Exhibit B-1

BIOLOGICAL RESOURCE ASSESSMENT
WITH BOTANICAL and BAT HABITAT SURVEYS, WOODLAND ASSESSMENT, and DELINEATION OF WATERS OF THE U.S.

for the

Atlas View II Vineyard Project

Assessor Parcel Number 032-120-015
4300 Atlas Peak Road, Napa, California

September 6, 2018

Prepared by

Northwest Biosurvey

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1.0 PROJECT DESCRIPTION

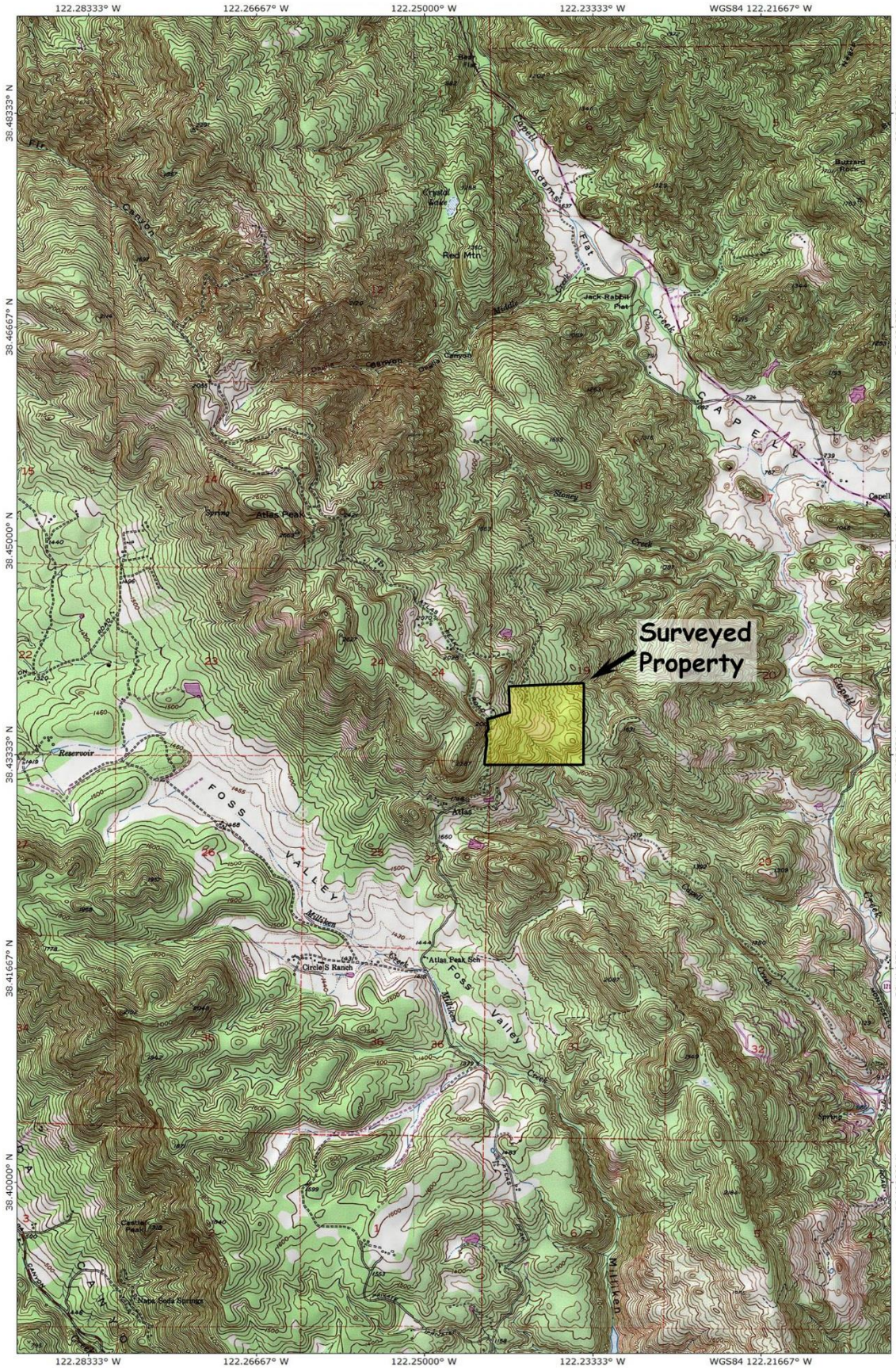
1.1 Proposed Project: This survey covers four vineyard blocks totaling 24.9 acres within a 118.75-acre parcel. The local permitting agency is requesting completion of a botanical survey and assessment of biological resources on the property as part of the California Environmental Quality Act (CEQA) review required for development of vineyards on the property.

The initial phase of this assessment evaluates the potential of the parcel to contain sensitive plant and wildlife habitat. The second phase consists of a floristic-level botanical survey listing all plant taxa[1] on the property. The assessment will determine whether the property contains sensitive plants or potentially contains sensitive wildlife requiring mitigation under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals and Natural Communities". A survey for sensitive bat habitat was also conducted for this project. The results of the surveys are provided in Section 5.0.

Due to the fact that wetland delineations are prepared with a standard format for U.S. Army Corps of Engineers review, the delineation is provided in its own section. The delineation and findings are provided in Section 6.0. Two sections are added to this assessment to meet Napa County environmental review policy. These are the "Napa County Woodland Assessment" (Section 7.0) and "Conformance with the Napa County Baseline Data Report" (Section 8.0).

1.2 Location: The property is located at 4300 Atlas Peak Road, Napa, Calif. (APN 032-120-015; Sec. 19 T07N R03W, Capell Valley, Calif. 7½' Topographic Map). A location map is provided in **Figure 1.**

[1] Many sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term "taxa" refers to species and their sub-specific categories.



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MILES
FEET
KILOMETERS
METERS

LOCATION MAP
Figure 1

TN / MN
14½°
09/05/18

2.0 ASSESSMENT METHODOLOGY

The basis of the biological resource assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of sensitive species potentially present. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDB)
- Soils of the project area
- Elevation
- Presence or absence of special habitat features such as vernal pools and serpentine soils
- Plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database (CNDDB);* RareFind 5, 2018
- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (2018 edition)
- California Department of Fish and Wildlife, *California Wildlife Habitat Relationships System (CWHR)*, Version 9.0
- Napa County *Baseline Data Report (2005)*

The **CNDDB** and **RareFind 5** databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data.

The **CNPS** database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

The **CWHR database** operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

The **Baseline Data Report** was produced for Napa County as part of the technical background documentation for the county's general plan update. It defines biotic communities considered sensitive in Napa County, identifies wildlife movement corridors, and reproduces data contained in the CNDDB.

2.1 Botanical Survey Methods: An in-season floristic-level survey was conducted for the project in 2018. CNDDB information and maps for the Capell Valley quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer et al. 2009) as modified by the California Native Plant Society (CNPS), and mapped on a 1"=200' aerial photo. Vegetation community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*. Where necessary, species names were updated based on the 6th edition, *CNPS Inventory of Rare and Endangered Plants of California*. A map of the vegetation types is provided in **Figure 2.**

2.2 Bat Habitat Survey Methods: Mature trees remaining after the fire within the vineyard blocks were assessed for their potential as habitat for sensitive bat species. These included searching for hollow trees, trees with open cavities, and trees with exfoliating bark.

2.3 Delineation Methods: The delineation was conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual,* January 1987, and the *Arid West 2008 Supplement.* Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 2012. Other texts, such as Munz's *A California Flora and Supplement*, 1973, and Mason's *Flora of the Marshes of California,*1957, were used as supplemental texts.

2.4 Woodland Assessment Methods: The survey area contains a single distinct woodland type which is discussed in Section 3.3, Vegetation Types: Mixed Oak Woodland. One study plot was selected within this woodland based on natural community structure and identifiable geographic references (woodland boundaries, etc.). Trees within this study plot were mapped with a GPS waypoint and a record was

made of its species, diameter at breast height (DBH), and any unique characteristics (dead, hollow, acorn storage tree, etc.). The methodology is discussed in detail in **Section 7.0** of this report.

2.5 Survey Dates: Site visits for botanical surveys, habitat assessments, the delineation, and mapping were made by Northwest Biosurvey staff on May 23, June 1, and August 14, 2018. Due to comparatively late onset of the spring bloom in 2018, all potentially present sensitive plant species in this area would have been identifiable on these dates.

2.6 Biological Assessment Staff: Field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 35 years of experience as a biologist in the government and private sectors.

Mr. Zalusky was assisted in the field and with mapping and the woodland analysis by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Computer Engineering from the University of California, Davis. He has also developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past three years.

Database review and report preparation were conducted with the assistance of Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has 15 years of experience as a planner in local government and the private sector and 16 years in field biology. She has a Bachelor of Arts Degree all course work toward an M.A. Degree in Rural and Town Planning from Chico State University. Prior to joining Northwest Biosurvey in 2002, Ms. Zalusky was a senior planner for the Lake County Community Development Department.

3.0 SITE CHARACTERISTICS

3.1 <u>Topography and Drainage:</u> The Atlas View II Vineyard occupies a southern spur of Atlas Peak in the Howell Mountain Range. This spur forms a north-northwest to south-southeast trending ridge separating the Foss Valley to the west from the Capell Valley to the east. West of the Foss Valley the terrain rises onto Castle Peak before finally descending into the Napa Valley. East of the Capell Valley, the terrain rises to Buzzard rock before descending to the shores of Lake Berryessa.

The Atlas View property slopes steeply to the southeast, draining to a tributary of Capell Creek. This tributary drains southeast through steep terrain for approximately 3 miles before turning north for three miles through valley terrain to the Capell Valley. From there the creek continues north through Adams Flat to eventually enter Lake Berryessa. Elevations on the property range from 2,000 feet msl (mean sea level) on the west slope of Atlas Peak to approximately 1,450 feet msl where the property drains to Capell Creek at the northeastern corner of the property. The topography is shown if **Figure 1**.

3.2 <u>Soils:</u> The property contains the following soil types:

- **Forward gravelly loam, 9-30% slopes;**
- **Forward gravelly loam, 30-75% slopes:**

  This strongly sloping to very steep soils are is on side slopes and uplands. The Forward series consists of well drained soils on uplands. These soils formed in material weathered from rhyolite. Included with this soil in mapping were small areas of Aiken, Boomer, Kidd, and Sobrante soils. The plant cover is mainly Douglas fir, madrone, scrub oak, pepper, and bay trees. Runoff is medium to very rapid on steep slopes. The hazard of erosion is slight to moderate to very high. Permeability is moderately rapid. The southwest side of the parcel contains this soil unit. Forward soils are used for watershed, wildlife habitat, and limited timber production. Most of the property contains these soils.

- **Aiken loam, 2-15% slopes;**
- **Aiken loam, 30-50% slopes:**

  This gently sloping to strongly sloping well-drained loam is mainly on foot slopes on uplands. This soil formed in material weathered from basic volcanic rock. Included with this soil in mapping were small areas of Boomer, Forward, Kidd, and Sobrante soils. Permeability of the Aiken soil is moderately slow. Runoff is medium, and the hazard of erosion is slight. The natural vegetation consists of ponderosa pine, oaks, redwoods in moist draws, annual grasses, and brush in small areas that had been cleared. The western-most portion of the property contains these soil types.

3.3 Vegetation Types: The entire parcel was mapped for vegetation in order to provide project context. The project contains six plant communities or vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation*. These vegetation types and other cover types are listed in **Table 1.** They are described below and shown in the vegetation map provided in **Figure 2.**

The Altas Fire of October 2017 moved through much of the Atlas View II vineyard property as a fast-moving ground fire. Most of the vegetative ground cover and much of the sparse shrub layer were removed by the fire. Most of the oak woodland canopy on the property remained green and those trees whose canopies were scorched, quickly recovered. By the spring of 2018, the ground cover had recovered, and shrubs were either leafing out or stump sprouting.

- **Mixed Oak Woodland:**

  This is a mature, old-growth hardwood forest with trees to 48" DBH (diameter at breast height). California black oak (*Quercus kelloggii*) is generally dominant but depending on location and and degree of shading, other oak and hardwood species may become co-dominant. These include coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryanna var. garryanna*), California bay (*Umbellularia californica*), Pacific madrone (*Arbutus menziesii*), interior live oak (*Quercus wislizeni*), and big-leaf maple (*Acer macrophyllum*). The community edges may include blue oak (*Quercus douglasii*) and ghost pine (*Pinus sabiniana*).

  The shrub layer is typically sparse due to dense canopy shading. Less shaded areas can include common manzanita (*Arctostaphylos manzanita ssp. manzanita*). The ground cover along community edges transitions from hedgehog dogtail (*Cynosurus echinatus*) and woodland brome (*Bromus laevipes*) to a ground cover of leaf litter and scattered poison oak beneath the denser, more shaded canopy.

- **Coast Live Oak Woodland:**

  This mature woodland consists of a nearly homogenous canopy of coast live oak (*Quercus agrifolia*) with occasional black oak. It shares this species mix with the mixed oak woodland; however, black oak shifts from clearly co-dominant to an occasional member. The community structure consists of continuous closed canopy forest. Within this closed canopy forest, the shrub and ground cover layers resemble those of the mixed oak woodland.

