Appendix D

Biological Reports

D1

Brann Ranch
Jurisdictional Delineation



BRANN RANCH
JURISDICTIONAL DELINEATION

CITY OF RIO VISTA, CALIFORNIA

DECEMBER 2021

PREPARED FOR:
Encore Liberty II, LLC.
770 Tamalpais Drive, Suite 401B
Corte Madera, CA 94925

PREPARED BY:

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a Montrose Environmental Group company

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EXECUTIVE SUMMARY

BRANN RANCH
JURISDICTIONAL DELINEATION

A wetland delineation was conducted in 2004 by LSA Associates, Inc. within the approximately 314.53-acre Brann Ranch Study Area in Solano County, California. The delineation identified approximately .89 acres of wetlands and 1.53 acres of intermittent stream courses (LSA, 2004). The U.S. Army Corps of Engineers (USACE) approved the jurisdictional determination in a letter dated July 14, 2005.

An updated wetland delineation was conducted on November 17 - 18, 2021, and results are discussed herein. The updated delineation resulted in the identification of 10 seasonal wetlands (0.43 acres), two intermittent drainages (4,259 linear feet), and one ephemeral drainage (2,287 linear feet), totaling approximately 0.43acres and 6,546 linear feet of wetlands and other waters of the U.S. Additionally, three roadside ditches (4,937 linear feet) that have arisen from uplands were identified.

This jurisdictional delineation report has been prepared in accordance with the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE, 2016), *Field Guide to Wetland Delineation* (Wetland Training Institute, Inc., 1995), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE, 2008a), the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and EPA, 2007), *A Field Guide to the Identification of the Ordinary High Water Mark* (OHWM) *in the Arid West Region of the Western United States* (USACE, 2008b), and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

A signed statement from the property owner allowing USACE personnel to enter the property and to collect samples during normal business hours is included in **Appendix F**.

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JURISDICTIONAL DELINEATION

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ACRONYMS

EPA	U.S. Environmental Protection Agency
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPR	Navigable Waters Protection Rule
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent
SR	State Route
TNW	Traditionally Navigable Waterway
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SECTION 1.0
INTRODUCTION

A wetland delineation was conducted in 2004 by LSA Associates, Inc. within the approximately 322.06-acre Study Area in Solano County, California. The delineation identified approximately .89 acres of wetlands and 1.53 acres of intermittent stream courses (LSA, 2004). The USACE approved the jurisdictional determination in a letter dated July 14, 2005.

An updated wetland delineation was conducted on November 17 - 18, 2021. The updated delineation observed one ephemeral drainage, two intermittent drainages, and ten small wetland features. The wetland features total approximately 0.43 acres, reduced from the 2004 survey.

This wetland delineation report (report) describes wetlands and other waters of the U.S. identified within the Study Area during the November 17 – 18, 2021 survey that may be subject to regulation by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). Information presented in this report provides data required by the USACE Sacramento District. Wetlands discussed in this report represent a calculated estimate of features within the Study Area and are subject to modification following the USACE verification process.

1.1 APPLICANT AND AGENT INFORMATION

Applicant

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SECTION 2.0

LOCATION

The Study Area is composed of six Solano County parcels (**Table 1**) totaling 322.06 acres, and is located north of State Highway 12 within the City of Rio Vista and the urban growth boundary of The City (**Figure 1 and 2** of **Appendix A**). An aerial photograph of the Study Area is presented in **Figure 3** of **Appendix A**.

TABLE 1
PARCEL DATA

Assessor's Parcel Number	Acreage	Rio Vista Zoning
0048-110-460	68.94	NR – NS/MXD
0048-110-490	6.47	NR
0048-110-100	0.45	NR
0048-110-470	84.12	NR – NS/MXD
0048-110-480	0.68	NR
0048-110-060	161.40	NR

SOURCE: Solano County, 2021, City of Rio Vista, 2002
NR: Neighborhood Residential
NS/MXD: Neighborhood Services/Mixed Use

The Study Area center is located approximately at latitude 38 º 11' 25.38" N, longitude 121º 43' 38.82" W. The Study Area is within Section 14, Township 4 North, and Range 2 West of Solano, CA, Mount Diablo Baseline and Meridian (MDBM) in the "Rio Vista, CA" U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (quad) (USGS, 1983) (**Figure 2** of **Appendix A**). The Study Area is located within the Sacramento River Delta, west of the Sacramento River, and within the Lower Sacramento Watershed, Hydrologic Unit Code #18020109 (USGS, 1978).

2.1 DRIVING DIRECTIONS

The Study Area is located immediately adjacent to and north of State Highway 12, which provides primary access to the Study Area. From Sacramento, take US-80 East towards San Francisco. Proceed on US-80 East to the State Route 113 exit and continue south from the exit ramp along State Route 113 South. Continue southbound until reaching the State Route 113 intersection with State Route 12. Turn left at the intersection onto State Route 12 East then left onto Azaevedo Road after 3.5 miles. Turn right onto Canright Road and proceed approximately 0.75 miles to the center of the Study Area.

SECTION 3.0

METHODOLOGY

3.1 REGULATORY FRAMEWORK

This report has been prepared in accordance with the Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE, 2016), the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987), Field Guide to Wetland Delineation (Wetland Training Institute, Inc., 1995), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE, 2008), the U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook (USACE and EPA, 2007), and the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979).

Navigable Waters Protection Rule; June 22, 2020

The U.S. Environmental Protection Agency (USEPA) and the USACE published the Navigable Waters Protection Rule (NWPR) in the Federal Register on April 21, 2020. This resulted in the finalization of a revised definition of "waters of the United States" under the Clean Water Act. The NWPR became effective on June 22, 2020 (EPA, 2020).

Navigable Waters Protection Rule; August 30, 2021

On August 30, 2021, the USEPA and USACE halted implementation of the 2020 NWPR upon receiving an order vacating and remanding the NWPR at the direction of the U.S. District Court for the District of Arizona in the case of Pascua Yaqui Tribe v. USEPA. The USEPA and USACE are currently interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice. The 2015 rules and supporting materials govern the current application and interpretation of waters of the U.S. and guide the determination of waters of the U.S. within this report. The agencies continue to review the order and consider the next steps.

3.2 SURVEY METHODOLOGY

Field surveys were conducted on November 17 and 18, 2021 by AES-Montrose biologists Amy Gondran, Cedrick Villaseñor, Kathleen Sholty, Joshua Goodwin, and Jed Dowell. Prior to the surveys, background records searches were conducted using the following sources:

- Color aerial photography (EDR, 2010, 2012a, 2012b, 2014), and satellite imagery of the Study Area and vicinity (Google Earth, 2021;). A satellite image of the site can be seen in **Figure 3** of **Appendix A**. Color satellite imagery from Google Earth was reviewed dating back to 2003 and a black and white Google satellite image from 1993.
- Soil survey maps and unit descriptions from the Natural Resources Conservation Service (NRCS) (NRCS, 2021a) (**Figure 4** of **Appendix A**)
- Hydric soil information (NRCS, 2021b)
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory, Wetlands Mapper (USFWS, 2021) (**Figure 5** of **Appendix A**)

During the survey, biologists walked meandering transects throughout the Study Area to determine locations of jurisdictional wetlands and other waters of the U.S. Surveys included mapping paired sample point sets to evaluate whether the three-parameter criteria (vegetation, soil, and hydrology) supported a wetland or upland determination at the paired sample point locations. One point was situated outside the limits of the estimated wetland area and the other point was situated within the estimated wetland area.

A global positioning systems handheld unit (Trimble TDC 150™) with sub-meter accuracy was used in the field to collect sample points and to demarcate wetlands and other water features. A compilation of wetland delineation data sheets (Appendix E) was used in the preparation of this report. A 2004 delineation of wetlands and waters of the U.S. was conducted by LSA Associates, Inc. This report was utilized to ensure consistency relative to the previously identified features and inform the surveys conducted to complete this delineation (LSA Associates, 2004).

3.3 DETERMINATION METHODS

Wetlands and Other Waters of the U.S.

Locations of wetlands within the Study Area were determined based on the following three-parameter criteria, as described in the Arid West Regional Guide (USACE, 2008):

- The majority of dominant plant species are wetland associated species;
- Hydric soils are present; and
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season.

These three criteria are used as evidence that an area experiences saturated conditions during the growing season for a minimum of two weeks in an average year. The boundaries of wetlands and other waters of the U.S. were delineated through aerial photograph interpretation and standard field methodologies (i.e., paired data set analyses), and wetland data were recorded on Wetland Determination Data Forms- Arid West Region. A color aerial photograph was used in the field to assist with this assessment. Munsell Soil Color Charts were used in the field to identify hydric soil features (Munsell, 2010).

Potential stream locations were also examined to determine whether diagnostic characteristics of streams, including ordinary high water marks (OHWMs), bed and bank, and evidence of ongoing water-driven erosion and deposition were evident at locations. The OHWM is defined, in 33 Code of Federal Regulations (CFR) Part 329.11, as the line on the shore established by the fluctuations of water, and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Other characteristics that were noted, where possible, include a description of the hydrologic feature type and length. USACE regulations (33 CFR Part 328) were consulted to determine whether these water bodies constitute waters of the U.S.

Vegetation

Hydrophytic vegetation is defined as the cumulative total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory, 1987).

Prevalent vegetation is characterized by the dominant plant species comprising the plant community (Wetland Training Institute, Inc., 1995). The dominance test is the basic hydrophytic vegetation indicator and was utilized at each sample point location. The "50/20 rule" was used to select the dominant plant species from each stratum of the vegetation community. The rule states that for each stratum in the community, dominant plant species are the most abundant species (when ranked in descending order of coverage and cumulatively totaled) that immediately exceed 50 percent of the total coverage for the stratum, plus any additional plant species that individually comprise 20 percent or more of the total in the stratum (USACE, 2008).

Dominant plant species observed at each sample point were classified according to their indicator status (i.e., probability of occurring in a wetland) (**Table 2**), according to the 2018 Wetland Plant List (Lichvar et al, 2018). If the majority (greater than 50 percent) of the dominant vegetation on-site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), then the site was considered to be dominated by hydrophytic vegetation. Pursuant to the Arid West Supplement (USACE, 2008), plus (+) and minus (-) modifiers were not used (i.e., FAC- and FAC+ plant species are all considered FAC) and plant species not listed in the National Wetland Plant List (Lichvar et al, 2018) were assumed to be upland (UPL) species (Lichvar et al, 2016).

TABLE 2
CLASSIFICATION OF WETLAND-ASSOCIATED PLANT SPECIES

Plant Species Classification	Abbreviation	Probability of Occurring in Wetlands
Obligate	OBL	>99%
Facultative Wetland	FACW	66-99%
Facultative	FAC	33-66%
Facultative Upland	FACU	1-33%
Upland	UPL	1%
No indicator status	NI	Information insufficient to determine indicator status
SOURCE: Lichvar et al, 2018		

Soils

Hydric soils are defined as soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS, 2012). Frequently observed indicators of hydric soils include (but are not limited to) histosols, histic epipedon, hydrogen sulfide, stratified layers, depleted below dark surface, depleted matrix, redox dark surface, depleted dark surface, redox depressions, vernal pools, etc. Soil pits are excavated to the depth necessary to observe and document hydric soils indicators, to confirm the absence of indicators, or until refusal. Soils were very low in moisture content and difficult to mechanically manipulate. However, all sampling points were able to have soil sampling pits dug throughout the Study Area and sample points. The soils at each data point were examined for the presence/absence of indicators. The colors of the examined soils were determined while the soils were moist using the Munsell Soil Color Charts.

Hydrology

Wetlands are seasonally or perennially inundated or saturated at or near (within 12 inches of) the soil surface. Primary indicators of wetland hydrology include (but are not limited to) visual observation of surface water, high water table, saturation, water-marks (nonriverine), sediment deposits (nonriverine), drift deposits (nonriverine), surface soil cracks, inundation visible on aerial imagery, water-stained leaves, salt crust, biotic crust, aquatic invertebrates, hydrogen sulfide odor, oxidized rhizospheres paralleling living roots, etc. Secondary indicators of wetland hydrology include water marks (riverine), sediment deposits (riverine), drainage patterns, dry-season water table, livestock foot/hoof prints, crayfish burrows, etc. Observation of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

SECTION 4.0

EXISTING CONDITIONS

The Study Area is located in the City of Rio Vista within the Solano County region. The region has a Mediterranean climate regime characterized by hot, dry, sunny summers and cool, rainy winters with a coastal influence. Offshore winds and fog from the Pacific Ocean are common and these factors tend to moderate the climate in Solano County, however, during high heat periods, the ocean influence is negligible. Evening temperatures are cooler than midday temperatures and mornings are prone to coastal fog. The mean annual temperature range near the City of Fairfield, CA, within Solano County, is approximately 49° to 73° Fahrenheit (F). The average annual precipitation near the City of Rio Vista at Fairfield, CA is approximately 25 inches, with a maximum of approximately 5 inches during the month of December (US Climate Data, 2021).

The Sacramento Delta and Solano County fall within climate Zone 12. Climate Zone 12 includes inland areas east of the Bay Area (climate Zone 3) and experiences both cooler winters and hotter summers than the Bay Area. This climate zone is a roughly rectangular region that encompasses the Sacramento Delta, Solano County, and other central valley areas. The local and regional geology is within the Great Valley geomorphic province which is utilized for a great deal of agricultural development and cultivation, with soils primarily derived from sedimentary deposition over millions of years.

4.1 LANDSCAPE SETTING

The Study Area is composed of gently rolling terrain and is situated at elevations that range from approximately 17 feet to 59 feet (5 to 18 meters) above mean sea level. An unnamed tributary to the Sacramento River flows eastward through and bisects the Study Area (ED-1), converging with another unnamed tributary of the same flow direction (ID-1) at a centrally located junction in the Study Area. The converged tributary continues east out of the Study Area (**Figure 5** of **Appendix A**). The Sacramento River is located 3.3 miles downstream to the northeast of the Study Area.

The Study Area is situated in a rural residential/agricultural setting approximately two miles northwest of the City of Rio Vista. Specific surrounding land uses include rural residences, agriculture (pastures, row crops, and wind farms), undeveloped parcels, and developing parcels with active construction. The Study Area is predominantly undeveloped but is cultivated with dry-farmed wheat and used for sheep grazing. A residence with additional associated farm buildings including sheds and a barn are located within APNs 0048110490 and 0048110100.

4.2 SOIL TYPES

According to the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) online Soil Survey, there are five soil types mapped within the Study Area (**Table 3**). A map that illustrates the extent of the soil types within the Study Area is provided in **Figure 4** of **Appendix A**.

Soils include (AmC) Altamont-Diablo clays, 2 to 9 percent slopes; (AoC) Antioch-San Ysidro complex, 2 to 9 percent slopes; (CeA) Clear Lake clay, 0 to 2 percent slopes, MLRA 17; (DaC) Diablo-Ayar clays, 2 to 9 percent slopes; and (RoA) Rincon clay loam, 0 to 2 percent slope (NRCS, 2021a). These soil types are not considered Hydric, but some minor components of Clear lake clay are rated as hydric.

TABLE 3
STUDY AREA SOILS

Map Unit Symbol	Map Unit Name	Acres in Study Area	Percent in Study Area
AmC	Altamont-Diablo clays, 2 to 9 percent slopes	152.6	48.4
AoC	Antioch-San Ysidro complex, 2 to 9 percent slopes	24.5	7.7
CeA	Clear Lake clay, 0 to 2 percent slopes	3.0	1.0
DaC	Diablo-Ayar clays, 2 to 9 percent slopes	90.5	27.90
RoA	Rincon clay loam, 0 to 2 percent slope	47.6	15.0
	Total	318.3*	-

SOURCE: NRCS, 2021a *Acreages are derived from NRCS and may differ from County data

AmC: Altamont-Diablo clays (AmC) are found in 48.4% (152.0 acres) of the Study Area. These soils are located within the majority of the northern half of the Study Area with a smaller island-like inclusion of this soil being found in the southern portion. This is a well-drained soil formed of sediment residuum typically on 2 to 9 percent slopes. It has very high runoff and moderately low to moderately high permeability.

AoC: The Antioch-San Ysidro complex is found in 7.7% (24.1 acres) of the Study Area. Antioch-San Ysidro primarily occurs in the central portion of the Study Area entering from the central-east and central west margins. These soils are formed from sedimentarily derived alluvium typically found on 2 to 9 percent slopes. It is a moderately well-drained soil with very high runoff and very low to moderately low permeability.

CeA: Clear Lake clay (CeA) is found in 1 percent (3.1 acres) of the Study Area. Clear Lake clay occurs in the northern and northeastern portions of the Study Area and occupies the least amount of area out of any soil found in the Study Area. Clear Lake clay consists of basin alluvium derived from igneous, metamorphic, and sedimentary rock. It is a poorly drained soil with high runoff and moderately low to moderately high permeability.

DaC: The Diablo-Ayar clays (DgC) are found in 87.8% (27.9 acres) of the Study Area. These soils are located within the majority of the southern half of the Study Area. This is a well-drained soil formed of residuum weathered from weakly consolidated sediments. It has high runoff and moderately low to moderately high permeability.

RoA: Rincon clay loam (RoA) soil series is found in 15% (47.0 acres) of the Study Area. These soils are located within the central portion of the Study Area and occur in association with a majority of the aquatic resources identified in the report. This soil is associated with the ephemeral and intermittent drainage features, discussed in Sections 5.2 and 5.3, especially. This is a well-drained soil formed in alluvial material typically on 0 to 2 percent slopes. It has medium runoff and moderately low to moderately high permeability.

4.3 TERRESTRIAL HABITATS

A habitat map is shown in **Figure 6** of **Appendix A,** and representative photographs are shown in **Appendix C**. A list of plant species observed within the Study Area is included in **Appendix D**. No special-status plants were observed during the 2021 delineation. Four terrestrial habitats were identified on-site including agriculture, annual grassland, eucalyptus, and developed habitats. Terrestrial habitat types are further discussed below. Aquatic habitat types are discussed in **Section 5.0**.

Agriculture

Agricultural uses dominate the majority of the Study Area's acreage. The Study Area has historically and currently supported agriculture, with the primary use being the dry farming of wheat. Weed abatement and vegetation management is controlled utilizing routine disking. The areas classified as agriculture habitat within the Study Area include all areas that have supported row crops, were tilled recently, and have cleared, open space with associated vegetation, primarily grasses, and annual herbs. The current share of vegetation coverage in this habitat type at the time of the survey consisted almost entirely of wheat (*Triticum* sp.) sprouting in the seams of the lines created via disc tilling and weed control. Irrigation was not present in this habitat type. Additional low-coverage plants observed in the area include species discussed in the description of seasonal wetlands W-3 through 8 in **Section 5.1** and their associated data sheets found in **Appendix E**.

Annual Grassland

Annual grassland habitat is the second-most dominant habitat type throughout the Study Area. Annual grassland encompasses a majority of the habitat type coverage surrounding the ephemeral and intermittent drainage features described in **Section 5.0.** Trees are largely absent within this community type, but a few eucalyptus trees are present in the northern extent of this habitat type along with Oregon ash (*Fraxinus latifolia*) bordering the eastern extent of intermittent drainage ID-1. This habitat is generally dominated by mostly non-native annual grasses such as great brome (*Bromus diandrous*), soft brome (*Bromus hordeaceous*), Italian ryegrass (*Lolium* perenne), wild oats (*Avena* sp.), and fescues (*Festuca* sp.). Forbs commonly observed were mustards (*Brassica* sp.), sweet fennel (*Foeniculum vulgare*), shortpod mustard (*Hirschfeldia incana*), stork's bill (*Erodium botrys*), English plantain (Plantago lanceolata), bindweed (*Convolvulus arvensis*), and yellow star-thistle (*Centaurea solstitialis*). Additional low-coverage plants observed include species discussed in the description of seasonal wetlands W-9 and 10 in Section 5.1 and their associated data sheets found in **Appendix E**. Two borrow pits BP-1 and BP-2 are present in this habitat type and were determined to be upland and contiguous with this habitat. These pit features appear to be excavated from uplands or have degraded from an original channel. Their location can be seen in **Appendix C** in data points 12U and 13U respectively and representative photographs of these pits can be found in **Appendix C**, Photo 12.

Developed

The areas classified as developed habitat within the Study Area include existing residences and structures such as barns and sheds, any landscaped areas, roads and parking areas, and otherwise disturbed non-agricultural areas. Non-native and cultivar landscape plants observed in these areas included Mexican fan palm (*Washingtonia robusta*), ornamental rose (*Rosa* sp.), eucalyptus, walnuts, and oleander (*Nerium oleander*). Weedy forbs observed within this habitat type included sweet fennel (*Foeniculum vulgare*), bindweed, shortpod mustard, stork's bill, and English plantain. Grass coverage included bromes, wild oat, various lawn grasses, and other grasses found in annual grassland habitat.

Eucalyptus

Eucalyptus habitat is only found in the southeastern portion of the Study Area. The vast majority of tree cover is comprised of eucalyptus. This habitat's groundcover is generally dominated by mostly non-native annual grasses such as bromes, Italian ryegrass, wild oats, and fescues. Forbs commonly observed were mustards, sweet fennel, shortpod mustard, stork's bill, English plantain, bindweed, and yellow star-thistle.

SECTION 5.0

RESULTS

A total of approximately 0.43 acres and 6,545.62 linear feet of likely jurisdictional wetlands and other waters of the U.S. were mapped within the Study Area (**Appendix B**). A total of four aquatic feature types were identified within the Study Area, and include seasonal wetland, ephemeral drainage, intermittent drainage, and roadside ditch (**Table 4**). An Aquatic Resources Delineation Map of the Study Area is included in **Appendix B**. The wetland delineation data forms completed for the Study Area are included as **Appendix E**. A list of plant species observed within the Study Area is included in **Appendix D**. A discussion of the wetlands and other waters mapped on-site is presented below.

TABLE 4
OBSERVED WETLANDS AND WATERS OF THE U.S.

Feature Type	Acreage[1]	Length (Linear Feet) [1]
Wetlands		
Seasonal Wetlands	0.43	-
Other Waters		
Intermittent Drainages	-	4259.06
Ephemeral Drainage	-	2286.55
Roadside Ditches	-	4936.96
Total	0.43	11,482.57

NOTE[1]: Acreages and linear feet represent a calculated estimation and are subject to modification following USACE verification.

The USFWS National Wetlands Inventory (USFWS, 2021) and USGS National Hydrological Dataset (USGS, 2021) were referenced to identify known or previously mapped wetlands or other water features within the Study Area to provide a baseline for site-specific evaluations. NWI Information is shown in **Figure 5** of **Appendix A**.

5.1 SEASONAL WETLANDS

Standing water was observed during the site visit within some of the seasonal wetlands, however, wetland features were delineated through vegetation patterns, hydric indicators, and low-lying depression features when standing water was not present. Soil pit data points were able to be easily excavated and assessed due to moist conditions in clay-rich soils. A total of 10 seasonal wetlands were identified, totaling 0.43 acres (**Table 4**).

Wetlands are classified as palustrine emergent wetlands (PEM), in accordance with the *Cowardin Classification of Wetlands and Deepwater Habitats* (Cowardin et al., 1979). A summary of wetland features within the Study Area is shown in **Table 5**. These features can be seen in **Appendix B** and are tabulated in the Aquatic Resources Excel Sheets found in **Appendix G**. Mapped seasonal wetlands within the Study Area are shown in **Appendix B**. Datasheets for wetland sample points are included in **Appendix E**.

