Appendix C: Biological Resources Supporting Information

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C.1 - Giovannoni Logistic Center Biological Resources Report

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BIOLOGICAL RESOURCES REPORT
GIOVANNONI LOGISTICS CENTER
AMERICAN CANYON, CALIFORNIA

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TABLE OF CONTENTS

LIST OF ATTACHMENTS

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1.0 INTRODUCTION

On behalf of Buzz Oates Construction, Inc., Huffman-Broadway Group, Inc. (HBG) has prepared a Biological Resources Report for the Giovannoni Logistics Center Project in the City of American Canyon, California. The approximately 207.8-acre Giovannoni Logistics Center Project (Project Site), also referred to as the Study Area, is located in the northwestern portion of the City of American Canyon, Napa County, California. It is expected that this Biological Resources Report will be used in decision-making with respect to the documentation necessary for the project pursuant to the California Environmental Quality Act (CEQA).

The applicant, Buzz Oates Construction, Inc., is proposing to develop an approximately 2.4 million square foot logistics center and a wetland preserve as open space on approximately 199.5 acres out of the 207.8-acre Project Site. The Devlin Road and Vine Trail Extension Project is currently being developed by the City of American Canyon on the remaining 8.3 acres of the 207.8-acres Project Site. . The applicant has developed site design-level plans for the Giovannoni Logistics Center Project on approximately 113.6 acres of the Project Site. These site-design level plans include development on the approximately 68.8 acre area east of the Devlin Road extension and wetland mitigation plans on an approximately 44.8 acre Wetland Preserve (together referred to herein as the "Project"). The development on the 68.8 areas will support two high cube warehouse buildings totaling 1,069,904 squarefeet. Buildings A would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade level roll up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users. The approximately 44.8 acre wetland preserve will be used to offset wetland impacts associated with the Project, and additional wetland impacts that may occur in the future as part of the possible development of a second phase of the project (referred to herein as the "Phase 2"). If built out, Phase 2 is anticipated to encompass the approximately 85.9-acre area west of Devlin Road and is conceptually proposed to develop the remaining 1.3 million square feet of high cube warehouse space. This Phase 2 project, if constructed, would commence sometime after the proposed Project is completed.

Accordingly, the City of American Canyon's environmental review process pursuant to CEQA will evaluate the proposed project east of Devlin Road with a Project Specific Level of analysis and the second phase west of Devlin Road at a Program Level. The analysis for the proposed Project is independent from the Giovannoni Logistics Center Project Phase 2 (referred to herein as "Phase 2"). When and if Phase 2 moves forward, an addendum to the EIR will need to be conducted and Phase 2 will be re-evaluated based on the specifics and any new environmental or CEQA issues that will need to be assessed.

The objective of this study was to provide a determination of the potential for the Study Area (the entire 207.8-acre Project Site) to support sensitive habitats as defined by state or federal regulation and/or pursuant to the California Environmental Quality Act (CEQA) or for the Study Area to support special status species of flora and fauna. This evaluation also includes an

evaluation to determine whether the proposed construction would result in impacts to sensitive habitats or special status species, recommends mitigation measures necessary to mitigate impacts to levels of insignificance as defined by CEQA, and identifies needs for regulatory permits from state and federal agencies.

HBG's analysis included a review of pertinent literature on habitat characteristics of the site, including species of plants and animals expected to utilize the Project Site and a review of planning documents referencing ecological aspects of the site. These documents included previously prepared biological studies pertaining to the site, including an aquatic resources delineation prepared by Monk & Associates (2016) and surveys for federally listed vernal pool brachiopods conducted by LSA Associates (2016) and Monk & Associates (2017). HBG's work included a Habitat Assessment for the federally listed threatened California red-legged frog prepared by Dr. Mark Jennings, and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season.