TABLE 1. PLANT COMMUNITIES AND OTHER COVER TYPES PRESENT

COVER TYPE	Total Acres of Cover Type on Property	Percent of Property Supporting Cover Type	Acres of Cover Type in Potential Vineyard Blocks				Total Acres of Cover Types in Vineyard Blocks	Percent of Cover Types in Vineyard Blocks
			VB A	VB B	VB C	VB D		
Coast Live Oak Woodland	17.35	14.61	0.00	0.00	0.00	0.00	0.00	0.00
Mixed Oak Woodland	67.87	57.15	0.38	3.49	3.15	0.32	7.34	10.81
Blue Oak Woodland	4.06	3.42	0.00	0.00	0.00	0.00	0.00	0.00
Wild Oat Grassland	29.28	24.66	4.02	2.41	1.64	9.35	17.42	59.49
Purple Needle Grass Grassland	0.13	0.11	0.00	0.00	0.00	0.13	0.13	100.00
Baltic Rush Marsh	0.06	0.05	0.00	0.00	0.01	0.00	0.01	16.67
Total Acres of Cover Type	**118.75**	**100.00**	**4.4**	**5.9**	**4.8**	**9.8**	**24.9**	**20.97***

*Bottom Right Cell: Percent of Property occupied by proposed vineyard blocks

- **Blue Oak Woodland:**

  This mature woodland is comparatively dense for this species within this region where blue oaks typically occur as open savanna or relatively open canopy woodland. Canopy closure here approaches 90-percent. The shrub layer is diffuse consisting almost entirely of common manzanita. The ground cover is typically wild oat grassland but depending on shading, can transition into hedgehog dogtail, perennial ryegrass (*Festuca perennis*), California tule pea (*Lathyrus jepsonii var. californicus*), and climbing bedstraw (*Galium porrigens var. porrigens*). Within the vineyard property these woodlands occur on the few areas of relatively level terrain.

- **Wild Oat Grassland:**

  Grasslands in the more-exposed areas tend to be dominated by slender wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), and rose clover (*Trifolium hirtum*). However, this overall matrix includes distinct patches of barbed goat grass (*Aegilops triuncialis*), perennial ryegrass, and purple needle-grass (*Stipa pulchra*). Swales can be dominated by Harding grass (*Phalaris aquatica*).

- **Purple Needle-Grass Grassland:**

  Purple needle-grass (*Stipa pulchra*) occurs throughout the grasslands of the property but generally as individual plants or small, sub-mappable patches. However, it occurs as the dominant ground cover within the northeastern portion of the central grassland. Other members of the surrounding wild oat grassland community occur as subdominant species or are at least present in this community. When purple needle grass occurs as a community, it is considered a sensitive plant community as listed in Table 4-5 of the Napa County Baseline Data Report (BDR).

- **Baltic Rush Marsh:**

  This small marsh occurs within a seep on the northwestern edge of the property. It is dominated by Baltic rush (*Juncus balticus*) but includes a subdominant mix of common velvet grass (*Holcus lanatus*) and tall flat sedge (*Cyperus eragrostis*). All three are wetland indicator species as noted in **Table 5**.

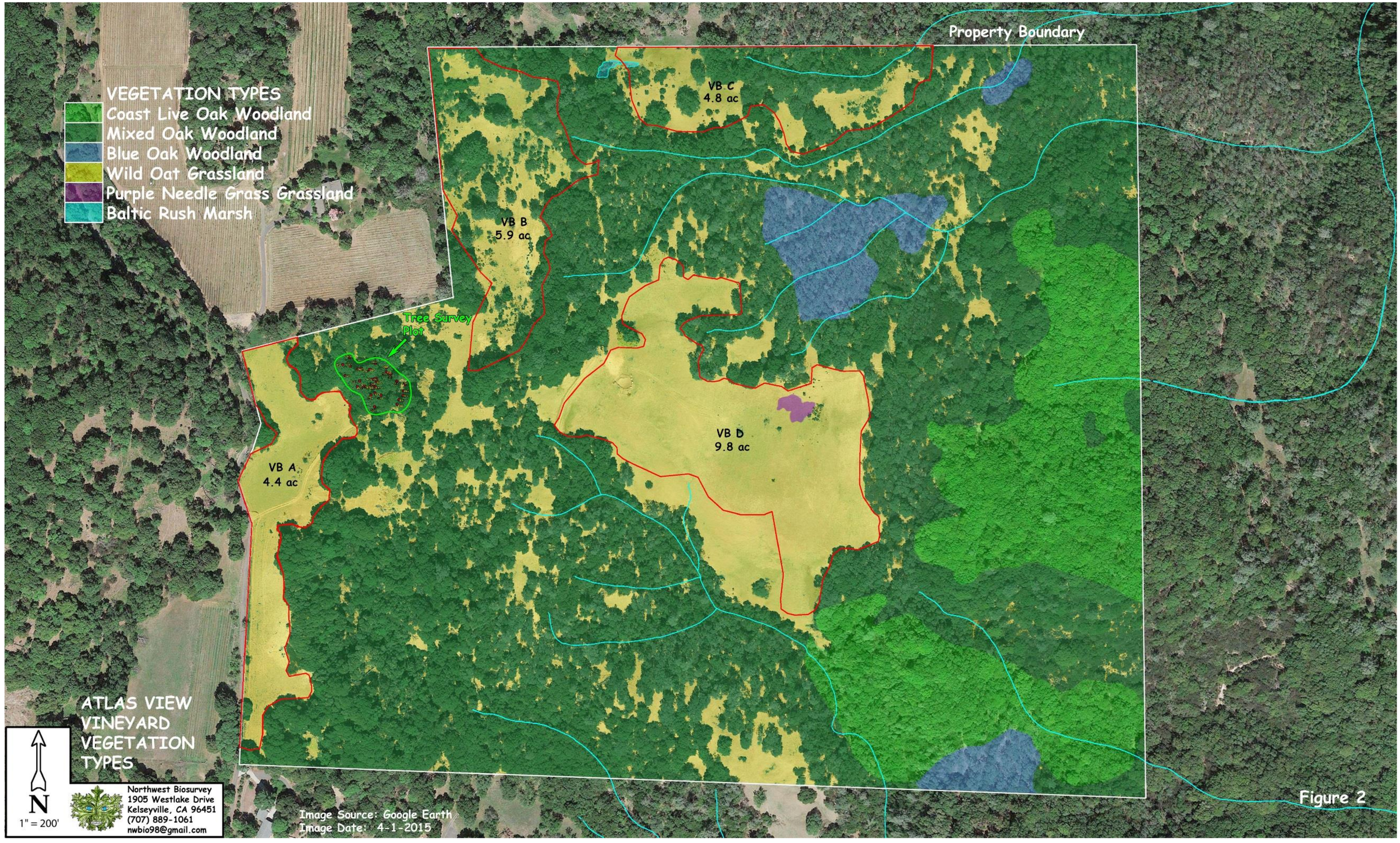
VEGETATION TYPES
Coast Live Oak Woodland
Mixed Oak Woodland
Blue Oak Woodland
Wild Oat Grassland
Purple Needle Grass Grassland
Baltic Rush Marsh
Property Boundary
VB C
4.8 ac
VB B
5.9 ac
Tree Survey Plot
VB D
9.8 ac
VB A
4.4 ac
ATLAS VIEW
VINEYARD
VEGETATION
TYPES
N
1" = 200'
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Image Source: Google Earth
Image Date: 4-1-2015

Figure 2

4.0 PRE-SURVEY RESEARCH RESULTS

4.1 <u>CNPS Electronic Inventory Analysis</u>: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Rare Plant Ranks 1B through 4. The query included all plants within this region of Napa County occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in **Table 2**. These species were included in the list of potentially sensitive species specifically searched for during field surveys.

<u>Note</u>: *The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa (e.g. vernal pools or serpentine soils). Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.*

4.2 <u>California Natural Diversity Database</u>: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Capell Valley 7½' quadrangle map were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur within the quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. **Appendix A** at the end of this report lists the species within the nine quadrangles in the vicinity of this property.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS

Selected CNPS Plants by Scientific Name:

Atlas View II Vineyard Project

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Antirrhinum virga	twig-like snapdragon	Plantaginaceae	perennial herb	4.3	None	None	Jun-Jul	Chaparral, Lower montane coniferous forest
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	1B.2	None	None	May-Jul	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins
Castilleja ambigua var. meadii	Mead's owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	1B.1	None	None	Apr-May	Meadows and seeps, Vernal pools
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	None	None	Feb-Jun	Chaparral, Cismontane woodland
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	annual herb	4.2	None	None	Apr-Jul	Chaparral (openings, usually serpentinite)
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3	None	None	May-Jun	Chaparral, Cismontane woodland
Cryptantha dissita	serpentine cryptantha	Boraginaceae	annual herb	1B.2	None	None	Apr-Jun	Chaparral (serpentinite)
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	None	None	Mar-May	Valley and foothill grassland (mesic), Vernal pools
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	1B.2	None	None	May-Jul	Chaparral (serpentinite)

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	1B.2	None	None	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland
Hesperolinon sharsmithiae	Sharsmith's western flax	Linaceae	annual herb	1B.2	None	None	May-Jul	Chaparral
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	1B.1	None	None	Apr-May	Riparian forest, Riparian woodland
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	None	FE	Mar-Jun	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	1B.2	None	None	Mar-May	Chaparral, Cismontane woodland, Valley and foothill grassland
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	1B.1	CT	FE	May-Jun	Vernal pools (volcanic ash flow)
Senecio clevelandii var. clevelandii	Cleveland's ragwort	Asteraceae	perennial herb	4.3	None	None	Jun-Jul	Chaparral (serpentinite seeps)
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	1B.1	None	FE	Apr-May(Jun)	Cismontane woodland, Valley and foothill grassland
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	1B.2	None	None	Jun-Oct	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, Vernal pools

KEY FOR TABLE 2:

CNPS Rare Plant-Threat Rank Definitions:

CRPR = California Rare Plant Rank
1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.1 = Plants of limited distribution (watch list); seriously threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

State and Federal Status:

CESA = California Endangered Species Act
FESA = Federal Endangered Species Act

CR = State Rare	*CE = State Endangered.*
CT = State Threatened	*CD = State Delisted*
SSC = CDFW Species of Special Concern	*FP = CDFW Fully Protected*
WL = CDFW Watch List	*FE = Federal Endangered*
FT = Federal Threatened	*FD = Federal Delisted*

TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE CAPELL VALLEY, CALIF. 7½' QUAD.

Habitat Type	Habitat Present
Northern Vernal Pool	no

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
Brodiaea leptandra	narrow-anthered brodiaea	Broadleaved upland forest, chaparral, lower montane conif. forest, valley & foothill grassland/volcanic; --/--/1B.2	May-July per. herb	no habitat present
Castilleja ambigua ssp. meadii	Mead's owl's clover	Meadows & seeps, vernal pools/gravelly, volcanic, clay; --/--/1B.1	April-May ann. herb	no habitat present
Ceanothus purpureus	holly-leaved ceanothus	Chaparral, cismontane woodland/volcanic, rocky; --/--/1B.2	Feb.-June everg. shrub	no habitat present
Cryptantha dissita	serpentine cryptantha	Chaparral/serpentine outcrops; --/--/1B.2	April-June ann. herb	no habitat present
Downingia pusilla	dwarf downingia	Valley & foothill grassland, vernal pools/mesic; --/--/2B.2	March-May ann. herb	no habitat present
Hesperolinon breweri	Brewers western flax	Chaparral, cismontane woodland, valley & foothill grassland/rocky serpentine; --/--/1B.2	May-July ann. herb	no habitat present
Hesperolinon sharsmithiae	Sharsmith's western flax	Chaparral, serpentinite; --/--/1B.2	May-July ann. herb	no habitat present
Juglans hindsii	Northern California black walnut	Riparian scrub, riparian woodland/deep alluvial soil associated with creek or stream; --/--/1B.1	April-May decid. tree	poor habitat
Lasthenia conjugens	Contra Costa goldfields	Cismontane woodland, alkali playas, valley & foothill grassland, vernal pools, wetlands; FE/--/1B.1	March-June ann. herb	no habitat present
Leptosiphon jepsonii	Jepson's leptisiphon	Chaparral, cismontane woodland, grassy slopes/ volcanic or serpentine edge; --/--/1B.2	May-July ann. herb	no habitat present
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Volcanic ash flow vernal pools; FE/ST/1B.1	May-June ann. herb	no habitat present
Sidalcea keckii	Keck's checkerbloom	Cismontane woodland, valley & foothill grassland/serpentinite, clay; --/--/1B.3	April-May(June) ann. herb	no habitat present
Trichostema ruygtii	Napa bluecurls	Chaparral, cismontane woodland, lower montane conif. forest, valley & foothill grassland, vernal pools; --/--/1B.2	June-Oct. ann. herb	moderate habitat

*See CNPS list for key

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Rana boylii	foothill yellow-legged frog	Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S2S3	year-round	poor habitat
Rana draytonii	California red-legged frog	Generally slow or ponded water, riparian; FT/SSC/G2G3/S2S3	year-round	habitat not present
Emys marmorata	western pond turtle	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3	year-round	habitat not present
Antrozous pallidus	pallid bat	Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC/G5/S3	local migrant	good habitat present
Lasiurus blossevillii	western red bat	Forests and woodlands, riparian, chaparral. Roosts primarily in trees; SSC/G5/S3	year-round	poor habitat

Key:

SE/ST/SD=State Endangered/Threatened/Delisted
SC/SCT/SCD=State Candidate for Listing/Threatened/Delisting
SSC=CDFW Species of Special Concern
SFP=CDFW Fully Protected
WL=CDFW Watch List
FE/FT/FD=Federal Endangered/Threatened/Delisted
FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting
FC=Federal Candidate

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled
G2/S2 = Global/State Imperiled
G3/S3 = Global/State Vulnerable
G4/S4 = Global/State Apparently Secure
G5/S5 = Global/State Secure
SNR = Not yet assessed

4.3 Wildlife Habitat Analysis Results: The California Wildlife Habitat Relationships analysis listed a large number of wildlife species as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as **Appendix B**.

4.4 Wildlife Assessment: Based on the pre-survey research conducted for this study, a total of 9 sensitive wildlife species need to be accounted for within the project area. These include the species identified as present within the Capell Valley quadrangle by the CNDDB and listed in Table 3. Lewis' woodpecker, loggerhead shrike, and Lawrence's gold finch are added based on the presence of potential habitat and because they are listed in table 4-7 of the Napa County BDR. Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site.

- **Foothill yellow-legged frog (*Rana boylii*):**

  These frogs require either perennial or long-duration stream flows as successful breeding sites due to the lengthy period required for metamorphosis of larvae. They are relatively common along the shaded banks of perennial headwater streams, and are seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral streams unsuitable as breeding sites. The ephemeral streams on the property are of too-short duration to provide suitable habitat for *Rana boylii*.