TABLE 5
SEASONAL WETLANDS IDENTIFIED IN STUDY AREA

Aquatic Resource Name	Aquatic Resource Classification			
	Cowardin	Location (lat/long)	Data Sheet	Acres
W-1	PEM2	38.190312°/-121.723372°	1W/1U	0.018
W-2	PEM1	38.188764°/-121.723778°	2W/2U	0.013
W-3	PEM2	38.189631°/-121.726313°	4W/4U	0.067
W-4	PEM2	38.187582°/-121.725476°	5W/5U	0.079
W-5	PEM2	38.188281°/-121.725286°	6W/6U	0.051
W-6	PEM2	38.189416°/-121.728572°	9W/9U	0.035
W-7	PEM2	38.188673°/-121.731243°	10W/10U	0.019
W-8	PEM2	38.190102°/-121.731926°	11W/11U	0.086
W-9	PEM2	38.191493°/-121.732161°	15W/15U	0.005
W-10	PEM2	38.190845°/-121.731010°	16W/16U	0.060
			Total	**0.43**

W-1

W-1 is a contiguous seasonal wetland feature that receives water input through a combination of sheet flow, direct rainfall, and surface water contribution from a double culvert to its north. This wetland is located within the mid-eastern border of the Study Area and is north of RD-1's northern extent. W-1 is found within annual grassland habitat and is adjacent to a rocked roadside (developed habitat). Vegetation was identifiable with high coverage of saltgrass (*Distichlis spicata*) and Italian ryegrass. Standing water was not present within W-1, but the soil was saturated. Hydric soil indicators consisted of depleted matrix. A photo of this feature can be found in **Appendix C**, Photo 1.

W-2

W-2 is a contiguous seasonal wetland feature that receives water input through a combination of sheet flow, direct rainfall, and groundwater contribution from intermittent drainage ID-1. This wetland is located within the southern half of the Study Area and is north of ID-1 eastern extent. W-2 is found within annual grassland habitat and is found on a terrace-like feature within the broader depression of ID-2. Vegetation was identifiable with high coverage of cattails (*Typha* sp.) and saltgrass. Standing water was not present within W-2, but the soil was saturated. This feature likely possesses groundwater contiguity with ID-1. Hydric soil indicators consisted of redox dark surface. A photo of this feature can be found in **Appendix C**, Photo 3.

W-3 to 8

W-3, 4, 5, 6, 7, and 8 are isolated seasonal wetland features and receive water input through a combination of sheet flow and direct rainfall. These seasonal wetlands have no apparent surface or groundwater connectivity to potentially jurisdictional wetlands or other waters of the U.S. All of these wetlands are located within the southern half of the Study Area and are south of Canright Road. W-3 through 8 are found within agricultural habitat and contained variable amounts of wheat sprouts within their margins. Vegetation was identifiable with hydrologic indicators present including standing water. Standing water was present within W-3 and 4. Saturation was variably present within W-5 to 8.

These features were all similar in vegetative makeup being commonly dominated by wheat, common purslane (*Portulaca oleracea*), spike-rushes (*Eleocharis* sp.), quillworts (*Isoetes* sp.), saltbrush (*Atriplex* sp.), and water-starworts (*Callitriche* sp.). Various algae were present within these wetlands as well. Hydric soil indicators consisted of either a depleted matrix or redox dark surface. Hydrology indicators observed within these features commonly consisted of drift deposits, surface water, or inundation was visible from satellite imagery combined with another primary indicator. Photos of these features can be found in **Appendix C** in Photos 5-7 and 9-10.

W-9

W-9 is an isolated seasonal wetland feature that receives water input through a combination of sheet flow and direct rainfall. This seasonal wetland may have groundwater connectivity to potentially jurisdictional other waters of the U.S. being ID-2. This wetland is located within the northern half of the Study Area and is north of Canright Road. W-9 is found within annual grassland habitat. Vegetation was easily identifiable within this feature and contained a very high share of FAC and FACW plants, covering approximately 75 percent of the feature across species. These plants included high coverage from *Rumex* sp., spreading alkali-weed, and saltgrass. W-9 displayed weak to absent hydrology but had strong vegetation and soil indicators, and it was deemed to be a wetland due to suspected water retention and traits that would produce such vegetation and soil indicators. Clay soils lined the feature below 6-inches and contained a 10-percent share of redox features of coloration 7.5YR 4/4. This clay layer likely provides a barrier to percolation while the upper sandy clay loam soils may allow for percolation and less visible indications of hydrology. This soil arrangement may allow the wetland plants observed to tap deeper water reserves in the clay layer. Hydric soil indicators consisted of redox dark surface. A photo of this feature can be found in **Appendix C**, Photo 13.

W-10

W-10 is an isolated seasonal wetland feature that receives water input through a combination of sheet flow from the adjacent uphill agricultural field and direct rainfall. This wetland is located within the northern half of the Study Area and is north of Canright Road. W-10 is found within annual grassland habitat. Vegetation was easily identifiable within this feature and contained a very high share of FAC and FACW plants. These plants included high coverage from *Rumex* sp. and single digit percent coverage of spike-rushes and spreading alkali-weed. Hydric soil indicators consisted of redox dark surface with redox features being 5 percent of the 1 to 8-inch depth. The main hydrology indicator present was water-stained leaves. A photo of this feature can be found in **Appendix C**, Photo 15.

5.2 EPHEMERAL DRAINAGES

One ephemeral drainage feature was identified within the Study Area and totals 2,287 linear feet (**Table 6**). No flowing or standing water was within this feature during the time of the surveys. This feature contained the required diagnostic features according to the USACE guidance on identifying streams, including an OHWM, bed and bank, a change in vegetation, evidence of sediment sorting, erosion, and deposition driven by water.

The ephemeral drainage is classified as riverine, intermittent, with an unconsolidated bottom (R4UB), in accordance with the *Cowardin Classification of Wetlands and Deepwater Habitats* (Cowardin et al., 1979). A summary of ephemeral drainage features within the Study Area is shown in **Table 6**. These features can be seen in **Appendix B** and are tabulated in the Aquatic Resources Excel Sheets found in **Appendix G**. Mapped drainages within the Study Area are presented in **Appendix B**.

TABLE 6
EPHEMERAL DRAINAGES IN STUDY AREA

Aquatic Resource Name	Aquatic Resource Classification		
	Cowardin	Location (lat/long)	Linear Feet
ED-1	R4UB	38.188461°/-121.730192°	2286.55
		Total	**2286.55**

ED-1

ED-1 enters the western boundary of the Study Area and conveys water from the surrounding uplands, fields, and agricultural areas to the west of the Study Area. This feature is defined by a clearly established bed and bank for a majority of it length with a weaker channel occurring within some areas of higher vegetation and topographical constrictions. This feature's OHWM measures approximately 5 feet wide and top-of-bank width between approximately 7-10 feet. Some visible incision of banks from animal hooves was present within the channel as well as some game trails. Water appeared to be retained within pools in line with the channel. Dominant vegetation along the banks of this feature consisted primarily of fescue and annual grassland *Poaceae* species. A tree vegetation layer was absent from the banks of this feature. Vegetation associated with the channel included barley, miner's lettuce, and *Rumex* sp. This ephemeral drainage measures 2,287 linear feet and flows to the east through and eventually converges into ID-1, a tributary of the Sacramento River.

5.3 INTERMITTENT DRAINAGES

Two intermittent drainages totaling 4,259 linear feet occur within Study Area. A summary of intermittent drainage features within the Study Area is shown in **Table 7**. Intermittent drainage ID-1 continues outside the Study Area. These intermittent drainages fill and flow with water during wet season rains, remaining inundated until they dry up in the spring, primarily from exhausting runoff and immediate groundwater reserves but also through evaporation. In the case of intermittent drainage ID-2, described below, open-air evaporation and vegetation transpiration likely contribute to desiccation rather than traditional outflow. These features contained the required diagnostic features according to the USACE guidance on identifying streams, including an OHWM, bed and bank, a change in vegetation, evidence of sediment sorting, erosion, and deposition driven by water.

TABLE 7
INTERMITTENT DRAINAGES IN STUDY AREA

Aquatic Resource Name	Aquatic Resource Classification		
	Cowardin	Location (lat/long)	Linear Feet
ID-1	R4UB	38.189388°/-121.727859°	3514.18
ID-2	R4UB	38.191822°/-121.731580°	744.89
		Total	**4259.06**

Intermittent drainages are classified as riverine, intermittent, with an unconsolidated bottom (R4UB), in accordance with the *Cowardin Classification of Wetlands and Deepwater Habitats* (Cowardin et al., 1979). These features can be seen in **Appendix B** and are tabulated in the Aquatic Resources Excel Sheets found in **Appendix G**. Mapped drainages within the Study Area are presented in **Appendix B**.

ID-1

ID-1 is a west to east flowing feature that occurs across the portion of the Study Area south of Canright Road (**Appendix C**, **Photo 4**). This feature is adjacent to some of the seasonal wetlands and is closest to W-2, which appears to share groundwater contribution to and from. Dominant vegetation within this feature consists of cattails within the eastern pools, fescue, saltgrass, miner's lettuce, and fennel. This feature is surrounded by upland-dominated annual grassland species. Inline pools are found within the OHWM of this drainage and variably contain water and range in depth from a few feet to over 7 feet below ground level. The pools display sheer walls, likely cut as such from high flow events, livestock grazing, and soil properties. Game and livestock trails are impressed in and around this feature. This feature measures 3,514 linear feet.

ID-2

ID-2 is a formerly north to south flowing feature that occurs within the western border of the northern portion of the Study Area (**Appendix C**, Photo 14). This feature is closest to seasonal wetland W-9 and possibly shares groundwater contiguity. At its widest pool, ID-2 measures approximately 30 feet wide and narrows down to approximately 6 feet wide from OHWM to OHWM at its most constricted. Dominant vegetation within this feature consists of fennel, miner's lettuce, mustards, bromes, and couch grass (*Elymus* sp.). Additionally, a high amount of surface area was either bare ground or open water with algal growths present within. This feature is surrounded by upland-dominated annual grassland species. This feature appears to only flow during high flow events, as downturned vegetation is present at the most shallowly channeled areas of the feature. This feature contained the largest contiguous surface area if not the highest volume of standing water of any feature identified in the 2021 delineation. This feature measures 745 linear feet.

5.4 ROADSIDE DITCHES

A total of three roadside ditch features were identified within the Study Area and total 4,937 linear feet (**Table 8**). These ditches were constructed from uplands for the purposed of stormwater management and road drainage. Roadside ditches are associated with drain inlets and outlets with runoff discharge directed to outfalls adjacent to intermittent drainages or uplands. Standing water was observed within RD-2 at the time of the site visits. The roadside ditches lacked the required diagnostic features according to the USACE guidance on identifying streams, including an ordinary high water mark (OHWM), bed and bank, a change in vegetation, evidence of sediment sorting, erosion, and deposition driven by water. **Table 8** below lists the name of each ditch feature and its linear feet within the Study Area as sown on the Aquatic Resource Delineation Map (**Appendix B**).

TABLE 8
ROADSIDE DITCHES IN STUDY AREA

Aquatic Resource Name	Aquatic Resource Classification		
	Cowardin	Location (lat/long)	Linear Feet
RD-1	N/A	38.189405°/-121.723334°	482.09
RD-2	N/A	38.190456°/-121.726728°	1885.44
RD-3	N/A	38.190576°/-121.72786°	2569.43
		Total	**4936.96**

RD-1

A north-south trending linear feature that was constructed from uplands to collect stormwater runoff from the adjacent dirt access road, characterized by being a primarily grass-lined feature. This roadside ditch is approximately 482 linear feet. Refer to Photo 2 of **Appendix C** for a representative photo of this feature. This feature was approximately 6 feet wide measured from top of bank to top of bank and was dominated by upland vegetation composed of saltgrass, fescue, Italian thistle (*Carduus pycnocephalus*), and fennel. Water collected by this roadside feature enters to its north from W-1 and ultimately discharges into a drain inlet with an unknown exit point. This feature lacked the required diagnostic features to be determined jurisdictional, according to the USACE guidance on identifying streams, lacking a clear line of scour and an OHWM. This feature measures 482 linear feet.

RD-2

Roadside ditch RD-2 is an east-west trending linear feature that was constructed from uplands to collect stormwater runoff from Canright Road. Characterized by being a primarily grass-lined feature with exposed gravels, this roadside ditch is approximately 1,885 linear feet. This feature was approximately 6 feet wide measured from top of bank to top of bank and was dominated by upland vegetation and species found in RD-1. Water collected by this roadside feature discharges into RD-2 where the water pools and flows into uplands upon topping over. This feature lacked the required diagnostic features to be determined jurisdictional, according to the USACE guidance on identifying streams, lacking a clear line of scour and an OHWM. Associated with and an extension of RD-2 is an erosional feature that receives road runoff and input from a ditch-associated culvert. Refer to photo 16 of **Appendix C** for a representative photo of this roadside ditch RD-2's associated erosional feature EF-1. The erosional feature did not exhibit continuity with other features and instead would only flow to uplands should it reach containment capacity. The erosional feature exhibited traits that suggested vertical scouring and turbidity associated with water exiting the culvert at speed. No emergent vegetation was present and vegetation surrounding the erosional feature included Italian thistle, fennel, mustards, and barley (*Hordeum murinum*). Standing water was present within the feature during the 2021 survey. The erosional feature measures approximately 4-7 feet wide and 15 feet long and covers approximately 0.01 acres.

RD-3

Roadside ditch RD-3 is an east-west trending linear feature that was constructed from uplands to collect stormwater runoff from Canright Road. Characterized by being a primarily grass-lined feature with exposed gravels, this roadside ditch is approximately 2,569 linear feet. This feature was approximately 6 feet wide measured from top of bank to top of bank and was dominated by upland vegetation and species found in RD-1. Water collected by this roadside feature discharges into ID-1 via an under-road culvert to the feature's west and into RD-1 via an under-road culvert to the feature's east. This feature lacked the required diagnostic features to be determined jurisdictional, according to the USACE guidance on identifying streams, lacking a clear line of scour and an OHWM.

SECTION 6.0

DISCUSSION AND ANALYSIS

6.1 JURISDICTIONAL FEATURES

Identified seasonal wetlands, ephemeral drainages, intermittent drainages, were determined to be likely jurisdictional. Wetlands were identified and verified using the three-parameter approach meeting USACE standards for determining a wetland through means of hydrology, vegetation, and hydric soils (USACE, 2008a). The likelihood of jurisdictionality was based on characteristics identified in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE, 2008b). These drainage features contained indicating factors such as a clear natural line of scour, bank erosion, the presence of litter and debris.

6.2 NON-JURISDICTIONAL FEATURES

Three roadside ditch features were determined to be non-jurisdictional. This determination was made based on the feature being created from uplands for road drainage purposes. The ditch features also lacked the presence of hydrophytic vegetation along the banks. The erosional feature associated with RD-2 is formed from uplands and is part of roadside ditch drainage infrastructure.

SECTION 7.0

CONCLUSION

A survey of wetlands within the approximately 322-acre Study Area was conducted on November 17 and 18, 2021. A total of 10 seasonal wetlands, two intermittent drainages, one ephemeral drainage, and three roadside ditches, totaling approximately 0.433 acres and 6,545.62 linear feet of wetlands and other waters of the U.S. were identified. Features identified in the Study Area during the 2021 study are summarized in **Table 9.**

TABLE 9
SUMMARY TABLE

Aquatic Resource Classification						
Category	**Feature Name**	**Cowardin**	**Location (lat/long)**	**Acres**	**Linear Feet**	**Contiguity**
Wetlands – Likely Jurisdictional						
Seasonal Wetlands	W-1	PEM2	38.190312°/-121.723372°	0.018	-	No
Seasonal Wetlands	W-2	PEM1	38.188764°/-121.723778°	0.013	-	Yes
Seasonal Wetlands	W-3	PEM2	38.189631°/-121.726313°	0.067	-	No
Seasonal Wetlands	W-4	PEM2	38.187582°/-121.725476°	0.079	-	No
Seasonal Wetlands	W-5	PEM2	38.188281°/-121.725286°	0.051	-	No
Seasonal Wetlands	W-6	PEM2	38.189416°/-121.728572°	0.035	-	No
Seasonal Wetlands	W-7	PEM2	38.188673°/-121.731243°	0.019	-	No
Seasonal Wetlands	W-8	PEM2	38.190102°/-121.731926°	0.086	-	No
Seasonal Wetlands	W-9	PEM2	38.191493°/-121.732161°	0.005	-	Yes
Seasonal Wetlands	W-10	PEM2	38.190845°/-121.731010°	0.060	-	Yes
			Subtotal	**0.433**	**-**	-
Other Waters – Likely Jurisdictional						
Ephemeral Drainage	ED-1	R4UB	38.188461°/-121.730192°	-	2286.55	Yes
Intermittent Drainage	ID-1	R4UB	38.189388°/-121.727859°	-	3514.18	Yes
Isolated Intermittent Drainage	ID-2	R4UB	38.191822°/-121.731580°	-	744.89	No
			Subtotal	**-**	**6545.62**	-
Other Waters – Non-Jurisdictional						
Roadside Ditch	RD-1	NA	38.189405°/-121.723334°	-	482.09	Yes
Roadside Ditch	RD-2	NA	38.190456°/-121.726728°	-	1885.44	Yes
Roadside Ditch	RD-3	NA	38.190576°/-121.72786°	-	2569.43	Yes
			Subtotal	**-**	**4936.96**	-
			TOTAL	**0.433**	**11482.58**	-

SECTION 8.0

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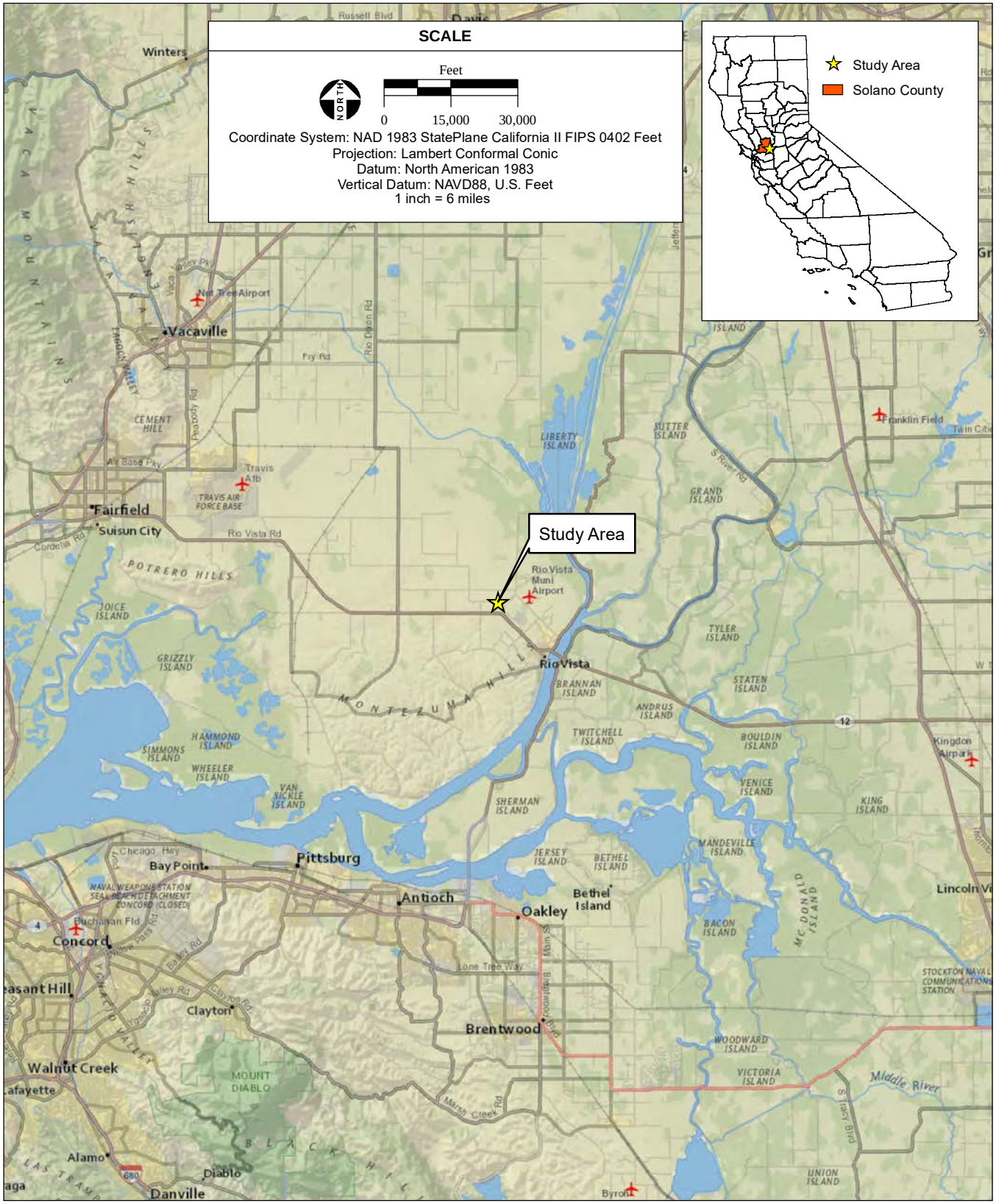
APPENDICES

