3) Marks (B1) (Nonriverint Deposits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Instance Leaves (B9) retained Leaves (B9)	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary Indices Surface High Water Mater Mater Sedimer Surface Inundative Water-Sedimer Surface Water-Sedimer Surface Water-Sedimer Surface Water Table Saturation Period (includes care)	drology Indicators: cators (minimum of orwater (A1) ater Table (A2) on (A3) Marks (B1) (Nonriverint Deposits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Instance Leaves (B9) retained Leaves (B9)	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary India Surface High Water Mage Sedimer Drift Dep Surface Inundati Water-S Field Obser Surface Water Table Saturation Properties of the Common Properties	drology Indicators: cators (minimum of orwater (A1) ater Table (A2) on (A3) Marks (B1) (Nonriverint Deposits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Instance Leaves (B9) retained Leaves (B9)	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary India Surface High Water Magnetic Sedimer Drift Dep Surface Inundati Water-S Field Obser Surface Water Table Saturation Pr (includes cap Describe Recessive	drology Indicators: cators (minimum of orwater (A1) ater Table (A2) on (A3) Marks (B1) (Nonriverint Deposits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Instance Leaves (B9) retained Leaves (B9)	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hyderimary India Surface High Wa Saturation Water M Sedimer Drift Dep Surface Inundati Water-S Field Obser Surface Water Water Table Saturation Pr (includes cap Describe Reces	drology Indicators: cators (minimum of orwater (A1) ater Table (A2) on (A3) Marks (B1) (Nonriverint Deposits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Instance Leaves (B9) retained Leaves (B9)	ne) nriverine) rine) magery (B') es	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Thin Muck Other (Exp No Depth (inc	(B11) st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti Surface ( blain in Re ches): ches): ches):	dor (C1) res along ed Iron (Coon in Tille C7) emarks)	4) d Soils (C	V 5 5 ots (C3) 5 6) 5 7	Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)

Project/Site: 9120 Old Redwood Highway	(	City/Cour	nty: Windsor	, Sonoma County	Samp	ling Date:	April 2	3, 2018
Applicant/Owner: Redwood Oil Company				State: <u>C</u>	A Samp	ling Point:	1	11
Investigator(s): T. Winfield	;	Section, <sup>-</sup>	Township, Ra	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>								
Subregion (LRR): Mediterranean California (LRR C	) Lat: <u>38</u> .	548790	0	Long: -122.8108	391°	Datu	ım: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 per				-				
Are climatic / hydrologic conditions on the site typical for								
Are Vegetation, Soil, or Hydrology	-						✓ No	5
Are Vegetation, Soil, or Hydrology								
SUMMARY OF FINDINGS – Attach site ma							ature	s, etc.
Hydrophytic Vegetation Present? Yes	No <u> </u>							
	No ✓		the Sampled			. /		
Wetland Hydrology Present? Yes		WI	thin a Wetlar	ia? Yes	N	10	_	
Remarks:								
VEGETATION – Use scientific names of p	lants.							
Tree Charles (Diet sine)			nt Indicator	Dominance Test	worksheet:			
Tree Stratum (Plot size:)			Status	Number of Domir		. ,	1	<b>(A)</b>
1 2				That Are OBL, FA	ACVV, OI FAC		<u> </u>	(A)
3				Total Number of I Species Across A			2	(B)
4				Species Across A	ui Stiata.		<u>-</u>	(D)
				Percent of Domin		: 5	50	(A/B)
Herb Stratum (Plot size: 1m^2)								()
1. Trifolium subterraneum			NI/UPL	Prevalence Inde			le e le con	
2. Plantago lanceolata			FAC	Total % Cove				
3. Festuca perennis			FAC	OBL species _				
Vicia sativa     Festuca bromoides			FACU FACU	FACW species _ FAC species _				
5. <u>Festuca bromoides</u>				FACU species _				_
Herb Stratum (Plot size:)		- Total C	Juvei	UPL species _				_
1. Convolvulus arvensis	t		NI/UPL	Column Totals:			264	– (B)
2. Bromus hordeaceus	t		FACU	_		. ,		_ ( /
3					Index = B/A		.00	_
4				Hydrophytic Veg	-	cators:		
5				Dominance				
6				Prevalence I		1.0		
7				Morphologica data in Re	ai Adaptations emarks or on			ling
8				Problematic			,	n)
Woody Vine Stratum (Plot size:)	66	= Total (	Cover					
1				<sup>1</sup> Indicators of hyd				nust
2.				be present, unles	s disturbed o	r problema	atic.	
			Cover	Hydrophytic				
% Bare Ground in Herb Stratum34	over of Biotic Cr	ust		Vegetation Present?	Yes	No	✓	
Remarks:								
	66 - ~130/	COV.05						
Absolute cover (Herb Stratum): 20% of	00 = 13%	cover						

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

Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	ox Features %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2	:	10YR3/3	>5%	С	<u>M</u>	loam	faint mottles
		·					<u> </u>	
	-	· — — –			-	-		·
		· <del></del> -				-	<u> </u>	
							<u> </u>	
1T C-C		leties DM-F	Dadwaad Makiiy C	C-Causana			21 -	action. DI -Dona Lining M-Matrix
	oncentration, D=Dep Indicators: (Applic					ed Sand G		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
•	`	able to all L	ř		.,			•
Histosol	` '		Sandy Red Stripped M	. ,				Muck (A9) (LRR C)
Black Hi	oipedon (A2)		Suipped M	, ,	(F1)			Muck (A10) ( <b>LRR B</b> ) ced Vertic (F18)
	en Sulfide (A4)		Loamy Gle	-				arent Material (TF2)
	d Layers (A5) ( <b>LRR (</b>	3)	Depleted M	-	(1 2)			(Explain in Remarks)
· <del></del>	ick (A9) ( <b>LRR D</b> )	3)	Redox Dar	` ,	F6)		01101	(Explain in remarks)
	d Below Dark Surfac	e (A11)	Depleted D	,	,			
	ark Surface (A12)	- ( )	Redox Dep				<sup>3</sup> Indicators	of hydrophytic vegetation and
	lucky Mineral (S1)		Vernal Poo		,			hydrology must be present,
Sandy G	Gleyed Matrix (S4)						unless d	listurbed or problematic.
Restrictive I	Layer (if present):							
Type:			<u></u>					
Depth (in	ches):						Hydric Soil	Present? Yes No✓_
Remarks:								
IYDROLO								
_	drology Indicators:							
Primary India	cators (minimum of o	ne required;	check all that app	ly)			Secoi	ndary Indicators (2 or more required)
Surface	Water (A1)		Salt Crust	t (B11)			V	Vater Marks (B1) ( <b>Riverine</b> )
High Wa	ater Table (A2)		Biotic Cru	st (B12)			s	Sediment Deposits (B2) (Riverine)
Saturation	on (A3)		Aquatic Ir	vertebrate	s (B13)		[	Orift Deposits (B3) (Riverine)
Water M	larks (B1) (Nonriver	ine)	Hydrogen	Sulfide Oc	dor (C1)		0	Prainage Patterns (B10)
Sedimer	nt Deposits (B2) (No	nriverine)	Oxidized	Rhizosphei	res along	Living Ro	oots (C3) D	Ory-Season Water Table (C2)
Drift Dep	oosits (B3) (Nonrive	rine)	Presence	of Reduce	d Iron (C	4)	C	Crayfish Burrows (C8)
Surface	Soil Cracks (B6)		Recent Ire	on Reduction	on in Tille	d Soils (C	(6) <u> </u>	Saturation Visible on Aerial Imagery (C9)
Inundati	on Visible on Aerial I	magery (B7)	Thin Mucl	k Surface (	C7)		s	Shallow Aquitard (D3)
Water-S	tained Leaves (B9)		Other (Ex	plain in Re	marks)		F	AC-Neutral Test (D5)
Field Obser	vations:							
Surface Wat	er Present? Y	es N	o Depth (ir	nches):				
Water Table	Present? Y	es N	o Depth (ir	nches):				
Saturation P		es N	o Depth (ir	nches):		Wet	land Hydrolog	y Present? Yes No✓
(includes cap Describe Re	onary fringe) corded Data (stream	gauge, mon	itoring well, aerial	photos, pre	evious ins	spections)	, if available:	
Remarks:								