Also relevant to the biological evaluation were Biological Resource Reports prepared by Monk & Associates for two separate Initial Study/Mitigated Negative Declarations prepared by the City of American Canyon for projects with shared elements to the subject project. These include Biological Resource Reports for the Devlin Road and Vine Trail Extension Project (Monk & Associates 2018) (currently being constructed by the City of American Canyon on 8.3 acres of the Giovannoni Project Site) and the Green Island Road Reconstruction and Widening Project (Monk & Associates 2019).. HBG's work also included an updated review of the California Natural Diversity Data Base (CNDDB) to determine if populations of endangered, threatened, or rare species have occurred on the site historically or are currently known to exist in the project vicinity and included additional field surveys of the site conducted by HBG biologists between December 2020 and April 2021. Additional field reviews will be conducted during the spring and summer of 2021 for the purpose of completing rare plant surveys within the Study Area.

2.0 PROPOSED PROJECT

2.1 Project Location

The 207.8-acre Project Site is located in the northwestern portion of the City of American Canyon, Napa County, California. A regional location map for the Project Site is shown in Figure 1 and the area in the vicinity of the site is shown in Figure 2. The semi-rectangular Project Site is bounded by industrial development in the Green Island Business Park to the west, the Napa Logistics Project and Devlin Road to the north, the Napa Branch Line of the Southern Pacific Railroad to the east, and Green Island Road, a stone supply business, and a wine distribution warehouse to the south. State Highway 29 is located just to the east of the site and the Napa River is less than one mile to the west.

Figure 3 shows the location of the Project Site on the Cuttings Wharf, California, United States Geological Survey 7.5-minute topographic quadrangles, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West). An aerial image of the Project Site with the US Army Corps of Engineers (USACE) verified wetlands is provided on Figure 4.

2.2 Project Description

2.2.1 Land Use Activities and Designations

The 207.8-acre Project Site is currently undeveloped land and is the largest undeveloped site in the City of American Canyon. The Project Site has sat vacant for decades with the City of American Canyon annexing the property into the City in 2005. The Project Site gently slopes from east to west with an elevation ranging from 35 feet to 50 feet above mean sea level. The West Napa Fault bisects the Project Site in a northwest/southeast direction. The Project Site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial" and is within the boundaries of the Napa County Airport Land Use Compatibility Plan.

The City of American Canyon is currently constructing an extension of Devlin Road bisecting the Project Site[1]. The Devlin Road and Vine Trail Extension project extends approximately 2,800 linear feet from Green Island Road to a completed segment of Devlin Road within the Napa Logistics Park, closing a gap in the City's roadway network. The extension is contemplated by the City of American Canyon General Plan Circulation Element as an Industrial Collector. The extended Devlin Road will be a two-lane roadway with a walking trail, box culvert, and bioretention cells. An extension of the Napa Valley Vine Trail is a component of the Devlin Road extension. Construction of the Devlin Road and Vine Trail Extension project began in the spring of 2021with completion anticipated by the end of 2021..

[1] The Devlin Road extension will encompass approximately 8.3-acres of the 207.8-acre Project Site.

An additional related but separate project by the City of American Canyon is the Green Island Road Reconstruction and Widening Project. Green Island Road would be widened and a new Green Island Road/Devlin Road intersection with turn lanes would be constructed. Anticipated start of construction is 2022.

2.2.2 Proposed Project

The applicant, Buzz Oates Construction, Inc., is proposing to develop an approximately 2.4 million square foot logistics center and a wetland preserve as dedicated open space on approximately 199.5 acres out of the 207.8-acre Project Site. In conjunction with the proposed Project, the City of American Canyon is currently constructing an extension of Devlin Road that will encompass approximately 8.3-acres of the 207.8-acre overall Project Site.
The applicant has developed site design-level plans on the approximately 68.8 acre area east of the Devlin Road extension and wetland mitigation plans on an approximately 44.8 acre Wetland Preserve for a 113.6 acre Project. These site design-level plans for 68.8-acre the portion of the site east of Devlin Road along with the approximately 44.8-acre Wetland Preserve are shown in Figure 5. Building A will have 36' in clearance height and provide 601,383 ground square feet (GSF). Building A will be rail-served by the adjacent Napa Branch Line and equipped with 126 dock positions, 4 grade level roll up doors, 215 trailer parking stalls 12'x55', and 432 vehicle stalls. Building B will have 36' in clearance height and provide 468,521 GSF. Building B will be equipped with 100 dock positions, 4 grade level roll up doors, 148 trailer parking stalls 12'x55', and 442 vehicle stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