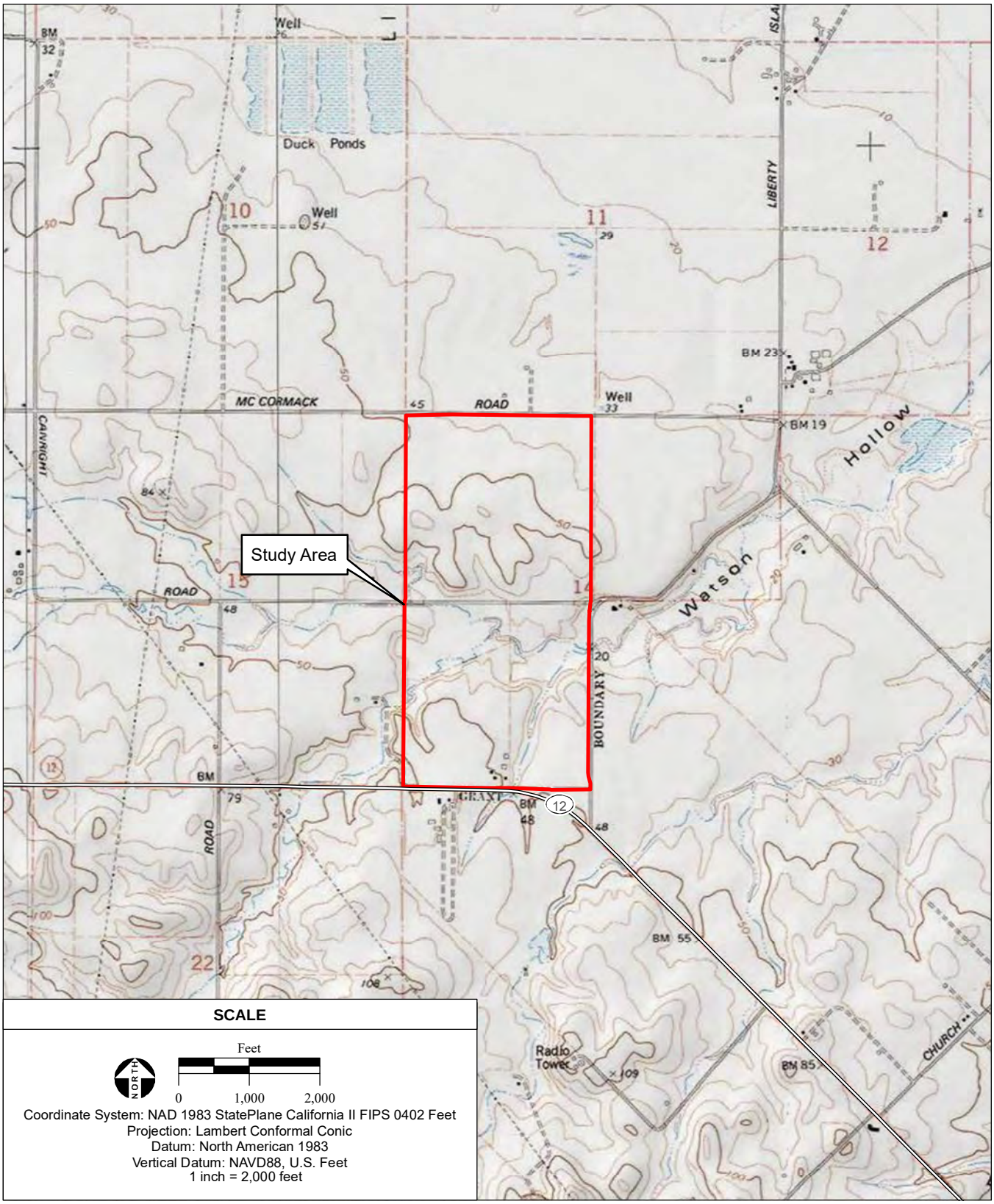
APPENDIX A

SUPPORTING FIGURES



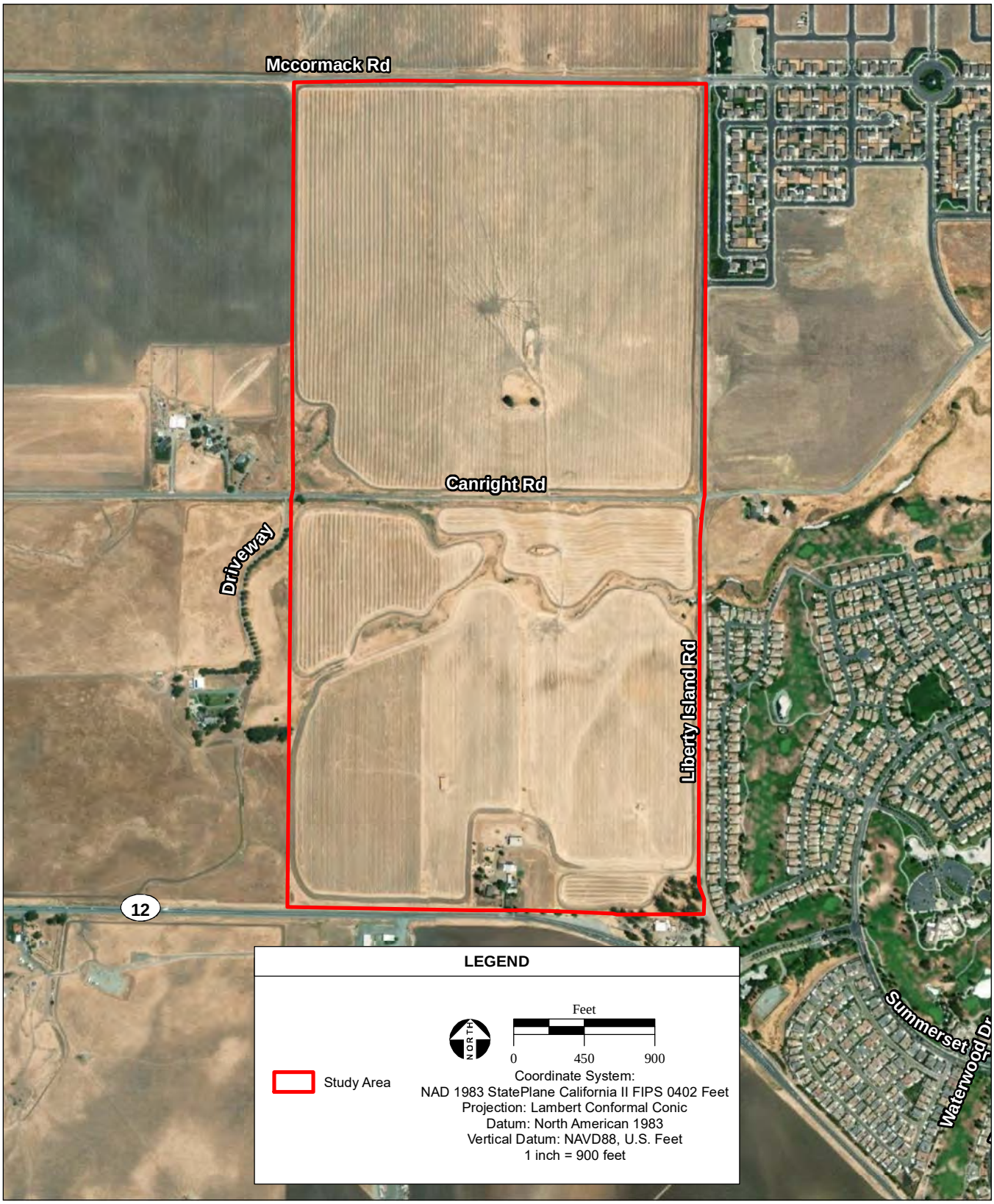
SOURCE: NatGeo 2021; ESRI, 2021; AES-Montrose, 12/13/2021

Appendix A - Figure 1
Regional Location



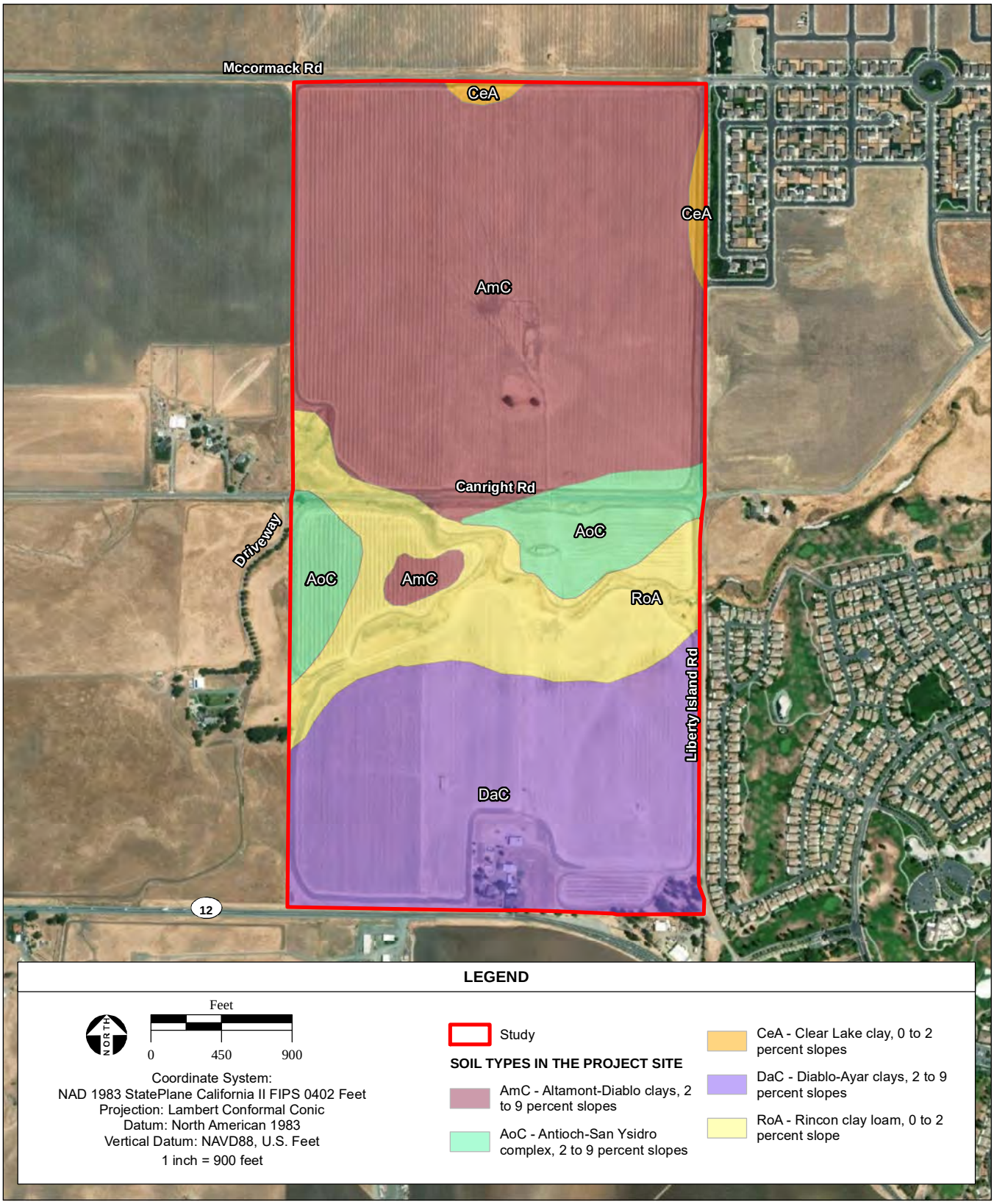
SOURCE: "Rio Vista, CA" USGS 7.5 MinuteTopographic Quadrangle,
T4N, R2E, Section 14, Mt. Diablo Baseline & Meridian;
ESRI Data, 2021; AES, 12/13/2021

Figure 2
Site and Vicinity



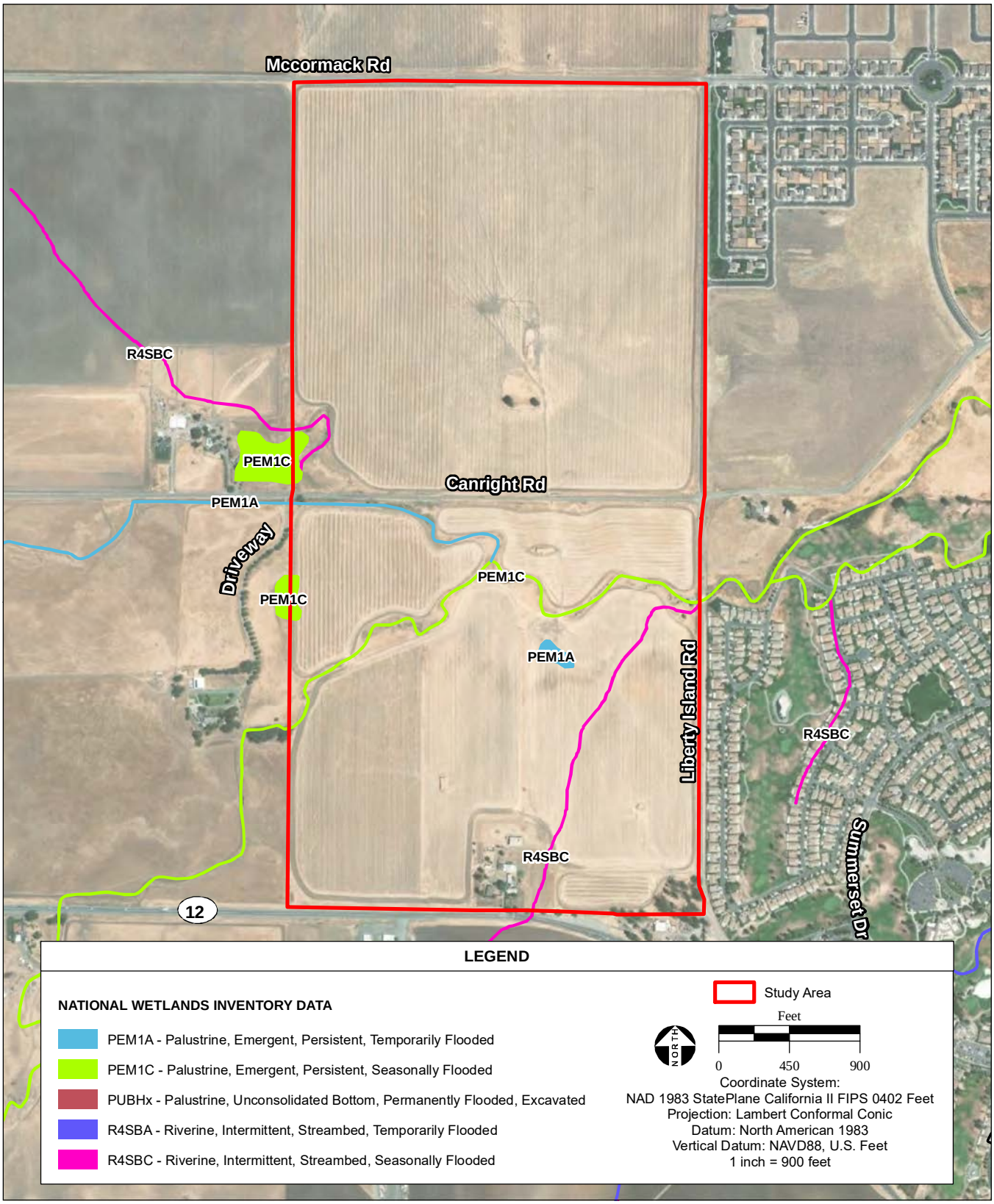
SOURCE: Maxar Aerial Photograph, 6/3/2020; AES, 12/13/2021

Appendix A - Figure 3
Aerial Photograph



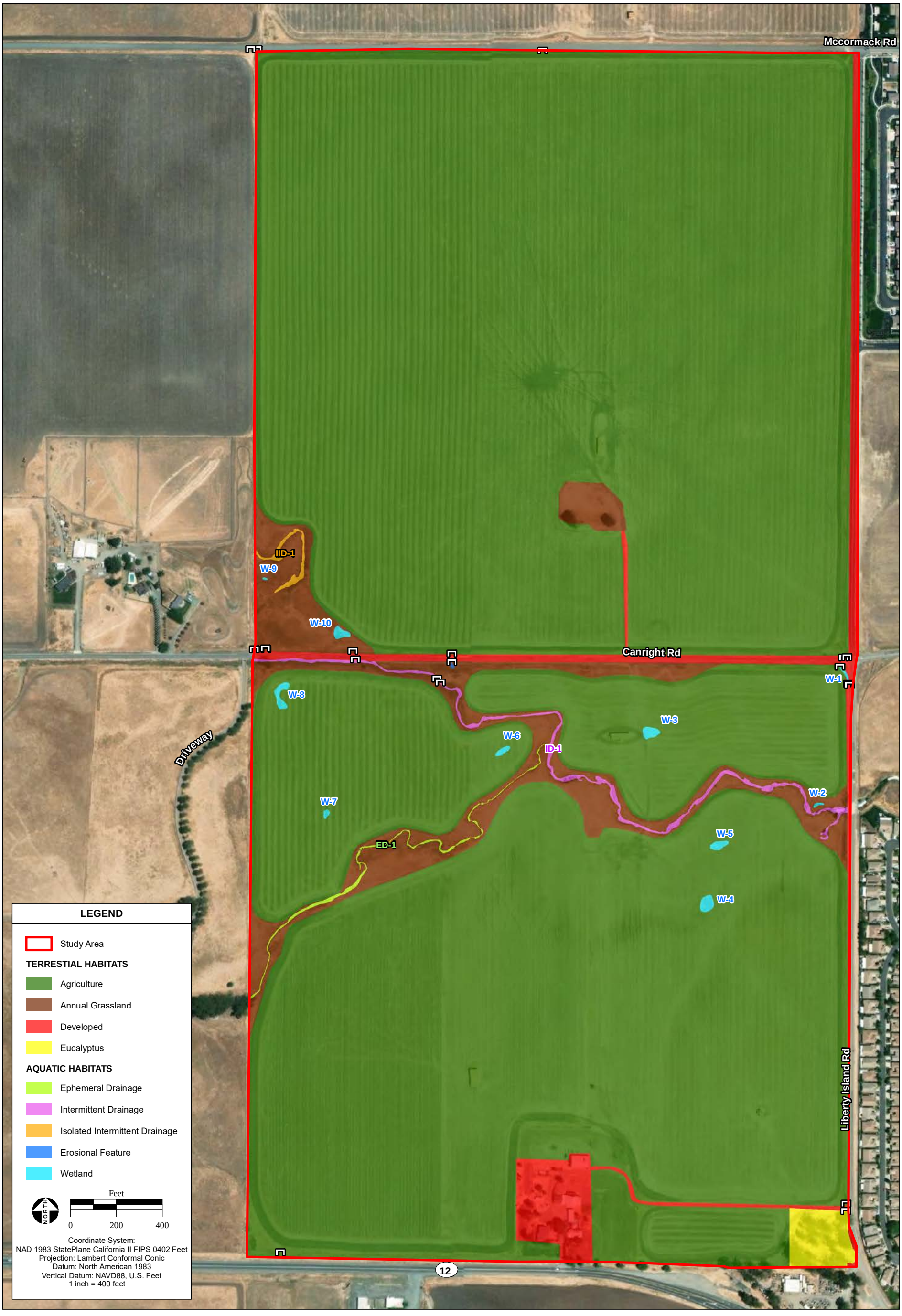
SOURCE: USDA NRCS Soil Survey of Solano County, updated 9/3/2021; Maxar Aerial Photograph, 6/3/2020; AES-Montrose, 12/13/2021

Figure 4
Soil Types



SOURCE: USFWS National Wetlands Invetory for the Sacramento-San Joaquin Delta, California, 1972-76; Maxar Aerial Photograph, 6/3/2020; AES-Montrose, 12/13/2021

Appendix A - Figure 5
National Wetlands Inventory

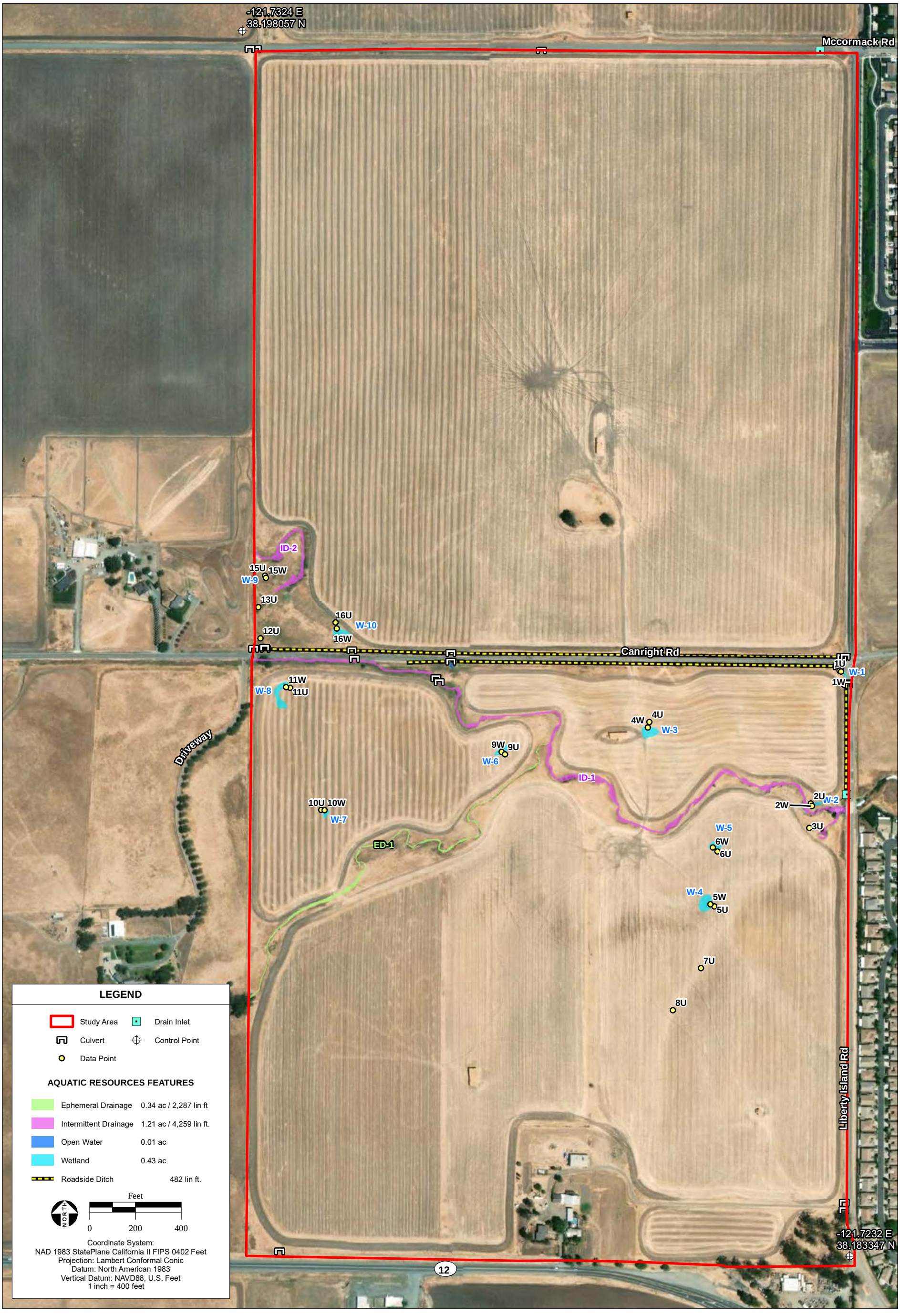


SOURCE: Maxar Aerial Photograph, 6/3/2020; AES, 12/13/2021

Figure 6
Habitat Map

APPENDIX B

AQUATIC RESOURCE DELINEATION MAP



SOURCE: Maxar Aerial Photograph, 6/3/2020; AES, 12/14/2021

Appendix B

Aquatic Resources Delineation Map

APPENDIX C

SITE PHOTOGRAPHS



PHOTO 1: North-facing view of seasonal wetland W-1 and developed (road) habitat.



PHOTO 2: North-facing view of roadside ditch RD-1.



PHOTO 3: East-facing view of seasonal wetland W-2. ID-1 vegeta-tion is visible on photo right.



PHOTO 4: East-facing view of intermittent drainage ID-1.



PHOTO 5: Northeast-facing view of seasonal wetland W-5.



PHOTO 6: South-facing view of seasonal wetland W-4 and surround-ing agriculture habitat.

SOURCE: AES-Montrose, 11/30/2021

Appendix C - Figure 1
Site Photographs



PHOTO 7: North-facing view of seasonal wetland W-3.



PHOTO 8: East-facing view of ephemeral drainage ED-1.



PHOTO 9: East-facing view of seasonal wetland W-6.



PHOTO 10: South-facing view of seasonal wetland W-7.



PHOTO 11: North-facing view of seasonal wetland W-7.



PHOTO 12: South-facing view of borrow pit BP-2 and annual grassland habitat.

SOURCE: AES-Montrose, 11/30/2021

Appendix C - Figure 2
Site Photographs



PHOTO 13: East-facing view of seasonal wetland W-9.



PHOTO 14: South-facing view of intermittent drainage ID-2.



PHOTO 15: South-facing view of seasonal wetland W-10.



PHOTO 16: South-facing view of erosional feature associated with roadside ditch RD-2.

SOURCE: AES-Montrose, 11/30/2021

Appendix C - Figure 3
Site Photographs

APPENDIX D

PLANT LIST

APPENDIX D: VASCULAR PLANT SPECIES OBSERVED WITHIN THE STUDY AREA & WETLAND INDICATOR STATUS[1]

Scientific Name	Common Name	WIS*
APIACEAE	**UMBELLIFER FAMILY**	
Foeniculum vulgare *	Fennel	UPL
APOCYNACEAE	**DOGBANE FAMILY**	
Nerium oleander *	Oleandler	
ARECACEAE	**PALM FAMILY**	
Washingtonia robusta *	Mexican fan palm	FACW
ASTERACEAE	**COMPOSITE FAMILY**	
Silybum marianum *	Milk thistle	UPL
Carduus pycnocephalus *	Italian thistle	UPL
Centaurea solstitialis *	Yellow star-thistle	UPL
Centromadia sp.	Tarplants	
Salsola kali *	Russian thistle	UPL
BORAGINACEAE	**BORAGE FAMILY**	
Amsinckia spectabilis	Wooly-breeches	FACU
BRASSICACEAE	**CRUCIFER FAMILY**	
Brassica sp.	Mustards	FACU
Hirschfeldia incana *	Shortpod mustard	UPL
Lepidium latifolium *	Broad-leaf Pepperwort	FAC
CHENOPODIACEAE	**AMARANTH FAMILY**	
Atriplex sp.	Saltbrush	FACW+
Chenopodium album *	Lamb's-quarters	FACU
CONVOLVULACEAE	**MORNING GLORY FAMILY**	
Convolvulus arvensis *	Field bindweed	FACU
Cressa truxillensis	Spreading alkali-weed	FACW
CYPERACEAE	**SEDGE FAMILY**	
Eleocharis sp.	Spike-rushes	FACW+
FABACEAE	**LEGUME FAMILY**	
Medicago polymorpha *	Burr clover	FACU
Acmispon glaber	Deerweed	UPL
FAGACEAE	**OAK FAMILY**	
Quercus sp.	Oaks	
FRANKENIACEAE	**ALKALI-HEATH FAMILY**	
Frankenia salina	*Alkali sea-heath*	FACW
GERANIACEAE	**GERANIUM FAMILY**	
Erodium botrys *	*Stork's bill*	FACU
ISOETACEAE	**QUILWORT FAMILY**	
Isoetes sp.	Quilworts	FACW+
LAURACEAE	**LAUREL FAMILY**	

Umbellularia californica	California bay laurel	FAC
MALVACEAE	**MALLOW FAMILY**	
Malvella leprosa	Alkali mallow	FACU
MONTIACEAE	**LEAF-SUCCULENT FAMILY**	
Claytonia sp.	*Miner's lettuce*	
MYRTACEAE	**MYRTLE FAMILY**	
*Eucalyptus sp. **	*Gum Tree*	
OLEACEAE	**OLIVE FAMILY**	
*Fraxinus latifolia **	*Oregon ash*	FACW
PLANTAGINACEAE	**PLANTAIN FAMILY**	
Callitriche sp.	*Water-starworts*	OBL
*Plantago lanceolate **	*English plantain*	FAC
POACEAE	**GRASS FAMILY**	
Avena sp.	*Wild oats*	UPL
Bromus diandrous	*Great brome*	UPL
Bromus hordeaceous	*Soft brome*	FACU
Distichlis spicata	*Saltgrass*	FAC
Festuca sp.	*Fescue*	UPL
Lolium perenne	*Italian ryegrass*	FAC
Triticum sp.	*Wheat*	UPL
Vulpia myuros	*Rattail fescue*	FACU
POLYGONACEAE	**KNOTWEED FAMILY**	
Rumex crispus	*Curly dock*	FAC
PORTULACACEAE	**PURSLANE FAMILY**	
Portulaca oleracea	*Common purslane*	FAC
ROSACEAE	**ROSE FAMILY**	
Rosa multiflora	*Multiflora rose*	FACU
Rosa sp.	*Ornamental rose*	UPL
TYPHACEAE	**TULE FAMILY**	
Typha sp.	*Cattails*	OBL
VISCACEAE	**MISTELTOE FAMILY**	
Phoradendron sp.	*Mistletoe*	

[1]2018 Arid West Regional Wetland Plant List - Wetland Indicator Status (WIS)

*Not native to California

Plant species not listed within the Arid West National Plant List are considered UPL for wetland delineation purposes.