Project/Site: 9120 Old Redwood Highway		City/County	: Windsor	, Sonoma Count	<u>y</u> Sam	pling Dat	e: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sam	pling Poir	nt:	12
Investigator(s): T. Winfield		Section, To	wnship, Ra	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>								
Subregion (LRR): Mediterranean California (LRR C)								
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percen				_				
Are climatic / hydrologic conditions on the site typical for this			_					
Are Vegetation, Soil, or Hydrology si	-			'Normal Circumsta			✓ N	0
Are Vegetation, Soil, or Hydrology na								·
SUMMARY OF FINDINGS – Attach site map s								s, etc.
,		<u>.</u>	<u> </u>	·		'		•
Hydrophytic Vegetation Present? Yes _ ✓ No Hydric Soil Present? Yes _ ✓ No Mo	' <del></del>		e Sampled		,			
Wetland Hydrology Present? Yes ✓ No		with	in a Wetlaı	nd? Yes	s <u>√</u>	No		
Remarks:								
VEGETATION – Use scientific names of plant	s.							
Troo Stratum (Diot aiza:		Dominant		Dominance Tes	t workshee	t:		
		Species?		Number of Domi			2	<b>(\</b> \)
1 2				That Are OBL, F.	ACW, OF LA	O		(A)
3.				Total Number of Species Across			2	(B)
4.								(D)
		= Total Co		Percent of Domin			100	(A/B)
Herb Stratum (Plot size: 1m^2)							100	(700)
1. Festuca perennis		X		Prevalence Inde				
2. Cyperus eragrostis		X		Total % Cov				
3. Festuca bromoides				OBL species				_
4. Plantago lanceolata				FACW species FAC species				_
5. Hordeum marinum ssp. gussoneanum				FAC species FACU species				_
Herb Stratum (Plot size:)		= Total Co	ver	UPL species			0	_
1. Phalaris aquatica	2		FACU	Column Totals:				— (B)
2. Briza maxima	t		NI/UPL	Column Totalo.	- 07	. ('') _	130	_ (5)
3. Geranium dissectum			NI/UPL	Prevalence	e Index = B/	A =	2.96	_
4				Hydrophytic Ve	getation Inc	licators:		
5				✓ Dominance				
6				✓ Prevalence				
7				Morphologic	al Adaptation emarks or o			
8				Problematic		•	,	
Woody Vine Stratum (Plot size:)	67	= Total Co	ver		) I - )	3	. (	,
1				<sup>1</sup> Indicators of hyd	dric soil and	wetland h	nydrology i	must
2.				be present, unles	ss disturbed	or proble	matic.	
		= Total Co	ver	Hydrophytic				
% Bare Ground in Herb Stratum 33 % Cover	of Piotio C	ruot		Vegetation	Voo .	/ No		
Remarks:	or blotte C	ı uət		Present?	Yes <u></u>	NO		
Absolute cover (Herb Stratum): 20% of 67	= ~13%	cover						

(inches) Color (moist) % Color (moist) % Type¹ Loc²  0-1.2 10YR4/2 10YR3/4 >5% C M    Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)    Histosol (A1)	loam
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Mydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1) Sandy Redox (S5)  Histic Epipedon (A2) Stripped Matrix (S6)  Black Histic (A3) Loamy Mucky Mineral (F1)  Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  Depleted Bouv Dark Surface (A11) Depleted Dark Surface (F7)  Thick Dark Surface (A12) Redox Depressions (F8)  Sandy Mucky Mineral (S1) Vernal Pools (F9)  Restrictive Layer (if present):  Type: Depth (inches): Permarks:  YDROLOGY  Wetland Hydrology Indicators:	d Grains.  2 Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1) Sandy Redox (S5)  _ Histic Epipedon (A2) Stripped Matrix (S6)  _ Black Histic (A3) Loamy Mucky Mineral (F1)  _ Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  _ Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  _ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  _ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  _ Thick Dark Surface (A12) Redox Depressions (F8)  _ Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Pethand Hydrology Indicators:	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
rdric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1) Sandy Redox (S5)  Histic Epipedon (A2) Stripped Matrix (S6)  Black Histic (A3) Loamy Mucky Mineral (F1)  Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  Thick Dark Surface (A12) Redox Depressions (F8)  Sandy Mucky Mineral (S1) Vernal Pools (F9)  Sandy Gleyed Matrix (S4)  Strictive Layer (if present):  Type:  Depth (inches):  Type:  Depth (inches):	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1)	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1)	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1)	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1) Sandy Redox (S5)  _ Histic Epipedon (A2) Stripped Matrix (S6)  _ Black Histic (A3) Loamy Mucky Mineral (F1)  _ Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  _ Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  _ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  _ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  _ Thick Dark Surface (A12) Redox Depressions (F8)  _ Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Pethand Hydrology Indicators:	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1) Sandy Redox (S5)  _ Histic Epipedon (A2) Stripped Matrix (S6)  _ Black Histic (A3) Loamy Mucky Mineral (F1)  _ Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  _ Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  _ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  _ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  _ Thick Dark Surface (A12) Redox Depressions (F8)  _ Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Pethand Hydrology Indicators:	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1) Sandy Redox (S5)  _ Histic Epipedon (A2) Stripped Matrix (S6)  _ Black Histic (A3) Loamy Mucky Mineral (F1)  _ Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  _ Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  _ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  _ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  _ Thick Dark Surface (A12) Redox Depressions (F8)  _ Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Pethand Hydrology Indicators:	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  _ Histosol (A1) Sandy Redox (S5)  _ Histic Epipedon (A2) Stripped Matrix (S6)  _ Black Histic (A3) Loamy Mucky Mineral (F1)  _ Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)  _ Stratified Layers (A5) (LRR C) Depleted Matrix (F3)  _ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)  _ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)  _ Thick Dark Surface (A12) Redox Depressions (F8)  _ Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Pethand Hydrology Indicators:	Indicators for Problematic Hydric Soils³:  1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR C) Depleted Matrix (F3) 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Vernal Pools (F9)  estrictive Layer (if present):  Type: Depth (inches):  Depth (inches):  TDROLOGY  fetland Hydrology Indicators:	1 cm Muck (A9) (LRR C)2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
	2 cm Muck (A10) (LRR B) Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
	Reduced Vertic (F18) Red Parent Material (TF2) Other (Explain in Remarks)   3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
	Red Parent Material (TF2) Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Stratified Layers (A5) (LRR C)	Other (Explain in Remarks)  3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
1 cm Muck (A9) (LRR D) Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Redox Depressions (F8) Redox Depressions (F8) Sandy Mucky Mineral (S1) Vernal Pools (F9) Sandy Gleyed Matrix (S4) Sandy Gleyer (if present):  Type: Depth (inches): Pernarks:   /DROLOGY //etland Hydrology Indicators:	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Vernal Pools (F9) Sandy Gleyed Matrix (S4)  estrictive Layer (if present):  Type: Depth (inches): emarks:  /DROLOGY //etland Hydrology Indicators:	wetland hydrology must be present, unless disturbed or problematic.
Sandy Mucky Mineral (S1) Vernal Pools (F9) Sandy Gleyed Matrix (S4)  estrictive Layer (if present):  Type: Depth (inches): emarks:  /DROLOGY //etland Hydrology Indicators:	wetland hydrology must be present, unless disturbed or problematic.
Sandy Gleyed Matrix (S4)  estrictive Layer (if present):  Type:  Depth (inches):  emarks:  /DROLOGY /etland Hydrology Indicators:	unless disturbed or problematic.
restrictive Layer (if present): Type: Depth (inches): emarks:  /DROLOGY /etland Hydrology Indicators:	·
Type: Depth (inches):  demarks:   TDROLOGY  Vetland Hydrology Indicators:	Hydric Soil Present? Yes <u>√</u> No
Depth (inches):  demarks:  YDROLOGY  Vetland Hydrology Indicators:	Hydric Soil Present? Yes <u>√</u> No
YDROLOGY Vetland Hydrology Indicators:	Hydric Soil Present? Yes ✓ No
/DROLOGY /etland Hydrology Indicators:	
Vetland Hydrology Indicators:	
	Consider the displace (On a record required)
rimary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
Surface Water (A1) Salt Crust (B11)	Water Marks (B1) (Riverine)
High Water Table (A2) Biotic Crust (B12)	Sediment Deposits (B2) (Riverine)
Saturation (A3) Aquatic Invertebrates (B13)	Drift Deposits (B3) (Riverine)
Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
	Roots (C3) Dry-Season Water Table (C2)
<ul> <li>Drift Deposits (B3) (Nonriverine)</li> <li>Surface Soil Cracks (B6)</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Soils (</li> </ul>	Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (
Surface Soil Cracks (B0) Recent from Reduction in Tilled Soils ( Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	FAC-Neutral Test (D5)
Field Observations:	1 AC-Neutral Test (D3)
	Wedlered Hedrele von Brosser (O. Veren (
Saturation Present? Yes No Depth (inches): Writingly (includes capillary fringe)	Vetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection	ns), if available:
Remarks:	
vater-matted mulch	