- **California red-legged frog (*Rana draytonii*):**

  These are typically pond frogs or frogs of slow moving streams with dense bank vegetation and three or more feet of depth. The frogs may be found outside of these habitats during wet weather, but nearby ponded water is necessary for this species. This parcel lacks surface water and the ephemeral streams on the property do not provide access to nearby ponds. This species is unlikely to be on the site.

- **Western pond turtle (*Emys marmorata*):**

  These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Stream channels are often used as movement corridors between waterways or ponds. Eggs are laid on land in sheltered nests. Young overwinter in the nest and emerge the following spring in Northern California. Food includes aquatic insects, crustaceans, fish, and riparian vegetation. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. There are no ponds on or near the property that would support this species.

- **White-tailed kite (*Elanus leucurus*):**

  Usually found near agricultural areas, the kite prefers open terrain near woodlands and water. These raptors hunt over open country and prefer large, deciduous trees surrounded by expanses of grassland, meadows, farmland and/or wetlands for nesting and roosting sites. The grassland in the north part of the property, with mature oaks trees scattered within it, may provide hunting and nesting habitat for white-tailed kite once the site has recovered from the fire.

- **Lawrence's gold finch (*Carduelis lawrencei*):**

  These passerine (perching birds) prefer to nest in the dense foliage of oaks in dry open woodland near brushy and grassy areas or chaparral. Proximity to water is important. Their diet consists primarily of seeds but includes some insects. They frequently nest near other pairs during a breeding season that extends from late March through July, with birds migrating south in August. There is nesting habitat for this bird in oak woodlands within the survey area.

- **Lewis' woodpecker (*Melanerpes lewis*):**

  These woodpeckers excavate nest cavities in dead trees and dead limbs of live trees in open woodlands. They hunt insects and eat fruits and berries throughout the spring and summer and shift their diet to cached acorns and emerging insects in the fall and winter. Breeding occurs between early May and July. The open oak woodland habitat within the grassland community provides potential habitat.

- **Loggerhead shrike (*Lanius ludovicianus*):**

  This bird is considered a sensitive species by the County of Napa. These passerines prefer open-canopied woodlands with grass groundcover, and grazed open pastures. Preferred habitats include valley-foothill woodlands and riparian. They build well-concealed nests in the dense foliage of oaks and shrubs. They eat large insects but are fairly unique for passerines in that they also eat small amphibians, reptiles, birds, and mammals which they may impale on thorns or barbed wire fences. Shrikes use fence posts or shrubs as observation posts. Nesting occurs between March and early July when the young are fully fledged. Potential habitat for this species may be found in the mix of grassland and oak woodlands.

- **Pallid bat (*Antrozous pallidus*):**

  Optimal habitat for these bats consists of open forest and woodlands with sources of water over which to feed. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites where they are known to wedge themselves into small spaces, but they will also roost in buildings, bridges, and hollow trees. Foraging occurs over open country. Pallid bats take a variety of prey, including insects, reptiles,

and rodents. Maternity colonies tend to be in the more protected, isolated locations and may consist of more than 100 individuals. These bats have a home range of 1 to 3 miles and are known to roost with other bat species. This species is extremely sensitive to human disturbance of roosting sites. Suitable habitat is present for this species within numerous burned and/or decadent trees within the vineyard blocks.

- **Western red bat (*Lasiurus blossevillii*):**

  This is a typically solitary bat. In California this species is known to roost in the foliage of cottonwood trees and willows, but may be found in other habitats such as chaparral and mixed conifer, fields, and occasionally urban areas; they appear to be associated with riparian habitats. In winter these bats may roost in leaf litter. The species prefers edge habitats with trees for roosting near open areas for foraging. The primary prey are large moths. Roost heights range from 3-15 meters in area in trees hidden from view except from below. The project site contains poor habitat for this species.

5.0 FIELD SURVEY RESULTS

5.1 Bat Habitat Survey Results: A survey for bat habitat was conducted for this project. Mature trees within the proposed vineyard blocks were assessed for potential as roosting sites for sensitive bat species. These potential bat habitat sites included hollow trees, trees with open cavities, and trees with exfoliating bark.

Results of bat habitat survey: A number of trees within the blocks may contain suitable habitat for bats because of open cavities and hollows, including trees damaged by the 2017 fire. Pre-construction surveys are recommended for mature trees within vineyard blocks.

5.2 Botanical Field Survey Results: Table 4 presents the results of the floristic-level botanical survey of the property. Each of the sensitive plant taxa potentially occurring at the property and listed in Tables 2 and 3 was specifically searched for during the surveys. A total of 82 native and introduced plant taxa were identified.

One species with sensitive regulatory status were found on the property during the surveys: **Jepson's navarretia (*Navarretia jepsonii*);** a CNPS Rank 4.3 taxon. This species is widely distributed as scattered individuals within the wild oat grassland community. CNPS Rare Plant Rank 4 is a watch list of plants about which not enough is known to qualify them as "rare, threatened, or endangered" and consequently placed in Rare Plant Rank 1B. A determination as to whether impacts to this population requires mitigation is up to the local permitting agency in consultation with the Department of Fish and Wildlife. The 4.3 classification is described as not very rare in California.

Purple needle grass (*Stipa pulchra*): While this species is not sensitive as individual plants, populations occurring as distinct, dominant grasslands are considered sensitive in Table 4-5 of the Napa County BDR. Consequently, review and mitigation are required under the CEQA Guidelines.

Note: *Even when a site meets the generalized habitat description for a sensitive plant taxon, this is not a guarantee that it is present. The precise habitat requirements for any species cannot be known in most cases. Plants with sensitive regulatory status are rare because they have a narrow band of habitat criteria that must be met. These may include a wide range factors including microclimate, seasonal soil moisture, soil chemistry and texture, and presence or absence of specific pests or competitors.*

At present the specifics of these factors are not known for the vast majority of plant taxa. This issue is understood by regulatory biologists and is dealt with through the requirement that a floristic-level botanical survey be conducted which lists all plants occurring at a site throughout the full range of blooming seasons. Ultimately, the botanical survey determines whether a taxon is present or not present.

TABLE 4. FLORA OF THE ATLAS PEAK II VINEYARD PROPERTY

Habit	Species	Common Name	Family	Origin
forb	*Ligusticum apiifolium*	celeryleaf licorice root	Apiaceae	N
forb	*Torilis arvensis*	field hedge parsley	Apiaceae	A
forb	*Achyrachaena mollis*	blow wives	Asteraceae	N
forb	*Agoseris heterophylla var. heterophylla*	annual agoseris, annual mountain dandelion	Asteraceae	N
forb	*Centaurea solstitialis*	yellow star thistle	Asteraceae	A
forb	*Chamomilla suaveolens*	pineapple weed	Asteraceae	A
forb	*Cirsium brevistylum*	clustered thistle, Indian thistle	Asteraceae	N
forb	*Grindelia hirsutula var. davyi*	Davy's gumweed	Asteraceae	N
forb	*Hieracium bolanderi*	Bolander's hawkweed	Asteraceae	N
forb	*Phacelia imbricata ssp. imbricata*	imbricate phacelia	Boraginaceae	N
forb	*Nasturtium officianale*	watercress	Brassicaceae	N
forb	*Cyperus eragrostis*	tall flat sedge	Cyperaceae	N
forb	*Lathyrus jepsonii var. californicus*	California tule pea	Fabaceae	N
forb	*Lathyrus latifolius*	everlasting pea	Fabaceae	A
forb	*Lathyrus vestitus var. vestitus*	perennial sweet pea	Fabaceae	N
forb	*Lupinus bicolor*	miniature lupine	Fabaceae	N
forb	*Trifolium dubium*	shamrock clover, little hop clover	Fabaceae	A
forb	*Trifolium hirtum*	rose clover	Fabaceae	A
forb	*Trifolium willdenovii*	tomcat clover	Fabaceae	N
forb	*Vicia villosa ssp. villosa*	winter vetch, hairy vetch	Fabaceae	A
forb	*Erodium cicutarium*	red-stem storksbill	Geraniaceae	A
forb	*Iris macrosiphon*	bowl-tubed iris	Iridaceae	N
forb	*Sisyrinchium bellum*	blue-eyed grass, western blue-eyed grass	Iridaceae	N
forb	*Juncus balticus*	Baltic rush	Juncaceae	N
forb	*Juncus confusus*	Colorado rush	Juncaceae	N
forb	*Marrubium vulgare*	horehound	Lamiaceae	A
forb	*Calochortus amabilis*	Diogenes lantern, golden fairy lantern	Liliaceae	N
forb	*Calochortus luteus*	yellow Mariposa lily	Liliaceae	N
forb	*Chlorogalum pomeridianum*	wavyleaf soap plant	Liliaceae	N

Habit	Species	Common Name	Family	Origin
forb	*Dichelostemma congestum*	fork-toothed ookow	Liliaceae	N
forb	*Triteleia laxa*	Ithuriel's spear	Liliaceae	N
forb	*Claytonia perfoliata ssp. perfoliata*	miner's lettuce	Montiaceae	N
forb	*Clarkia modesta*	Waltham Creek clarkia	Onagraceae	N
forb	*Clarkia purpurea ssp. quadrivulnera*	purple clarkia, winecup clarkia, four-spot	Onagraceae	N
forb	*Spiranthes romanzoffiana*	hooded ladies tresses	Orchidaceae	N
forb	*Bellardia trixago*	Mediterranean linseed	Orobanchaceae	A
forb	*Eschscholzia californica*	California poppy	Papaveraceae	N
forb	*Collinsia heterophylla var. heterophylla*	purple Chinese houses	Plantaginaceae	N
forb	*Plantago lanceolata*	English plantain	Plantaginaceae	A
forb	***Navarretia jepsonii***	**Jepson's navarretia; CNPS Rank 4.3**	**Polemoniaceae**	**N**
forb	*Rumex acetosella*	sheep sorrel	Polygonaceae	A
forb	*Rumex crispus*	curly dock	Polygonaceae	A
forb	*Ranunculus occidentalis*	western buttercup	Ranunculaceae	N
forb	*Galium porrigens var. porrigens*	climbing bedstraw, graceful bedstraw	Rubiaceae	N
forb	*Pedicularis densiflora*	warrior's plume, Indian warrior	Scrophulariaceae	N
grass	*Aegilops triuncialis*	barbed goatgrass	Poaceae	A
grass	*Aira caryophyllea*	silver European hairgrass	Poaceae	A
grass	*Avena barbata*	slender wild oat	Poaceae	A
grass	*Briza minor*	small quaking grass	Poaceae	A
grass	*Bromus diandrus*	ripgut grass, ripgut brome	Poaceae	A
grass	*Bromus hordeaceus*	soft chess	Poaceae	A
grass	*Bromus laevipes*	woodland brome	Poaceae	N
grass	*Cynosurus echinatus*	hedgehog dogtail, annual dogtail	Poaceae	A
grass	*Elymus caput-medusae*	medusahead	Poaceae	A
grass	*Elymus glaucus ssp. glaucus*	blue wildrye	Poaceae	N
grass	*Festuca perennis*	ryegrass, Italian rye grass	Poaceae	A
grass	*Holcus lanatus*	common velvet grass	Poaceae	A
grass	*Hordeum marinum ssp. gussoneanum*	Mediterranean barley	Poaceae	A
grass	*Phalaris aquatica*	Harding grass	Poaceae	A
grass	*Stipa pulchra*	purple needle-grass	Poaceae	N
shrub	*Sambucus nigra ssp. caerulea*	blue elderberry	Adoxacaceae	N

Habit	Species	Common Name	Family	Origin
shrub	*Toxicodendron diversilobum*	poison oak	Anacardiaceae	N
shrub	*Baccharis pilularis*	coyote brush, chaparral broom	Asteraceae	N
shrub	*Arctostaphylos manzanita ssp. manzanita*	common manzanita	Ericaceae	N
shrub	*Lepechinia calycina*	pitcher sage	Lamiaceae	N
shrub	*Heteromeles arbutifolia*	toyon	Rosaceae	N
shrub	*Rubus armeniacus*	Himalayan blackberry	Rosaceae	A
tree	*Cornus glabrata*	smooth-leaf dogwood, brown dogwood	Cornaceae	N
tree	*Arbutus menziesii*	Pacific madrone	Ericaceae	N
tree	*Quercus agrifolia*	coast live oak	Fagaceae	N
tree	*Quercus chrysolepis*	canyon live oak	Fagaceae	N
tree	*Quercus douglasii*	blue oak	Fagaceae	N
tree	*Quercus garryanna var. garryanna*	Oregon white oak	Fagaceae	N
tree	*Quercus kelloggii*	California black oak	Fagaceae	N
tree	*Aesculus californica*	California buckeye	Hippocastanaceae	N
tree	*Umbellularia californica*	California bay	Lauraceae	N
tree	*Pinus sabiniana*	ghost pine, foothill pine	Pinaceae	N
tree	*Acer macrophyllum*	big-leaf maple	Sapindaceae	N
tree/ shrub	*Quercus wislizeni*	interior live oak	Fagaceae	N
vine	*Symphoricarpos mollis*	tripvine, creeping snowberry	Caprifoliaceae	N
vine	*Calystegia occidentalis ssp. occidentalis*	western morning-glory	Convolvulaceae	N

Origin: N = Native, A = Alien

6.0 DELINEATION OF WATERS OF THE U.S.

6.1 Methodology

6.1.1 Purpose of Delineation: This delineation has been conducted at the request of the local permitting agency in order to determine the extent of possible waters of the U.S. on the project.

6.1.2 Delineation Procedure: This delineation has been conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual*, January 1987, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008.* Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 2012. Other texts, such as Munz's *A California Flora and Supplement* 1973, and Mason's *Flora of the Marshes of California,*1957, were used as supplemental texts; however, all nomenclature and wetland indicator status have been checked with the U.S. Army Corps of Engineers. 2016. *National Wetland Plant Lists: Arid West* and *California*.

The survey included use of Google satellite images, 7.5' USGS quadrangle maps, and LIDAR mapped overlays along with an extensive foot survey.

6.1.3 Delineation Date: Delineation fieldwork was completed on June 4, 2018.

6.1.4 Delineation Staff: The delineation was conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has more than 35 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc. He was assisted in the field and with mapping by Leigh Zalusky, Northwest Biosurvey engineer.