A Phase 2 project, anticipated on the 85.9-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high cube warehouse. This Phase 2 project would commence sometime after the proposed Project is completed. The conceptual plan for development area of this Phase 2 in the portion of the site west of Devlin Road is shown in Figure 6. If and when Phase 2 is pursued, work would commence once the proposed Project is completed. Accordingly, the environmental review process conducted by the City of American Canyon pursuant to CEQA will evaluate the proposed Project at a Project Specific level of analysis and Phase 2 at a Program level.

Driveway access to the proposed Project and Phase 2 would be taken from Devlin Road and Green Island Road.

A summary of land uses for the entire Project Site is shown in Table 1.

Table 1. Land Uses for 207.8-acres Project Site			
Phase / Land Use	**Acres**	**Building / Square Feet**	**End Use / Characteristics**
Project (Site Design Level Plans)	68.8	A / 601,383	High Cube Warehouse / 36 feet clear height
		B / 468,521	High Cube Warehouse / 36 feet clear height
	44.8	NA	Wetland Preserve: Will be used to fully mitigate for wetland impacts associated with the Project and to fully, or in part, mitigate for wetland impacts associated with Phase 2.
Phase 2 (Program Level)	85.9	1.3 million	High Cube Warehouse
Devlin Road Extension	8.3	NA	Implemented by City of American Canyon
Total	**207.8**	**2.4 million**	**NA**
Note: Acreage and square footage calculations sourced from CBG Civil Engineers.			

As part of the Project, an approximately 44.8-Acre Wetland Preserve fronting the northern boundary will be preserved, and the preservation site will be used to create approximately 0.992-acre of wetlands (2:1 ratio) to offset wetland impacts associated with the Project, and an additional approximately 3.7-acres of wetlands (1:1 ratio) will be created to offset wetland impacts that may occur in the future as part of Phase 2, assuming Phase 2 is built out. The Conceptual Wetland Mitigation Plan and associated map for the general location of mitigation wetlands in relation to the Project Site and existing wetlands is discussed in detail in Section 5. The Wetland Preserve would create a contiguous open space area with the adjoining 37-acre Napa Logistics Park Wetland Preserve. Figure 5 shows the plans for site-design level development of the proposed Project east of Devlin Road; conceptual plans for future development of Phase 2 west of Devlin Road are shown on Figure 6. An approximately 44.8-acre Wetland Preserve will protect existing seasonal wetlands and vernal pools, protect foraging habitat for raptors, and support established wetlands to offset wetland impacts associated with the Project and Phase 2.

The proposed Project and Phase 2 requires a Use Permit, Tentative Parcel Map, Design Permits, and a Lot Line Adjustment from the City of American Canyon.

3.0 REGULATORY BACKGROUND

The following is a description of federal, state, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

3.1 Federal Regulations

Clean Water Act-Section 404

The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the U.S. Environmental Protection Agency (US EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b) (1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative" (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and "other waters of the U.S." Wetlands and other waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands as "…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (US EPA regulations at 40 CFR § 230.3(t); Corps' regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps' 1987 Wetlands Delineation Manual (1987 Manual); the Corps' 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the high tide line…"or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters" (33 C.F.R.§328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R.§328.3(d)).