Project/Site: 9120 Old Redwood Highway	c	City/County:	Windsor,	Sonoma Count	y Samp	oling Date: <u>/</u>	April 23, 2018
Applicant/Owner: Redwood Oil Company				State:(	CA Samp	oling Point: _	13
Investigator(s): T. Winfield		Section, To	wnship, Rar	nge:			
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relief	(concave, c	convex, none): sli	ghtly concav	<u>/e</u> Slop	oe (%): <1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.810	)891°	Datun	n: WSG 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent				-			
Are climatic / hydrologic conditions on the site typical for this ti							
Are Vegetation, Soil, or Hydrology sign	-			Normal Circumsta			No
Are Vegetation, Soil, or Hydrology nati				eded, explain any			
SUMMARY OF FINDINGS – Attach site map sh			,			,	atures, etc.
Hydrophytic Vegetation Present? Yes No _	<b>√</b>						
Hydric Soil Present? Yes No _			e Sampled		s	Na ./	
Wetland Hydrology Present? Yes No _	_	With	in a Wetlan	ia? Ye	s	NO <u>v</u>	
Remarks:		•					
VEGETATION – Use scientific names of plants							
		Dominant	Indicator	Dominance Tes	st worksheet:	<u> </u>	
		Species?		Number of Domi			
1				That Are OBL, F	ACW, or FAC	D: <u>0</u>	(A)
2				Total Number of		2	(5)
3				Species Across	Ali Strata:		(B)
		= Total Co		Percent of Domi That Are OBL, F			(A/R)
Herb Stratum (Plot size: 1m^2)							(A/b)
1. Briza maxima		X		Prevalence Ind			. t
2. Avena barbata		X		Total % Cov			-
Festuca bromoides     Plantago lanceolata				OBL species FACW species			
5. Vicia sativa				FAC species			
		= Total Co		FACU species			
Herb Stratum (Plot size:)				UPL species			
1				Column Totals:	43	(A)2	<u>211</u> (B)
2				Prevalence	e Index = B/A	. = 4 C	91
3				Hydrophytic Ve			
4.				✓ Dominance	_		
6				✓ Prevalence			
7.					cal Adaptation		
8				data in R Problematio	Remarks or on	•	•
- Wandu Vina Chahum (Dlah sina)	43	= Total Co	ver	Problematic	пушорпушо	vegetation	(Explail)
Woody Vine Stratum (Plot size:) 1				<sup>1</sup> Indicators of hy	dric soil and v	vetland hydro	ology must
2.				be present, unle			
		= Total Co	ver	Hydrophytic			
% Bare Ground in Herb Stratum 57 % Cover of				Vegetation Present?	Yes	No <u>_</u>	/
Remarks:				T TOOCHE.			<u></u>
	~00/ ~-	or					
Absolute cover (Herb Stratum): 20% of 43 =	370 CC	VEI					

Depth	Matrix	•	th needed to docu Red	ox Feature		or commi	ii tile abselle	e of malcators.)
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2		10YR3/3	>5%	С	М	loam	faint mottles
						·		-
		<del></del>		_	-	·		
	· ·			_				
	· ·					· ——	-	
	- ·							
	- ·			_				
¹Type: C=C	Concentration D=F	enletion RM=		S=Covered	d or Coate	ed Sand G	rains <sup>2</sup> L	ocation: PL=Pore Lining, M=Matrix.
			LRRs, unless othe			ou ound o		rs for Problematic Hydric Soils <sup>3</sup> :
Histoso			Sandy Red		•			Muck (A9) (LRR C)
	pipedon (A2)		Stripped M					Muck (A10) ( <b>LRR B</b> )
Black H	listic (A3)		Loamy Mu	cky Minera	l (F1)		Redu	uced Vertic (F18)
	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)			Parent Material (TF2)
	ed Layers (A5) ( <b>LR</b>	RC)	Depleted N	, ,			Othe	r (Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,			
	ed Below Dark Sur		Depleted D				31	f levelor objette versatette or od
	ark Surface (A12) Mucky Mineral (S1		Redox Dep Vernal Poo		F8)			s of hydrophytic vegetation and dhydrology must be present,
	Gleyed Matrix (S4)		vemai Foc	ns (F9)				disturbed or problematic.
	Layer (if present						dilicoo	distarbed of problematic.
	nches):						Hydric So	oil Present? Yes No✓
Remarks:							.,	
faint mo	ttles							
HYDROLO	OGY							
Wetland Hy	drology Indicato	rs:						
Primary Indi	icators (minimum o	of one required	d; check all that app	ly)			Seco	ondary Indicators (2 or more required)
Surface	e Water (A1)		Salt Crus	t (B11)				Water Marks (B1) (Riverine)
High W	ater Table (A2)		Biotic Cru	ıst (B12)				Sediment Deposits (B2) (Riverine)
Saturat	ion (A3)		Aquatic Ir	vertebrate	s (B13)			Drift Deposits (B3) (Riverine)
Water N	Marks (B1) ( <b>Nonri</b> v	verine)	Hydrogen	Sulfide O	dor (C1)			Drainage Patterns (B10)
Sedime	ent Deposits (B2) (I	Nonriverine)	Oxidized	Rhizosphe	res along	Living Ro	ots (C3)	Dry-Season Water Table (C2)
Drift De	eposits (B3) (Nonri	verine)	Presence	of Reduce	ed Iron (C	4)		Crayfish Burrows (C8)
Surface	e Soil Cracks (B6)		Recent Ir	on Reducti	on in Tille	d Soils (C	6)	Saturation Visible on Aerial Imagery (C9)
Inundat	tion Visible on Aeri	al Imagery (B	7) Thin Muc	k Surface (	(C7)		_	Shallow Aquitard (D3)
Water-S	Stained Leaves (B	9)	Other (Ex	plain in Re	emarks)			FAC-Neutral Test (D5)
Field Obse	rvations:							
Surface Wa	ter Present?		No Depth (ir					
Water Table	e Present?	Yes	No Depth (ir	nches):				
Saturation F	pillary fringe)		No Depth (ir					gy Present? Yes No _✓
Describe Re	ecorded Data (Stre	aiii gauge, mo	onitoring well, aerial	priotos, pr	evious ins	spections),	, ii avallable:	
Remarks:								

Project/Site: 9120 Old Redwood Highway		City/County	: Windsor	, Sonoma Count	y Sa	mpling Dat	e: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State: <b>(</b>	CA Sa	mpling Poir	nt:	14
Investigator(s): T. Winfield		Section, To	wnship, Ra	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relie	f (concave,	convex, none): slig	ghtly cond	cave	Slope (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38</u> .	.548790°		_ Long: <u>-122.810</u>	891°	D	atum: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percer	nt slopes			NWI c	lassificatio	n: <u>PEM2</u>		
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys	ignificantly	disturbed?	Are '	"Normal Circumsta	nces" pres	ent? Yes	✓ N	о
Are Vegetation, Soil, or Hydrologyn				eeded, explain any				
SUMMARY OF FINDINGS – Attach site map			g point l	ocations, tran	sects, in	nportant	feature	s, etc.
Hydrophytic Vegetation Present? Yes ✓ N	0	la 4l	a Camania d	1 A				
Hydric Soil Present? Yes <u>✓</u> N	0		ne Sampled nin a Wetlan		· /	No		
Wetland Hydrology Present? Yes✓_ N	0	Witi	iiii a vvetiai	iiu: 16	s	NO		
Remarks:								
VEGETATION – Use scientific names of plan	ts.							
		Dominant	Indicator	Dominance Tes	t workshe	et:		
	% Cover			Number of Domi				
1				That Are OBL, F	ACW, or F	AC:	2	(A)
2				Total Number of			2	<b>(D)</b>
3				Species Across	All Strata:		3	(B)
4		= Total Co		Percent of Domi			67	(A /D)
Herb Stratum (Plot size: 1m^2)		_ rotar oc	7701	That Are OBL, F	ACVV, or F.	AC:	07	(A/B)
1. Festuca perennis			<u>FAC</u>	Prevalence Inde				
2. Cyperus eragrostis		X		Total % Cov				
3. Phalaris aquatica		X		OBL species				
Plantago lanceolata     Festuca bromoides				FACW species FAC species				
5. <u>restuca bioinoldes</u>		= Total Co		FACU species				
Herb Stratum (Plot size:)		_ = Total CC	) v e i	UPL species				_
1. Geranium dissectum	1		NI/UPL	Column Totals:				
2								
3				Prevalence				
4				Hydrophytic Ve  ✓ Dominance	_			
5				Prevalence				
6				Morphologic			ide suppoi	rting
8.				data in R	emarks or	on a separ	ate sheet)	_
		= Total Co	over	Problematic	Hydrophyt	ic Vegetati	on¹ (Expla	in)
Woody Vine Stratum (Plot size:)				1				
1				<sup>1</sup> Indicators of hydbe present, unles				must
2						•		
		= Total Co		Hydrophytic Vegetation				
% Bare Ground in Herb Stratum50	of Biotic C	rust		Present?	Yes	✓ No		
Remarks:								
Absolute cover (Herb Stratum): 20% of 50	= 10% c	over						