6.2 Existing Conditions

6.2.1 Location, Drainage, and Soil Type: These subjects are discussed in detail in Section 1.2 (Location), Section 3.1 (Topography and Drainage), and Section 3.2 (Soil map) in the biological resource assessment report in which this delineation is included. All waters of the U.S. occurring within the survey area consist of wetlands and "other waters" pursuant to Corps of Engineers definitions.

6.3 Aquatic Resources Results

6.3.1 Wetland Vegetation: Dominant plants identified within the wetland and upland sample points are listed below in **Table 5** with their stratum and indicator status. Since 2008, a number of changes in wetland indicator status of several plant species have been made pursuant to the Army Corps of Engineer's *The National Wetland Plant List* and the *Arid West 2016 Regional Wetland Plant List*. Additionally, a number of species and common names were revised in the 2012 Jepson Manual. The wetland sample points were taken in the Baltic Rush Marsh community.

TABLE 5. PLANTS OCCURRING WITHIN THE WETLAND
ATLAS PEAK VINEYARD PROJECT

Stratum	Species	Common Name	Wetland Indicator Status*
herb	*Bromus diandrus*	ripgut grass, ripgut brome	NI
herb	*Bromus hordeaceus*	soft chess	FACU
herb	*Cynosurus echinatus*	hedgehog dogtail	NI
herb	*Cyperus eragrostis*	tall flat sedge	**FACW**
herb	*Elymus glaucus ssp. glaucus*	blue wildrye	FACU
herb	*Holcus lanatus*	common velvet grass	**FAC**
herb	*Juncus balticus*	Baltic rush	**FACW**

*Wetland Indicator Status:
OBL = Occurs in aquatic resources >99% of time
FACW = Occurs in aquatic resources 67-99% of time
FAC = Occurs in aquatic resources 34-66% of time
FACU = Occurs in aquatic resources 1-33% of time
UPL = Occurs in uplands >99% of time
NI = Indicator status not known in this region

6.3.2 Wetland Soils: Both of the the sample points are on Aiken loams (2-5% slopes); this is not a hydric soil type based on the Natural Resources Conservation District's National Wetland Indicator criteria. The soil for Wetland Sample Point (WSP) 1 (the wetland) has a soil indicator of F6 (Redox Dark Surface), with a matrix hue of 7.5YR and redox depressions of 5YR. This soil is a silt loam.

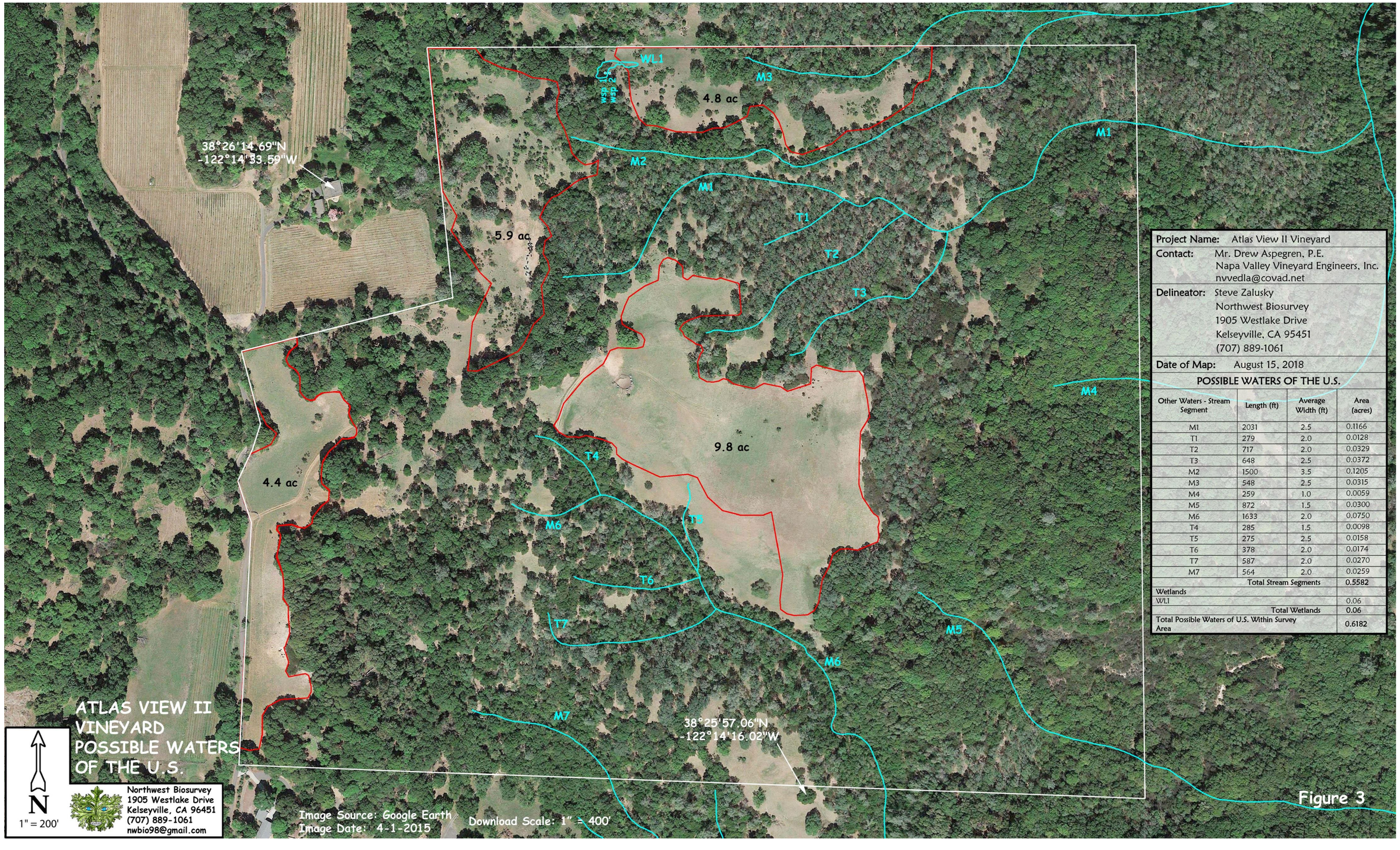
6.3.3 Wetland Hydrology: The WSP qualifying as wetland has two hydrological indicators -- saturation (A3) and water marks (B1) -- as well as drainage patterns in wetlands (B10).

6.3.4 Waters of the U.S: Waters of the U.S. within the survey area consist of stream channels throughout the property, and a small wetland complex in the northwestern part of the property. The results of the delineation are shown on the aerial photo base map provided in **Figure 3**. Wetland Sample Points and stream segments are mapped in Figure 3 in light blue. Delineation forms corresponding to each numbered WSP are provided in **Appendix D**.

The wetland is 0.06 acre in size. The total area of all delineated Waters of the U.S. is **0.618 acre**. The delineation results are shown below in **Table 6**.

TABLE 6. POSSIBLE WATERS OF THE U.S.

Other Waters - Stream Segment	Length (ft)	Average Width (ft)	Area (acres)
M1	2031	2.5	0.1166
T1	279	2.0	0.0128
T2	717	2.0	0.0329
T3	648	2.5	0.0372
M2	1500	3.5	0.1205
M3	548	2.5	0.0315
M4	259	1.0	0.0059
M5	872	1.5	0.0300
M6	1633	2.0	0.0750
T4	285	1.5	0.0098
T5	275	2.5	0.0158
T6	378	2.0	0.0174
T7	587	2.0	0.0270
M7	564	2.0	0.0259
Total Stream Segments			**0.5582**
Wetlands			
WL1			0.06
Total Wetlands			**0.06**
Total Possible Waters of U.S. Within Survey Area			**0.6182**



Project Name:	Atlas View II Vineyard
Contact:	Mr. Drew Aspegren, P.E. Napa Valley Vineyard Engineers, Inc. nvvedla@covad.net
Delineator:	Steve Zalusky Northwest Biosurvey 1905 Westlake Drive Kelseyville, CA 95451 (707) 889-1061
Date of Map:	August 15, 2018

POSSIBLE WATERS OF THE U.S.

Other Waters - Stream Segment	Length (ft)	Average Width (ft)	Area (acres)
M1	2031	2.5	0.1166
T1	279	2.0	0.0128
T2	717	2.0	0.0329
T3	648	2.5	0.0372
M2	1500	3.5	0.1205
M3	548	2.5	0.0315
M4	259	1.0	0.0059
M5	872	1.5	0.0300
M6	1633	2.0	0.0750
T4	285	1.5	0.0098
T5	275	2.5	0.0158
T6	378	2.0	0.0174
T7	587	2.0	0.0270
M7	564	2.0	0.0259
	Total Stream Segments		0.5582
Wetlands			
WL1			0.06
	Total Wetlands		0.06
Total Possible Waters of U.S. Within Survey Area			0.6182

Figure 3

7.0 NAPA COUNTY WOODLAND ASSESSMENT

This woodland analysis follows a protocol reviewed and approved by Napa County planning staff in January 2008.

7.1 Procedure: The Atlas Peak Vineyard property contains three native woodland communities: Mixed Oak Woodland, Coast Live Oak Woodland, and Blue Oak Woodland. These communities are described in detail in Section 3.3 along with the other vegetation types on the property. Only one of these, Mixed Oak Woodland, occurs within the proposed vineyard blocks. This woodland was the subject of the woodland analysis provided below.

One study plot was selected for this woodland type. The location of the study area was based on how well it represented the community it was intended to sample. The size was based on the need to include enough trees to provide a meaningful statistical sample. The sample plot is mapped in **Figure 2**.

Within the study plot, each tree was mapped with a GPS waypoint and a record was made of its species, diameter at breast height (DBH), and any unique characteristics (dead, hollow, acorn storage tree, etc.). The field data for this plot is provided in **Appendix C**.

The data collected for the study plot was then statistically analyzed to provide the following information:

- Woodland species composition
- Average diameter at base height (DBH) for each species
- Average canopy size within the woodland
- Average distance between trunks
- Percent of canopy closure

This data is provided in **Table 7** and is mapped in **Figure 2**.

TABLE 7. TREE SURVEY DATA SUMMARY – MIXED OAK WOODLAND

SPECIES	NUMBER IN SURVEY AREA	AVERAGE DBH (INCHES)	AVERAGE # OF TRUNKS PER ACRE[4]
BLK	7	32.7	11.56
CLO	1	21.0	1.65
ILO	1	13.0	1.65
CALO	2	18.0	3.30
BAY	5	13.6	8.26
MAD	2	47.0	3.30
BLM	18	17.4	29.73
TOTAL	**36**	**21.5**	**59.45**
Total area of sample plot			26,376ft^2
Average canopy size[1]			718ft^2
Average distance between trunks[2]			27ft
Canopy closure[3]			98%

Key:

BLK = Black Oak
CLO=Coast Live Oak
ILO = Interior Live Oak
CALO=Canyon Live Oak
BAY = California Bay
MAD = Pacific Madrone
BLM = Bigleaf Maple

GPS waypoint for each tree is indicated on the vegetation map provided in Figure 2.

1. Average canopy size per tree/trunk = (area of test plot X percent canopy closure)/combined # of trees in test plots
2. Average distance between trunks = square root of (sample area/total number of trunks)
3. Total area of canopy in community/total area of community
4. Total number of trunks per acre = ((ft^2/acre)/area of test plot)) X number of trunks in test plot

Table 8 provides an estimate of the species and number of trees that will be impacted by vineyard development in each of the proposed vineyard blocks based on the analysis provided above.

TABLE 8. ESTIMATED NUMBERS & SPECIES OF TREES IMPACTED WITHIN PROPOSED VINEYARD AREAS

Block #	Number and Species of Trees							Total # of Trees per Block
	BLK	CLO	ILO	CALO	BAY	MAD	BLM	
VBA *	0	3	0	0	0	0	0	3
VBB	40	6	6	12	29	12	104	207
VBC	36	5	5	10	26	10	94	187
VBD*	0	7	0	0	0	0	0	7
Total # Each Species	76	21	11	22	55	22	198	**Total estimated trees in all blocks = 404**

* Tree canopies extend over vineyard block edges, giving a nonzero canopy cover value, even though trunks are not necessarily present within the block. It is recommended that groundwork be moved outside of the drip zone of the included tree canopies to ensure survival.

Average Diameter at Breast Height (DBH) for each species is provided in Table 7.

7.2 Regional Setting and Continuity with Surrounding Woodlands and Other Habitat: The Atlas View II Vineyard property occupies the east-facing slope of a central ridge in the Howell Mountain Range. This range consists of a series of parallel north-northeast to south-southeast trending ridges separating the eastern edge of the Napa Valley from Lake Berryessa, the Vaca Mountains, and the Blue Ridge Range to the east. These two eastern ranges define the western edge of the California Central Valley. This central ridge (a southern spur of Atlas Peak), is bounded to the west by the Foss Valley and to the east by the Capell Valley. The eastern slope of this ridge supports a wide belt of mixed oak and coast live oak woodland interrupted by small grassland plateaus, most of which now support vineyard development. The regional setting is shown in the map provided in **Figure 4** while the topography is shown in **Figure 1**.

7.3 Wildlife Value of Woodlands in the Survey Area:

- **Core Habitat Value:** Core habitat is habitat provided by a plant community in its pure form without the direct influence of surrounding plant communities and intermediate, overlapping edge habitat (edge effect). While many wildlife species can use a wide range of habitats and may even need a mix of habitats to meet their needs, some species are limited to core habitat within a plant community or at least require the presence of core habitat within their home

range. This typically requires that the patch size (overall aerial extent) of the habitat be large enough to exclude the edge effect from the surrounding habitats.

Wildlife dependent on core woodland and forest habitat consists primarily of species using trees as shelter or whose food sources are associated with trees. This includes amphibians and reptiles using downed woody debris for cover and whose food consists of insects associated with woody debris. Woodpeckers are obviously associated with woodlands but many other passerines (perching birds) also depend on woodland insects and plant material or are dependent on dense woodland for nesting sites and cover. Larger mammals such as deer and their predators typically require sites providing dense cover not provided by more open woodlands and grasslands.