SWANCC and Rapanos. In the U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC), No. 99-1178 (2001),* some isolated wetlands may be excluded from the Corps' Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Subsequent to SWANCC, the U.S. Supreme Court decided on *Rapanos v. United States* and *Carabell v. United States*, 126 U.S. 2208 (2006) (herein referred to as Rapanos) which resulted in 2007, guidance was given to US EPA regions and Corps districts to implement the Supreme Court's decision which addresses the jurisdiction over waters of the U.S. under the Clean Water Act. The Rapanos guidance requires the Corps to conduct detailed analysis of the functions and values of wetlands and other waters of the U.S. potentially onsite and in some cases offsite, to determine if there is a nexus to traditional navigable waters and to evaluate the significance of the nexus to the traditional navigable water. Neither the Court nor the recently-issued guidance draw a clear line with respect to the geographic reach of jurisdiction, particularly in drainages where flows are ephemeral and where wetlands are adjacent to but not directly abutting relatively permanent water.

Navigable Waters Protection Rule. In 2020, the Trump Administration obtained approval of the Navigable Waters Protection Rule (NWPR) that altered the reach of the nation's Clean Water Act. The NWPR has four categories of jurisdictional waters and twelve categories of excluded waters/features. There is no standalone interstate waters category and no case-specific significant nexus analysis. Key changes were made for defining tributary, adjacent wetland, ditches, lakes, ponds, and impoundments. New definitions for defining typical year versus normal, perennial, intermittent, ephemeral, snowpack, and ditches. No change was made to the definition of wetlands or the methodology for defining wetlands. Under the NWPR, WOTUS

includes 1) territorial seas and traditional navigable waters; 2) tributaries; 3) lakes and ponds, and impoundments of jurisdictional waters; and 4) adjacent wetlands.

Clean Water Act-NPDES Requirements

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related storm water discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board has developed a general construction storm water permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering storm water and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that site design provide no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development ("LID") design features. The Construction General Permit is implemented and enforced by California's nine Regional Water Quality Control Boards.

The State Regional Water Quality Control Boards (SWQCB) have also adopted requirements for NPDES storm water permits for medium and large municipalities, and the State Water Resources Control Board has adopted a General Permit for the discharge of storm water from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan (SWMP) to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

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

shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term "harm" in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Additionally, FESA prohibits the destruction or adverse modification of designated critical habitat. In the Service's regulations at 50 CFR 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or "incidental" taking or killing of migratory birds. In response to the Trump Administration's attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in

favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court. On his first day in office, new President Joe Biden placed Trump's changes to the MBTA on hold, pending further review.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

3.2 State Regulations

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Control Act

Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCB). A water quality certification from a RWQCB must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States"; all surface waters that are not "waters of the United States, e.g. non-jurisdictional wetlands; groundwater; and the territorial seas.

The State Water Resources Control Board's *State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State* adopted April 2, 2019 (the Procedures) along with the *Implementation Guidance for the Procedures* dated April 2020 (the Implementation Guidance) defines a wetland as an area that *under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or*

shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, state that the permitting authority (e.g. State Water Quality Control Board) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters, but these delineations will be verified by SWQCB's Regional Water Quality Control Board staff during application review. Similarly, if the Corps does not require a delineation, but similar information is prepared for CDFW, the applicant can submit that information to the Water Boards, who will determine if it is sufficient for the Water Board's purposes. In addition, as a matter of policy, the SWQCB/RWQCBs consider wetlands and waters determined to be non-jurisdictional by the Corps/USEPA under SWANCC or Rapanos guidance or the NWPR to remain jurisdictional as waters of the State subject to SWQCB/RWQCB jurisdiction.

The Procedures along with the Interim Guidance also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acres. The Procedures require an alternatives analyses to be completed in accordance with a three tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction storm water permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a RWQCB must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that 'overriding considerations" exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires that such projects implement an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy. CDFW requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

California Department of Fish and Wildlife-Lake and Streambed Alteration Agreement
Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically defined by the Fish and Game Code but CDFW takes jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Department of Fish and Wildlife-Fish and Game Code Section 3503, 3503.5 and 3513. The State of California also incorporates the protection of nongame birds and birds of prey, including their nests, in Sections 3503, 3503.5, and 3513 of the California Fish and Game Code. Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. In December of 2018, California issued new guidance specifying that state law includes "a prohibition on incidental take of migratory birds, notwithstanding any federal reinterpretation of the Migratory Bird Treaty Act" by the Department of Interior.