(inches)         Color (moist)           0-1.2         10YR4/2	) %	Color (moist)	ox Feature: %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-1.2 1011/4/2		10YR3/4		C	M	loam	Nomento			
	<del></del>	10113/4			IVI	<u> 10a111</u>				
Type: C=Concentration, D=[ Hydric Soil Indicators: (App					ed Sand Gr		ion: PL=Pore Lining, M=Matrix.  r Problematic Hydric Soils <sup>3</sup> :			
	plicable to all i	•		eu.)			•			
Histosol (A1) Histic Epipedon (A2)		Sandy Red Stripped M					ck (A9) ( <b>LRR C</b> ) ck (A10) ( <b>LRR B</b> )			
Black Histic (A3)		Loamy Mu		I (F1)						
Hydrogen Sulfide (A4)		Loamy Gle	-			Reduced Vertic (F18) Red Parent Material (TF2)				
Stratified Layers (A5) ( <b>LR</b>	RR C)			kplain in Remarks)						
1 cm Muck (A9) ( <b>LRR D</b> )				,						
Depleted Below Dark Sur			3							
Thick Dark Surface (A12)	)	Redox Dep	oressions (I	F8)			hydrophytic vegetation and			
Sandy Mucky Mineral (S1		Vernal Poo	ols (F9)				drology must be present,			
Sandy Gleyed Matrix (S4	•					unless dist	urbed or problematic.			
Restrictive Layer (if present										
Type:										
Depth (inches):						Hydric Soil Pr	resent? Yes <u>√</u> No			
YDROLOGY										
Wetland Hydrology Indicato	ors:									
Primary Indicators (minimum	of one required	; check all that app	ly)			Seconda	ary Indicators (2 or more required)			
Surface Water (A1)		Salt Crus	t (B11)			Wat	M I (D4) (D1 I )			
		Biotic Cru	-+ (D40)				er Marks (B1) ( <b>Riverine</b> )			
High Water Table (A2)			IST (B12)				er Marks (B1) (Riverine) iment Deposits (B2) (Riverine)			
High Water Table (A2) Saturation (A3)		Aquatic Ir		s (B13)		Sed				
Saturation (A3) Water Marks (B1) ( <b>Nonri</b>		Aquatic Ir Hydrogen	nvertebrate Sulfide Od	dor (C1)		Sed Drift Drai	iment Deposits (B2) ( <b>Riverine</b> ) Deposits (B3) ( <b>Riverine</b> ) nage Patterns (B10)			
Saturation (A3)		Aquatic Ir Hydrogen Oxidized	nvertebrate Sulfide Oo Rhizosphe	dor (C1) res along	_	Sed Drift Drai ots (C3) Dry-	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr	(Nonriverine)	Aquatic Ir Hydrogen Oxidized Presence	nvertebrate Sulfide Oo Rhizosphe of Reduce	dor (C1) res along ed Iron (C4	1)	Sed Drift Drai ots (C3) Dry- Cra	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6)	(Nonriverine)	Aquatic Ir Hydrogen Oxidized Presence Recent Iron	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Tille	1)	Sed Drift Drai ots (C3) Dry Cray s) Satu	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9)			
Saturation (A3)  Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Iro ) Thin Muc	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction k Surface (	dor (C1) res along ed Iron (C4 on in Tille C7)	1)	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Iron	nvertebrate Sulfide Od Rhizosphe of Reduce on Reduction k Surface (	dor (C1) res along ed Iron (C4 on in Tille C7)	1)	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B	(Nonriverine) riverine) rial Imagery (B7	Aquatic Ir Hydrogen Oxidized Presence Recent Ir Thin Muc	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re	dor (C1) res along d Iron (C4 on in Tille C7) emarks)	t) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present?	(Nonriverine) riverine) rial Imagery (B7	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Muci _ ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( pplain in Re	dor (C1) res along d Iron (C4 on in Tille C7) emarks)	t) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray Sol Satu Sha	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present?	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reduction k Surface ( plain in Re anches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu Sha FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present?	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Muci _ ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reduction k Surface ( plain in Re anches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu Sha FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) rish Burrows (C8) uration Visible on Aerial Imagery (C9 Illow Aquitard (D3)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institution Visible on Aerial Imagery (C9) Illow Aquitard (D3) C-Neutral Test (D5)			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institute of the season Water Table (C2) Institute of the season Water Table (C3) Institute of the season Water Table (C3) Institute of the season Water (C4) Ins			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institute of the season Water Table (C2) Institute of the season Water Table (C3) Institute of the season Water Table (C3) Institute of the season Water (C4) Ins			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institute of the season Water Table (C2) Institute of the season Water Table (C3) Institute of the season Water Table (C3) Institute of the season Water (C4) Ins			
Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2) ( Drift Deposits (B3) (Nonr Surface Soil Cracks (B6) Inundation Visible on Aer Water-Stained Leaves (B Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streen	(Nonriverine) riverine) rial Imagery (B789)  Yes N Yes N Yes N	— Aquatic Ir — Hydrogen — Oxidized — Presence — Recent Ir ) — Thin Mucl ✓ Other (Ex	nvertebrate  Sulfide Oc Rhizosphe of Reduce on Reducti k Surface ( plain in Re  nches): nches): nches):	dor (C1) res along ed Iron (C4 on in Tille C7) emarks)	4) d Soils (C6	Sed Drift Drai ots (C3) Dry- Cray S) Satu FAC	iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Institute of the season Water Table (C2) Institute of the season Water Table (C3) Institute of the season Water Table (C3) Institute of the season Water (C4) Ins			

Project/Site: 9120 Old Redwood Highway		City/Coun	nty: Windsor	, Sonoma Count	∨ Sam	pling Date	e: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sam	pling Poir	nt:	15
Investigator(s): T. Winfield		Section, 7	Township, Ra	nge:				
Landform (hillslope, terrace, etc.): low terrace								
Subregion (LRR): Mediterranean California (LRR C)	Lat: _38.	.548790	0	Long: -122.810	891°	Da	atum: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percei				_				
Are climatic / hydrologic conditions on the site typical for thi								
Are Vegetation, Soil, or Hydrologys	-			Normal Circumsta			✓ N	0
Are Vegetation, Soil, or Hydrology r								
SUMMARY OF FINDINGS – Attach site map								s, etc.
Hydrophytic Vegetation Present? Yes N	In ✓							
Hydric Soil Present? Yes N			the Sampled		S	No.	,	
Wetland Hydrology Present? Yes N	lo <u>√</u>	l wi	thin a Wetlar	10? Yes	·	NO V		
Remarks:								
VEGETATION – Use scientific names of plan	ıts.							
T 01 1 (D11)			nt Indicator	Dominance Tes	t worksheet	t:		
Tree Stratum (Plot size:)			Status	Number of Domi			1	<b>(A)</b>
1 2				That Are OBL, F	ACVV, OI FAI	C	1	(A)
3.				Total Number of Species Across			2	(B)
4.						-		(D)
Herb Stratum (Plot size: 1m^2)				Percent of Domin			50	(A/B)
1. Briza maxima	25	Χ	NI/UPL	Prevalence Inde	ex workshee	et:		
2. Plantago lanceolata			FAC	Total % Cov	er of:	Mul	tiply by:	
3. Festuca perennis			FAC	OBL species		x 1 = _	0	
4. Phalaris aquatica	2		FACU	FACW species				
5. <u>Vicia sativa</u>	2		FACU	FAC species				_
Harb Chrohine (Dich sine)		= Total C	Cover	FACU species				_
Herb Stratum (Plot size:)  1. Festuca bromoides	1		FACU	UPL species				
Geranium dissectum				Column Totals:	60	(A)	235	_ (B)
3				Prevalence	Index = B/	A =	3.92	
4				Hydrophytic Ve	getation Inc	dicators:		
5				Dominance	Test is >50%	6		
6.				Prevalence	Index is ≤3.0	)1		
7				Morphologic				
8				Problematic	emarks or or		,	
Manda Vina Chartura (Diet sing)	60	= Total C	Cover	Floblematic	Пушторпушс	vegetatio	лі (шхріа	111)
Woody Vine Stratum (Plot size:)				<sup>1</sup> Indicators of hyd	dric soil and	wetland h	ıvdroloav ı	must
1				be present, unles				Tidot
2.			Cover	Hydrophytic				
0/ Bara Crawad in Harb Chrahum 40 0/ Cava		•		Vegetation	Vaa	Na	,	
% Bare Ground in Herb Stratum 40 % Cove	O BIOTIC C	านธเ		Present?	1 05	No		
Remarks:								
Absolute cover (Herb Stratum): 20% of 60	) = 12% c	over						