Appendix B provides a list of wildlife species whose range includes the project area and who use the habitats available within the vineyard property.

- **Cover and Edge Habitat for Surrounding Communities:** Edge habitat consists of boundaries between structurally different vegetation types with particular emphasis on boundaries between woodland or forest and open habitats such as grasslands or shrublands. Edge areas often support an increased density and diversity of wildlife species due to the overlap of two different plant communities and the unique assemblages of wildlife they support. Many species such as raptors require edge. Raptors use tree canopies as perches from which they can scan adjacent grasslands for prey. Deer will feed in open grassland if nearby tree cover is available.

  The Atlas View Vineyard property contains extensive edge between oak woodlands and open grassland habitats. This edge is ideal for nesting and hunting raptors, many passerines (perching birds), and larger mammals such as deer and their predators. Many of the wildlife species listed in Appendix B require woodland-grassland edge.

- **Value as a Wildlife Corridor:** The project area does not occur within any of the wildlife corridors identified as a *CalWild Linkage* shown in Map 4-2 of the Napa County BDR. It is important to note, however, that these linkage maps pertain to large-scale regional movement of wildlife (typically within valleys).

  Primary wildlife corridors in the region would emphasize valley terrain such as the Foss Valley to the west and the Capell Valley and contiguous valley terrain along Capell Creek to the east. For local diurnal movement (daily movement between sources of food, cover, and water), wildlife generally follow stream courses when

moving up and down slopes and use adjacent habitats (often preferring woodlands) for cover, browse, or hunting. **Figure 4** shows the most likely diurnal movement corridors into the project area. These are mapped as 150-foot radius zones along the principal stream courses. The actual width of usable corridors would continually change based on the density of vegetation and steepness of adjacent slopes. As previously noted, the eastern slope of Atlas Peak supports a broad belt of oak woodlands (darker areas in the aerial photo). This belt provides a broad expanse of contiguous woodland habitat supporting continuous and interconnected wildlife populations.

- **Presence of Critical Plant Community or Wildlife Resources:**

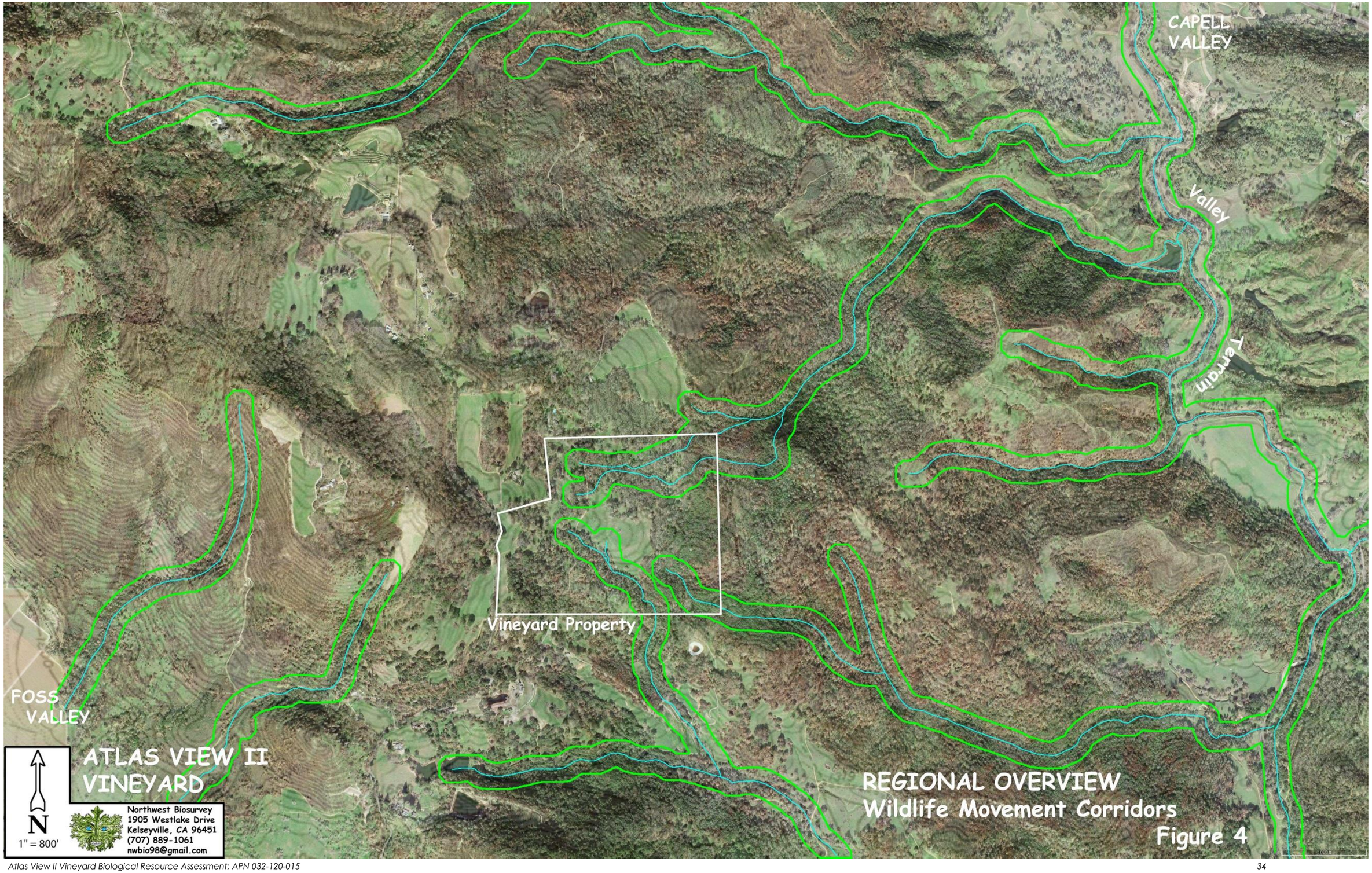
  Critical Plant Communities: The property contains purple needle-grass grassland, a Sensitive Biotic Community listed in the Napa County Baseline Data Report.

  Critical Wildlife Resources: A survey for bat habitat was conducted as part of the field surveys for this project. The survey is discussed in Section 5.1 of this report. Several trees providing potential bat habitat occur within the proposed vineyard blocks. Pre-construction surveys for presence are recommended if clearing is proposed during periods when these trees may be used as roosts (see Mitigation Section for details).

  Sources of upland summer and fall water are of particular importance to local wildlife. The small seep spring community of Baltic rush provides an extended source of surface waters into the early summer months. Sources of surface water during the late summer and fall are typically available down-slope in valley terrain or in remaining pools within ephemeral streams or in seep springs similar to the one on the vineyard property. These sources may be far between and available only to larger wildlife whose daily movements extend over greater distances.

- **Woodland Age Class and Size:** A woodland assessment was conducted for this project (Section 7.0). As noted in that section, woodlands on the property were subject to the Atlas Fire but most were either only lightly affected or recovered by the spring of 2018. While the fire removed most young seedlings, these should be quickly replaced. This mature, fire adapted woodland is healthy and shows good regeneration.

- **Trees with Unique Wildlife Value:** Woodlands on the property provide excellent wildlife value. As noted in the bat survey (Section 5.1), a number of trees within the proposed vineyard blocks provide suitable potential bat habitat.


CAPELL
VALLEY
Valley
Terrain
Vineyard Property
FOSS
VALLEY
ATLAS VIEW II
VINEYARD
N
1" = 800'
Northwest Biosurvey
1905 Westlake Drive
Kelseyville, CA 96451
(707) 889-1061
nwbio98@gmail.com
REGIONAL OVERVIEW
Wildlife Movement Corridors
Figure 4

8.0 CONFORMANCE WITH NAPA COUNTY BASELINE DATA REPORT (BDR)

Each of the pertinent sections of the Napa Count Baseline Data Report was reviewed to determine whether the issues and biological resources with special status in Napa County have been addressed in this biological assessment.

8.1 Sensitive Biotic Communities: As discussed in Section 7.3, the property contains a purple needle-grass grassland, a community listed among the sensitive biotic communities in the Napa County Baseline Data Report. Consequently, the CEQA Guidelines require review and mitigation for potential impacts to this community.

8.2 Special Status Plants and Wildlife: As noted in Section 2, Assessment Methodology, the pre-survey research conducted for this project included systematic reviews of the California Natural Diversity Database (CNDDB), California Native Plant Society Electronic Inventory, and California Department of Fish and Wildlife's Wildlife Habitat Relationships Program. The list of special status plants and wildlife used in the BDR is derived from the CNDDB. Additionally, Tables 4-6 and 4-7 of the Special Status Plants and Wildlife sections of the BDR were reviewed to assure consistency between the lists. All species listed in the CNDDB are subject to CEQA review pursuant to Section 15380 (d) of the CEQA Guidelines.

The floristic-level botanical survey conducted for this project identified 82 native and introduced plant taxa within the survey area. One of these is a plant listed in the California Natural Diversity Database (CNDDB):

- **Jepson's navarretia (*Navarretia jepsonii*)**; CNPS Rank 4.3

As noted in Section 5.1, a survey was conducted for bat habitat within the vineyard blocks. A number of trees within the blocks contain suitable bat roosting habitat.

8.3 Potential Wildlife Movement Corridors: The CalWild Linkage Map presented in Map 4-2 of the BDR was reviewed with respect to this project. The project area is not within a movement area as defined by the CalWild database. Local wildlife movement is discussed in detail in the Woodland Assessment, Section 7.3. The local wildlife movement corridors within the project area consist of up-slope and down-slope movement corridors within and along ephemeral stream channels. These are located within woodland habitat on the property and would not be directly impacted by the proposed vineyard development.

8.4. Fisheries Resources: There are no fisheries resources within the project area.

9.0 SUMMARY, IMPACT ANALYSIS, AND RECOMMENDATIONS

9.1 Summary: This biological resource assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

- Review of current California Natural Diversity Database (CNDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *Electronic Inventory of Rare and Endangered Vascular Plants of California,* and the California Department of Fish and Wildlife's *California Wildlife Habitat Relationships System*.
- A California Department of Fish and Wildlife protocol, floristic-level field survey of the plants occurring within and in the immediate vicinity of the project.
- Surveys for sensitive bat habitat.
- A delineation of waters of the U.S. conducted according to the *Corps of Engineers Wetlands Delineation Manual, January 1987* as updated by the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008.*
- A woodland assessment conducted in conformance with Napa County policy.
- Review of the Napa County Baseline Data Report (BDR), 2005.

Sensitive Plants: A total of 82 native and introduced plant taxa were identified on the property during the in-season, floristic-level botanical survey. One species with sensitive regulatory status were found on the property during the surveys: **Jepson's navarretia (*Navarretia jepsonii*);** a CNPS Rank 4.3 taxon.

As used here, the term sensitive includes species having state or federal regulatory status, defined as Rare Plant Ranks 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database. CNPS Rare Plant Rank 4 is a watch list of plants about which not enough is known to qualify them as "rare, threatened, or endangered" and consequently placed in Rare Plant Rank 1B.

The property contains **purple needle-grass grassland**, a community listed among the sensitive biotic communities in the Napa County Baseline Data Report.

Sensitive Wildlife: A total of 9 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the quadrangle,

inclusion in the WHR analysis, or were added based on local knowledge of the survey staff. Of these, five species have a potential to occur within the survey area. These are:

- **White-tailed kite**
- **Lawrence's gold finch**
- **Lewis's woodpecker**
- **Loggerhead shrike**
- **Pallid bat**

Woodland Resources: A Napa County Woodland Assessment was conducted for this project and is provided in Section 7.0. As shown in Table 1, the property contains a total of 17.35 acres of coast live oak woodland, 67.87 acres of mixed oak woodland, and 4.06 acres of blue oak woodland. The proposed vineyard blocks contain a total of 7.34 acres of Mixed Oak Woodland (10.81-percent of the total community). Based on the woodland assessment this vineyard acreage would contain an estimated 404 trees within the mixed oak woodland (see **Tables 7 and 8**).

Possible Waters of U.S.: The total area of all delineated wetlands is **0.618 acre** in stream channels and wetlands.

9.2 Potential Impacts and Proposed Mitigations:

- **Habitat Fragmentation:**

  Potential Impact: The Napa County Baseline Data Report emphasizes preservation of wildlife corridors and prevention of habitat fragmentation.

  As shown in **Figure 4**, the vineyard property contains the up-slope ends (headwaters) of a number of potential wildlife corridors providing access between the Foss Valley and continuous oak woodlands along the eastern slope of Atlas Peak.

  The 150-foot radius corridors mapped in Figure 4 are limited primarily to oak woodland habitats. The impacts of proposed vineyard development would consist of a reduction in corridor widths where corridors currently extend into grasslands that will be converted to vineyard and to loss of edge habitat between grasslands and woodlands.

  This loss of edge would primarily impact raptor hunting which would undergo a change in prey species with the change from grassland to vineyard. It should be noted that vineyard managers typically promote raptor hunting in

vineyards with addition of owl nest boxes in order to reduce herbivore "predation" on vines and grapes.

Measure 1 Proposed Mitigation: The current vineyard block layout minimized impacts to wildlife corridors; however, vineyard fencing should be restricted to vineyard block boundaries to avoid unnecessary disruption of wildlife movement throughout the property and to adjacent properties.

Future development should be limited to a possible residence and ancillary vineyard agricultural structures which should be located in a manner that avoids obstruction of wildlife corridors as mapped in Figure 4. The remaining woodland and forest habitat should be preserved through methods consistent with Napa County planning regulations.

- **Woodland and Forest Resources**

Potential Impact: As shown in **Table 1**, the property contains a total of 17.35 acres of coast live oak woodland, 67.87 acres of mixed oak woodland, and 4.06 acres of blue oak woodland. The proposed vineyard blocks contain a total of 7.34 acres of Mixed Oak Woodland (10.81-percent of the total community). Based on the woodland assessment this vineyard acreage would contain an estimated 404 trees within the mixed oak woodland (see **Tables 7 and 8**). Development of the proposed vineyard blocks would result in the removal of these trees.