OBL = Occurs in aquatic resources >99% of time

FACW = Occurs in aquatic resources 67-99% of time

FACU = Occurs in aquatic resources 34-66% of time

UPL = Occurs in aquatic resources 1-33% of time

APPENDIX E

WETLAND DELINEATION DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/17/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 1W

Investigator(s): Josh G. Amy G. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Depression feature within terraced area of drainage floodplain. No inlet or outlet. Vegetation likely taps groundwater/table from drainage.

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: _____)			
1. Distichlis spicata	15		FAC
2. Lolium perenne	20		FAC
3. Frankenia salina	1		FACW
4. Centromadia sp.	1		
5. Rumex crispus	2		FAC
6. Lepidium latifolium	2		FAC
7.			
8.			
	41 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

Pappose tarplant potential

SOIL

Sampling Point: 1W

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
0-6	10YR 3/2	100		0				
6-12	10YR 5/2	94	7.5YR 5/8	6				Faint redox

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/17/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 1U

Investigator(s): Josh G. Amy G. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Carduus pycnocephalus	2		UPL
2. Salsola kali	2		UPL
3. Festuca sp.	40		UPL
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 1U

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
0-6	10YR 3/2						Sandy cla	Roots predominant
6-12	10YR 3/2						Clay	

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/17/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 2W

Investigator(s): Josh G. Amy G. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Northern CA Walnut	2		FAC
2.			
3.			
4.			
	2 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Tules	70		OBL
2. Distichlis spicata	10		FAC
3.			
4.			
5.			
6.			
7.			
8.			
	80 = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 2W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	95	10YR 6/8	5			Sandy cla	Prominent soft masses

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/17/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 2U

Investigator(s): Josh G. Amy G. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. stork's bill	15		UPL
2. english plantain	8		FAC
3. burr clover	8		UPL
4. fennel	5		UPL
5. festuca sp.	20		
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 2U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/2	100						

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/17/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 3U

Investigator(s): Josh G. Amy G. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Distichlis spicata	5		FAC
2. Vulpia myuros	80		FACU
3. Centaurea solstitialis	2		UPL
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 3U

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
0-12	7.5YR 3/2	85	7.5YR 4/6	15			SCL	Prominent redox

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 4W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Lightly depressed feature with sheep droppings displaying drift.

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: _____)			
1. Malvella leprosa	2		UPL
2. Portulaca oleracea	2		FAC
3. Poaceae sp.	7		UPL
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

High change in vegetation versus uplands which have much higher coverage. Very low cover/conditions limit growth. High levels of moss and algal growth. Early in growing season. Veg height in mm's to a few inches.

SOIL

Sampling Point: 4W

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
0-4	7.5YR 3/2	95	7.5YR 5/4	5	RM	M	Clay	
4-8	10YR 3/1	100						

[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:

Strong hydro indicators and drift deposits. Algae and moss.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 4U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Poaceae sp.	20		UPL
2. Malvella leprosa	5		FACU
3. Erodium botrys	2		FACU
4. Hirschfeldia incana	2		UPL
5. Amsinckia spectabilis	2		FACU
6. Convolvulus arvensis	2		FACU
7. Chenopodium album	1		FACU
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 4U

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
0-8	10YR 3/3	98	7.5YR 5/6	2			Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 5W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Depression feature receiving conveyance from adjacent uplands.

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: _____)			
1. Eleocharis sp.	2		FACW+
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 98 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

98% open water.

SOIL

Sampling Point: 5W

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
0-12	7.5YR 3/1	5	7.5YR 5/8	5		M	Clay	Dense

[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:

Highly saturated, sulfurous smell.

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): 4

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 5U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Malvella leprosa	2		FACU
2. Triticum sp.	60		UPL
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 5U

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
0-12	7.5YR 3/1	100					Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 6W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Isolated depression feature, no standing water.

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: _____)			
1. Triticum sp.	10		UPL
2. Portulaca oleracea	5		FAC
3. Acmispon glaber	1		UPL
4. Isoetes sp.	2		FACW+
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

Algae and bare ground present.

SOIL

Sampling Point: 6W

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
0-12	7.5YR 3/2	93	7.5YR 5/8	7			Clay	

[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:

Algal sphere species in abundance.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 6U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	80		UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 6U

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
0-12	7.5YR 3/3	100						

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 7U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	50		UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 7U

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
0-6	10YR 3/2	100					Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 8U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	60		UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 8U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 9W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Depression feature at and above drainage fork.

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: _____)			
1. Portulaca oleracea	5		FAC
2. Triticum sp.	1		UPL
3. Atriplex sp.	3		FACW+
4. Isoetes sp.	2		FACW+
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 9W

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
0-12	7.5YR 3/2	90	7.5YR 5/4	10			Clay	

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 9U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	60		UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 9U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 10W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Slight depression feature within flat surrounding uplands.

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: _____)			
1. Callitriche sp.	3		OBL
2. Portulaca oleracea	3		FAC
3. Triticum sp.	10		UPL
4. Isoetes sp.	3		FACW
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 10W

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
0-12	7.5YR 3/2	85	7.5YR 5/8	15			Clay	

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 10U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	60	/ _____	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 10U

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
0-6	10YR 3/2	100					Clay 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:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 11W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Tilled. At toe slope.

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: _____)			
1. Callitriche sp.	3		OBL
2. Triticum sp.	2		UPL
3. Isoetes sp.	2		FACW
4. Portulaca oleracea	2		FAC
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 91 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 11W

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
0-8	7.5YR 3/1	85	7.5YR 5/6	15		M	Clay	
8-12	7.5YR 4/1	100						

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 11U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Triticum sp.	70		FAC
2. Malvella leprosa	10		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 11U

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 12U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Bromus diandrous	10		UPL
2. Avena sp.	1		UPL
3. Hirschfeldia incana	5		UPL
4. Cardus marianus	1		UPL
5.			
6. Bromus hordeaceous	5		FACU
7. Rumex crispus	2		FAC
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 12U

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
0-6	7.5YR 3/3					M	SCL	
6-12	7.5YR 4/1	85	7.5YR 4/4	15		M		

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 13U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Bromus diandrous	8		UPL
2.			
3. Hirschfeldia incana	5		UPL
4.			
5.			
6. Bromus hordeaceous	5		FACU
7. Rumex crispus	2		FAC
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 13U

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
0-6	7.5YR 3/3						SCL	
6-12	7.5YR 4/1	85	7.5YR 4/4	15		M		

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 15U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Bromus diandrous	10		UPL
2. Hirschfeldia incana	5		UPL
3. Bromus hordeaceous	5		FACU
4. Rumex crispus	1		FAC
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 15U

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
0-6	7.5YR 3/2	100					SCL	
6-12	7.5YR 3/2	100					Clay	

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 15W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

Excavated from uplands. Naturalized.

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: _____)			
1. Rumex crispus	50		FAC
2. Bromus sp.	15		FACU
3. Elymus sp.	15		
4. Cressa truxillensis	1		FACW
5. Distichlis spicata	10		FAC
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 15W

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
0-6	7.5YR 3/2	100					SCL	
6-12	7.5YR 3/2	90	7.5YR 4/4	10			Clay	

[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:

Hydrology indicators weak, however vegetation and soil support determination as wetland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 16U

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Eleocharis sp.	5		FACW+
2. Rumex crispus	60		FAC
3. Cressa truxillensis	1		FACW
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 16U

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
0-1							OM	
1-8	7.5YR 3/1	100					Clay	

[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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Brann Ranch City/County: Solano County Sampling Date: 11/18/2021

Applicant/Owner: Montrose Environmental Solutions State: CA Sampling Point: 16W

Investigator(s): Josh G. Cedrick V. Jedidiah D. Section, Township, Range: Section 14, T4N, R2E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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:

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: _____)			
1. Eleocharis sp.	5		FACW+
2. Rumex crispus	60		FAC
3. Cressa truxillensis	1		FACW
4.			
5.			
6.			
7.			
8.			
	_____ = 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: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:

SOIL

Sampling Point: 16W

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
0-1							OM	
1-8	7.5YR 3/1	95	7.5YR 4/4	5			Clay	

[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)
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- ___ 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:

APPENDIX F

SIGNED STATEMENT FROM PROPERTY OWNER ALLOWING ACCESS

REQUEST FOR AQUATIC RESOURCES DELINEATION VERIFICATION

OR JURISDICTIONAL DETERMINATION

A separate jurisdictional determination (JD) is not necessary to process a permit. An Approved Jurisdictional Determination (AJD) is required to definitively determine the extent of waters of the U.S. and is generally used to disclaim jurisdiction over aquatic resources that are not waters of the U.S., in cases where the review area contains no aquatic resources, and in cases when the recipient wishes to challenge the water of the U.S. determination on appeal. Either an Aquatic Resources Delineation Verification or a Preliminary Jurisdictional Determination (PJD) may be used when the recipient wishes to assume that aquatic resources are waters of the U.S. for the purposes of permitting. In some circumstances an AJD may require more information, a greater level of effort, and more time to produce. If you are unsure which product to request, please speak with your project manager or call the Sacramento District's general information line at (916) 557-5250.

I am requesting the product indicated below from the U.S. Army Corps of Engineers, Sacramento District, for the review area located at:

Street Address: 7987 Hwy 12 City: Rio Vista County: Solano
State: CA Zip: 94571 Section: 14 Township: 4N Range: 2E
Latitude (decimal degrees):_____ Longitude (decimal degrees): _____
The approximate size of the review area for the JD is 317 acres. **(Please attach location map)**

Choose one:
- (•) I own the review area
- ( ) I hold an easement or development rights over the review area
- ( ) I lease the review area
- ( ) I plan to purchase the review area
- ( ) I am an agent/consultant acting on behalf of the requestor
- ( ) Other: _____

Choose one product:
- ( ) I am requesting an Aquatic Resources Delineation Verification
- (•) I am requesting an Approved JD
- ( ) I am requesting a Preliminary JD
- ( ) I am requesting additional information to inform my decision about which product to request

Reason for request: (check all that apply)
- [ ] I need information concerning aquatic resources within the review area for planning purposes.
- [x] I intend to construct/develop a project or perform activities in this review area which would be designed to avoid all aquatic resources.
- [ ] I intend to construct/develop a project or perform activities in this review area which would be designed to avoid those aquatic resources determined to be waters of the U.S.
- [ ] I intend to construct/develop a project or perform activities in this review area which may require authorization from the Corps; this request is accompanied by my permit application.
- [ ] I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- [ ] My lender, insurer, investors, local unit of government, etc. has indicated that an aquatic resources delineation verification is inadequate and is requiring a jurisdictional determination.
- [ ] I intend to contest jurisdiction over particular aquatic resources and request the Corps confirm that these aquatic resources are or are not waters of the U.S.
- [ ] I believe that the review area may be comprised entirely of dry land.
- [ ] Other: _____

Attached Information:
- [x] Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- [x] Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the review area. Your signature shall be an affirmation that you possess the requisite property rights for this request on the subject property.

*Signature: _____ Date: _____
Name: David Jacobson Company name: Encore Liberty II, LLC
Address: 770 Tamalpais Drive, Suite 401B
Corte Madera, CA, 94925
Telephone: _____ Email: _____

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

APPENDIX G

AQUATIC RESOURCES EXCEL SHEET

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type
W-1	CALIFORNIA	PEM	SLOPE	Area	0.018	ACRE	A4WETARTSEP
W-2	CALIFORNIA	PEM	DEPRESS	Area	0.013	ACRE	A4WETABUT
W-3	CALIFORNIA	PEM	DEPRESS	Area	0.067	ACRE	B1WETNONADJ
W-4	CALIFORNIA	PEM	SLOPE	Area	0.079	ACRE	B1WETNONADJ
W-5	CALIFORNIA	PEM	DEPRESS	Area	0.051	ACRE	A4WETNATSEP
W-6	CALIFORNIA	PEM	DEPRESS	Area	0.035	ACRE	A4WETNATSEP
W-7	CALIFORNIA	PEM	DEPRESS	Area	0.019	ACRE	A4WETNATSEP
W-8	CALIFORNIA	PEM	SLOPE	Area	0.086	ACRE	A4WETNATSEP
W-9	CALIFORNIA	PEM	DEPRESS	Area	0.005	ACRE	A4WETNATSEP
W-10	CALIFORNIA	PEM	SLOPE	Area	0.06	ACRE	A4WETNATSEP
ED-1	CALIFORNIA	R4	RIVERINE	Linear	2286.55	FOOT	B3EPHEMERAL
ID-1	CALIFORNIA	R4	RIVERINE	Linear	3514.18	FOOT	A2TRIBINT
ID-2	CALIFORNIA	R4	RIVERINE	Linear	744.89	FOOT	A2TRIBINT

NWPR_Determine_Code	Latitude	Longitude
	38.19031200	-121.72337200
	38.18876400	-121.72377800
	38.18963100	-121.72631300
	38.18758200	-121.72547600
	38.18828100	-121.72528600
	38.18941600	-121.72857200
	38.18867300	-121.73124300
	38.19010200	-121.73192600
	38.19149300	-121.73216100
	38.19084500	-121.73101000
Yes - would NOT have been an (a)	38.18846100	-121.73019200
	38.18938800	-121.72785900
	38.19182200	-121.73158000

Wetland Features	Label	Acreage	LAT (CENTER)	LONG (Center)
Wetland	W-5	0.051	-121.72528676300	38.18828136680
Wetland	W-9	0.005	-121.73216103100	38.19149339980
Wetland	W-7	0.019	-121.73124284300	38.18867367620
Wetland	W-8	0.086	-121.73192571700	38.19010179660
Wetland	W-2	0.013	-121.72377793200	38.18876443600
Wetland	W-3	0.067	-121.72631399000	38.18963140390
Wetland	W-6	0.035	-121.72857222200	38.18941580030
Wetland	W-4	0.079	-121.72547640500	38.18758239750
Wetland	W-1	0.018	-121.72337175600	38.19031172520
Wetland	W-10	0.060	-121.73100999500	38.19084508880

Linear Features	Label	LIN FT	LAT (MIDPOINT)	LONG (MIDPOINT)
Ephemeral Drainage	ED-1	2286.55	-121.7301	38.1885
Intermittent Drainage	ID-1	3514.18	-121.7279	38.1894
Intermittent Drainage	ID-2	744.89	-121.7316	38.1918
Roadside Ditch	RD-1	482.09	-121.7233	38.1894
Roadside Ditch	RD-2	1885.44	-121.7267	38.1905
Roadside Ditch	RD-3	2569.43	-121.7279	38.1906

Wetland Points	Label	LAT	LONG
Data Point	1U	-121.7234	38.1904
Data Point	1W	-121.7234	38.1904
Data Point	2U	-121.7239	38.1888
Data Point	2W	-121.7239	38.1887
Data Point	3U	-121.7239	38.1885
Data Point	4U	-121.7263	38.1898
Data Point	4W	-121.7263	38.1897
Data Point	5U	-121.7253	38.1875
Data Point	5W	-121.7254	38.1876
Data Point	6U	-121.7253	38.1882
Data Point	6W	-121.7254	38.1882
Data Point	9U	-121.7285	38.1894
Data Point	9W	-121.7286	38.1894
Data Point	7U	-121.7255	38.1868
Data Point	10W	-121.7313	38.1887
Data Point	10U	-121.7313	38.1887
Data Point	8U	-121.7260	38.1863
Data Point	11W	-121.7318	38.1902
Data Point	11U	-121.7318	38.1902
Data Point	15U	-121.7322	38.1915
Data Point	15W	-121.7321	38.1915
Data Point	16U	-121.7311	38.1910
Data Point	16W	-121.7311	38.1909
Data Point	13U	-121.7323	38.1911
Data Point	12U	-121.7322	38.1908

D2

Preliminary Jurisdictional Determination

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

August 19, 2022

Regulatory Division (SPK-2004-00946)

Danville Development & Real Estate, Inc.
Attn: Mr. Vincent Rover
1600 South Main Street, Suite 380
Walnut Creek, California 94596
vrover@danvilledev.com

Dear Mr. Rover:

We are responding to your March 31, 2022, request for a preliminary jurisdictional determination (JD) for the Brann Ranch site. The approximately 318-acre project site is located in Solano County, California within Section 14, Township 4 North, Range 2 West, Mount Diablo Baseline and Meridian (MDBM) and is portrayed on the "*Rio Vista, CA*" U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Latitude 38.19064°, Longitude -121.72778°).

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed *Appendix B Aquatic Resources Delineation Map* prepared by Jed Dowell of Analytical Environmental Services on March 31, 2022, (enclosure 1). The acreages for the aquatic resources portrayed on enclosure 1 are listed in Table 9 Summary Table (enclosure 2). The approximately 0.43 acre of seasonal wetlands, 1.55 acres of ephemeral and intermittent drainages, and 0.68 acre of roadside ditches present within the survey area are potential jurisdictional aquatic resources (waters of the United States) regulated under Section 404 of the Clean Water Act.

This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (enclosure 3). Please sign and return the completed form to the address listed below within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made. To request an approved JD for this site, complete the attached *Request for Aquatic Resources Delineation or Jurisdictional Determination Form* (enclosure 4) and return it to this office at the address listed below. A *Notification of Appeal Process and Request for Appeal Form* is enclosed to notify you of your options with this determination (enclosure 5).

Please refer to identification number SPK-2004-00946 in any correspondence concerning this project. If you have any questions, please contact Matt Hirkala by email at matthew.j.hirkala@usace.army.mil or by phone at (916) 557-5148. We appreciate feedback, especially about interactions with our staff and processes. For program information or to complete our Customer Survey, visit our website at www.spk.usace.army.mil/missions/regulatory.aspx.

Sincerely,

Mary Pakenham-Walsh
Chief, CA Delta Section
Regulatory Division

Enclosures

cc:
Ms. Kathleen Sholty, Montrose Environmental Solutions, kesholty@montrose-env.com

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Danville Development & Real Estate, Inc., Attn: Mr. Vincent Rover	File No.: SPK-2004-00946	Date: August 19, 2022

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
→	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

U.S. Army Corps of Engineers
Matt Hirkala
Project Manager
1325 J Street, Room 1350
Sacramento, CA 95814
Phone: 916-557-5148:
FAX: 916-557-7803
Email: Matthew.J.Hirkala@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX: 415-503-6646)
Email: Thomas.J.Cavanaugh@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

D3

Brann Ranch Biological Resources Assessment, December 2021



BRANN RANCH
BIOLOGICAL RESOURCES ASSESSMENT

CITY OF RIO VISTA, CALIFORNIA

DECEMBER 2021

PREPARED FOR:
Encore Liberty II, LLC.
770 Tamalpais Drive, Suite 401B
Corte Madera, CA 94925

PREPARED BY:

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AES
a Montrose Environmental Group company

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Attachment 2 National Wetlands Inventory
Attachment 3 NRCS Custom Soils Report
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1.0 INTRODUCTION

This Biological Resources Assessment analyzes an approximate 322.06-acre property (Subject Property) within the City of Rio Vista, California. A biological resources survey of the Subject Property was conducted on November 17, 2021. Survey methodologies, potentially occurring sensitive biological resources, and survey results are discussed herein.

1.1 SUBJECT PROPERTY LOCATION

The Subject Property is comprised of six parcels (**Table 1**) located west of the intersection of Canright Road and Province Path in the City of Rio Vista (**Figures 1** and **2**). The Subject Property primarily consists of agriculture land and a residence on the southern boundary. The Subject Property is bound by McCormack Road to the north, Highway 12 to the south, Province Path to the east, and agriculture to the west (**Figure 3**). Access to the Subject Property is provided by Highway 12, thence Liberty Island Road, thence Canright Road. The Subject Property is gently sloping with an elevation ranging from approximately 20 to 58 feet above mean sea level.

TABLE 1
PARCEL DATA

Assessor's Parcel Number	Acreage
0048-110-460	68.94
0048-110-490	6.47
0048-110-100	0.45
0048-110-470	84.12
0048-110-480	0.68
0048-110-060	161.4
TOTAL	**322.06**

Source**:** Solano County, 2021; City of Rio Vista, 2002

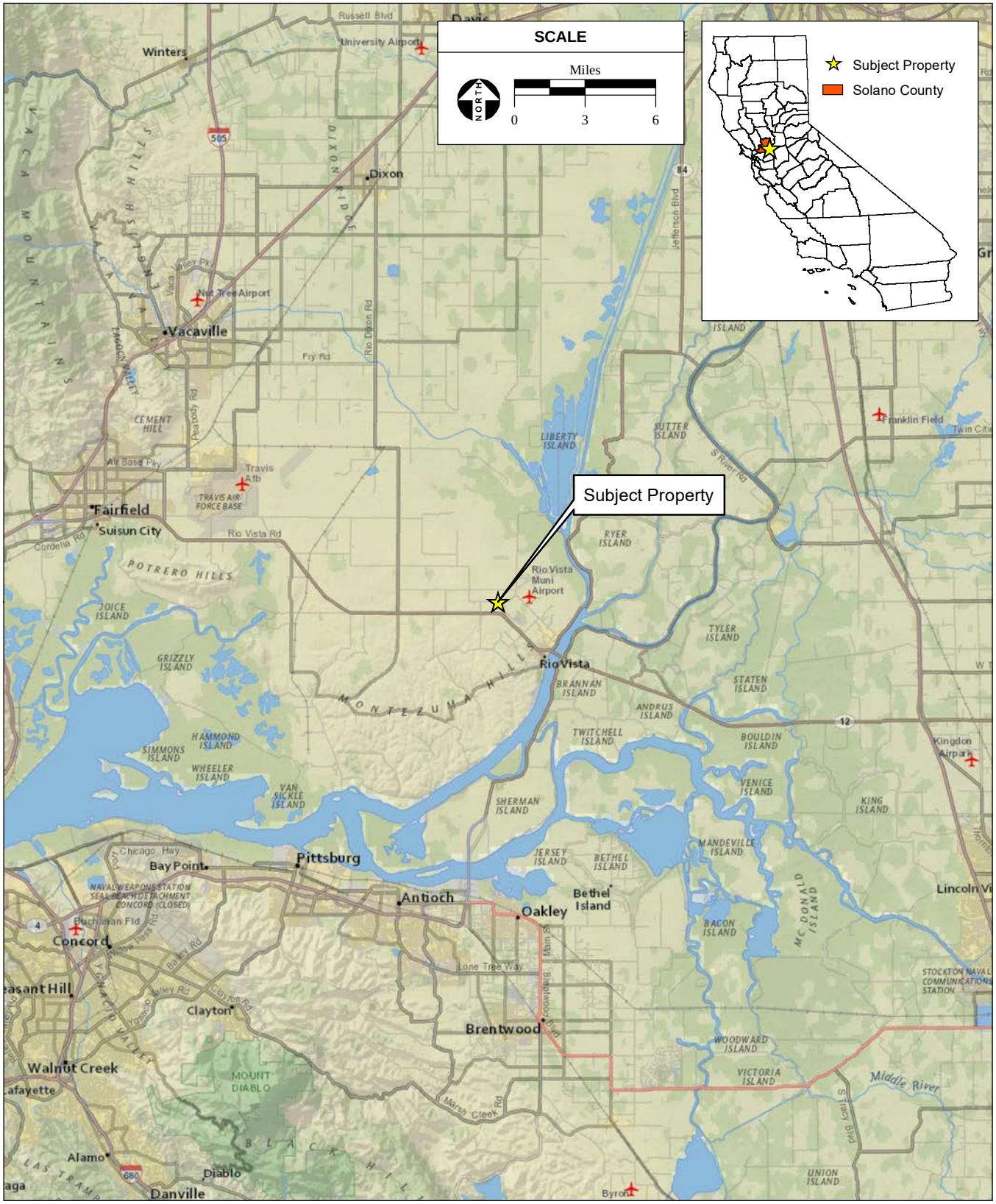
Additionally, the Subject Property is located within the Solano Multispecies Habitat Conservation Plan (LSA, 2012) area. The HCP is under final review and has not yet been formally approved. Should development occur on the Subject Property after approval and implementation of the HCP, development may be subject to the conservation goals and policies identified in the HCP.