California Department of Fish and Wildlife Fish- Sensitive Plant Communities.
CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities, as well as special status species (including species of special concern), is kept by CDFW as part of the California Natural Diversity Data Base (CNDDB). All known occurrences of sensitive habitats are mapped onto 7.5 minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDB. Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife- Species of Special Concern
CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of "Species of Special Concern" developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife- Fully Protected Animal Species
The classification of Fully Protected was an effort by the State of California in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Species classified as Fully Protected Species by the CDFW may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2014: https://www.cnps.org/cnps/rareplants/inventory/). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review, especially for those plant species including in Lists 1 and 2. The following identifies the definitions of the CNPS listings: https://www.cnps.org/cnps/rareplants/ranking.php

California Rare Plant Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A:	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B:	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3:	Plants about which more information is needed – a review list.
California Rare Plant Rank 4:	Plants of limited distribution – a watch list.

3.3 City of American Canyon Policies

City of American Canyon General Plan

In addition to federal and state regulations, the development of the property must be accomplished consistent with the land use designations and natural resource and other policies of the City of American Canyon General Plan. The objectives and policies of the City General Plan related to Biological Resources are under the Goal 8 of the Plan, which is "Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area." Relevant objectives intended to obtain the overall goal and policies of the City related to biological resources are listed below:

Objective 8.1: Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.

> Policy 8.1.1: Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.
>
> Policy 8.1.4: Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend

appropriate mitigation measures that the developer and/or government agency can implement.

Objective 8.2: Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savannah, and wetland and riparian habitats, with new development in the City.

Policy 8.2.1: Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savannah, and riparian habitats or with areas potentially occupied by vernal pools shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining the General Plan for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified biologist to determine if sensitive habitats exist on-site. In instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.

Objective 8.3: Protect natural drainages and riparian corridors within the City of American Canyon Planning Area.

Policy 8.3.1: Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards:

a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.

b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g" (below).

c. Where riparian corridors are retained, they shall be protected by an adequate buffer width of a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy.

d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible.

e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages, or corridors from built environment.

f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible.

g. Future development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.

h. Future development shall mitigate unavoidable adverse impacts to waters of the United States and waters of the State, wetlands, and riparian habitats (pursuant to the Federal Clean Water Act, Porter-Cologne Water Quality Control Act and the California Fish and Game Code, Section 1600 et seq.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Game, and/or US Army Corps of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be affected, subject to state and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (offsite but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.

Policy 8.3.6: Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths and greenbelts along their lengths throughout the City.

Objective 8.4: Protect local vernal pools as well as the habitats of endangered species living within the City of American Canyon's Planning Area.

Policy 8.4.1: Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within the City of American Canyon's Planning Area.

Policy 8.4.3: Encourage activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering.

4.0 EXISTING BIOLOGICAL SETTING

The 207.8-acre Project Site is located in the northwestern portion of the City of American Canyon, Napa County, California. A regional location map for the Project Site is shown in Figure 1 and the area in the vicinity of the site is shown in Figure 2. Figure 3 shows the location of the Project Site on the Cuttings Wharf, California, United States Geological Survey 7.5-minute topographic quadrangle, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West).

Figure 4 is an aerial photograph of the Project Site that portrays existing site conditions and the surrounding land uses. The Project Site is bound by industrial development in the Green Island Business Park to the west, the Napa Logistics Project and Devlin Road to the north, and the Napa Branch Line of the Southern Pacific Railroad to the east. A wine distribution warehouse is to the southeast and a stone supply business to the southwest.