Measure 2 Proposed Mitigation: The significance of this loss of woodland habitat must be determined by County staff in conformance with *Napa County General Plan policy CON-22*. Standard mitigation within the County of Napa calls for preservation of remaining woodlands at a ratio of 3 acres of preservation for each acre removed for vineyard development. The woodland preservation recommended in Measure 1 above would exceed this requirement.

- **Sensitive Plants and Wildlife**

Potential Impacts:

Plants: Jepson's navarretia, a CNPS Rank 4.3 taxon, occurs as widely dispersed individuals throughout the wild oat grasslands on the property. As noted, List 4 is a watch list. In particular, plants ranked 4.3 are defined by the California Native Plant Society (CNPS) as "*Not very threatened in California (less than 20%*

of occurrences threatened/low degree and immediacy of threat or no current threat).

While a determination to require mitigation for plants with this rank is ultimately up to permitting agencies, it is unlikely that a plant with this ranking would qualify as a sensitive plant that would require mitigation.

Purple needle grass grassland occurs in the northeastern corner of proposed vineyard block B. Communities of this grass are considered to be a sensitive biotic community as listed in the Napa County Baseline Data Report (BDR). As such they require review and mitigation under the CEQA Guidelines. Development of vineyard block B, as proposed, would result in the loss of this sensitive 0.13-acre population.

Wildlife: The proposed vineyard blocks provide potential habitat for the following wildlife species with sensitive regulatory status:

- White-tailed kite
- Lawrence's goldfinch
- Lewis' woodpecker
- Loggerhead shrike
- Pallid bat

Development of the vineyard blocks has a potential to result in the incidental take of individuals of these species if conducted during the breeding season (birds – February 1 through August 31) or roosting period (bats – April 1 through September 15).

Critical Wildlife Resources: The small Baltic rush seep-spring wetland located along the northern property boundary is currently included in proposed vineyard block C. Loss of all or a portion of this important source of upland surface water would have a significant impact on the habitat quality of the surrounding area during the early summer months.

Measure 3 Proposed Mitigation:

Sensitive plant populations: It is recommended that the 0.13-acre population of purple needle-grass grassland in the northeastern corner of vineyard block B be marked in the field by a qualified biologist prior to vineyard construction. The population should be excluded from vineyard development with a minimum 50-foot buffer connecting up-slope to the adjacent mixed oak woodland (in order to preserve site hydrology).

Birds: Under the Migratory Bird Treaty Act and California Fish and Wildlife Code, nesting birds are protected from incidental take. Removal of trees during the nesting season (February 1 to August 31) must be preceded by a survey for nesting birds conducted by a qualified biologist. In the event that nesting birds are identified, a suitable construction buffer will be established around the nest site until either the end of the nesting season or upon determination by a qualified biologist that fledging has been completed, or that the nest has been abandoned. It is recommended that trees approved for removal be felled outside of the nesting season.

Bats: Pallid bats, which have sensitive regulatory status, have the potential to roost in the exfoliating bark and hollows of trees within the proposed vineyard blocks. Additionally, other bat species may also roost in trees or downed wood within the survey corridor.

If work is proposed within 50 feet of woodland habitat during the maternity roosting season (April 1 through September 15), trees with features capable of supporting roosting bats shall be surveyed for bat roosts or evidence of bat roosting (guano, urine staining and scent, dead bats) by a qualified biologist within 14 days of the start of project activities or removal of vegetation. If active roosts are discovered, a buffer of 50 feet around the active roost should be established by the biologist. Removal may occur once active roosting ceases as determined by the biologist.

Critical Wildlife Resources: The small Baltic rush seep-spring community along the northern property boundary (see Figure 2) should be excluded along with a 50-foot buffer from proposed vineyard block B. Access to this source of upland water should be assured by limiting vineyard fencing to vineyard blocks.

Compensatory Mitigation for Cumulative Impacts: If additional compensatory mitigation is required to offset cumulative project impacts to wildlife, development of a permanent source of upland summer and fall water should be considered as part of the vineyard irrigation plan. This source should consist of a small pool (~6-10 feet in diameter, with sloping contour to allow escape of small wildlife) within a secluded portion of the property (wooded) and accessible along one of the wildlife corridors mapped in **Figure 4**. This pool should be kept full year-round with a float valve or other method. This measure would result in a significant net improvement in wildlife habitat quality in the project area.

- **Waters of the U.S.**

  Potential Impacts: As listed in Table 6 and mapped in Figure 3, the vineyard property contains a total of 0.618 acres of Possible Waters of the U.S. Vineyard block C contains a portion of the seep-spring wetland and a segment of waterway M3 as mapped in Figure 3. Construction of this vineyard blocks has a potential to result in the filling of these Waters of the U.S.

  Measure 4 Proposed Mitigation: It is recommended that the seep-spring wetland be excluded from vineyard block C as described in Measure 3 above. Channel segment M3 should be excluded via a stream setback consistent with Napa County regulations or be subject to permits as described below.

  Placement of fill within Waters of the U.S. may require a Nationwide permit by the Corps of Engineers (possibly a non-reporting permit under the Nationwide Permit Program), along with a 401 Water Quality Certification from the Regional Water Quality Control Board, and 1604 Stream Alteration Agreement from the California Department of Fish and Wildlife. The County of Napa may require stream setbacks.

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APPENDIX A

CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE

SURROUNDING CALIF. 7½' QUADS.