2.0 METHODOLOGY

2.1 PRELIMINARY DATA REVIEW

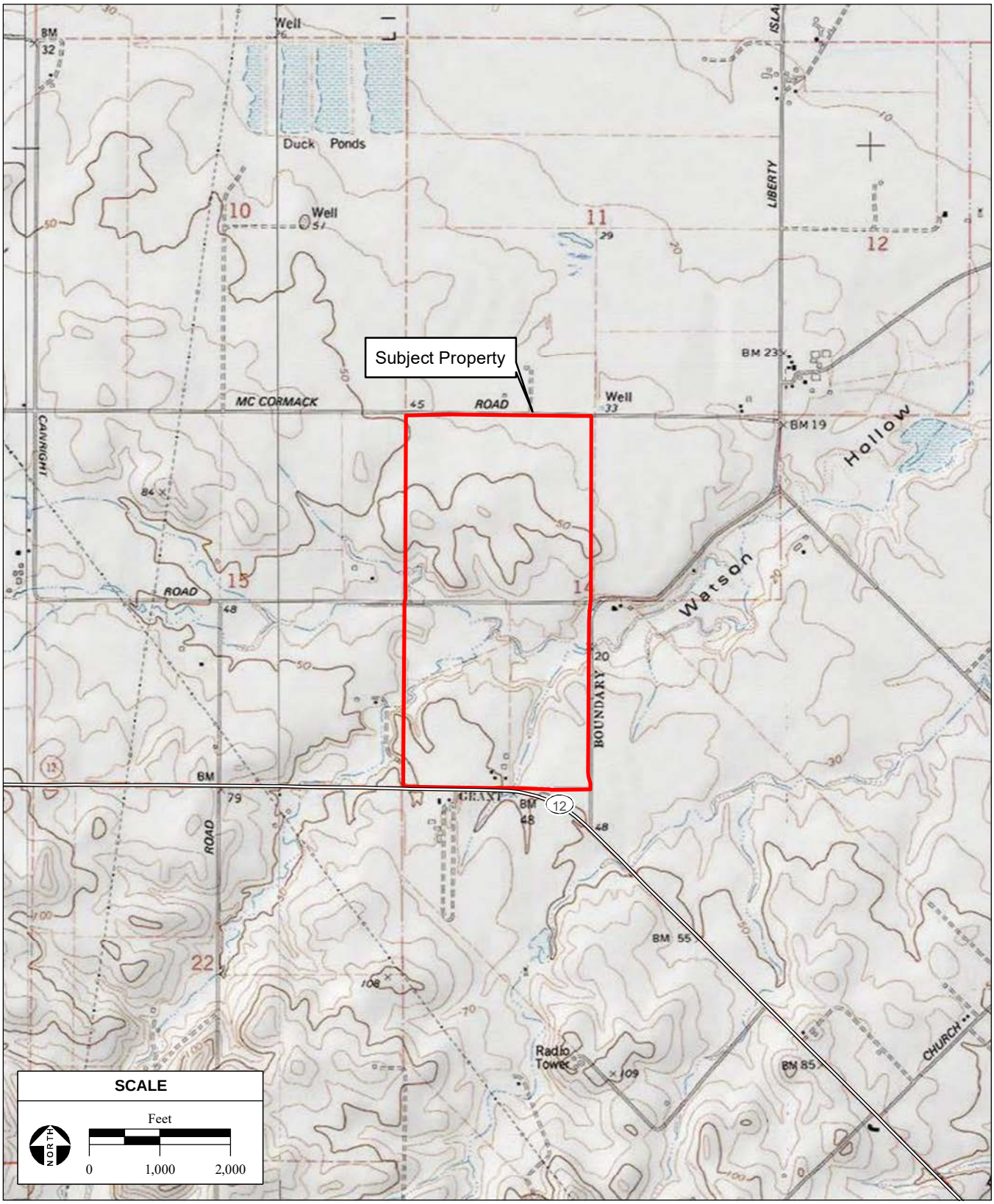
Prior to conducting the biological survey, biological information for the Subject Property was obtained from the following sources:

- California Native Plant Society (CNPS) query of special-status species known to occur in the "Rio Vista" and "Birds Landing" U.S. Geological Survey quadrangles (quads) (CNPS, 2021) (**Attachment 1**);
- California Natural Diversity Database (CNDDB) query of special-status species with the potential to occur within the "Rio Vista" and "Birds Landing" quads (CDFW, 2021a) (**Attachment 1**);
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPAC) special-



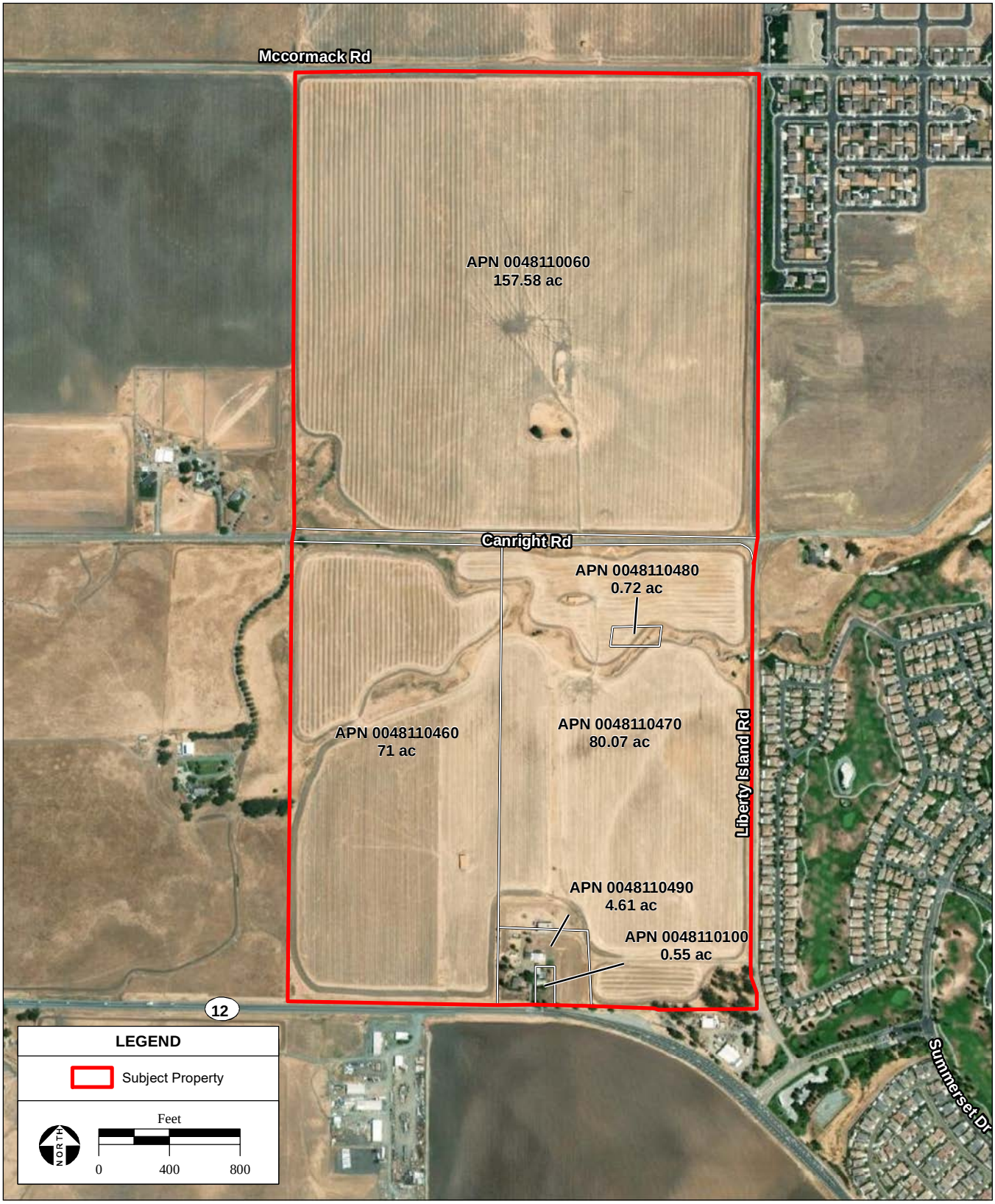
SOURCE: NatGeo 2021; ESRI, 2021; AES-Montrose, 12/1/2021

Figure 1
Regional Location



SOURCE: "Rio Vista, CA" USGS 7.5 MinuteTopographic Quadrangle,
T4N, R2E, Section 14, Mt. Diablo Baseline & Meridian;
ESRI Data, 2021; AES-Montrose, 12/13/2021

Figure 2
Site and Vicinity



SOURCE: Maxar Aerial Photograph, 6/3/2020; AES-Montrose, 12/15/2021

Figure 3
Aerial Photograph

- status species list with the potential to occur on and near the Subject Property (USFWS, 2021a) (**Attachment 1**);
- USFWS National Wetlands Inventory of aquatic resources (USFWS, 2021b) (**Attachment 2**);
- USFWS Critical Habitat for Threatened and Endangered Species (USFWS, 2021c);
- Natural Resources Conservation Service (NRCS) Custom Soil Report (NRCS, 2021) (**Attachment 3**); and
- Final Administrative Draft of the Solano Multispecies Habitat Conservation Plan (LSA, 2012).

2.2 SURVEY TECHNIQUES

A biological resources survey of the Subject Property was conducted on November 17, 2021. The survey was conducted by walking meandering transects throughout and around the Subject Property. Data was collected via a Trimble Geo XH GPS receiver. Survey goals consisted of identifying habitat types, sensitive habitats, wetlands and waters of the U.S., plant and wildlife species, and special-status species. Habitat requirements of special-status species were compared to habitats present on and adjacent to the Subject Property based on the biological survey, aerial photographs, and information included in **Attachment 1**. Species observed were identified to the lowest taxonomical level possible. Binoculars were utilized as needed, such as to identify birds in flight. Evidence of wildlife dens, nests, or burrows were noted if present.

Surveys were conducted consistent with the California Department of Fish and Wildlife (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018). Plants were identified using *The Jepson Manual: Vascular Plants of California* (Hickman, 1993), and *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al., 2012). Additionally, *A Manual of California Vegetation: Second Editio*n (Sawyer et al., 2009), *Preliminary Descriptions of the Terrestrial Communities of California* (Holland, 1986), and *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988) were consulted.

3.0 ENVIRONMENTAL SETTING

3.1 FINAL ADMINISTRATIVE DRAFT SOLANO HABITAT CONSERVATION PLAN

The Draft HCP promotes the conservation of biological diversity, and preservation of special-status species and their habitats, while balancing the economical requirements of citizens, agriculture, and industries. The Subject Property is within Zone 1 of the Draft HCP, which is designated as the Urban Growth Area. The natural community is designated as Valley Floor Grassland and Vernal Pool. Additionally, the Subject Property is within the Swainson's hawk (*Buteo swainsoni*) conservation area, burrowing owl (*Athene cunicularia*) conservation area, and California tiger salamander (CTS; *Ambystoma californiense*) potential range. The Draft HCP includes conservation measures specific to this natural community, and aforementioned special-status species (Covered Species). Within Zone 1, covered activities that affect Covered Species, including development, must be conducted in compliance with the goals, objectives, and mitigation measures of the Draft HCP.

3.2 SOIL TYPES

NRCS was queried for a custom soils report of the Subject Property (NRCS, 2021). The Subject Property consists largely of Altamont-Diablo clays, 2 to 9 percent slopes, followed by Diablo-Ayar clays, 2 to 9 percent slopes (**Attachment 3**). Other minor soil components include Rincon clay loam, 0 to 2 percent slopes; Antioch-San Ysidro complex, 2 to 9 percent slopes; and Clear Lake clay, 0 to 2 percent slopes. Soils are non-serpentine and non-alkaline. Soil properties are summarized below:

Altamont-Diablo clays, 2 to 9 percent slopes

This soil type is derived from residuum weathered from siltstone, well drained, and non-hydric. It is considered farmland of statewide importance.

Diablo-Ayar clays, 2 to 9 percent slopes

This soil type is derived from residuum weathered from weakly consolidated sediments, well drained, and non-hydric. It is considered prime farmland if irrigated.

Rincon clay loam, 0 to 2 percent slopes

This soil type is alluvium derived from sedimentary rock, well drained, and non-hydric. It is considered prime farmland if irrigated.

Antioch-San Ysidro complex, 2 to 9 percent slopes

This soil type is alluvium derived from sedimentary rock, moderately well drained, and non-hydric. It is not considered prime farmland.

Clear Lake clay, 0 to 2 percent slopes

This soil type is derived from basin alluvium weathered from igneous, metamorphic and sedimentary rock, poorly drained, and hydric. It is considered prime farmland if irrigated.

3.3 HABITAT TYPES

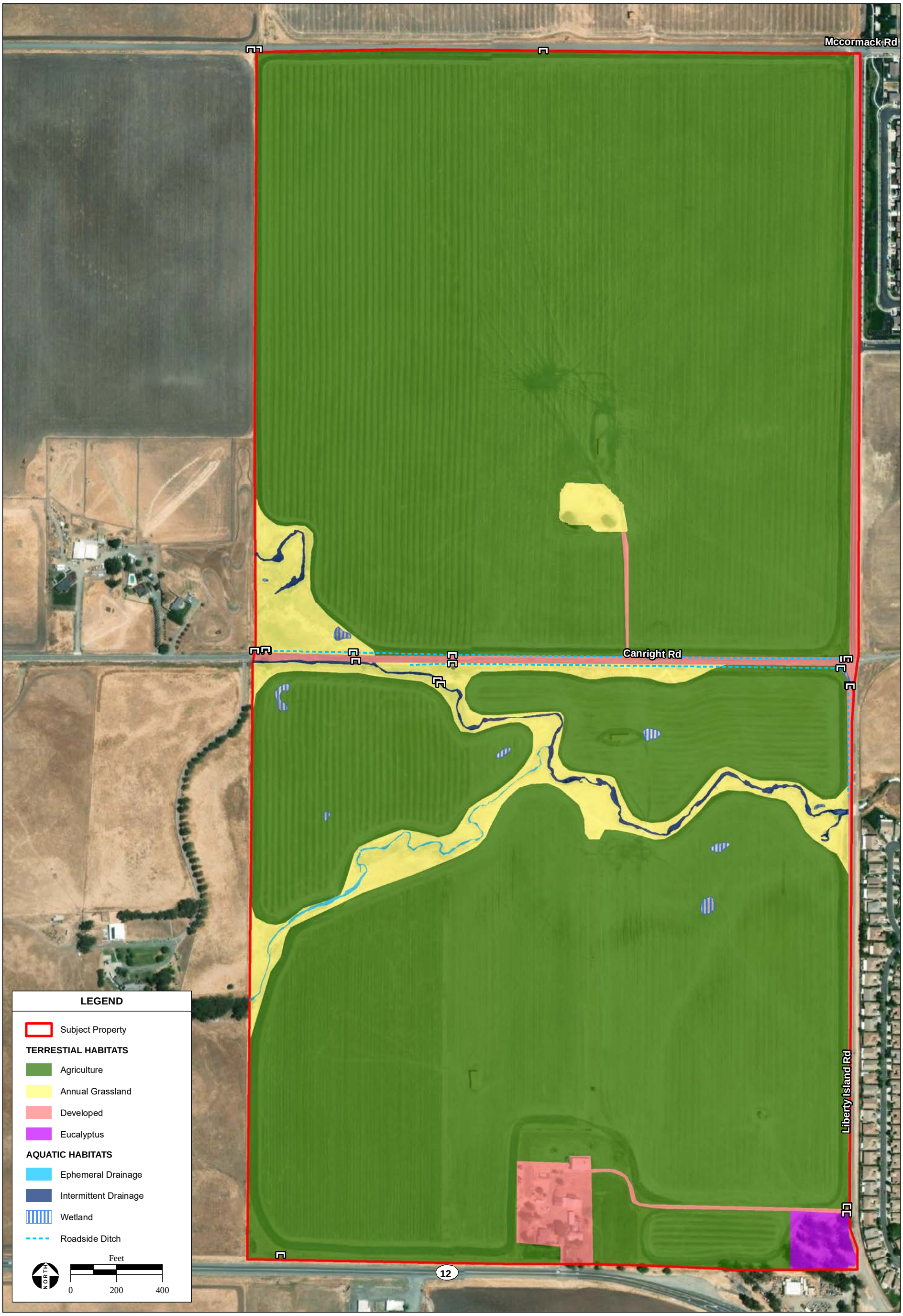
Habitat types observed on the Subject Property include agriculture, annual grassland, developed, eucalyptus grove, stream, and wetlands (further discussed in **Section 3.4**). A list of observed species is included in **Attachment 4**. A habitat map is included as **Figure 4**, and site photographs are included as **Figure 5**. Habitat types are discussed further below.

Agriculture

Approximately 287.96 acres of agriculture used for wheat farming and sheep grazing occurs on the Subject Property. Weed abatement and vegetation management is conducted utilizing routine disking. Wheat (*Triticum* sp.) was observed sprouting at the time of survey. Burrows were observed within this habitat on the southern portion of the Subject Property. Routine disturbance from agricultural operations has limited native plant species, and species are largely non-native. This habitat is not considered sensitive.

Annual Grassland

Approximately 15.93 acres of annual grassland occurs on the Subject Property. This habitat type primarily borders stream courses as agriculture operations are set back from banks. Trees are largely absent, but a couple isolated eucalyptus trees are present in the northcentral area of the Subject Property. An unoccupied raptor nest was observed in one of the eucalyptus trees. A burrowing owl was also observed occupying a burrow adjacent to an ephemeral drainage. This burrow showed signs of recent residency, including the presence of whitewash and several pellets. Plant species observed include: Oregon ash (*Fraxinus latifolia*), great brome (*Bromus diandrous*), soft brome (*Bromus hordeaceous*), Italian ryegrass (*Lolium* perenne), wild oats (*Avena* sp.), and fescues (*Festuca* sp.), mustards (*Brassica spp.*), sweet fennel (*Foeniculum vulgare*), shortpod mustard (*Hirschfeldia incana*),



SOURCE: Maxar Aerial Photograph, 6/3/2020; AES-Montrose, 12/17/2021

Figure 4
Habitat Map



PHOTO 1: Representative annual grassland habitat adjacent to stream banks.



PHOTO 2: Seasonal wetland set in agriculture habitat.



PHOTO 3: Intermittent stream which bisects the Subject Property east to west.



PHOTO 4: Ephemeral stream which confluences with the intermittent stream.



PHOTO 5: Isolated intermittent stream north of Canright Road adjacent to western boundary.



PHOTO 6: Active burrowing owl burrow.

SOURCE: AES-Montrose, 11/30/2021

Figure 5
Site Photographs

common stork's bill (*Erodium botrys*), English plantain (Plantago lanceolata), field bindweed (*Convolvulus arvensis*), and yellow star-thistle (*Centaurea solstitialis*). This habitat is generally dominated by non-native plant species, and thus is not considered sensitive.

Developed

Developed habitat constitutes approximately 8.56 acres of the Subject Property. A residence with associated farm structures is located in the southern portion of the Subject Property. Landscaped areas, roads, parking, or otherwise disturbed non-agricultural areas are considered developed. Due to the disturbed nature of this area, it does not support a diversity of native species. Plant species observed include: Mexican fan palm (*Washingtonia robusta*), ornamental rose (*Rosa* sp.), eucalyptus, walnuts (*Juglans sp.*), and oleander (*Nerium oleander*), sweet fennel, field bindweed, mustards, common stork's bill, English plantain, bromes, wild oat, and ornamental grasses (lawn). This habitat type is not considered sensitive.

Eucalyptus

Approximately 1.65 acres of eucalyptus grove occurs in the southeastern corner of the Property. No nest structures were observed in the trees. This habitat's groundcover is generally dominated by mostly non-native annual grasses such as bromes, Italian ryegrass, wild oats, and fescues. This habitat is not considered sensitive.

3.4 WETLANDS AND WATERS OF THE U.S.

A wetland delineation was conducted in 2004 by LSA Associates, Inc. The delineation identified approximately 0.89 acres of wetlands and 1.53 acres of intermittent stream courses (LSA, 2004). The USACE approved the jurisdictional determination in a letter dated July 14, 2005. An updated wetland delineation was conducted on November 17, 2021. The November 2021 survey observed one ephemeral drainage, two intermittent drainages, and ten small wetland features. The wetland features total approximately 0.43 acres, reduced from the 2004 survey. The wetlands primarily occur as isolated features adjacent to stream corridors within agriculture habitat. Three wetlands occur within annual grassland, two of which are near-contiguous to intermittent drainages. Wetlands are temporarily or seasonally flooded.

NWI indicates five freshwater emergent wetlands (PEMIC; PEM1A) and two intermittent riverine streams (R4SBC) on the Subject Property (USFWS, 2021b). Field observations concluded that two of the emergent wetland features shown on NWI were ephemeral and intermittent drainages. The riverine system shown on NWI north of Canright Road is an isolated intermittent drainage with a nexus to a wetland, and is approximately 745 lf. NWI also shows a riverine system bisecting the southern portion of the Subject Property from southwest to northeast. Field observations did not find evidence of a channelized stream with an OHWM in this location.

The primary watercourse, the intermittent drainage, bisects the Subject Property west to east and flows to the Sacramento River approximately 3.3 miles northeast. This feature is approximately 3,514 linear feet (lf). In-line pools occur within the ordinary high water mark (OHWM), variably contain water, and range in depth from three to ten feet from top of bank. The ephemeral drainage confluences with the intermittent drainage near the center of the Subject Property, and is approximately 2,287 lf. At its widest, this feature measures approximately 30 feet and constricts to approximately 6 feet from OHWM to OHWM. The ephemeral and intermittent drainages have beds dominated by clay and silt with prevalence of vegetative growth, and generally lack gravel, cobble, or boulder substrates. Banks are

often incised, undercut, or otherwise eroded; bank erosion has been exacerbated by ongoing sheep grazing. Erosional shearing is evident on incised banks. Additionally, three roadside ditches were identified and total approximately 4,937 lf. These features were constructed to drain uplands and channel stormwater runoff, and are unlikely to be ruled as jurisdictional by USACE.

3.5 SPECIAL-STATUS SPECIES

Preliminary data review and special-status species searches list 15 special-status plant species and 19 special-status animal species with the potential to occur in the region (**Attachment 1**). The name, regulatory status, distribution, habitat requirements, period of identification, and potential to occur on the Subject Property for each special-status species are listed in **Table 2**. Species with no potential to occur were ruled out based on site characteristics such as lack of suitable habitat, soils, elevation, or necessary substrate. A burrowing owl was observed on the Subject Property during the survey.