The description of the biological setting for the property is based on field visits to the site by HBG Senior Environmental Scientist Gary Deghi, Senior Wetland Scientist Robert Perrera, and Wildlife Biologist Emilie Strauss between December of 2020 and April of 2021. In addition, HBG independently reviewed and incorporated a number of studies previously prepared for the Project Site by other consultants and conducted additional specialized studies using species experts as part of work in preparing this document.

Previously prepared biological studies pertaining to the site included an aquatic resources delineation prepared by Monk & Associates (2016) and surveys for federally listed vernal pool brachiopods conducted by both LSA Associates (2016) and Monk & Associates (2017). HBG included a Habitat Assessment for the federally listed threatened California red-legged frog prepared by Dr. Mark Jennings and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season. Also relevant to the biological evaluation were Biological Resource Reports prepared by Monk & Associates for two separate Initial Study/Mitigated Negative Declarations prepared by the City of American Canyon for projects with project boundaries either shared with or adjacent to the Project Site. These include Biological Resource Reports for the Devlin Road Extension Project (Monk & Associates 2018) and the Green Island Road Reconstruction and Widening Project (Monk & Associates 2019).

4.1 Climate

The Project Site is located in the City of American Canyon, which is part of the greater north San Francisco Bay area. Like other portions of northern California, American Canyon experiences a Mediterranean climate characterized by warm, dry summers and cool, wet winters. The project area typically exhibits annual low/high temperatures between 40 and 80 degrees Fahrenheit and an annual average rainfall of approximately 20 inches.

4.2 Hydrology

The 207.8-acre Project Site is currently undeveloped land with a range of elevations between 35 and 50 feet msl. The headwaters of No Name Creek occurs within the northwestern portion

of the Project Site. The Project Site gently slopes from east to west at about zero to two percent to the northwestern corner of the property where No Name Creek flows off the site through the Napa Logistics wetland preserve and is hydrologically connected to Fagan Slough which flows into the Napa River. The majority of wetlands that occur throughout the site and are supported by direct precipitation.

As shown on Figure 7 the Study Area primarily lies within the USGS Hydrologic Unit Code (HUC) 10-digit subwatershed of the Tulucay Creek-Frontal San Pablo Bay Estuaries (1805000204).

4.3 Topography and Soils

The majority of the Project Site is relatively flat at approximately 40 feet mean sea level and a total elevation variance of 30 feet. The Project Site generally slopes at about zero to two percent with two highpoints to the southeast and southwest of the gradually sloping north toward No Name Creek. Although the remaining portions of the Project Site are relatively flat, grazing and inundation in topographic low areas has created a hummocky landscape with depressional microrelief. As a result, there are small seasonal wetlands and swales scattered throughout the site. Other large, and deep wetlands occur on the eastern and southern portions of the site. In the southeastern portion of the Project Site a berm confines surface water sheet flows creating several inundated depressional features.

Soil survey information for the Project Site was obtained from the National Resources Conservation Service Web Soil Survey (NRCS 2021). Three different soil types were mapped by NRCS within the Project Site. The mapped soil units include: Clear Lake clay drained (116), 0 to 2 percent slopes, Haire loam (146), 2 to 9 percent slopes, and Haire clay loam (148), 2 to 9 percent slopes (USDA 1972). A soil map for the Project Site is shown in Figure 8.

The Clear Lake series consists of poorly drained soils on old alluvial fans and basins. Elevation is 25 to 2000 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 35 inches and the mean annual temperature is 59 to 63 degrees. Clear Lake clay drained soil is classified as a hydric soil (i.e., those soils that form in wetlands) by the NRCS.

The Haire Loam series consists of moderately well-drained soils, slow to rapid runoff, and very slow permeability on alluvial fans and terraces. Elevation is 20 to 2,402 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual temperature is 57 to 61 degrees Fahrenheit. Haire Loam soil is not classified as hydric soil (i.e., those that form in wetlands) by the NRCS.