Surrounding 9-Quad List: Capell Valley Quadrangles

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Capell Valley	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Capell Valley	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
Capell Valley	*Ardea herodias*	great blue heron	None	None	-	-
Capell Valley	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Capell Valley	*Lasiurus blossevillii*	western red bat	None	None	SSC	-
Capell Valley	*Emys marmorata*	western pond turtle	None	None	SSC	-
Capell Valley	*Northern Vernal Pool*	Northern Vernal Pool	None	None	-	-
Capell Valley	*Harmonia nutans*	nodding harmonia	None	None	-	4.3
Capell Valley	*Lasthenia conjugens*	Contra Costa goldfields	End	None	-	1B.1
Capell Valley	*Cryptantha dissita*	serpentine cryptantha	None	None	-	1B.2
Capell Valley	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Capell Valley	*Juglans hindsii*	Northern California black walnut	None	None	-	1B.1
Capell Valley	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
Capell Valley	*Hesperolinon breweri*	Brewer's western flax	None	None	-	1B.2
Capell Valley	*Hesperolinon sharsmithiae*	Sharsmith's western flax	None	None	-	1B.2
Capell Valley	*Sidalcea keckii*	Keck's checkerbloom	End	None	-	1B.1
Capell Valley	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
Capell Valley	*Castilleja ambigua var. ambigua*	johnny-nip	None	None	-	4.2
Capell Valley	*Castilleja ambigua var. meadii*	Mead's owls-clover	None	None	-	1B.1
Capell Valley	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
Capell Valley	*Collomia diversifolia*	serpentine collomia	None	None	-	4.3
Capell Valley	*Leptosiphon jepsonii*	Jepson's leptosiphon	None	None	-	1B.2
Capell Valley	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
Capell Valley	*Ceanothus purpureus*	holly-leaved ceanothus	None	None	-	1B.2
Capell Valley	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2
Cordelia	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Cordelia	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
Cordelia	*Taricha torosa*	Coast Range newt	None	None	SSC	-
Cordelia	*Aquila chrysaetos*	golden eagle	None	None	FP ; WL	-
Cordelia	*Elanus leucurus*	white-tailed kite	None	None	FP	-
Cordelia	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
Cordelia	*Ardea alba*	great egret	None	None	-	-
Cordelia	*Ardea herodias*	great blue heron	None	None	-	-
Cordelia	*Egretta thula*	snowy egret	None	None	-	-
Cordelia	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
Cordelia	*Melospiza melodia maxillaris*	Suisun song sparrow	None	None	SSC	-
Cordelia	*Falco peregrinus anatum*	American peregrine falcon	Delisted	Delisted	FP	-
Cordelia	*Agelaius tricolor*	tricolored blackbird	None	Cand End	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Cordelia	*Athene cunicularia*	burrowing owl	None	None	SSC	-
Cordelia	*Bombus occidentalis*	western bumble bee	None	None	-	-
Cordelia	*Desmocerus californicus dimorphus*	valley elderberry longhorn beetle	Threat	None	-	-
Cordelia	*Speyeria callippe callippe*	callippe silverspot butterfly	End	None	-	-
Cordelia	*Reithrodontomys raviventris*	salt-marsh harvest mouse	End	End	FP	-
Cordelia	*Sorex ornatus sinuosus*	Suisun shrew	None	None	SSC	-
Cordelia	*Myotis yumanensis*	Yuma myotis	None	None	-	-
Cordelia	*Emys marmorata*	western pond turtle	None	None	SSC	-
Cordelia	*Serpentine Bunchgrass*	Serpentine Bunchgrass	None	None	-	-
Cordelia	*Eryngium jepsonii*	Jepson's coyote-thistle	None	None	-	1B.2
Cordelia	*Balsamorhiza macrolepis*	big-scale balsamroot	None	None	-	1B.2
Cordelia	*Centromadia parryi ssp. parryi*	pappose tarplant	None	None	-	1B.2
Cordelia	*Erigeron biolettii*	streamside daisy	None	None	-	3
Cordelia	*Isocoma arguta*	Carquinez goldenbush	None	None	-	1B.1
Cordelia	*Symphyotrichum lentum*	Suisun Marsh aster	None	None	-	1B.2
Cordelia	*Trifolium amoenum*	two-fork clover	End	None	-	1B.1
Cordelia	*Trifolium hydrophilum*	saline clover	None	None	-	1B.2
Cordelia	*Iris longipetala*	coast iris	None	None	-	4.2
Cordelia	*Castilleja affinis var. neglecta*	Tiburon paintbrush	End	Threat	-	1B.2
Cuttings Wharf	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
Cuttings Wharf	*Aquila chrysaetos*	golden eagle	None	None	FP ; WL	-
Cuttings Wharf	*Buteo regalis*	ferruginous hawk	None	None	WL	-
Cuttings Wharf	*Buteo swainsoni*	Swainson's hawk	None	Threat	-	-
Cuttings Wharf	*Circus cyaneus*	northern harrier	None	None	SSC	-
Cuttings Wharf	*Elanus leucurus*	white-tailed kite	None	None	FP	-
Cuttings Wharf	*Ardea alba*	great egret	None	None	-	-
Cuttings Wharf	*Ardea herodias*	great blue heron	None	None	-	-
Cuttings Wharf	*Egretta thula*	snowy egret	None	None	-	-
Cuttings Wharf	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
Cuttings Wharf	*Charadrius alexandrinus nivosus*	western snowy plover	Threat	None	SSC	-
Cuttings Wharf	*Charadrius montanus*	mountain plover	None	None	SSC	-
Cuttings Wharf	*Melospiza melodia samuelis*	San Pablo song sparrow	None	None	SSC	-
Cuttings Wharf	*Passerculus sandwichensis beldingi*	Belding's savannah sparrow	None	End	-	-
Cuttings Wharf	*Riparia riparia*	bank swallow	None	Threat	-	-
Cuttings Wharf	*Agelaius tricolor*	tricolored blackbird	None	Cand End	SSC	-
Cuttings Wharf	*Hydroprogne caspia*	Caspian tern	None	None	-	-
Cuttings Wharf	*Sternula antillarum browni*	California least tern	End	End	FP	-
Cuttings Wharf	*Geothlypis trichas sinuosa*	saltmarsh common yellowthroat	None	None	SSC	-
Cuttings Wharf	*Phalacrocorax auritus*	double-crested cormorant	None	None	WL	-
Cuttings Wharf	*Laterallus jamaicensis coturniculus*	California black rail	None	Threat	FP	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Cuttings Wharf	*Rallus longirostris obsoletus*	California clapper rail	End	End	FP	-
Cuttings Wharf	*Athene cunicularia*	burrowing owl	None	None	SSC	-
Cuttings Wharf	*Syncaris pacifica*	California freshwater shrimp	End	End	-	-
Cuttings Wharf	*Branchinecta lynchi*	vernal pool fairy shrimp	Threat	None	-	-
Cuttings Wharf	*Acipenser transmontanus*	white sturgeon	None	None	SSC	-
Cuttings Wharf	*Pogonichthys macrolepidotus*	Sacramento splittail	None	None	SSC	-
Cuttings Wharf	*Hysterocarpus traski traski*	Sacramento-San Joaquin tule perch	None	None	-	-
Cuttings Wharf	*Hypomesus transpacificus*	Delta smelt	Threat	End	-	-
Cuttings Wharf	*Spirinchus thaleichthys*	longfin smelt	Cand	Threat	SSC	-
Cuttings Wharf	*Lampetra ayresii*	river lamprey	None	None	SSC	-
Cuttings Wharf	*Oncorhynchus mykiss irideus*	steelhead - central California coast DPS	Threat	None	-	-
Cuttings Wharf	*Oncorhynchus tshawytscha*	chinook salmon - Central Valley fall-late fall-run ESU	None	None	SSC	-
Cuttings Wharf	*Reithrodontomys raviventris*	salt-marsh harvest mouse	End	End	FP	-
Cuttings Wharf	*Taxidea taxus*	American badger	None	None	SSC	-
Cuttings Wharf	*Sorex ornatus sinuosus*	Suisun shrew	None	None	SSC	-
Cuttings Wharf	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Cuttings Wharf	*Emys marmorata*	western pond turtle	None	None	SSC	-
Cuttings Wharf	*Coastal Brackish Marsh*	Coastal Brackish Marsh	None	None	-	-
Cuttings Wharf	*Northern Coastal Salt Marsh*	Northern Coastal Salt Marsh	None	None	-	-
Cuttings Wharf	*Northern Vernal Pool*	Northern Vernal Pool	None	None	-	-
Cuttings Wharf	*Lilaeopsis masonii*	Mason's lilaeopsis	None	Rare	-	1B.1
Cuttings Wharf	*Lasthenia conjugens*	Contra Costa goldfields	End	None	-	1B.1
Cuttings Wharf	*Symphyotrichum lentum*	Suisun Marsh aster	None	None	-	1B.2
Cuttings Wharf	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Cuttings Wharf	*Legenere limosa*	legenere	None	None	-	1B.1
Cuttings Wharf	*Extriplex joaquinana*	San Joaquin spearscale	None	None	-	1B.2
Cuttings Wharf	*Carex lyngbyei*	Lyngbye's sedge	None	None	-	2B.2
Cuttings Wharf	*Eleocharis parvula*	small spikerush	None	None	-	4.3
Cuttings Wharf	*Astragalus tener var. tener*	alkali milk-vetch	None	None	-	1B.2
Cuttings Wharf	*Lathyrus jepsonii var. jepsonii*	Delta tule pea	None	None	-	1B.2
Cuttings Wharf	*Trifolium amoenum*	two-fork clover	End	None	-	1B.1
Cuttings Wharf	*Trifolium hydrophilum*	saline clover	None	None	-	1B.2
Cuttings Wharf	*Castilleja ambigua var. ambigua*	johnny-nip	None	None	-	4.2
Cuttings Wharf	*Chloropyron molle ssp. molle*	soft salty bird's-beak	End	Rare	-	1B.2
Cuttings Wharf	*Polygonum marinense*	Marin knotweed	None	None	-	3.1
Cuttings Wharf	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Mt. George	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
Mt. George	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Mt. George	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
Mt. George	*Ardea herodias*	great blue heron	None	None	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Mt. George	*Falco mexicanus*	prairie falcon	None	None	WL	-
Mt. George	*Desmocerus californicus dimorphus*	valley elderberry longhorn beetle	Threat	None	-	-
Mt. George	*Emys marmorata*	western pond turtle	None	None	SSC	-
Mt. George	*Lomatium repostum*	Napa lomatium	None	None	-	4.3
Mt. George	*Centromadia parryi ssp. rudis*	Parry's rough tarplant	None	None	-	4.2
Mt. George	*Erigeron biolettii*	streamside daisy	None	None	-	3
Mt. George	*Erigeron greenei*	Greene's narrow-leaved daisy	None	None	-	1B.2
Mt. George	*Harmonia nutans*	nodding harmonia	None	None	-	4.3
Mt. George	*Arabis modesta*	modest rockcress	None	None	-	4.3
Mt. George	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Mt. George	*Viburnum ellipticum*	oval-leaved viburnum	None	None	-	2B.3
Mt. George	*Rhynchospora californica*	California beaked-rush	None	None	-	1B.1
Mt. George	*Monardella viridis*	green monardella	None	None	-	4.3
Mt. George	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
Mt. George	*Lilium rubescens*	redwood lily	None	None	-	4.2
Mt. George	*Hesperolinon breweri*	Brewer's western flax	None	None	-	1B.2
Mt. George	*Sidalcea hickmanii ssp. napensis*	Napa checkerbloom	None	None	-	1B.1
Mt. George	*Calandrinia breweri*	Brewer's calandrinia	None	None	-	4.2
Mt. George	*Agrostis hendersonii*	Henderson's bent grass	None	None	-	3.2
Mt. George	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Mt. George	*Ceanothus purpureus*	holly-leaved ceanothus	None	None	-	1B.2
Mt. George	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2
Mt. George	*Triteleia lugens*	dark-mouthed triteleia	None	None	-	4.3
Napa	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
Napa	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Napa	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
Napa	*Accipiter cooperii*	Cooper's hawk	None	None	WL	-
Napa	*Buteo swainsoni*	Swainson's hawk	None	Threat	-	-
Napa	*Elanus leucurus*	white-tailed kite	None	None	FP	-
Napa	*Pandion haliaetus*	osprey	None	None	WL	-
Napa	*Ardea alba*	great egret	None	None	-	-
Napa	*Ardea herodias*	great blue heron	None	None	-	-
Napa	*Egretta thula*	snowy egret	None	None	-	-
Napa	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
Napa	*Melospiza melodia samuelis*	San Pablo song sparrow	None	None	SSC	-
Napa	*Riparia riparia*	bank swallow	None	Threat	-	-
Napa	*Geothlypis trichas sinuosa*	saltmarsh common yellowthroat	None	None	SSC	-
Napa	*Setophaga petechia*	yellow warbler	None	None	SSC	-
Napa	*Calasellus californicus*	An isopod	None	None	-	-
Napa	*Syncaris pacifica*	California freshwater shrimp	End	End	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Napa	*Pogonichthys macrolepidotus*	Sacramento splittail	None	None	SSC	-
Napa	*Hypomesus transpacificus*	Delta smelt	Threat	End	-	-
Napa	*Spirinchus thaleichthys*	longfin smelt	Cand	Threat	SSC	-
Napa	*Oncorhynchus mykiss irideus*	steelhead - central California coast DPS	Threat	None	-	-
Napa	*Bombus occidentalis*	western bumble bee	None	None	-	-
Napa	*Taxidea taxus*	American badger	None	None	SSC	-
Napa	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Napa	*Emys marmorata*	western pond turtle	None	None	SSC	-
Napa	*Lilaeopsis masonii*	Mason's lilaeopsis	None	Rare	-	1B.1
Napa	*Erigeron greenei*	Greene's narrow-leaved daisy	None	None	-	1B.2
Napa	*Harmonia nutans*	nodding harmonia	None	None	-	4.3
Napa	*Lasthenia conjugens*	Contra Costa goldfields	End	None	-	1B.1
Napa	*Symphyotrichum lentum*	Suisun Marsh aster	None	None	-	1B.2
Napa	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Napa	*Extriplex joaquinana*	San Joaquin spearscale	None	None	-	1B.2
Napa	*Eleocharis parvula*	small spikerush	None	None	-	4.3
Napa	*Astragalus tener var. tener*	alkali milk-vetch	None	None	-	1B.2
Napa	*Lathyrus jepsonii var. jepsonii*	Delta tule pea	None	None	-	1B.2
Napa	*Trifolium amoenum*	two-fork clover	End	None	-	1B.1
Napa	*Trifolium hydrophilum*	saline clover	None	None	-	1B.2
Napa	*Juglans hindsii*	Northern California black walnut	None	None	-	1B.1
Napa	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
Napa	*Erythronium helenae*	St. Helena fawn lily	None	None	-	4.2
Napa	*Calandrinia breweri*	Brewer's calandrinia	None	None	-	4.2
Napa	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
Napa	*Leptosiphon jepsonii*	Jepson's leptosiphon	None	None	-	1B.2
Napa	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Napa	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2
Rutherford	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
Rutherford	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Rutherford	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
Rutherford	*Buteo swainsoni*	Swainson's hawk	None	Threat	-	-
Rutherford	*Elanus leucurus*	white-tailed kite	None	None	FP	-
Rutherford	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
Rutherford	*Cypseloides niger*	black swift	None	None	SSC	-
Rutherford	*Ardea herodias*	great blue heron	None	None	-	-
Rutherford	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
Rutherford	*Icteria virens*	yellow-breasted chat	None	None	SSC	-
Rutherford	*Setophaga petechia*	yellow warbler	None	None	SSC	-
Rutherford	*Oncorhynchus mykiss irideus*	steelhead - central California coast DPS	Threat	None	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Rutherford	*Bombus caliginosus*	obscure bumble bee	None	None	-	-
Rutherford	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Rutherford	*Gonidea angulata*	western ridged mussel	None	None	-	-
Rutherford	*Emys marmorata*	western pond turtle	None	None	SSC	-
Rutherford	*Eryngium jepsonii*	Jepson's coyote-thistle	None	None	-	1B.2
Rutherford	*Erigeron biolettii*	streamside daisy	None	None	-	3
Rutherford	*Erigeron greenei*	Greene's narrow-leaved daisy	None	None	-	1B.2
Rutherford	*Harmonia nutans*	nodding harmonia	None	None	-	4.3
Rutherford	*Helianthus exilis*	serpentine sunflower	None	None	-	4.2
Rutherford	*Streptanthus hesperidis*	green jewelflower	None	None	-	1B.2
Rutherford	*Arctostaphylos stanfordiana ssp. decumbens*	Rincon Ridge manzanita	None	None	-	1B.1
Rutherford	*Amorpha californica var. napensis*	Napa false indigo	None	None	-	1B.2
Rutherford	*Astragalus claranus*	Clara Hunt's milk-vetch	End	Threat	-	1B.1
Rutherford	*Lupinus sericatus*	Cobb Mountain lupine	None	None	-	1B.2
Rutherford	*Clarkia breweri*	Brewer's clarkia	None	None	-	4.2
Rutherford	*Leptosiphon jepsonii*	Jepson's leptosiphon	None	None	-	1B.2
Rutherford	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Rutherford	*Ceanothus confusus*	Rincon Ridge ceanothus	None	None	-	1B.1
Rutherford	*Ceanothus divergens*	Calistoga ceanothus	None	None	-	1B.2
Rutherford	*Ceanothus sonomensis*	Sonoma ceanothus	None	None	-	1B.2
Rutherford	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2
Sears Point	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
Sears Point	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
Sears Point	*Buteo swainsoni*	Swainson's hawk	None	Threat	-	-
Sears Point	*Ardea alba*	great egret	None	None	-	-
Sears Point	*Ardea herodias*	great blue heron	None	None	-	-
Sears Point	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
Sears Point	*Melospiza melodia maxillaris*	Suisun song sparrow	None	None	SSC	-
Sears Point	*Melospiza melodia pusillula*	Alameda song sparrow	None	None	SSC	-
Sears Point	*Melospiza melodia samuelis*	San Pablo song sparrow	None	None	SSC	-
Sears Point	*Riparia riparia*	bank swallow	None	Threat	-	-
Sears Point	*Agelaius tricolor*	tricolored blackbird	None	Cand End	SSC	-
Sears Point	*Lanius ludovicianus*	loggerhead shrike	None	None	SSC	-
Sears Point	*Sternula antillarum browni*	California least tern	End	End	FP	-
Sears Point	*Geothlypis trichas sinuosa*	saltmarsh common yellowthroat	None	None	SSC	-
Sears Point	*Laterallus jamaicensis coturniculus*	California black rail	None	Threat	FP	-
Sears Point	*Rallus longirostris obsoletus*	California clapper rail	End	End	FP	-
Sears Point	*Athene cunicularia*	burrowing owl	None	None	SSC	-
Sears Point	*Caecidotea tomalensis*	Tomales isopod	None	None	-	-
Sears Point	*Spirinchus thaleichthys*	longfin smelt	Cand	Threat	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Sears Point	*Andrena blennospermatis*	Blennosperma vernal pool andrenid bee	None	None	-	-
Sears Point	*Adela oplerella*	Opler's longhorn moth	None	None	-	-
Sears Point	*Danaus plexippus pop. 1*	monarch - California overwintering population	None	None	-	-
Sears Point	*Speyeria callippe callippe*	callippe silverspot butterfly	End	None	-	-
Sears Point	*Speyeria zerene sonomensis*	Sonoma zerene fritillary	None	None	-	-
Sears Point	*Reithrodontomys raviventris*	salt-marsh harvest mouse	End	End	FP	-
Sears Point	*Sorex ornatus sinuosus*	Suisun shrew	None	None	SSC	-
Sears Point	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Sears Point	*Coastal Brackish Marsh*	Coastal Brackish Marsh	None	None	-	-
Sears Point	*Northern Coastal Salt Marsh*	Northern Coastal Salt Marsh	None	None	-	-
Sears Point	*Northern Vernal Pool*	Northern Vernal Pool	None	None	-	-
Sears Point	*Blennosperma bakeri*	Sonoma sunshine	End	End	-	1B.1
Sears Point	*Centromadia parryi ssp. parryi*	pappose tarplant	None	None	-	1B.2
Sears Point	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Sears Point	*Eleocharis parvula*	small spikerush	None	None	-	4.3
Sears Point	*Trifolium hydrophilum*	saline clover	None	None	-	1B.2
Sears Point	*Castilleja ambigua var. ambigua*	johnny-nip	None	None	-	4.2
Sears Point	*Chloropyron molle ssp. molle*	soft salty bird's-beak	End	Rare	-	1B.2
Sears Point	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Sonoma	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
Sonoma	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Sonoma	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
Sonoma	*Cypseloides niger*	black swift	None	None	SSC	-
Sonoma	*Melospiza melodia samuelis*	San Pablo song sparrow	None	None	SSC	-
Sonoma	*Passerculus sandwichensis alaudinus*	Bryant's savannah sparrow	None	None	SSC	-
Sonoma	*Falco columbarius*	merlin	None	None	WL	-
Sonoma	*Spinus lawrencei*	Lawrence's goldfinch	None	None	-	-
Sonoma	*Riparia riparia*	bank swallow	None	Threat	-	-
Sonoma	*Selasphorus rufus*	rufous hummingbird	None	None	-	-
Sonoma	*Syncaris pacifica*	California freshwater shrimp	End	End	-	-
Sonoma	*Bombus caliginosus*	obscure bumble bee	None	None	-	-
Sonoma	*Bombus occidentalis*	western bumble bee	None	None	-	-
Sonoma	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Sonoma	*Emys marmorata*	western pond turtle	None	None	SSC	-
Sonoma	*Allium peninsulare var. franciscanum*	Franciscan onion	None	None	-	1B.2
Sonoma	*Lomatium repostum*	Napa lomatium	None	None	-	4.3
Sonoma	*Balsamorhiza macrolepis*	big-scale balsamroot	None	None	-	1B.2
Sonoma	*Blennosperma bakeri*	Sonoma sunshine	End	End	-	1B.1
Sonoma	*Erigeron biolettii*	streamside daisy	None	None	-	3
Sonoma	*Harmonia nutans*	nodding harmonia	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Sonoma	*Hemizonia congesta ssp. congesta*	congested-headed hayfield tarplant	None	None	-	1B.2
Sonoma	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Sonoma	*Viburnum ellipticum*	oval-leaved viburnum	None	None	-	2B.3
Sonoma	*Amorpha californica var. napensis*	Napa false indigo	None	None	-	1B.2
Sonoma	*Lupinus sericatus*	Cobb Mountain lupine	None	None	-	1B.2
Sonoma	*Monardella viridis*	green monardella	None	None	-	4.3
Sonoma	*Lilium rubescens*	redwood lily	None	None	-	4.2
Sonoma	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
Sonoma	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
Sonoma	*Ceanothus confusus*	Rincon Ridge ceanothus	None	None	-	1B.1
Sonoma	*Ceanothus sonomensis*	Sonoma ceanothus	None	None	-	1B.2
Sonoma	*Horkelia tenuiloba*	thin-lobed horkelia	None	None	-	1B.2
Sonoma	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2
Sonoma	*Triteleia lugens*	dark-mouthed triteleia	None	None	-	4.3
Yountville	*Rana boylii*	foothill yellow-legged frog	None	Cand Thrt	SSC	-
Yountville	*Elanus leucurus*	white-tailed kite	None	None	FP	-
Yountville	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
Yountville	*Ardea alba*	great egret	None	None	-	-
Yountville	*Ardea herodias*	great blue heron	None	None	-	-
Yountville	*Falco peregrinus anatum*	American peregrine falcon	Delisted	Delisted	FP	-
Yountville	*Icteria virens*	yellow-breasted chat	None	None	SSC	-
Yountville	*Setophaga petechia*	yellow warbler	None	None	SSC	-
Yountville	*Phalacrocorax auritus*	double-crested cormorant	None	None	WL	-
Yountville	*Oncorhynchus mykiss irideus*	steelhead - central California coast DPS	Threat	None	-	-
Yountville	*Bombus caliginosus*	obscure bumble bee	None	None	-	-
Yountville	*Antrozous pallidus*	pallid bat	None	None	SSC	-
Yountville	*Emys marmorata*	western pond turtle	None	None	SSC	-
Yountville	*Sagittaria sanfordii*	Sanford's arrowhead	None	None	-	1B.2
Yountville	*Eryngium jepsonii*	Jepson's coyote-thistle	None	None	-	1B.2
Yountville	*Lomatium repostum*	Napa lomatium	None	None	-	4.3
Yountville	*Erigeron greenei*	Greene's narrow-leaved daisy	None	None	-	1B.2
Yountville	*Harmonia nutans*	nodding harmonia	None	None	-	4.3
Yountville	*Micropus amphibolus*	Mt. Diablo cottonweed	None	None	-	3.2
Yountville	*Streptanthus hesperidis*	green jewelflower	None	None	-	1B.2
Yountville	*Downingia pusilla*	dwarf downingia	None	None	-	2B.2
Yountville	*Astragalus clevelandii*	Cleveland's milk-vetch	None	None	-	4.3
Yountville	*Monardella viridis*	green monardella	None	None	-	4.3
Yountville	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
Yountville	*Limnanthes vinculans*	Sebastopol meadowfoam	End	End	-	1B.1
Yountville	*Hesperolinon sharsmithiae*	Sharsmith's western flax	None	None	-	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Yountville	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
Yountville	*Castilleja ambigua var. ambigua*	johnny-nip	None	None	-	4.2
Yountville	*Castilleja ambigua var. meadii*	Mead's owls-clover	None	None	-	1B.1
Yountville	*Penstemon newberryi var. sonomensis*	Sonoma beardtongue	None	None	-	1B.3
Yountville	*Leptosiphon jepsonii*	Jepson's leptosiphon	None	None	-	1B.2
Yountville	*Leptosiphon latisectus*	broad-lobed leptosiphon	None	None	-	4.3
Yountville	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
Yountville	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
Yountville	*Ceanothus purpureus*	holly-leaved ceanothus	None	None	-	1B.2
Yountville	*Brodiaea leptandra*	narrow-anthered brodiaea	None	None	-	1B.2