TABLE 1

REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

SCIENTIFIC NAME **COMMON NAME**	**FEDERAL/STATE /CNPS STATUS**	**DISTRIBUTION**	**HABITAT REQUIREMENTS**	**PERIOD OF IDENTIFICATION**	**POTENTIAL TO OCCUR ON SUBJECT PROPERTY**
PLANTS					
Atriplex cordulata var. *cordulata* Heartscale	--/--/1B.2	Known to occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties. Presumed extirpated in San Joaquin, Stanislaus, and Yolo counties.	Found in saline or alkaline soils and in chenopod scrub, meadows and seeps, and valley and foothill grassland habitats. Elevations range from 0-560 meters.	April-October	**No**. The Subject Property does not contain suitable soils.
Centromadia parryi ssp. parryi Pappose tarplant	--/--/1B.2	Known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma, and Yolo Counties.	Found in chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), and valley and foothill grassland (vernally mesic)/often alkaline. Elevations range from 2-420 meters.	May-November	**Yes.** The Subject Property has habitat to potentially support this species.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	--/--/2B.1	Known to occur in Contra Costa, Los Angeles, Marin, Sacramento, Santa Barbara, San Luis Obispo, and Solano Counties (CNPS 2011).	Occurs in marshes and swamps, coastal, fresh or brackish water. Elevations range from 0-200 meters.	July-September	**No**. The Subject Property does not contain suitable habitat.
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	Known to occur in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Santa Clara, San Joaquin, San Luis Obispo, Solano, Tulare, and Yolo counties. Presumed extirpated in Santa Clara, San Joaquin, and Tulare counties, and presence is unconfirmed in San Luis Obispo and Tulare counties.	Found in alkaline soils and in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland habitats. Elevations range from 1-835 meters.	April-October	**No**. The Subject Property does not contain suitable soils.
Fritillaria liliacea Fragrant fritillary	--/--/1B.2	Known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties.	Perennial bulbiferous herb occurs growing on heavy or serpentinite soils within open hills, fields near coast, coastal prairie, coastal scrub, valley and foothill grassland, and cismontane woodland. Elevations range from 3-410 meters.	February-April	**No**. The Subject Property does not contain suitable soils.
Hibiscus lasiocarpos var. *occidentalis* Woolly rose-mallow	--/--/1B.2	Known to occur in Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties.	Found in marshes and swamps (freshwater) and often in riprap on the sides of levees. Elevations range from 0-120 meters.	June-September	**No**. The Subject Property does not contain suitable habitat.
Isocoma argute Carquinez goldenbush	--/--/1B.1	Known to occur in Solano county.	A perennial shrub found in valley and foothill grassland (alkaline). Elevations range from 1-20 meters.	August-December	**No**. The Subject Property does not contain suitable soils.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON SUBJECT PROPERTY
Lathyrus jepsonii var. *jepsonii* Delta tule pea	--/--/1B.2	Known to occur in Contra Costa, Napa, Sacramento, San Joaquin, Solano, Sonoma, and Yolo counties.	Marshes and swamps (freshwater and brackish). Elevations range from 0-5 meters.	May-September	**No**. The Subject Property does not contain suitable habitat.
Lilaeopsis masonii Mason's lilaeopsis	--/CR/1B.1	Known to occur in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties.	Found in marshes and swamps (brackish or freshwater), and riparian scrub. Elevations range from 0-10 meters.	April-November	**No**. The Subject Property does not contain suitable habitat.
Limosella australis Delta mudwort	--/--/2B.1	Known to occur in Contra Costa, Sacramento, San Joaquin, and Solano counties. Also in Connecticut, Delaware, Massachusetts, Maryland, Maine, North Carolina, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Virginia, Washington, West Virginia.	A perennial stoloniferous herb found usually in mud banks in riparian scrub, and marshes and swamps (freshwater or brackish). Elevations range from 0-3 meters	*Limosella australis* Delta mudwort	**No**. The Subject Property does not contain suitable habitat.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	--/--/1B.1	Known to occur in Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties.	Found in mesic conditions in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools. Elevations range from 5-1740 meters.	April-July	**Yes.** The Subject Property has habitat to potentially support this species.
Plagiobothrys hystriculus Bearded popcorn-flower	--/--/1B.1	Known to occur in Napa, Solano, and Yolo counties.	Often found in vernal swales. Also found in valley and foothill grassland (mesic), and vernal pool margin habitats. Elevations range from 0-274 meters.	April-May	**Yes.** The Subject Property has habitat to potentially support this species.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Known to occur in Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Orange, Placer, Sacramento, San Bernardino, Shasta, San Joaquin, Solano, Tehama, Ventura, and Yuba counties. However, it is presumed extirpated in Orange and Ventura counties.	Found in marshes and swamps (assorted shallow freshwater). Elevations range from 0-650 meters.	May-October (November)	**Yes.** The Subject Property has shallow freshwater habitat to potentially support this species.
Sidalcea keckii Keck's checkerbloom	FE/--/1B.1	Known to occur in Colusa, Fresno, Merced, Napa, Solano, Tulare, and Yolo Counties.	An annual herb found in serpentinite, clay, cismontane woodland, and valley and foothill grassland. Elevations range from 75-650 meters.	April-June	**No**. The Subject Property does not contain suitable soils.
Symphyotrichum lentum Suisun marsh aster	--/--/1B.2	Known to occur in Contra Costa, Napa, Sacramento, San Joaquin, Solano, and Yolo counties.	Found in marshes and swamps (brackish and freshwater). Elevations range from 0-3 meters.	(April) May-November	**No**. The Subject Property does not contain suitable habitat.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON SUBJECT PROPERTY
ANIMALS					
Mammals					
Lasiurus blossevillii western red bat	--/CSC/--	Occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts.	The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts primarily in trees along the edge of habitats adjacent to streams, fields or urban areas. Foraging habitats occurs in open areas.	Spring migrations March to May and autumn migrations September to October	**No**. The Subject Property does not contain suitable roosting habitat to potentially support this species.
Birds					
Athene cunicularia Burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open dry grassland and desert habitats, as well as grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year	**Yes.** The Subject Property has habitat to potentially support this species. This species was observed in an established burrow.
Buteo swainsoni Swainson's hawk	--/CT/--	Breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County.	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	March – October	**Yes**. The Subject Property may contain foraging habitat to potentially support this species.
Charadrius montanus mountain plover	--/CSC/--	Known to occur in Colusa, Fresno, Imperial, Kern, Los Angeles, Merced, San Benito, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties.	Found in heavily grazed native rangelands; burned fields primarily for night roosting. Alkali flats are favored habitat when available.	October-March	**Yes.** The Subject Property has habitat to potentially support this species.
Falco peregrinus anatum American peregrine falcon	FD/CD; FP/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50-90 feet above the ground.	Year Round (some migrate)	**No**. The Subject Property does not contain suitable habitat.
Melospiza melodia Song sparrow ("Modesto" population)	--/CSC/--	Known to occur in Butte, Colusa, Sutter, Sacramento, Stockton, and San Joaquin Counties; and the confluence of the San Joaquin and Tuolumne rivers, Stanislaus County.	Common resident below 200 feet in elevation. Habitat includes emergent freshwater marshes dominated by tules and cattails as well as riparian willow thickets. Nest in riparian forests of valley oak with a sufficient understory of blackberry along vegetated canals and levees.	All Year	**No**. The Subject Property does not contain suitable habitat.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON SUBJECT PROPERTY
Rallus obsoletus obsoletus California Ridgway's rail (formerly California clapper rail)	FE/CE/--	Locally common yearlong in coastal wetlands and brackish areas around San Francisco Bay.	Found in saline emergent wetlands. Nests mostly in lower zones where cordgrass is abundant with nearby tidal sloughs. Builds a platform concealed by a canopy of woven cordgrass stems or pickleweed and gumweed. Also uses dead drift vegetation as platforms. In fresh or brackish water, nests in dense cattail or bulrush. Forages in higher marsh vegetation along mudflat interfaces and tidal creeks.	All year	**No**. The Subject Property does not contain suitable habitat.
Amphibians					
Ambystoma californiense California tiger salamander (CTS)	FT/CT/--	Occurs in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Occurs in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stock ponds, in grassland and oak savannah plant communities. Elevations range from 0-460 meters.	November-February (adults) March 15 – May 15 (larvae)	**Yes.** The Subject Property has low quality breeding habitat to potentially support this species.
Rana draytonii California red-legged frog	FT/CSC/--	Year-round resident found primarily in coastal drainages in Central California	Requires a variety of elements with aquatic breeding areas embedded in a matrix of riparian and upland habitats. Breeding sites are in aquatic habitats including pools and backwaters in streams and creeks, ponds, marshes, springs, and lagoons. Frequently breeds in artificial impoundments.	Year-round	**No**. The Subject Property does not contain suitable habitat.
Reptiles					
Thamnophis gigas Giant garter snake	FT/CT/--	Endemic to the San Joaquin and Sacramento Valley floors. Counties include Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba.	Inhabits agricultural wetlands and other waterways such as canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and soil crevices with sunny exposure above prevailing flood elevations when dormant.	March-October	**No**. The Subject Property does not contain suitable habitat.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON SUBJECT PROPERTY
Invertebrates					
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	Known from several populations: Vina Plains in Tehama County; south of Chico in Butte County; Jepson Prairie Preserve and surrounding area in Solano County; Sacramento National Wildlife Refuge in Glenn County; Mapes Ranch west of Modesto; San Luis National Wildlife Refuge, and Haystack Mountain/Yosemite Lake area in Merced County.	Endemic to vernal pools in the northern two-thirds of the Central Valley.	December-May	**Yes**. The Subject Property contains low to moderately suitable habitat to support this species.
Elaphrus viridis Delta green ground beetle	FT/--/--	Restricted to the area between Jepson Prairie and Travis AFB.	Prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100% cover in margins of vernal pools in the grassland.	Consult Agency	**No**. The Subject Property does not contain suitable habitat.
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Known from 32 populations extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	**Yes**. The Subject Property contains low to moderately suitable habitat to support this species.
Danus plexippus Monarch butterfly	--/FC/--	Known to occur in Mexico and north America. Populations that occur where winter conditions are not suitable travel along well-established migratory routes to overwintering areas. Overwintering sites are known to occur in Mexico and coastal California.	Begin migration in the fall and can be found along established migratory routes where nectar sources are available. During breeding (typically February to March), monarch butterflies require milkweed to lay eggs on. Overwintering monarchs require sites with sufficient roosts that provide appropriate sunlight and shelter from the wind. Where climate is suitable for year-round habitation, monarchs are found in areas with nectar sources and milkweed as breeding can occur year-round.	Year-round	**No**. The Subject Property does not contain host plants for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON SUBJECT PROPERTY
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties.	Riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch diameter for the beetle.	Year-round	**No**. The Subject Property does not contain host plants for this species.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle within vernal pools and valley foothill grassland swales.	December-May	**Yes**. The Subject Property contains low to moderately suitable habitat to support this species.
Fish					
Hypomesus transpacificus Delta smelt	FT/CE/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	**No**. The Subject Property does not contain suitable habitat.
Oncorhynchus mykiss irideus pop. 11 [Steelhead-Central Valley DPS]	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	**No**. The Subject Property does not contain suitable habitat.
Spirinchus thaleichthys Longfin smelt, Bay-Delta DPS	FC/CT/--	Range in California includes: Slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh, San Pablo Bay, San Francisco Bay (main), South San Francisco Bay, The Gulf of the Farallones, just outside of the Golden Gate, Humboldt Bay, and Eel river estuary and local coastal areas.	Occurs in benthic habitat within medium and large low-grade river systems. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Consult Agency	**No**. The Subject Property does not contain suitable habitat.

SOURCE: CNPS, 2021; USFWS 2021; CDFW, 2021

STATUS CODES

FEDERAL: United States Fish and Wildlife Service

FE Federally endangered
FT Federally threatened
FC Federal candidate for listing
FP Federally protected

STATE: California Department of Fish and Game

CE California listed endangered
CR California rare
CT California listed threatened
CSC California species of special concern
CCE California Candidate Endangered

CNPS: California Native Plant Society

List 1A Plants presumed extinct in California
List 1B Plants rare, threatened, or endangered in California and elsewhere
List 2 Plants rare, threatened, or endangered in California, but more common elsewhere

Threat Ranks

0.1- Seriously threatened in California (high degree/immediacy of threat)
0.2- Fairly threatened in California (moderate degree/immediacy of threat)
0.3- Not very threatened in California (low degree/immediacy of threats or no current threats known)

3.6 CRITICAL HABITAT

No USFWS proposed or designated Critical Habitat occurs within the Subject Property. The nearest Critical Habitat is for Delta Smelt (*Hypomesus transpacificus*), approximately 0.75 miles east of the Subject Property (USFWS, 2021c).

4.0 RESULTS AND RECOMMENDATIONS

4.1 SENSITIVE HABITATS

Habitat types within the Subject Property consist of agriculture, annual grassland, developed, stream drainages, and wetlands. Of these, only streams and wetlands are considered sensitive (discussed further in **Section 4.2**). Should development occur, streams and wetlands are recommended for avoidance to the extent feasible. If avoidance is not necessary, permitting with the appropriate agencies would be necessary.

4.2 WETLANDS AND WATERS OF THE U.S.

The wetland delineation conducted in 2004 by LSA Associates, Inc. identified approximately .89 acres of wetlands and 1.53 acres of intermittent stream courses (LSA, 2004). The USACE approved the jurisdictional determination in a letter dated July 14, 2005. The updated wetland delineation conducted on November 17, 2021 observed one ephemeral drainage, two intermittent drainages, and ten small wetland features. The wetland features total approximately 0.43 acres, reduced from the 2004 survey. Should wetland features verified by the USACE in 2005 be impacted, submittal of the updated wetland delineation and re-verification by the USACE may be necessary, as the 2004 wetland delineation is over five years old and conditions have changed.

Wetlands and waters of the U.S. are sensitive and afforded protection by the USACE, the Clean Water Act, and the Porter-Cologne Act.

The Draft HCP has additional conservation measures that apply to streams and wetlands. Within the Valley Floor Grassland and Vernal Pool natural community for Zone 1, maximum avoidance is prescribed where wetlands are adjacent to or contiguous with riparian or stream corridors, or other permanently protected lands. Wetlands on the Subject Property are adjacent to, and in some cases contiguous, with stream corridors. The Subject Property is not located within a priority drainage or watershed conservation Area identified within the Draft HCP.

Mitigation Measures

Should development of the Subject Property occur, the following measures are recommended. Should development of the Subject Property occur after approval and implementation of the Draft HCP, listed avoidance, minimization, and/or mitigation criteria may apply.

- Wetlands and waters of the U.S. should be avoided to the extent feasible. If impacts to wetlands and waters are unavoidable, the proper permits should be obtained from USACE, CDFW, and/or the State Water Resources Control Board (SWRCB).
- Silt fence around aquatic features is recommended during construction to protect features from impact or runoff.

4.3 SPECIAL-STATUS SPECIES

Based on survey results and the review of regionally occurring special-status species and associated habitat requirements, the Subject Property may provide suitable habitat for four special-status plant species and seven special-status animal species. These species include: Pappose tarplant (*Centromadia parryi ssp. Parryi*), Baker's navarretia (*Navarretia leucocephala ssp. Bakeri*), bearded popcorn-flower (*Plagiobothrys hystriculus*), Sanford's arrowhead (*Sagittaria sanfordii*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadrius montanus*), California tiger salamander (CTS) (*Ambystoma californiense*), Conservancy fairy shrimp (*Branchinecta conservation*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*).

Pappose tarplant, Baker's navarretia, bearded popcorn-flower, and mountain plover are Special Management Species identified in the Draft HCP. Special Management Species include species that were initially considered for inclusion in the Draft HCP as Covered Species and are considered under California Environmental Quality Act (CEQA) to be threatened or endangered. The Subject Property is also within the potential range of CTS, as well as Swainson's hawk and burrowing owl conservation areas, as indicated in the Draft HCP. Swainson's hawk, burrowing owl, and CTS are Covered Species protected by the Draft HCP. The Subject Property has suitable breeding and upland habitat for CTS and several ground squirrel burrows were observed in the southern portion of the property. A burrowing owl was also observed on the Subject Property during the survey.

Special-Status Plants

Pappose tarplant, Baker's navarretia, bearded popcorn-flower have the potential to occur in annual grassland and wetland areas of the Subject Property. Due to agricultural disturbance, presence may be marginal. There were no documented occurrences of pappose tarplant or Baker's navarretia within five miles of the Subject Property (CDFW, 2021b). Two records of bearded popcorn-flower (occ. 8 and 23) were identified within approximately four miles southwest of the Subject Property. Record 8 is sensitive and the exact location has been suppressed. CNPS has 2019 records of these species approximately four miles west of the Subject Property (Calflora, 2021).

Sanford's arrowhead has a low potential to occur within the streams and wetland areas on the Subject Property, but is more often associated with freshwater marshes and swamps. There are two records within approximately four miles east of the Subject Property for this species (CDFW, 2021b). CNPS has a record of this species approximately 2.5 miles east of the Subject Property (Calflora, 2021).

Burrowing Owl

Burrowing owls are relatively small raptors that occur in a variety of upland habitats including open grassland, prairie, plains, savannah, agricultural fields, and other ruderal areas such as vacant lots and waste yards. This species is colonial and requires pre-existing burrows that have been abandoned by other animals (e.g., squirrel, fox, woodchuck) for roosting and nesting. The nesting season of this species extends from March through August and young fledge approximately two to four weeks after hatching. There are eight records of burrowing owl within five miles of the Subject Property, with the nearest recorded in 2000 (occ. 369) approximately 1.0 mile southwest of the Subject Property (CDFW, 2021b). Additionally, the Subject Property is within the burrowing owl conservation area of the Draft HCP. One active burrowing owl burrow was observed under a downed log on the western side of the Subject Property. Signs of recent whitewash and several pellets were observed near the burrow.

Swainson's Hawk

The Subject Property is unlikely to provide nesting habitat to Swainson's hawk, but may provide foraging habitat. Open space such as grasslands and agriculture fields are suitable foraging habitats. There are 11 records of Swainson's hawk within five miles of the Subject Property, with the most recent documentation in 2016 (occ. 2712)(CDFW, 2021b). The Subject Property is within the Swainson's hawk conservation area of the Draft HCP, which has provisions for preserving historical, active, and potential roost sites.

Mountain Plover

Mountain plover is an over-wintering species in the region, and breeds outside of California. They occupy open spaces on flat ground nearly devoid of vegetation; plowed fields and open grasslands are common. This species roosts on the ground often in small, shallow depressions. There are three records of mountain plover within five miles of the Subject Property, with the most recent documentation in 2007 (occ. 10)(CDFW, 2021b).

CTS

CTS require suitable aquatic habitat for breeding and upland habitat for aestivation. They spend most of their lives in upland habitats. Aquatic breeding habitat includes vernal pools, wetlands, and seasonal and perennial ponds in grassland and oak savannah plant communities. In general, breeding occurs between December and March. The ephemeral and intermittent drainages located on the Subject Property may provide low quality suitable breeding habitat for CTS. The Subject Property is located within the designated potential range of CTS (LSA, 2012); however, the nearest and most recent record (occ. 974) of CTS is approximately 6.3 miles southwest in 2009 (CDFW, 2021b).

Conservancy Fairy, Vernal Pool Fairy, and Vernal Pool Tadpole Shrimp

Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp require vernal pools and valley grassland wetland swales for their life cycles. Low to moderately suitable habitat for these three species occurs within the wetland areas of the Subject Property. Wetland vernal pool crustacean surveys were conducted by LSA Associates, Inc. on the Subject Property from December - May 2005-2006. No listed vernal pool crustacean species were observed, however one non-listed species, California fairy shrimp (*Linderiella occidentalis*) was observed in two wetlands on the Subject Property (LSA, 2006). The nearest occurrence for vernal pool fairy shrimp is documented approximately 5 miles away, while the nearest occurrences for Conservancy and tadpole fairy shrimp are documented approximately 8 miles away (CDFW, 2021).

Mitigation Measures

Should development of the Subject Property occur, the following measures are recommended. Should development of the Subject Property occur after approval and implementation of the Draft HCP, additional avoidance, minimization, and/or mitigation criteria listed in the HCP may apply.

- Should development occur during the nesting season for burrowing owl (March – August), a qualified biologist should conduct a presence/absence survey following the California Burrowing Owl Consortium's (CBOC) "Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993)", and "CDFW's Staff Report on Burrowing Owl Mitigation" (CDFG, 2012). The survey should be conducted within 14 days of starting construction. More than one survey may be necessary during the breeding season per the guidelines or to determine occupation and

appropriate courses of action early on.

- An avoidance buffer should be established around any active burrows. Construction fencing or flagging should be applied along the outermost perimeter of the avoidance buffer. Avoidance buffers and construction fencing should remain in place until the end of the general nesting season or upon determination that the nest has become vacant.
- No less than 14 days prior to initiating ground-disturbing activities, a qualified biologist should conduct preconstruction surveys for CTS or for burrows capable of supporting CTS as refugia. Construction activities should be timed to occur during the dry season (May 1 - October 15) to minimize potential effects to CTS dispersal. Construction pipes, culverts, or similar structures that are laid underground or stored at the construction site for one or more overnight periods should be capped or covered in a manner that excludes CTS from entering the pipe.
- Should development occur during the nesting season for mountain plover (April – June), a qualified biologist should conduct a nesting bird survey, as described below. The survey should be conducted within 14 days of starting construction. An avoidance buffer should be established around any active nests. Construction fencing or flagging should be applied along the outermost perimeter of the avoidance buffer. Avoidance buffers and construction fencing should remain in place until the end of the general nesting season or upon determination that the nest has become vacant.
- A preconstruction survey for listed plant species (pappose tarplant, Baker's navarretia, bearded popcorn-flower, and Sanford's arrowhead) should be conducted during the appropriate bloom period for identification (spring). Should listed plants be observed, they should be avoided with a 25' buffer. If avoidance is not feasible, consultation with the appropriate agencies may be necessary.
- To avoid impacts to vernal pool crustaceans, wetlands should be avoided to the extent feasible. If avoidance is not feasible, an updated survey for vernal pool crustaceans is recommended prior to the start of construction. If special-status species are observed, consultation with CDFW or USFWS may be necessary.
- An Incidental Take Permit (ITP) and consultation with CDFW or the USFWS may be necessary if avoidance of special-species is not feasible.

4.4 NESTING MIGRATORY BIRDS

Nesting birds and raptors are protected by the federal Migratory Bird Treaty Act as well as California Fish and Game Code. Isolated eucalyptus trees in the north section of the Subject Property and ornamental hardwoods along the south western boundary of the Subject Property may provide nesting habitat for migratory birds and raptors. The Subject Property is unlikely to support nesting Swainson's hawks. Should development of the Subject Property occur, the following measures are recommended:

- Should construction activities occur during the general nesting season (February 15 to September 15), a preconstruction nesting bird survey should be conducted within 14 days of starting construction. Accessible areas within 500 feet of construction should be surveyed for active nests.
- Should an active nest be identified, an avoidance buffer should be established based on the needs of the species identified. Avoidance buffers may vary in size depending on habitat characteristics, project-related activities, and disturbance levels.
- Construction fencing or flagging should be applied along the outermost perimeter of the avoidance buffer. Avoidance buffers and construction fencing should remain in place until the end of the general nesting season or upon determination that the nest has become vacant.

- Should work activity cease for 14 days or greater during the breeding season, surveys should be repeated to ensure birds have not established nests during inactivity.

4.5 CRITICAL HABITAT

No designated critical habitat occurs within the Subject Property. The development would have no impact on critical habitat.