Depth	Matrix	(	oth needed to docu Red	ox Feature	s			·			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-1.2	10YR4/2		10YR3/3	>5%	<u>C</u>	M	loam	faint mottles			
	-										
	-										
				_	-						
1											
			=Reduced Matrix, C LRRs, unless other			ed Sand G		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :			
Histosol		ilicable to all	Sandy Red		eu.)			Muck (A9) (LRR C)			
	pipedon (A2)		Stripped M					Muck (A9) ( <b>LRR B</b> )			
	istic (A3)		Loamy Mu		ıl (F1)			ced Vertic (F18)			
	en Sulfide (A4)				arent Material (TF2)						
Stratifie	d Layers (A5) ( <b>LR</b>	R C)	Other	(Explain in Remarks)							
	uck (A9) ( <b>LRR D</b> )										
	d Below Dark Sur	face (A11)	Depleted D		. ,		3Indicators of hydrophytic vogotation and				
	ark Surface (A12) Mucky Mineral (S1	)	Redox Dep Vernal Poo		F8)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,				
	Gleyed Matrix (S4)	•	vernari oc		unless disturbed or problematic.						
	Layer (if present							·			
Type:											
Depth (in	ches):				Hydric Soi	Present? Yes No <u>√</u>					
Remarks:											
faint mot	.ties										
HYDROLO	GY										
Wetland Hy	drology Indicato	rs:									
Primary Indi	cators (minimum o	of one require	d; check all that app	ly)			Seco	ndary Indicators (2 or more required)			
	Water (A1)		Salt Crus	` '				Vater Marks (B1) (Riverine)			
	ater Table (A2)		Biotic Cru					Sediment Deposits (B2) (Riverine)			
Saturati	, ,		Aquatic Ir				<del></del>	Orift Deposits (B3) (Riverine)			
	Marks (B1) (Nonri		Hydrogen			5		Orainage Patterns (B10)			
	nt Deposits (B2) (N				_	_		Ory-Season Water Table (C2)			
	posits (B3) (Nonri	verine)	Presence		`	,	·	Crayfish Burrows (C8)			
	Soil Cracks (B6) on Visible on Aeri	al Imagon, (E		on Reducti k Surface (		u Solis (C		Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)			
	Stained Leaves (B			plain in Re	` ′			FAC-Neutral Test (D5)			
Field Obser		<i>-</i>	Other (EX	piairi	marko)		<u> </u>	7.0 1404.4.1 1001 (20)			
Surface Wat		Yes	No Depth (ir	rches).							
Water Table			No Depth (ir			1					
Saturation P			No Depth (ir				land Hydrolog	y Present? Yes No _✓_			
	pillary fringe)	165	No Deptil (ii	iches)		_   wet	ianu nyurolog	y Fresent: TesNO			
Describe Re	corded Data (stre	am gauge, m	onitoring well, aerial	photos, pr	evious ins	spections),	if available:				
Remarks:											

Project/Site: 9120 Old Redwood Highway	(	City/County:	Windsor,	Sonoma Count	<u>у</u> Samp	oling Date:	April 2	3, 2018
Applicant/Owner: Redwood Oil Company				State:(	CA Samp	oling Point:	1	.6
Investigator(s): T. Winfield	<	Section, To	wnship, Rar	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relief	(concave, c	convex, none): sli	ghtly concav	<u>ve</u> Slo	ope (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.810	)891°	Datu	um: WS0	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent				-				
Are climatic / hydrologic conditions on the site typical for this t			,					
Are Vegetation, Soil, or Hydrologysig	-			Normal Circumsta			✓ No	)
Are Vegetation, Soil, or Hydrology nat				eded, explain any				
SUMMARY OF FINDINGS – Attach site map sl			•			,	eatures	s, etc.
Hydrophytic Vegetation Present? Yes ✓ No								
Hydric Soil Present? Yes No			e Sampled			/		
Wetland Hydrology Present? Yes No		With	in a Wetlan	ia? Ye	s	NO <u>v</u>	-	
Remarks:		•						
VEGETATION – Use scientific names of plants								
<u> </u>		Dominant	Indicator	Dominance Tes	st worksheet	:		
		Species?		Number of Domi				
1				That Are OBL, F	ACW, or FAC	): <u> </u>	2	(A)
2				Total Number of			_	
3				Species Across	All Strata:	;	3	(B)
4		= Total Cov		Percent of Domi				
Herb Stratum (Plot size: 1m^2)		- Total Co	vei	That Are OBL, F	ACW, or FAC	): <u> </u>	)/	(A/B)
1. Anthoxanthum aristatum		X	NI/UPL	Prevalence Inde				
2. Plantago lanceolata		X		Total % Cov	ver of:	Multip	ly by:	_
3. <u>Festuca perennis</u>		X		OBL species				
4. Vicia sativa				FACW species				
5. Bromus hordeaceus				FAC species FACU species				_
Herb Stratum (Plot size:)		= Total Cov	ver	UPL species				_
1. Rubus armeniacus	1		FAC	Column Totals:			216	– (B)
2								_ ` ′
3					e Index = B/A		.92	
4				Hydrophytic Ve	_			
5				✓ Dominance				
6				Prevalence	index is ≤3.0° cal Adaptation		aupport	tina
7					tai Adaptation Remarks or on			.irig
8		= Total Cov		Problematic	Hydrophytic	Vegetation	1 (Explain	n)
Woody Vine Stratum (Plot size:)		= Total Co	vei					
1				<sup>1</sup> Indicators of hy				nust
2				be present, unle	ss disturbed t	or problema	JUC.	
-		= Total Co	ver	Hydrophytic Vegetation				
% Bare Ground in Herb Stratum	of Biotic Cr	ust		Present?	Yes <u>√</u>	No _		
Remarks:				<u> </u>				
Absolute cover (Herb Stratum): 20% of 58 =	· ~12% (	cover						
	_,,,							

Depth	Matrix	(	oth needed to docu Red	ox Feature	s			·			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-1.2	10YR4/2		10YR3/3	>5%	<u>C</u>	M	loam	faint mottles			
	-										
	-										
				_	-						
1											
			=Reduced Matrix, C LRRs, unless other			ed Sand G		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :			
Histosol		ilicable to all	Sandy Red		eu.)			Muck (A9) (LRR C)			
	pipedon (A2)		Stripped M					Muck (A9) ( <b>LRR B</b> )			
	istic (A3)		Loamy Mu		ıl (F1)			ced Vertic (F18)			
	en Sulfide (A4)				arent Material (TF2)						
Stratifie	d Layers (A5) ( <b>LR</b>	R C)	Other	(Explain in Remarks)							
	uck (A9) ( <b>LRR D</b> )										
	d Below Dark Sur	face (A11)	Depleted D		. ,		3Indicators of hydrophytic vogotation and				
	ark Surface (A12) Mucky Mineral (S1	)	Redox Dep Vernal Poo		F8)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,				
	Gleyed Matrix (S4)	•	vernari oc		unless disturbed or problematic.						
	Layer (if present							·			
Type:											
Depth (in	ches):				Hydric Soi	Present? Yes No <u>√</u>					
Remarks:											
faint mot	.ties										
HYDROLO	GY										
Wetland Hy	drology Indicato	rs:									
Primary Indi	cators (minimum o	of one require	d; check all that app	ly)			Seco	ndary Indicators (2 or more required)			
	Water (A1)		Salt Crus	` '				Vater Marks (B1) (Riverine)			
	ater Table (A2)		Biotic Cru					Sediment Deposits (B2) (Riverine)			
Saturati	, ,		Aquatic Ir				<del></del>	Orift Deposits (B3) (Riverine)			
	Marks (B1) (Nonri		Hydrogen			5		Orainage Patterns (B10)			
	nt Deposits (B2) (N				_	_		Ory-Season Water Table (C2)			
	posits (B3) (Nonri	verine)	Presence		`	,	·	Crayfish Burrows (C8)			
	Soil Cracks (B6) on Visible on Aeri	al Imagon, (E		on Reducti k Surface (		u Solis (C		Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)			
	Stained Leaves (B			plain in Re	` ′			FAC-Neutral Test (D5)			
Field Obser		<i>-</i>	Other (EX	piairi	marko)		<u> </u>	7.0 1404.4.1 1001 (20)			
Surface Wat		Yes	No Depth (ir	rches).							
Water Table			No Depth (ir			1					
Saturation P			No Depth (ir				land Hydrolog	y Present? Yes No _✓_			
	pillary fringe)	165	No Deptil (ii	iches)		_   wet	ianu nyurolog	y Fresent: TesNO			
Describe Re	corded Data (stre	am gauge, m	onitoring well, aerial	photos, pr	evious ins	spections),	if available:				
Remarks:											