KEY FOR 9-QUAD LIST:

1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

SE/ST/SD=State Endangered/Threatened/Delisted
SSC=CDFW Species of Special Concern
WL=CDFW Watch List
FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting
Thrt=Threatened
Cand=Candidate
SC/SCD=State Candidate for Listing/Delisting
SFP=State Fully Protected
FE/FT/FD=Federal Endangered/Threatened/Delisted
FC=Federal Candidate
End=Endangered
Prop=Proposed

APPENDIX B

WILDLIFE HABITAT RELATIONSHIPS SYSTEM RESULTS

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
supported by the
CALIFORNIA INTERAGENCY WILDLIFE TASK GROUP
and maintained by the
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
Database Version: 9.0

SPECIES SUMMARY REPORT

FE = Federal Endangered
FT = Federal Threatened
CE = California Endangered
CT = California Threatened
CF = California Fully Protected
CP = California Protected
SC = California Species of Special Concern
PE = Federally-Proposed Endangered
PT = Federally-Proposed Threatened
FC = Federal Candidate
BL = BLM Sensitive
FS = USFS Sensitive
CD = CDF Sensitive
HA = Harvest

Note: Any given status code for a species may apply to the full species or to only one or more subspecies or distinct population segments.

ID	Species Name	Status	Native/Introduced
B116	COOPER'S HAWK		NATIVE
B124	FERRUGINOUS HAWK		NATIVE
B125	ROUGH-LEGGED HAWK		NATIVE
B251	BAND-TAILED PIGEON	HA	NATIVE
B260	GREATER ROADRUNNER		NATIVE
B264	WESTERN SCREECH OWL		NATIVE
B265	GREAT HORNED OWL		NATIVE
B267	NORTHERN PYGMY OWL		NATIVE
B269	BURROWING OWL	SC BL	NATIVE
B274	NORTHERN SAW-WHET OWL		NATIVE
B277	COMMON POORWILL		NATIVE
B294	LEWIS' S WOODPECKER		NATIVE
B302	NUTTALL'S WOODPECKER		NATIVE
B303	DOWNY WOODPECKER		NATIVE
B304	HAIRY WOODPECKER		NATIVE
B307	NORTHERN FLICKER		NATIVE
B318	DUSKY FLYCATCHER		NATIVE
B326	ASH-THROATED FLYCATCHER		NATIVE
B337	HORNED LARK		NATIVE
B338	PURPLE MARTIN	SC	NATIVE
B348	WESTERN SCRUB-JAY		NATIVE
B358	OAK TITMOUSE		NATIVE
B360	BUSHTIT		NATIVE
B361	RED-BREASTED NUTHATCH		NATIVE
B362	WHITE-BREASTED NUTHATCH		NATIVE
B368	BEWICK'S WREN	SC	NATIVE

B369	HOUSE WREN						NATIVE
B377	BLUE-GRAY GNATCATCHER						NATIVE
B381	MOUNTAIN BLUEBIRD						NATIVE
B391	WRENTIT						NATIVE
B393	NORTHERN MOCKINGBIRD						NATIVE
B398	CALIFORNIA THRASHER						NATIVE
B410	LOGGERHEAD SHRIKE	FE		SC			NATIVE
B425	ORANGE-CROWNED WARBLER						NATIVE
B436	BLACK-THROATED GRAY WARBLER						NATIVE
B437	TOWNSEND'S WARBLER						NATIVE
B475	BLACK-HEADED GROSBEAK						NATIVE
B477	LAZULI BUNTING						NATIVE
B494	VESPER SPARROW			SC			NATIVE
B495	LARK SPARROW						NATIVE
B499	SAVANNAH SPARROW		CE	SC			NATIVE
B501	GRASSHOPPER SPARROW			SC			NATIVE
B506	LINCOLN'S SPARROW						NATIVE
B509	GOLDEN-CROWNED SPARROW						NATIVE
B510	WHITE-CROWNED SPARROW						NATIVE
B543	LESSER GOLDFINCH						NATIVE
B544	LAWRENCE'S GOLDFINCH						NATIVE
B699	BARRED OWL						NATIVE
B798	WHITE-THROATED SPARROW						NATIVE
B799	HARRIS'S SPARROW						NATIVE
B809	INDIGO BUNTING						NATIVE
M006	ORNATE SHREW	FE		SC			NATIVE
M018	BROAD-FOOTED MOLE			SC			NATIVE
M033	WESTERN RED BAT			SC	FS		NATIVE
M034	HOARY BAT						NATIVE
M037	TOWNSEND'S BIG-EARED BAT			SC	BL FS		NATIVE
M045	BRUSH RABBIT	FE CE				HA	NATIVE
M047	AUDUBON'S COTTONTAIL					HA	NATIVE
M059	SONOMA CHIPMUNK						NATIVE
M087	SAN JOAQUIN POCKET MOUSE			SC	BL		NATIVE
M105	CALIFORNIA KANGAROO RAT			SC			NATIVE
M116	CALIFORNIA MOUSE						NATIVE
M117	DEER MOUSE			SC			NATIVE
M119	BRUSH MOUSE						NATIVE
M120	PINYON MOUSE						NATIVE
M134	CALIFORNIA VOLE	FE CE		SC	BL		NATIVE
M147	RED FOX		CT		FS	HA	NATIVE
M151	BLACK BEAR					HA	NATIVE

M160	AMERICAN BADGER	SC	HA	NATIVE
M177	ELK		HA	NATIVE
M181	MULE DEER		HA	NATIVE
R057	GOPHERSNAKE	SC		NATIVE
R058	EASTERN KINGSNAKE			NATIVE
R060	LONG-NOSED SNAKE			NATIVE
R071	DESERT NIGHTSNAKE			NATIVE

Total Number of Species: 75

Query Parameters

Included Locations
Napa Co

Included Location Seasons
Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)
Annual Grassland, Blue Oak Woodland, Montane Hardwood, Perennial Grassland

Habitat Suitability Threshold
Reproduction - Low, Cover - Low, Feeding - Low

Included Habitat Seasons
Migrant, Summer, Winter, Yearlong

Excluded Elements
Algae, Aquatics - Emergent, Aquatics - Submerged, Bank, Barren, Bogs, Brush Pile, Buildings, Campground, Cave, Cliff, Cones,
Duff, Dump, Fences, Fern, Fish, Grain, Grass/agriculture, Grass/water, Invertebrates - Aquatic, Jetty, Kelp, Lakes, Lithic, Mine,
Mud Flats, Nest Box, Nest Island, Nest Platform, Pack Stations, Ponds, Riparian Inclusion, Rivers, Rock, Salt Ponds, Sand Dune,
Shrub/agriculture, Shrub/water, Slash - Large (hollow), Slash - Large (rotten), Slash - Large (sound), Soil - Aerated,
Soil - Organic, Soil - Saline, Soil - Sandy, Springs, Springs - Hot, Springs - Mineral, Streams - Intermittent, Streams - Permanent, Talus, Tidepools, Transmission Lines, Tree/agriculture, Tree/water, Trees - Fir, Trees - Pine, Vernal Pools,
Water, Water - Created Body, Water - Fast, Water - Slow, Water/agriculture, Wharf

Included Species All Species Included

Included Special Statuses
Native

APPENDIX C

TREE SURVEY DATA

TREE SURVEY DATA – MIXED OAK WOODLAND		
WAYPOINT	**SPECIES**	**DIAMETER AT BREAST HEIGHT (DBH) (in.)**
72	BLK	45
73	MAD	16,19,17,21,12
74	CLO	21
75	CALO	16
76	BAY	13,8,8,5
77	BAY	9,18,7,12,7,19,12,5
78	BLM	5
79	MAD	55
80	BLM	26
81	BLM	20,16
82	BAY	4,4
83	BAY	3,3
84	BLM	22
85	BLM	14
86	ILO	12,5,3
87	BLM	20,12,10
88	BLM	20
89	BLM	13
90	BLM	20
92	BLM	22
93	BLM	23
94	BLM	10,7
95	BLM	14
96	BLM	7
97	BLM	16,7,15
98	BLK	15
99	BLM	22
100	BLM	13
101	BLM	7
102	CALO	20
103	BLK	38
104	BLK	40
105	BAY	6

TREE SURVEY DATA – MIXED OAK WOODLAND		
106	BLK	45
107	BLK	27
108	BLK	19
SPECIES	**NUMBER IN SURVEY AREA**	**AVERAGE DBH (INCHES)**
BLK	7	32.7
CLO	1	21.0
ILO	1	13.0
CALO	2	18.0
BAY	5	13.6
MAD	2	47.0
BLM	18	17.4
TOTAL	**36**	**21.5**

Key:

BAY = California Bay
BLU = Blue Oak
CLO = Coast Live Oak
PP = Ponderosa Pine
VO = California Valley Oak

GPS waypoint for each tree is indicated on the vegetation map provided in Figure 2.

APPENDIX D

WETLAND DELINEATION DATA FORMS
FOR
SAMPLE POINTS 1 and 2

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Atlas View II City/County: Napa Sampling Date: 6/4/18
Applicant/Owner: Manuel Pires, rep. State: CA Sampling Point: WSP-01
Investigator(s): Steve Zalusky Section, Township, Range: T07N R05W S.19
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): 10
Subregion (LRR): LRRC Lat: 38°26.308'N Long: -122°14.384°W Datum: WGS84
Soil Map Unit Name: Aiken loam, 2-15% slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Wpt 76-131
WSP01 – Wpt 74

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 100 sf)			
1. Holcus lanatus	60	✓	FAC
2. Cyperus eragrostis	10		FACW
3. Juncus balticus	30	✓	FACW
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

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SOIL

Sampling Point: WSP-01

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12	7.5YR/2.5/1	93	5YR/5/8	7	RM	M	silt loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary 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)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Google Earth

Remarks:

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Atlas View II City/County: Napa Sampling Date: 6/4/18
Applicant/Owner: Manuel Pires State: CA Sampling Point: WSP-02
Investigator(s): S. Zalusky Section, Township, Range: T07N R03W S.19
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR): LRRC Lat: 38°26.306'N Long: -122°14.382'W Datum: WGS84
Soil Map Unit Name: Aiten loam, 2-15% slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks:
wpt. 75

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sf)			
1. Baccharis pilularis	10		NI
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 100 sf)			
1. Bromus hordeaceus	60	✓	FACU
2. Bromus diandrus	10		Upl
3. Elymus glaucus	10		FACU
4. Cynosurus echinatus	10		Upl
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

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SOIL

Sampling Point: WSP-02

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary 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)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No _____

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

Remarks:

US Army Corps of Engineers

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