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ATTACHMENT 1

SPECIAL-STATUS SPECIES

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Rio Vista (3812126) OR Birds Landing (3812127))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3	S3	WL
Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020	None	None	G1	S1	
Anthicus sacramento Sacramento anthicid beetle	IICOL49010	None	None	G1	S1	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Isocoma arguta Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
Lasiurus blossevillii western red bat	AMACC05060	None	None	G4	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 33

Inventory of Rare and Endangered Plants of California

California Native Plant Society

Search Results

18 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3812126:3812127**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	No Photo Available
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	No Photo Available
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	No Photo Available
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	No Photo Available
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	No Photo Available
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	No Photo Available
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	No Photo Available
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	No Photo Available
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	No Photo Available
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	No Photo Available
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1	No Photo Available
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1	No Photo Available

Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	No Photo Available
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	No Photo Available
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 18 of 18 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed 23 November 2021].

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
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In Reply Refer To: November 23, 2021
Consultation Code: 08ESMF00-2022-SLI-0427
Event Code: 08ESMF00-2022-E-01297
Project Name: Brann Ranch

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2022-SLI-0427
Event Code: Some(08ESMF00-2022-E-01297)
Project Name: Brann Ranch
Project Type: DEVELOPMENT
Project Description: Development
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.1905353,-121.7278216607014,14z



Counties: Solano County, California

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4240

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4482

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander *Ambystoma californiense*	Threatened

Population: U.S.A. (Central CA DPS)
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2076

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Delta Green Ground Beetle *Elaphrus viridis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2319	Threatened
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

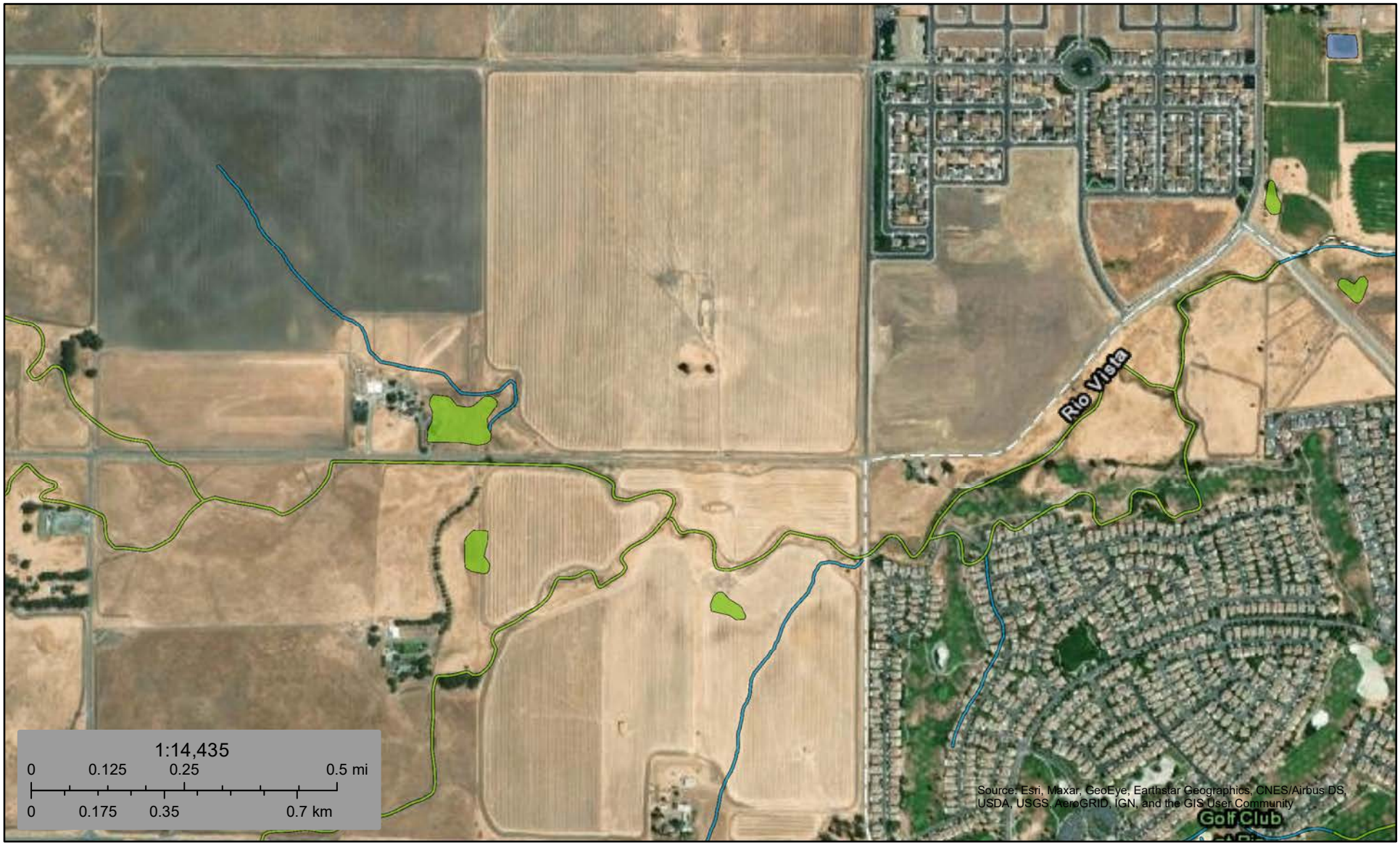
ATTACHMENT 2

NATIONAL WETLANDS INVENTORY

U.S. Fish and Wildlife Service

National Wetlands Inventory

NWI



November 23, 2021

Wetlands

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

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

ATTACHMENT 3

NRCS CUSTOM SOILS REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Solano County, California



January 12, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:9,450 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Solano County, California
Survey Area Data: Version 15, Sep 9, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AmC	Altamont-Diablo clays, 2 to 9 percent slopes	152.6	47.9%
AoC	Antioch-San Ysidro complex, 2 to 9 percent slopes	24.5	7.7%
CeA	Clear Lake clay, 0 to 2 percent slopes, MLRA 17	3.0	0.9%
DaC	Diablo-Ayar clays, 2 to 9 percent slopes	90.5	28.4%
RoA	Rincon clay loam, 0 to 2 percent slope	47.6	15.0%
Totals for Area of Interest		**318.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Solano County, California

AmC—Altamont-Diablo clays, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9kg
Elevation: 30 to 500 feet
Mean annual precipitation: 15 to 23 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 250 to 280 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Altamont and similar soils: 50 percent
Diablo and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Altamont

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from siltstone

Typical profile

H1 - 0 to 28 inches: clay
H2 - 28 to 38 inches: silty clay loam
H3 - 38 to 59 inches: bedrock

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 24 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R015XY004CA - Clayey Terrace
Hydric soil rating: No

Description of Diablo

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from weakly consolidated sediments

Typical profile

H1 - 0 to 30 inches: clay
H2 - 30 to 40 inches: silty clay
H3 - 40 to 59 inches: bedrock

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY004CA - Clayey Terrace
Hydric soil rating: No

Minor Components

Ayar

Percent of map unit: 5 percent
Hydric soil rating: No

San benito

Percent of map unit: 5 percent
Hydric soil rating: No

AoC—Antioch-San Ysidro complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9kl

Elevation: 10 to 100 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 250 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Antioch and similar soils: 46 percent
San ysidro and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Antioch

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 19 inches: loam
H2 - 19 to 60 inches: clay
H3 - 60 to 72 inches: loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 12 to 20 inches to abrupt textural change
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of San Ysidro

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 14 inches: sandy loam
H2 - 14 to 28 inches: clay loam
H3 - 28 to 54 inches: sandy clay loam
H4 - 54 to 68 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 12 to 20 inches to abrupt textural change
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Solano

Percent of map unit: 10 percent
Hydric soil rating: No

CeA—Clear Lake clay, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2vbt0
Elevation: 10 to 260 feet
Mean annual precipitation: 15 to 23 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 260 to 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Clear Lake

Setting

Landform: Basin floors
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Basin alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ag - 0 to 13 inches: clay
Bssg1 - 13 to 19 inches: clay
Bssg2 - 19 to 45 inches: clay
Bkss - 45 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to moderately saline (1.0 to 15.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C/D
Ecological site: R017XY901CA - Clayey Basin Group
Hydric soil rating: Yes

Minor Components

Capay

Percent of map unit: 5 percent
Hydric soil rating: No

Omni

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Sacramento

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Unnamed

Percent of map unit: 2 percent
Hydric soil rating: No

DaC—Diablo-Ayar clays, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9l4
Elevation: 30 to 300 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Diablo and similar soils: 65 percent
Ayar and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from weakly consolidated sediments

Typical profile

H1 - 0 to 30 inches: clay
H2 - 30 to 40 inches: silty clay
H3 - 40 to 59 inches: bedrock

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY004CA - Clayey Terrace

Hydric soil rating: No

Description of Ayar

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from weakly consolidated sediments

Typical profile

H1 - 0 to 41 inches: clay
H2 - 41 to 51 inches: clay loam
H3 - 51 to 59 inches: bedrock

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 40 to 70 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R015XY004CA - Clayey Terrace
Hydric soil rating: No

Minor Components

San benito

Percent of map unit: 5 percent
Hydric soil rating: No

Altamont

Percent of map unit: 5 percent
Hydric soil rating: No

RoA—Rincon clay loam, 0 to 2 percent slope

Map Unit Setting

National map unit symbol: h9m5
Elevation: 20 to 200 feet
Mean annual precipitation: 20 to 25 inches
Mean annual air temperature: 59 to 61 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Rincon

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 22 inches: clay loam
H2 - 22 to 44 inches: clay loam
H3 - 44 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R014XG918CA - Loamy Fan
Hydric soil rating: No

Minor Components

Brentwood

Percent of map unit: 10 percent
Hydric soil rating: No

Capay

Percent of map unit: 5 percent
Hydric soil rating: No

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ATTACHMENT 4

LIST OF SPECIES OBSERVED

LIST OF SPECIES OBSERVED

ANIMAL SPECIES

American bull frog	Lithobates catesbeianus
Tree frog	Pseudacris regilla
Red fox	Vulpes Vulpes
Black-tailed Jackrabbit	Lepus californicus
Mule deer	Odocoileus hemionus
Great blue heron	Ardea Herodias
Meadow lark	Sturnella magna
European starling	Sturnus vulgaris
brown-headed cowbird	Molothrus ater
Northern harrier	Circus cyaneus
American Crow	Corvus brachyrhynchos
American Kestrel	Falco sparverius
Bushtit	Psaltriparus minimus
Pine siskin	Spinus pinus
Snipe	Gallinago gallinagowe
House finch	Haemorhous mexicanus
Burrowing owl	Athene cunicularia
Brewers blackbird	Euphagus cyanocephalus
White crowned sparrow	Zonotrichia leucophrys

PLANT SPECIES

Umbellifer Family	Apiaceae
Fennel	Foeniculum vulgare
Dogbane Family	Apocynaceae
Oleander	Nerium oleander
Palm Family	Arecaceae
Mexican fan palm	Washingtonia robusta
Composite Family	Asteraceae
Milk thistle	Cardus marianus
Italian thistle	Carduus pycnocephalus
Yellow star-thistle	Centaurea solstitialis
Tarplants	Centromadia sp.
Russian thistle	Salsola kali
Borage Family	Boraginaceae
Wooly-breeches	Amsinckia spectabilis
Crucifer Family	Brassicaceae
Mustards	Brassica sp.
Shortpod mustard	Hirschfeldia incana
Broad-leaf Pepperwort	Lepidium latifolium
Amaranth Family	Chenopodiaceae
Saltbrush	Atriplex sp.
Lamb's-quarters	Chenopodium album
Morning Glory Family	Convolvulaceae
Field bindweed	Convolvulus arvensis
Spreading alkali-weed	Cressa truxillensis
Sedge Family	Cyperaceae
Spike-rushes	Eleocharis sp.
Legume Family	Fabaceae
Burr clover	Medicago polymorpha
Deerweed	Acmispon glaber
Oak Family	Fagaceae
Oaks	Quercus sp.
Alkali-Heath Family	Frankeniaceae
Alkali sea-heath	Frankenia salina
Geranium Family	Geraniaceae
Stork's bill	Erodium botrys
Quilwort Family	Isoetaceae
Quilworts	Isoetes sp.
Laurel Family	Lauraceae
California bay laurel	Umbellularia californica
Mallow Family	Malvaceae
Alkali mallow	Malvella leprosa
Succulent Family	Montiaceae
Miner's lettuce	Claytonia sp.
Myrtle Family	Myrtaceae
Gum	Eucalyptus sp.
Olive Family	Oleaceae
Oregon ash	Fraxinus latifolia
Plantain Family	Plantaginaceae
Water-starworts	Callitriche sp.
English plantain	Plantago lanceolata
Grass Family	Poaceae
Wild oats	Avena sp.
Great brome	Bromus diandrous
Soft brome	Bromus hordeaceous
Saltgrass	Distichlis spicata
Fescue	Festuca sp.
Italian ryegrass	Lolium perenne
Wheat	Triticum sp.
Rattail fescue	Vulpia myuros
Knotweed Family	Polygonaceae
Curly dock	Rumex crispus
Purslane Family	Portulacaceae
Common purslane	Portulaca oleracea
Rose Family	Rosaceae
Multiflora rose	Rosa multiflora
Ornamental rose	Rosa sp.
Tule Family	Typhaceae
Cattails	Typha sp.
Misteltoe Family	Viscaceae
Mistletoe	Phoradendron sp.

D4

Brann Ranch Biological Resources Assessment, July 12, 2024

Rincon Consultants, Inc.
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916-706-1374

July 12, 2024
Project No: 24-15649

David Hardy, Vice President
Encore Liberty II, LLC
3333 Michelson Dr, Suite 450
Irvine, CA 92612
Via email: david.hardy@encorefunds.com

Subject: Field Reconnaissance Survey Results for the Brann Ranch Master Planned Community Development Project, City of Rio Vista, CA

Dear Mr. Hardy:

This report documents the findings of a field reconnaissance survey conducted by Rincon Consultants, Inc. (Rincon) for the proposed Brann Ranch Master Planned Community Development Project (proposed Project) in the City of Rio Vista, California. A biological resources assessment (BRA) was previously prepared for the proposed Project by AES-Montrose in December 2021 (AES-Montrose, 2021). The purpose of this report is to document an update of existing conditions at the Project site and evaluate the potential for special-status biological resources to occur, in preparation of Section 7 Consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) and Lake and Streambed Alteration Agreement (LSAA) permitting with California Department of Fish and Wildlife (CDFW).

Project Location and Description

The Project site is located at 7989 State Route (SR) 12 in the City of Rio Vista in Solano County, west of the intersection of Canright Road and Province Path. The Project site consists of 322 acres across six parcels (Assessor's Parcel Numbers [APN] 0048-110-460, 0048-011-490, 0048-110-100, 0048-110-470, 0048-110-480, and 0048-110-060) and is bound by McCormack Road to the north, Highway 12 to the south, Province Path and Liberty Island to the east, and agriculture to the west. The Project site primarily consists of agricultural land and a farmhouse and accessory structures along the southern boundary and Watson Hollow drainage flowing through the site from west to east. The Project site ranges in elevation from approximately 20 – 58 feet above mean sea level.

The Project site is located within the Solano Multispecies Habitat Conservation Plan (HCP) area. The HCP is under final review and has not yet been formally approved. At the time of this survey, the date of formal approval of the HCP is unknown; however, due to the timing of the permitting process, the proposed Project seems unlikely to have coverage under the HCP. Therefore, biological assessments (BAs) will be prepared for this proposed Project for NMFS and USFWS Section 7 consultations.

The proposed Project would involve development of a master planned community including single-family detached residential homes, multi-family residential, public improvements and infrastructure, parks and open space, 25,000 square feet of neighborhood commercial/retail, a community garden, parking and 2.5 acres of multi-family housing, and a site for an elementary school.

Methods

This report consists of a review of relevant literature and background information, a reconnaissance-level field survey to confirm existing conditions and determine which biological resources are present or may occur at the Project site.

Literature Review

The literature review included database research on special-status resource occurrences within the Rio Vista, CA 7.5-minute U.S. Geological Survey topographic quadrangle (USGS Quad).

Sources included:

- CDFW California Natural Diversity Database (CNDDB; CDFW 2024a),
- Biogeographic Information and Observation System (BIOS; CDFW 2024b),
- USFWS Information for Planning and Consultation (IPaC; USWFS 2024a),
- USFWS Critical Habitat Portal (USWFS 2024b),
- National Oceanic and Atmospheric Administration's (NOAA) Essential Fish Habitat (EFH) Mapper (NOAA 2024),
- California Native Plant Society Online Inventory of Rare and Endangered Plants of California (California Native Plant Society 2024), and
- CDFW Special Animals List (CDFW 2024c).

Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data in the area were also examined. References are included at the end of this report.

Field Survey

Rincon biologists conducted a reconnaissance-level survey of the Project site on June 12, 2024, to assess the habitat suitability for federal and state listed special-status species, specifically within the aquatic habitats and adjacent upland habitats. A list of species that were evaluated is included in Table 1. This list includes species that either have an updated listing status or have been listed within the above sources since the 2021 BRA was prepared. Site photos from the survey are included in Attachment 1.

Existing Conditions

Habitat

No sensitive vegetation communities exist within and adjacent to the Project site. The Project site includes an intermittent drainage, Watson Hollow, that receives water from the Sacramento River via a water diversion pump (Attachment 1, Photo 5). The lower section of the drainage within the Project site holds turbid water and eventually dries up at the immediate upstream section (Attachment 1, Photos 1 – 4). The portion of the drainage that currently contains water has no active flow (Attachment 1, Photos 1 – 3), with water temperature that is too warm for special-status fish species to survive.

The Project site has no canopy cover on drainage banks, no submerged aquatic vegetation, and the drainage bed does not contain rock or cobblestones. The areas surrounding the aquatic areas are

mostly non-native grassland. Some of the plant species observed during the survey include cattails and bull rushes (*Typha spp.*), Italian thistle (*Carduus pycnocephalus*), fennel (*Foeniculum vulgare),* shortpod mustard *(Hirschfeldia incana),* Italian ryegrass (*Festuca perennis*), soft brome (*Bromus hordeaceous*), wild oat (*Avena spp.*), fescues (*Festuca spp.*), and willow (*Salix spp.*) (Attachment 2).

The Project site and its surrounding area provide habitat for bird and mammal species that commonly occur in disturbed habitats. Fish and wildlife species observed during the survey include house finch (*Haemorhous mexicanus*), red-winged blackbird (*Agelaius phoeniceus*), cliff swallow (*Petrochelidon pyrrhonota),* California kingsnake (*Lampropeltis californiae*), western mosquitofish (*Gambusia affinis*), California vole (*Microtus californicus*), western pond turtle (*Emys marmorata*), and American bullfrog (*Lithobates catesbeianus*) (Attachment 2).

Results

Based on the results of the literature review, 6 special-status fish species, 12 special-status wildlife species, and 1 special-status plant species were identified to potentially occur within the Project site and its surrounding area. These special-status species were evaluated and presented in Table 1. As described in Table 1, most special-status species with nearby occurrence records do not use the habitat within the Project site and its surrounding area.

Special-Status Fish Species

Based on the habitat requirements of the special-status fish species evaluated for this Project site, none of 6 special-status fish species are expected to occur within the Project site. No special-status fish species were observed during the reconnaissance-level field survey.

The 6 fish species evaluated for this Project site do not have the potential to occur based on the inadequate or lack of water connectivity between the Project site and the Sacramento River that would provide migration opportunity for fish. The water temperature at the Project site is too warm for both adult spawning and juvenile rearing due to lack of canopy cover and aquatic vegetation needed by fish to survive. Additionally, the water within the Project site is highly turbid due to the fine sediments in the drainage, agricultural runoff, and lack of active flow. The habitat present in the Project site lacks the Physical or Biological Features (PBF) necessary for the success of special-status fish species.

Special-Status Wildlife and Plant Species

Based on the habitat requirements of the special-status wildlife species that were evaluated for this Project site, four have the potential to occur: western pond turtle (*Actinemys marmorata*) giant gartersnake (*Thamnophis gigas*), western spadefoot (*Spea hammondii*), and Crotch's bumblebee (*Bombus crotchii*). Due to the lack of saltwater or freshwater marsh, emergent vegetation, native grasslands, friable soils, and scattered trees throughout the Project site, the foraging habitat is low quality for most species and breeding habitat for most species is either low quality or is not present.

The western pond turtle, a federally proposed threatened species, was observed in the drainage during the field survey. Based on this observation, this species is determined to be present within the Project site. This species is presumed to utilize the aquatic and upland areas of the Project site for breeding, foraging, and sunning. Additionally, giant gartersnake and western spadefoot have a low potential to occur within the Project site due to the presence of a low gradient stream and some emergent wetland vegetation but minimal presence of inactive season refugia, such as small mammal burrows. The drainage and seasonal wetlands may provide low quality breeding habitat for western spadefoot. The Project site contains minimal food sources for Crotch's bumblebee, as well as limited small mammal

burrows that could be used by this species. No other federally listed, state-listed, or other special-status wildlife species were observed during the field survey.

Table 1. List of Species with Potential to Occur within the Project Area

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Reptiles				
Actinemys marmorata western pond turtle	FPT/None SSC	Inhabits ponds, marshes, rivers, streams, and irrigation ditches; usually with aquatic vegetation below 6000-foot (ft) elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometers (km) from water for egg-laying.	Present	The Project site includes suitable basking sites and upland habitats for this species.
Thamnophis gigas giant gartersnake	FT/ST	Inhabits agricultural wetlands and other waterways such as canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and soil crevices with sunny exposure above prevailing flood elevations when dormant.	Low Potential	The Project site contains a low gradient stream with some emergent wetland vegetation, however, there are limited inactive season refugia, such as small mammal burrows, present.
Amphibians				
Spea hammondii western spadefoot	FPT/None SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal pools are essential for breeding and egg-laying.	Low Potential	The Project site contains low quality breeding habitat and limited inactive season refugia, such as small mammal burrows.
Birds				
Agelaius tricolor tricolored blackbird	None/ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Not Expected	No suitable nesting or foraging habitat is present within the Project site.
Aquila chrysaetos golden eagle	None/None FP WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most	Not Expected	No suitable rolling foothills, mountain areas, sage-juniper flats and desert habitat are

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
		parts of range; also, large trees in open areas.		present within the Project site.
Asio flammeus short-eared owl	None/None SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not Expected	No suitable swamp lands, meadows, irrigated alfalfa fields or tall grasses are present within the Project site.
Ammodramus savannarum grasshopper sparrow	None/None SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Not Expected	Native grassland habitats with scattered shrubs are not present within the Project site.
Circus hudsonius northern harrier	None/None SSC	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain ciénagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas	Not Expected	Suitable grassland habitat for foraging is present within the Project site, however, coastal salt and freshwater marshes are not present within Project site.
Elanus leucurus white-tailed kite	None/None FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not Expected	Some moderately suitable grassland habitat is present within the Project site, yet it is lacking scattered oaks or marshlands. The grassland habitat is not within close proximity to dense-topped trees for nesting and perching.
Laterallus jamaicensis coturniculus California black rail	None/ST FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected	No suitable freshwater marsh, wet meadows, or shallow margins of saltwater marshes are present within the Project site.
Larius ludovicianus loggerhead shrike	None/None SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Not Expected	No suitable pinyon juniper, Joshua tree, riparian woodlands, desert oases, scrubs or washes present within the Project site.
Fish				
Acipenser medirostris Green sturgeon, southern Distinct	FT/None	Spawning site fidelity. Spawns in the Sacramento, Feather and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary	Not Expected	No suitable aquatic habitat with substrate containing small to medium sized gravel, sand, cobble, or

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
Population Segment (DPS)		is important for rearing juveniles. Spawning occurs primarily in cool (11 – 15 degrees Celsius [°C]) sections of mainstem rivers in deep pools (8 – 9 meters) with substrate containing small to medium-sized sand, gravel, cobble, or boulder		boulders are present within the Project site.
Hypomesus transpacificus Delta smelt	FT/SE	Found mainly in Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay. Seldom found at salinities >10 ppt. Most often at salinities <2 ppt.	Not Expected	No suitable aquatic habitat is present within the Project site. Designated Critical Habitat is found approximately 1.2 km east of the Project site.
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley Distinct Population Segment (DPS)	FT/None	Populations in the Sacramento and San Joaquin rivers and their tributaries.	Not Expected	No suitable aquatic habitat is present within the Project site. The Project site does not include canopy cover over aquatic areas, rocks or other substrate on the drainage bed, and the water is turbid and warm.
Oncorhynchus tshawytscha chinook salmon - California coastal ESU	FT/None	Occurs in marine, freshwater and brackish waters. Found in waters 0 – 25°C , in a depth of approximately 0 – 375 m.	Not Expected	No suitable aquatic habitat is present within the Project site.
Pogonichthys macrolepidotus Sacramento splittail	None/None SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	Not Expected	No suitable flooded vegetation for spawning and foraging present within the Project site.
Spirinchus thaleichthys longfin smelt, Bay Delta DPS	FPE/ST	Occurs in benthic habitat within medium and large low-grade river systems. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 – 30 ppt but can be found in completely freshwater to almost pure seawater.	Not Expected	No suitable aquatic habitat is present within the Project site as the water in the Project site is likely too shallow for this species.
Plants				
Astragalus tener var. tener alkali milk-vetch	None/None 1B.2	Annual herb. Playas, valley and foothill grassland, vernal pools. Alkaline. Elevations: 5 – 195ft. (1.5 – 60m.) Blooms Mar –Jun.	Not Expected	No suitable vernal pools, playas or native grasslands are present within the Project site.
Invertebrates				
Bombus crotchii Crotch's bumblebee	None/SCE	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*,	Low Potential	Minimal food sources are present within the Project site. Limited

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/Observations
		Phacelia, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum.*		small mammal burrows that could be used by this species are present in the Project site.
Mammals				
Taxidea taxus American badger	None/None SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	No suitable habitat is present within the Project site.