Project/Site: 9120 Old Redwood Highway	(	City/County	: Windsor	, Sonoma Count	y Sa	mpling Dat	e: April 2	23, 2018
Applicant/Owner: Redwood Oil Company				State: <b>(</b>	CA Sai	mpling Poi	nt:	17
Investigator(s): T. Winfield		Section, To	wnship, Ra	nge:				
Landform (hillslope, terrace, etc.): <u>low terrace</u>		Local relie	f (concave,	convex, none): slig	ghtly cond	cave	Slope (%):	<1%
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38</u> .	.548790°		_ Long: <u>-122.810</u>	891°	D	atum: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percer	nt slopes			NWI c	lassification	n: <u>PEM2</u>		
Are climatic / hydrologic conditions on the site typical for this								
Are Vegetation, Soil, or Hydrologys	ignificantly	disturbed?	Are '	"Normal Circumsta	nces" prese	ent? Yes	N	0
Are Vegetation, Soil, or Hydrologyn				eeded, explain any				
SUMMARY OF FINDINGS – Attach site map			g point l	ocations, tran	sects, in	nportant	feature	s, etc.
Hydrophytic Vegetation Present? Yes N	o <u> </u>	le th	ne Sampled	Ι Δτοα				
Hydric Soil Present? Yes N	_		in a Wetlai		s	No √	,	
Wetland Hydrology Present? Yes N	∘ _ ✓							
Remarks:								
VEGETATION – Use scientific names of plan	ts.							
-		Dominant		Dominance Tes	t workshe	et:		
Tree Stratum (Plot size:)	% Cover			Number of Domi				
1				That Are OBL, F	ACW, or F	AC:	1	(A)
2				Total Number of			4	(D)
4				Species Across	Ali Stiata.			(D)
		= Total Co		Percent of Domi			25	(A/R)
Herb Stratum (Plot size: 1m^2)								(700)
1. Avena barbata			NI/UPL	Prevalence Inde			Him by by m	
2. Bromus hordeaceus	4-		FACU	Total % Cov				
Festuca perennis     Anthoxanthum aristatum		X	NI/UPL	OBL species FACW species				
Antioxantium anstatum     Phalaris aquatica				FAC species				
o		= Total Co		FACU species				
Herb Stratum (Plot size:)		•		UPL species				_
1				Column Totals:	80	_ (A) _	345	(B)
2				Prevalence	Indox = E	2// -	/I 31	
3				Hydrophytic Ve				
4				Dominance	_			
6				Prevalence				
7.				Morphologic	al Adaptati	ions¹ (Prov		
8.					emarks or		,	
		= Total Co	over	Problematic	Hydrophyt	ic Vegetati	on (Expla	ıın)
Woody Vine Stratum (Plot size:)				<sup>1</sup> Indicators of hyd	dric soil and	d wetland h	avdrology i	muet
1				be present, unle				iliust
2		= Total Co		Hydrophytic				
20 00		-		Vegetation	.,		,	
% Bare Ground in Herb Stratum 20 % Cover	of Biotic Ci	rust		Present?	Yes	No		
Remarks:								
Absolute cover (Herb Stratum): 20% of 80	= 16% c	over						

Depth	Matrix	•	th needed to docu Red	ox Feature		or commi	ii tile abselle	e of malcators.)
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-1.2	10YR4/2		10YR3/3	>5%	С	М	loam	faint mottles
						·		-
		<del></del>		_	-	·		
	· ·			_				
	· ·					· ——	-	
	- ·							
	- ·			_				
¹Type: C=C	Concentration D=F	enletion RM=		S=Covered	d or Coate	ed Sand G	rains <sup>2</sup> L	ocation: PL=Pore Lining, M=Matrix.
			LRRs, unless othe			ou ound o		rs for Problematic Hydric Soils <sup>3</sup> :
Histoso			Sandy Red		•			Muck (A9) (LRR C)
	pipedon (A2)		Stripped M					Muck (A10) ( <b>LRR B</b> )
Black H	listic (A3)		Loamy Mu	cky Minera	l (F1)		Redu	uced Vertic (F18)
	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)			Parent Material (TF2)
	ed Layers (A5) ( <b>LR</b>	RC)	Depleted N	, ,			Othe	r (Explain in Remarks)
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,			
	ed Below Dark Sur		Depleted D				31	f levelor objette versatette or od
	ark Surface (A12) Mucky Mineral (S1		Redox Dep Vernal Poo		F8)			s of hydrophytic vegetation and dhydrology must be present,
	Gleyed Matrix (S4)		vemai Foc	ns (F9)				disturbed or problematic.
	Layer (if present						dilicoo	distarbed of problematic.
	nches):						Hydric So	oil Present? Yes No✓
Remarks:							.,	
faint mo	ttles							
HYDROLO	OGY							
Wetland Hy	drology Indicato	rs:						
Primary Indi	icators (minimum o	of one required	d; check all that app	ly)			Seco	ondary Indicators (2 or more required)
Surface	e Water (A1)		Salt Crus	t (B11)				Water Marks (B1) (Riverine)
High W	ater Table (A2)		Biotic Cru	ıst (B12)				Sediment Deposits (B2) (Riverine)
Saturat	ion (A3)		Aquatic Ir	vertebrate	s (B13)			Drift Deposits (B3) (Riverine)
Water N	Marks (B1) ( <b>Nonri</b> v	verine)	Hydrogen	Sulfide O	dor (C1)			Drainage Patterns (B10)
Sedime	ent Deposits (B2) (I	Nonriverine)	Oxidized	Rhizosphe	res along	Living Ro	ots (C3)	Dry-Season Water Table (C2)
Drift De	eposits (B3) (Nonri	verine)	Presence	of Reduce	ed Iron (C	4)		Crayfish Burrows (C8)
Surface	e Soil Cracks (B6)		Recent Ir	on Reducti	on in Tille	d Soils (C	6)	Saturation Visible on Aerial Imagery (C9)
Inundat	tion Visible on Aeri	al Imagery (B	7) Thin Muc	k Surface (	(C7)		_	Shallow Aquitard (D3)
Water-S	Stained Leaves (B	9)	Other (Ex	plain in Re	emarks)			FAC-Neutral Test (D5)
Field Obse	rvations:							
Surface Wa	ter Present?		No Depth (ir					
Water Table	e Present?	Yes	No Depth (ir	nches):				
Saturation F	pillary fringe)		No Depth (ir					gy Present? Yes No _✓
Describe Re	ecorded Data (Stre	aiii gauge, mo	onitoring well, aerial	priotos, pr	evious ins	spections),	, ii avallable:	
Remarks:								

Project/Site: 9120 Old Redwood Highway	(	City/County	: Windsor	, Sonoma Count	y Samp	oling Date:	April 2	3, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Samp	oling Point:	1	.8
Investigator(s): T. Winfield	;	Section, To	wnship, Rar	nge:				
Landform (hillslope, terrace, etc.): low terrace								
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.810	)891°	Dat	um: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent								
Are climatic / hydrologic conditions on the site typical for this ti			_					
Are Vegetation, Soil, or Hydrology sig	-			Normal Circumsta			✓ No	o
Are Vegetation, Soil, or Hydrology nat								
SUMMARY OF FINDINGS - Attach site map sh							eatures	s, etc.
Hydrophytic Vegetation Present? Yes No _	<b>√</b>							
Hydric Soil Present? Yes No			e Sampled in a Wetlan		s I	No 🗸		
Wetland Hydrology Present? Yes No	✓	WILLI	iii a vvetiaii	iu: ie:	s ·	NO	_	
Remarks:								
VEGETATION – Use scientific names of plants								
		Dominant	Indicator	Dominance Tes	t worksheet			
		Species?		Number of Domi				
1				That Are OBL, F			0	(A)
2				Total Number of	Dominant			
3				Species Across	All Strata:		2	(B)
4				Percent of Domi			_	
Herb Stratum (Plot size: 1m^2)		= Total Co	ver	That Are OBL, F	ACW, or FAC	):	0	(A/B)
1. Bromus hordeaceus	30	X	FACU	Prevalence Inde	ex worksheet	t:		
2. Anthoxanthum aristatum	20	X	NI/UPL	Total % Cov	ver of:	Multip	oly by:	_
3. <u>Festuca perennis</u>				OBL species				
4. Briza maxima				FACW species				
5. <u>Danthonia californica</u>				FAC species				_
Herb Stratum (Plot size:)		= Total Co	ver	FACU species UPL species				_
1. Avena barbata	2		NI/UPL	Column Totals:		(A)	334	– (B)
2				Coldinii Fotalo.		(,,)		_ (5)
3					e Index = B/A		.18	_
4				Hydrophytic Ve	_			
5				Dominance				
6				Prevalence Morphologic			a cunnorí	tina
7					Remarks or on			ung
8		= Total Co		Problematic	Hydrophytic \	Vegetation	¹ (Explai	n)
Woody Vine Stratum (Plot size:)		- 10(a) 00	VCI					
1				<sup>1</sup> Indicators of hydbe present, unle				nust
2				•		л ргоыетт		
-		= Total Co	ver	Hydrophytic Vegetation				
% Bare Ground in Herb Stratum 20	f Biotic Cr	rust		Present?	Yes	No _	✓	
Remarks:				I				
Absolute cover (Herb Stratum): 20% of 80 =	: 16% co	over						
,								

Depth	Matrix	Χ	oth needed to docu Red	ox Feature	s			·			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-1.2	10YR4/2		10YR3/3	>5%	<u>C</u>	M	loam	faint mottles			
	-										
	•										
	-										
				_		-		<del></del>			
	-										
			=Reduced Matrix, C LRRs, unless other			ed Sand G		cation: PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :			
•		nicable to all			eu.)			•			
Histosol	pipedon (A2)		Sandy Red Stripped M					Muck (A9) ( <b>LRR C</b> ) Muck (A10) ( <b>LRR B</b> )			
	istic (A3)		Suipped M		d (F1)			ced Vertic (F18)			
	en Sulfide (A4)		Loamy Gle	-				Parent Material (TF2)			
	d Layers (A5) ( <b>LR</b>	(RC)	Depleted N	-	()		Other (Explain in Remarks)				
	uck (A9) ( <b>LRR D</b> )	,	Redox Dar		(F6)			,			
Deplete	d Below Dark Sur	face (A11)	Depleted D	ark Surfac	ce (F7)						
	ark Surface (A12)		Redox Dep		F8)		<sup>3</sup> Indicators of hydrophytic vegetation and				
	Mucky Mineral (S1	•	Vernal Poo	ols (F9)				hydrology must be present,			
-	Gleyed Matrix (S4						unless o	disturbed or problematic.			
	Layer (if present	•									
· · ·	-1						Usadais Osii	I Durana Maria			
	iches):						Hydric Soil	I Present? Yes No✓			
Remarks:											
faint mot	ttles										
HYDROLO	GY										
Wetland Hy	drology Indicato	rs:									
Primary Indi	cators (minimum o	of one require	ed; check all that app	ly)			Seco	ndary Indicators (2 or more required)			
Surface	Water (A1)		Salt Crus	t (B11)			Water Marks (B1) (Riverine)				
High Wa	ater Table (A2)		Biotic Cru	ıst (B12)			8	Sediment Deposits (B2) (Riverine)			
Saturati	on (A3)		Aquatic Ir	nvertebrate	es (B13)		Drift Deposits (B3) (Riverine)				
Water N	Marks (B1) (Nonri	verine)	Hydrogen	Sulfide O	dor (C1)		[	Orainage Patterns (B10)			
Sedime	nt Deposits (B2) (	Nonriverine)	Oxidized	Rhizosphe	res along	Living Ro	ots (C3) [	Ory-Season Water Table (C2)			
Drift De	posits (B3) (Nonri	iverine)	Presence	of Reduce	ed Iron (C	4)	0	Crayfish Burrows (C8)			
Surface	Soil Cracks (B6)		Recent Ire	on Reducti	on in Tille	d Soils (C	6) 8	Saturation Visible on Aerial Imagery (C9)			
Inundati	ion Visible on Aer	ial Imagery (E	37) Thin Muc	k Surface (	(C7)		8	Shallow Aquitard (D3)			
Water-S	Stained Leaves (B	9)	Other (Ex	plain in Re	emarks)		F	FAC-Neutral Test (D5)			
Field Obser	rvations:										
Surface Wat	ter Present?	Yes	No Depth (ir	nches):							
Water Table	Present?	Yes	No Depth (ir	nches):							
Saturation P	Present?	Yes	No Depth (ir	nches):		Wet	land Hydrolog	y Present? Yes No _✓			
(includes ca	pillary fringe)		9 1 11 11								
Describe Re	ecorded Data (stre	am gauge, m	onitoring well, aerial	photos, pr	evious ins	spections),	if available:				
Remarks:											

Project/Site: 9120 Old Redwood Highway	(	City/County:	Windsor	, Sonoma County	y Sampli	ing Date: Apri	l 23, 2018
Applicant/Owner: Redwood Oil Company				State:	CA Sampli	ng Point:	19
Investigator(s): T. Winfield	;	Section, Tov	wnship, Ra	nge:			
Landform (hillslope, terrace, etc.): low terrace							
Subregion (LRR): Mediterranean California (LRR C)	Lat: <u>38.</u>	548790°		Long: -122.810	891°	Datum: V	VSG 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent							
Are climatic / hydrologic conditions on the site typical for this ti							
Are Vegetation, Soil, or Hydrology sign	-			Normal Circumstar			No
Are Vegetation, Soil, or Hydrology nat							
SUMMARY OF FINDINGS - Attach site map sh	nowing	sampling	g point l	ocations, trans	sects, impo	ortant featu	res, etc.
Hydrophytic Vegetation Present? Yes✓ No _							
Hydric Soil Present? Yes   ✓ No			e Sampled		s <b>√</b> No	_	
Wetland Hydrology Present? Yes   ✓ No		With	in a Wetlar	ia? Yes	3 <u>▼</u> No	٥	
Remarks:		'					
VECTATION Has a significant and a full interest							
VEGETATION – Use scientific names of plants							
		Dominant Species?		Dominance Tes			
1				Number of Domin		2	(A)
2				Total Number of			_ , ,
3				Species Across A		2	(B)
4				Percent of Domir	nant Species		
Herb Stratum (Plot size: 1m^2 )		= Total Co	ver	That Are OBL, F		100	(A/B)
(1 lot 3/20)	30	X	EAC\\\	Prevalence Inde	ax worksheet		
Juncus tenuis     Festuca perennis		X				Multiply by:	
3. Briza maxima				OBL species			
4. Vicia sativa				FACW species			<u> </u>
5				FAC species	30	x 3 = <u>90</u>	
		= Total Co	ver	FACU species			
Herb Stratum (Plot size:)				UPL species			
1				Column Totals:	<u>72</u> (	(A) <u>208</u>	(B)
2				Prevalence	e Index = B/A =	= 2.89	
4				Hydrophytic Ve			<del></del>
5				✓ Dominance	_		
6.				✓ Prevalence I	Index is ≤3.0 <sup>1</sup>		
7				Morphologic			
8						a separate shee	•
	72	= Total Co	ver	Problematic	Hydropnytic V	egetation (Exp	ilain)
Woody Vine Stratum (Plot size:)				<sup>1</sup> Indicators of hyd	dric soil and we	atland hydrolog	v muet
1				be present, unles			y must
2		= Total Cov	/er	Hydrophytic			
_		•		Vegetation			
% Bare Ground in Herb Stratum 28	f Biotic Cr	rust		Present?	Yes <u>√</u>	No	
Remarks:							
Absolute cover (Herb Stratum): 20% of 72 =	~14%	cover					