Status (Federal/State)
FE = Federal Endangered
FT = Federal Threatened
FPE = Federal Proposed Endangered
FPT = Federal Proposed Threatened
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank)
1B = Rare, Threatened, or Endangered in California and elsewhere

CRPR Threat Code Extension
.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)

Designated Critical Habitat

The proposed Project site contains designated critical habitats (DCH) for 3 federally listed threatened or endangered species under the jurisdiction of NMFS. These fish species are: (1) Central Valley [CV] steelhead, (2) Sacramento River winter-run Chinook salmon, and (3) CV spring-run Chinook salmon. Although the location of the Project site contains DCH, the Project site does not contain the physical and biological features (PBF) necessary for the success of the species.

Essential Fish Habitat

The location of the proposed Project contains Essential Fish Habitat (EFH) regulated under the Magnuson-Stevens Fishery and Conservation Management Act (MSA). The EFH within the proposed Project provides habitat for multiple species of commercially important fish that are federally managed under 2 Fishery Management Plans (FMP): (1) Pacific Groundfish FMP, and (2) Pacific Coast Salmon FMP. Although the location of the Project site contains EFH, the Project site does not contain Habitat Areas of Particular Concern (HAPC) where fish species depend on to survive and reproduce.

Conclusion

Based on the results of the field reconnaissance survey, western pond turtle, giant gartersnake, and western spadefoot have the potential to occur within the Project site. Giant gartersnake is a federally threatened species; therefore, Section 7 Consultation with the USFWS will be required. Western pond turtle and western spadefoot are both federally proposed threatened species and are anticipated to become listed as threatened in December 2024. Because these species are anticipated to be listed during the permitting review process, they will be included in the biological assessment for Section 7 Consultation with the USFWS.

Crotch's bumblebee has a low potential to occur on the Project site. This species is listed under the California Endangered Species Act (CESA) as a candidate endangered species. Avoidance and minimization measures, included as part of the permit conditions for the LSAA, will need to be developed to avoid potential impacts to the species.

The Project site contains DCH and EFH for 3 federally listed fish species; however, our analysis deemed that no PBF or HAPC were identified during the field reconnaissance survey. Because no suitable habitat for fish was identified in the Project site, it was concluded that fish would not use this drainage for either adult spawning or juvenile rearing. Consequently, the NMFS biologist agreed with the assessment during the June 24, 2024, meeting between Rincon, Encore, and NMFS personnel. For these reasons, a *no adverse effect* to EFH, a *not likely to adversely affect* to DCH and a *no effect* on fish are the determinations of the Proposed project. Therefore, the biological assessment that will be prepared for this proposed Project to initiate Section 7 Consultation with NMFS will be informal because of the not likely to adversely affect determinations to CV steelhead, Sacramento River winter-run Chinook salmon, and CV spring-run Chinook salmon DCH.

Rincon biologists will continue to work with you on this project. In the meantime, please feel free to contact Kathleen Sholty at ksholty@rinconconsultants.com or Norm Ponferrada at nponferrada@rinconconsultants.com if you have questions concerning the contents of this report.

Sincerely,
Rincon Consultants, Inc.





Kathleen Sholty, M.S
Senior Biologist/Project Manager

Norm Ponferrada
Director of Fisheries and Aquatic Sciences

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Attachments

Attachment 1 Representative Site Photographs
Attachment 2 Plant and Wildlife Species Observed

References

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Attachment 1

Representative Site Photographs



Photograph 1. East view of Watson Hollow with turbid water, no flow and no canopy cover.



Photograph 2. North view of the drainage with water present, vegetation along the bank sides, and absence of cover.



Photograph 3. View of the drainage showing turbid water with no flow and no canopy cover.



Photograph 4. View of the drainage bed supporting in-channel vegetation within the Project site.



Photograph 5. North view of the water diversion that pumps water from the Sacramento River into the drainage, located approximately 6 km southeast and downstream of the Project site.

Attachment 2

Plant and Wildlife Species Observed

Plant Species Observed Within the Project site

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Salix spp.	Willow	None	N/A
Ulmus spp.	Elm	None	N/A
Herbs			
Avena spp.	Wild oat	None	N/A
Bromus hordeaceous	Soft brome	None	Introduced; Cal-IPC: Limited
Convolvulus arvensis	Field bindweed	None	Introduced; unknown
Carduus pycnocephalus	Italian thistle	None	Introduced; Cal-IPC: Moderate
Dittrichia graveolens	Stinkwort	None	Introduced; Cal-IPC: Moderate
Erodium cicutarium	Red-stem stork's bill	None	Introduced; Cal-IPC: Limited
Foeniculum vulgare	Fennel	None	Introduced; Cal-IPC: Moderate
Festuca perennis	Italian ryegrass	None	Introduced; Cal-IPC: Moderate
Festuca spp.	Fescues	None	N/A
Helminthotheca echioides	Bristly oxtongue	None	Introduced; Cal-IPC: Limited
Hirschfeldia incana	Shortpod mustard	*None*	Introduced; Cal-IPC: Moderate
Lactuca serriola	Prickly lettuce	None	Introduced
Raphanus sativus	Wild radish	None	Introduced; Cal-IPC: Limited
Rumex crispus	Curly dock	None	Introduced; Cal-IPC: Limited
Vicia villosa	Hairy vetch	None	Introduced

Cal-IPC = California Invasive Plant Council

Wildlife Species Observed Within the Project site

Scientific Name	Common Name	Status	Native or Introduced
Reptiles			
Actinemys marmorata	western pond turtle	FPT, SSC	Native
Lampropeltis californiae	California kingsnake	None	Native
Sceloporus occidentalis	western fence lizard	None	Native
Amphibians			
Lithobates catesbeianus	American bullfrog	None	Introduced
Fish			
Gambusia affinis	Western mosquitofish	None	Native
Birds			
Agelaius phoeniceus	Red-winged blackbird	None; MBTA/CFGC	Native
Aphelocoma californica	California scrub jay	None; MBTA/CFGC; CDFW:WL	Native
Cathartes aura	turkey vulture	None; MBTA/CFGC	Native
Corvus brachyrhynchos	American crow	None; MBTA/CFGC	Native
Mimus polyglottos	northern mockingbird	None; MBTA/CFGC	Native
Passer domesticus	house sparrow	None	Introduced
Petrochelidon pyrrhonota	cliff swallow	None; MBTA/CFGC	Native
Zenaida macroura	mourning dove	None; MBTA/CFGC	Native
Mammals			
Microtus californicus	California vole	None	Native

CDFW = California Department of Fish and Wildlife
SCC = CDFW Species of Special Concern
FPT = Federal Proposed Threatened
WL = CDFW Watch List
MBTA = Migratory Bird Treaty Act
CFGC = California Fish and Game Code

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Caltrans ROW Survey

Rincon Consultants, Inc.
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916-706-1374

November 22, 2024
Project No: 24-15649

David Hardy, Vice President
Encore Liberty II, LLC
3333 Michelson Dr, Suite 620
Irvine, CA 92612
Via email: david.hardy@encorefunds.com

Subject: State Route 12 Improvements Survey Results for the Brann Ranch Master Planned Community Development Project, City of Rio Vista, CA

Dear Mr. Hardy:

This report documents the findings of a field reconnaissance survey conducted by Rincon Consultants, Inc. (Rincon) for the proposed Brann Ranch Master Planned Community Development Project (Project) in the City of Rio Vista, California. A Biological Resources Assessment (BRA) and field reconnaissance survey technical memorandum were previously prepared for the Project by AES-Montrose and Rincon (AES-Montrose 2021; Rincon 2024). The Project will include roadway improvements to State Route (SR) 12, within the Caltrans Right of Way (ROW). The purpose of this report is to document existing conditions and evaluate the potential for project impacts to special-status biological resources within the additional project area (Caltrans ROW Site) in preparation of the California Environmental Quality Act (CEQA) Environmental Impact Report (EIR).

Project Location and Description

The Project site is located at 7989 SR 12 in the City of Rio Vista in Solano County, west of the intersection of Canright Road and Province Path. The Project site consists of 322 acres across six parcels (Assessor's Parcel Numbers [APN] 0048-110-460, 0048-011-490, 0048-110-100, 0048-110-470, 0048-110-480, and 0048-110-060) and is bound by McCormack Road to the north, SR 12 to the south, Province Path and Liberty Island to the east, and agriculture to the west. The Project site primarily consists of agricultural land and a farmhouse and accessory structures along the southern boundary and Watson Hollow drainage flowing through the site from west to east. The Project site ranges in elevation from approximately 20 – 58 feet above mean sea level.

The Project would involve development of a master planned community including single-family detached residential homes, multi-family residential, public improvements and infrastructure, parks and open space, 25,000 square feet of neighborhood commercial/retail, a community garden, parking and 2.5 acres of multi-family housing, and a site for an elementary school.

The Caltrans ROW Site consists of approximately 6.2 acres and is located along SR 12, adjacent to the southern border of the Project site (Figure 1). The Project would involve improvements within the Caltrans ROW, including widening existing lanes, adding entry and exit lanes into the Project site, removing existing utility poles, and installing and upgrading stormwater infrastructure.

Methods

This report consists of a review of relevant literature and background information, a reconnaissance-level field survey to confirm existing conditions and determine which biological resources are present or may occur within the Caltrans ROW Site.

Literature Review

The literature review included database research on special-status resource occurrences within the Rio Vista, CA 7.5-minute U.S. Geological Survey topographic quadrangle (USGS Quad).

Sources included:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW 2024a),
- Biogeographic Information and Observation System (BIOS; CDFW 2024b),
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USWFS 2024a),
- USFWS Critical Habitat Portal (USWFS 2024b),
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (CNPS 2024), and
- CDFW Special Animals List (CDFW 2024c).

Field Survey

Rincon biologists conducted a reconnaissance-level survey of the Caltrans ROW Site on October 28, 2024, to assess the habitat suitability for potential special-status species; map existing vegetation communities and evident special-status biological resources; note the presence of potential jurisdictional waters or wetlands; document wildlife connectivity/movement features; and record observations of plant and wildlife species within the Caltrans ROW Site. A list of species that were evaluated is included in Table 1 of the BRA and Table 1 of the technical memorandum (AES-Montrose 2021; Rincon 2024). Site photos from the survey are included in Attachment 1.

Existing Conditions

Vegetation and Land Cover

No sensitive vegetation communities exist within or adjacent to the Caltrans ROW site. The site includes roadsides ditches constructed from uplands and culverts that collect stormwater runoff from SR 12 (Figure 1 and Attachment 1, Photos 2, 5, and 7). The roadside ditches run parallel to SR 12 and total approximately 5,440 linear feet within the Caltrans ROW site.

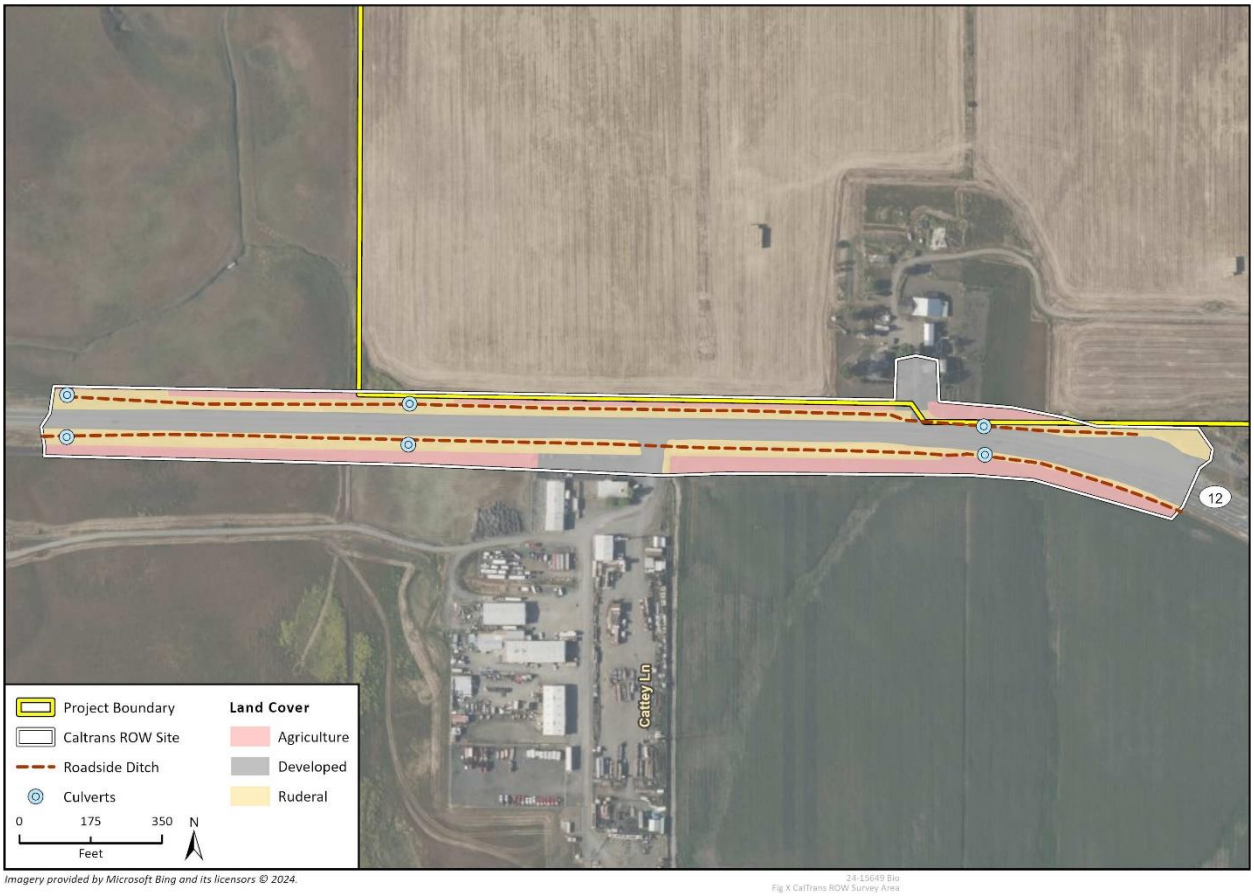

Figure 1. Overview of Caltrans ROW Site showing original Project boundary along SR 12 and land cover types, including roadside ditches and culvert locations.

Plant species observed during the survey include Italian thistle (*Carduus pycnocephalus*), fennel (*Foeniculum vulgare)*, shortpod mustard *(Hirschfeldia incana)*, northern California black walnut (*Juglans hindsii*), stinkwort (*Dittrichia graveolens*), bristly oxtongue (*Helminthotheca echioides*), and prickly Russian thistle (*Salsola tragus*) (Attachment 2).

General Wildlife

The Caltrans ROW Site and its surrounding area provide habitat for bird and mammal species that commonly occur in disturbed habitats. Wildlife species observed during the survey include house sparrow (*Passer domesticus*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), American kestrel (*Falco sparverius*), and California vole (*Microtus californicus*) (Attachment 2).

Impact Analysis and Mitigation Measures

The proposed project would have a significant effect on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

Special-Status Plant Species

No federally listed, state-listed, or other special-status plants were observed during the reconnaissance-level field survey. The reconnaissance survey was conducted in October, outside of the blooming period for plants when many species would not have been identifiable. However, the survey was sufficient to identify the lack of natural vegetation communities within the Caltrans ROW Site. Additionally, the site is routinely disturbed for vegetation maintenance along the highway.

Special-status plant species are not expected to occur within the Caltrans ROW Site, and excavation and staging would occur primarily in ruderal or disturbed areas. Therefore, it is anticipated that no potential effects to special-status plant species would be impacted by the Project.

Special-Status Wildlife Species

No federally listed, state-listed, or other special-status wildlife species were observed during the reconnaissance-level field survey. One California vole carcass was observed during the survey; however, no small mammal burrows were observed. The highway is heavily traveled and areas adjacent to the roadway are regularly disturbed for vegetation maintenance activities.

Special-status wildlife species are not expected to occur within the Caltrans ROW Site. Therefore, it is anticipated that no potential effects to special-status wildlife species would be impacted by the Project.

Nesting Birds

The Caltrans ROW Site and surrounding area contain habitat for nesting birds. If nesting birds protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC) are present on-site during construction, direct effects could include injury or mortality from construction activity or nest abandonment from construction noise, dust, and other project activities. The loss of active nests could be a potentially significant impact. The following measure is recommended for all avian species to reduce impacts to less-than-significant:

BIO-1: Pre-construction Nesting Bird Surveys

To minimize disturbance of nesting birds, project activities should occur outside of the breeding season for migratory birds (generally February 1 to August 31), if feasible. If construction must occur during the breeding season, then a pre-construction nesting bird survey should be conducted no more than seven days prior to the initiation of project activities. The nesting bird pre-construction survey should be conducted on foot and include a 300-foot buffer around the project site for raptors and a 100-foot buffer for all other species. The survey should be conducted by a biologist familiar with the identification of avian species known to occur along the central coast of California. If nests are found, an avoidance buffer of up to 300 feet for raptors and up to 100 feet for non-raptors should be demarcated by the biologist with construction fencing, flagging, or other means to mark the boundary. Intrusion into the buffer may be conducted at the discretion of the biologist.

Designated Critical Habitat

The Caltrans ROW Site does not contain designated critical habitats (DCH); therefore, no impacts to DCH would occur.

Sensitive Natural Communities and Riparian Habitat

The proposed project would have a significant effect on biological resources if it would:

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.

No CDFW-listed sensitive natural communities or riparian habitat are present within the Caltrans ROW Site. Therefore, no impacts to sensitive natural communities or riparian habitat would occur.

Jurisdictional Waters and Wetlands

The proposed project would have a significant effect on biological resources if it would:

c) Have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) through direct removal, filling, hydrological interruption, or other means.

No potentially jurisdictional wetlands or waters of the U.S. or State occur within the Caltrans ROW Site. The roadside ditches observed are dominated by upland vegetation and lack diagnostic features to be determined jurisdictional, according to the U.S. Army Corps of Engineers (USACE) guidance. Therefore, no impacts to federally or state protected wetlands would occur.

Stormwater infrastructure improvements within the roadside ditches may require notification under CFGC Section 1602 Lake and Streambed Alteration Agreement (LSAA).

Wildlife Movement and Native Wildlife Nursery Sites

The proposed project would have a significant effect on biological resources if it would:

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

No corridors for wildlife movement occur within the Caltrans ROW Site, and the site is surrounded by development, a heavily travelled roadway, and fencing. In addition, no native wildlife nursery sites are present within the site. Therefore, there would be no impacts to wildlife movement corridors or native wildlife nursery sites.

Local Policies and Ordinance

The proposed project would have a significant effect on biological resources if it would:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Trees proposed for removal, including northern California black walnut, are not subject to any local tree ordinances. The Project is designed in compliance with relevant City of Rio Vista policies. Accordingly, the Project would not conflict with any local policies or ordinances protecting biological resources and no impact would occur.

Habitat Conservation Plan

The proposed project would have a significant effect on biological resources if it would:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Caltrans ROW Site is located within the draft Solano Multispecies Habitat Conservation Plan (Solano HCP). However, Consistency with the draft Solano HCP is not required under CEQA because the Solano HCP has not been adopted. Therefore, no conflicts with state, regional, or local habitat conservation plans would occur.

Conclusion

Based on the results of the field reconnaissance survey conducted for the Project, no special-status plant or wildlife species are expected to occur. within the Caltrans ROW Site. The habitat present, consisting primarily of disturbed or ruderal areas, does not support sensitive plant communities or jurisdictional waters or wetlands.

To ensure compliance with federal and state regulations, a pre-construction nesting bird survey is recommended to avoid or minimize potential impacts to nesting birds protected by the MBTA and the CFGC during the breeding season. Additionally, the Project may be subject to CFGC Section 1602 requiring an LSAA notification to CDFW for improvements to stormwater infrastructure located within the roadside ditches.

Rincon biologists will continue to work with you on this project. In the meantime, please feel free to contact Kathleen Sholty at ksholty@rinconconsultants.com or Norm Ponferrada at nponferrada@rinconconsultants.com if you have questions concerning the contents of this report.

Sincerely,
Rincon Consultants, Inc.





Kathleen Sholty, M.S
Senior Biologist/Project Manager

Norm Ponferrada
Director of Fisheries and Aquatic Sciences

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Attachments

Attachment 1 Representative Site Photographs
Attachment 2 Plant and Wildlife Species Observed

References

AES-Montrose. 2021. *Brann Ranch Biological Resources Assessment, City of Rio Vista, California*. Prepared December 2021.

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Attachment 1

Representative Site Photographs



Photograph 1. West view of entrance to Brann Ranch property on north side of SR 12, with ruderal vegetation.



Photograph 2. West view of the south side of SR 12 with roadside ditch and vegetation disturbance. Barbed wire fencing runs parallel to the roadway.



Photograph 3. East view of north side of SR12 showing ruderal and disturbed roadside vegetation. Utility distribution lines run parallel to the road, along with fencing along the Brann Ranch property boundary.



Photograph 4. South view of south side of SR 12, including adjacent agricultural field with fencing.



Photograph 5. South-facing view of a culvert on the north side of SR 12, located at the edge of the Brann Ranch property boundary.



Photograph 6. East view of northern California black walnut trees located on the north side of SR 12 near the entrance to the Brann Ranch Project site .



Photograph 7. South-facing view of a culvert on the north side of Highway 12, located at the edge of the Brann Ranch project boundary.

Attachment 2

Plant and Wildlife Species Observed

Plant Species Observed Within the Caltrans ROW Site

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Juglans hindsii	northern California black walnut	None	Native
Herbs			
Carduus pycnocephalus	Italian thistle	None	Introduced; Cal-IPC: Moderate
Dittrichia graveolens	stinkwort	None	Introduced; Cal-IPC: Moderate
Helminthotheca echioides	bristly oxtongue	None	Introduced; Cal-IPC: Limited
Hirschfeldia incana	shortpod mustard	*None*	Introduced; Cal-IPC: Moderate
Salsola tragus	prickly Russian thistle	*None*	Introduced; Cal-IPC: Limited
Foeniculum vulgare	fennel	None	Introduced; Cal-IPC: Moderate

Cal-IPC = California Invasive Plant Council

Wildlife Species Observed Within the Caltrans ROW Site

Scientific Name	Common Name	Status	Native or Introduced
Birds			
Cathartes aura	Turkey vulture	None; MBTA/CFGC	Native
Corvus brachyrhynchos	American crow	None; MBTA/CFGC	Native
Passer domesticus	House sparrow	None	Introduced
Zenaida macroura	Mourning dove	None; MBTA/CFGC	Native
Falco sparverius	American kestrel (carcass)	None; MTBA/CFGC	Native
Mammals			
Microtus californicus	California vole (carcass)	None	Native

MBTA = Migratory Bird Treaty Act
CFGC = California Fish and Game Code