Depth	Matrix			ment the i	S		ii uie abseiice	or murcators.)			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-1.2	10YR4/1+		10YR3/4	>5%	С	M	loam				
	-		-	_	-						
	-		-	_		-					
<sup>1</sup> Type: C=C	oncentration. D=De	pletion. RM	=Reduced Matrix, C	S=Covered	d or Coate	ed Sand G	rains. <sup>2</sup> Loc	eation: PL=Pore Lining, M=Matrix.			
			LRRs, unless other					for Problematic Hydric Soils <sup>3</sup> :			
Histosol	(A1)		Sandy Red	lox (S5)			1 cm N	fluck (A9) ( <b>LRR C</b> )			
Histic E	pipedon (A2)		Stripped M					fluck (A10) (LRR B)			
Black H	istic (A3)		Loamy Mu	cky Minera	l (F1)		Reduc	ed Vertic (F18)			
Hydroge	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)		Red Pa	arent Material (TF2)			
· <del></del>	d Layers (A5) ( <b>LRR</b>	( C)	✓ Depleted N				Other (	Explain in Remarks)			
	uck (A9) ( <b>LRR D</b> )		Redox Dar		. ,						
	d Below Dark Surfa	ice (A11)	Depleted D				31	of level and built a very station and			
_	ark Surface (A12)  Mucky Mineral (S1)		Redox Dep Vernal Poo		F8)			of hydrophytic vegetation and hydrology must be present,			
-	Gleyed Matrix (S4)		veillai Poc	ns (F9)				isturbed or problematic.			
-	Layer (if present):						1	otarboa or problematic.			
	, , ,										
· · ·	ches):						Hydric Soil	Present? Yes √ No			
Remarks:	onoo)						11,411.0 00.11	- 1000iiii			
rtemanto.											
HYDROLO	ACV										
_	drology Indicators		d. abaal, all that as	1			0	dom la dioatore (O on more no minod)			
	-	one require	d; check all that app				· ·	dary Indicators (2 or more required)			
_	Water (A1)		Salt Crus	,			Water Marks (B1) (Riverine)				
	ater Table (A2)		Biotic Cru		(D.40)			ediment Deposits (B2) (Riverine)			
Saturati	` '		Aquatic Ir		, ,		Drift Deposits (B3) (Riverine)				
	Marks (B1) (Nonrive	•	Hydrogen			Linda a Da		rainage Patterns (B10)			
	nt Deposits (B2) (N				_			ry-Season Water Table (C2)			
	posits (B3) (Nonriv	erine)	Presence					rayfish Burrows (C8)			
	Soil Cracks (B6)	l lassa ara ara (D		on Reducti		a Solis (Ci		aturation Visible on Aerial Imagery (C9)			
	ion Visible on Aeria			k Surface (	,		· · · · · · · · · · · · · · · · · · ·	hallow Aquitard (D3)			
	Stained Leaves (B9)		✓ Other (Ex	piain in Re	emarks)	1		AC-Neutral Test (D5)			
Field Obser		V	No. Double (in								
Surface Wat			No Depth (ir								
Water Table			No Depth (ir					,			
Saturation P	resent? pillary fringe)	Yes	No Depth (ir	nches):		Wetl	land Hydrology	y Present? Yes <u>√</u> No			
Describe Re	corded Data (stream	m gauge, m	onitoring well, aerial	photos, pr	evious ins	spections).	if available:				
	(	5 5-,	<b>3</b> ,			//					
Remarks:											
	والمسام معتد										
water-ma	atted mulch										

Project/Site: 9120 Old Redwood Highway	(	City/County	: Windsor	, Sonoma Count	y Sam	oling Date:	April 2	3, 2018
Applicant/Owner: Redwood Oil Company				State:(	CA Samp	oling Point:	:2	20
Investigator(s): T. Winfield	nge:							
Landform (hillslope, terrace, etc.): low terrace								
Subregion (LRR): Mediterranean California (LRR C)	Lat: 38.	548790°		Long: -122.810	)891°	Dat	um: WS	G 84
Soil Map Unit Name: Cole silty clay loam, 0 to 1 percent								
Are climatic / hydrologic conditions on the site typical for this t	ime of yea	ar? Yes	<b>√</b> No	(If no, expla	ain in Remark	s.)		
Are Vegetation, Soil, or Hydrologysig	nificantly o	disturbed?	Are "	Normal Circumsta	nces" presen	t? Yes	✓ No	o
Are Vegetation, Soil, or Hydrology nat	turally prol	blematic?	(If ne	eded, explain any	answers in R	emarks.)		
SUMMARY OF FINDINGS - Attach site map si	howing	samplin	g point le	ocations, tran	sects, imp	ortant f	eature	s, etc.
Hydrophytic Vegetation Present? Yes No	✓	lo th	a Campled	A				
Hydric Soil Present? Yes No	✓		e Sampled in a Wetlar		s	No 🗸		
Wetland Hydrology Present? Yes No	<u> </u>	With	iii a vvetiai	iu: Te	<u> </u>	<u> </u>		
Remarks:								
VEGETATION – Use scientific names of plants								
		Dominant	Indicator	Dominance Tes	t workshoot			
		Species?		Number of Domi				
1				That Are OBL, F			0	(A)
2				Total Number of	Dominant			
3				Species Across			2	(B)
4				Percent of Domi	nant Species			
Herb Stratum (Plot size: 1m^2)		= Total Co	ver	That Are OBL, F			0	(A/B)
1. Phalaris aguatica	30	X	FACU	Prevalence Inde	ex workshee	t:		
2. Briza maxima		X		Total % Cov	ver of:	Multip	oly by:	_
3. Festuca perennis				OBL species				
4. Festuca bromoides				FACW species		x 2 =	0	_
5. <u>Vicia sativa</u>				FAC species	20	x 3 =	60	_
		= Total Co	ver	FACU species				_
Herb Stratum (Plot size:)	1		NII/LIDI	UPL species				_
1. Geranium dissectum				Column Totals:	68	(A)	268	_ (B)
2 3				Prevalence	e Index = B/A	\ = <u>3</u>	3.94	_
4				Hydrophytic Ve				
5				Dominance	Test is >50%			
6				Prevalence	Index is ≤3.0	I		
7				Morphologic				ting
8				data in R	Remarks or on			in)
	68	= Total Co	ver	Problematic	пушорпушо	vegetation	і (Ехріаі	11)
Woody Vine Stratum (Plot size:)				<sup>1</sup> Indicators of hy	dric soil and v	vetland hv	drology r	nust
1				be present, unle				1001
		= Total Co	ver	Hydrophytic				
				Vegetation	V	NI -	,	
% Bare Ground in Herb Stratum 32 % Cover of	T BIOTIC Cr	ust		Present?	Yes	No_		
Remarks:								
Absolute cover (Herb Stratum): 20% of 68 =	: ~14% (	cover						

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

Depth	Matrix		Redox	x Feature:							
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	<u>Texture</u>	Remarks			
0-1.2	10YR4/2		10YR3/3	>5%	С	M	loam	faint mottles			
							-				
<sup>1</sup> Type: C=C	oncentration, D=Depl	etion, RM=	Reduced Matrix, CS	=Covered	d or Coate	ed Sand Gi	rains. <sup>2</sup> Loc	cation: PL=Pore Lining, M=Matrix.			
Hydric Soil	Indicators: (Applica	ble to all l	RRs, unless other	wise note	ed.)		Indicators	for Problematic Hydric Soils <sup>3</sup> :			
Histosol	(A1)		Sandy Redo	x (S5)			1 cm N	Muck (A9) (LRR C)			
	pipedon (A2)		Stripped Ma				2 cm Muck (A10) ( <b>LRR B</b> )				
Black Hi	istic (A3)		Loamy Mucl	ky Minera	I (F1)		Reduc	ced Vertic (F18)			
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		Red P	arent Material (TF2)			
Stratified	d Layers (A5) ( <b>LRR C</b>	3)	Depleted Ma	atrix (F3)			Other	(Explain in Remarks)			
	uck (A9) ( <b>LRR D</b> )		Redox Dark	,	` '						
	d Below Dark Surface	(A11)	Depleted Da								
	ark Surface (A12)		Redox Depr	•	F8)			of hydrophytic vegetation and			
-	Mucky Mineral (S1)		Vernal Pools	s (F9)				hydrology must be present,			
-	Sleyed Matrix (S4)						unless d	disturbed or problematic.			
	Layer (if present):										
Type:			<u> </u>					,			
Depth (in	ches):						Hydric Soil Present? Yes No				
Remarks:											
	OV.										
HYDROLO											
_	drology Indicators:										
Primary India	cators (minimum of or	ne required	; check all that apply	/)			Secondary Indicators (2 or more required)				
Surface	Water (A1)		Salt Crust	(B11)			Water Marks (B1) (Riverine)				
High Wa	ater Table (A2)		Biotic Crus	t (B12)			Sediment Deposits (B2) (Riverine)				
Saturati	on (A3)		Aquatic Inv	ertebrate/	s (B13)		Drift Deposits (B3) (Riverine)				
Water M	larks (B1) ( <b>Nonriveri</b>	ne)	Hydrogen :	Sulfide O	dor (C1)		Drainage Patterns (B10)				
Sedime	nt Deposits (B2) (Non	riverine)	Oxidized R	hizosphe	res along	Living Roo	Roots (C3) Dry-Season Water Table (C2)				
Drift De	posits (B3) (Nonriver	ine)	Presence of	of Reduce	ed Iron (C4	4)	Crayfish Burrows (C8)				
	Soil Cracks (B6)		Recent Iro								
Inundati	on Visible on Aerial Ir	nagery (B7	) Thin Muck	Surface (	C7)		Shallow Aquitard (D3)				
	tained Leaves (B9)		Other (Exp	lain in Re	marks)			AC-Neutral Test (D5)			
Field Obser											
Surface Wat		29 N	lo Depth (inc	rhes).							
Water Table Present? Yes No Depth (inches):							(atland Hydralogy Present? Ves No. /				
Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No /_ (includes capillary fringe)											
Describe Re	corded Data (stream	gauge, mo	nitoring well, aerial p	hotos, pr	evious ins	pections),	if available:				
	•			•		. "					
Remarks:											
. comano.											

# APPENDIX B. PRELIMINARY WETLAND MAP