The Haire clay loam series consists of moderately well-drained soils, with high run off, on alluvium derived from sedimentary rock. Elevation is 20 to 2402 feet. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual

temperature is 57 to 61 degrees Fahrenheit. Haire Clay Loam is not classified as a hydric soil (i.e., those that form in wetlands) by the NRCS.

4.4 Plant Communities

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation communities and habitats at the Project Site were identified based on the currently accepted List of Vegetation Alliances and Associations or Natural Communities (CDFW 2010). The list is based on A Manual of California Vegetation, Second Edition (Sawyer et al 2009), which is the National Vegetation Classification applied to California. The Project Site contains two habitat types: Non-native Grassland and Coastal and Valley Freshwater Marsh in the form of seasonal wetlands and swales. This identification of habitat types on the property matches the findings of Monk & Associates as stated in their wetland delineation technical letter report submitted to the USACE (Monk & Associates 2016). An inventory of plant species found on the Giovannoni property during biological studies conducted by Monk & Associates is provided in Attachment 2, Table 1.

Non-native annual grasslands. Non-native annual grasslands, dominated by introduced annual grasses and forbs, comprise the predominant habitat types on the property. The dominant species in the grasslands were identified when Monk & Associates conducted their aquatic resources delineation on the Project Site and report in their technical report submitted to the Corps of Engineers (Monk & Associates 2016). Dominant non-native annual grass species on the project site include Italian ryegrass (*Festuca perennis*), Mediterranean barely (*Hordeum marinum* ssp. *gussoneanum*), medusa head (*Elymus caput-medusae*), and soft chess (*Bromus hordeaceus*). Common non-native forbs found on the Project Site include bird's foot trefoil (*Lotus corniculatus*), subterranean clover (*Trifolium subterranean*), broad-leaf filaree (*Erodium botrys*), English plantain (*Plantago lanceolata*), yellow glandweed (*Parentucellia viscosa*), Mediterranean linseed (*Bellardia trixago*), spring vetch (*Vicia sativa*), and bristly ox-tongue (*Helminthotheca echioides*). Native forbs and wildflowers were also present and include yellow owl's clover (*Triphysaria versicolor* ssp. *faucibarbata*), hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*), and coastal tarweed (*Deinandra corymbosa*). Other common species noted by HBG biologists during winter surveys in 2020 included species such as Harding grass (*Phalaris aquatica),* rip-gut brome (*Bromus diandrus*), field bindweed (*Convolvulus arvensis*), and sweet fennel (*Foeniculum vulgare*). Other species included scattered coyote brush (*Baccharis pilularis*) and Himalaya berry (*Rubus armeniacus*), especially around the edges of the property.

Seasonal Wetlands and Swales. Seasonal wetlands on the property are vegetated with a variety of native and non-native species adapted for life in saturated soil conditions. Monk & Associates noted the vegetation in the seasonal wetlands and swales as being dominated by primarily native species such as annual semaphore grass (*Pleuropogon californicus* var. *californicus*), creeping spikerush (*Eleocharis macrostachya*), iris-leaved rush (*Juncus xiphioides*), California coyote thistle (*Eryngium aristulatum* var. *aristulatum*), meadow barley (*Hordeum brachyantherum*), smooth goldfields (*Lasthenia glaberrima*), Great Valley popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), and wavy stemmed popcorn flower (*P. undulatus*),

along with a few non-native wetland species such as rabbit's foot grass (*Polypogon monspeliensis*) and brass buttons (*Cotula coronopifolia*). Other plants noted in the seasonal wetlands during winter surveys conducted by HBG included species such as annual hairgrass (*Descampsia danthanoides*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), saltgrass (*Distichlis spicata*), pennyroyal (*Mentha pulegium*), rough cocklebur (*Xanthium strumarium*), tall flat-sedge (*Cyperus eragrostis*), and swamp timothy (*Crypsis schoenoides*), and in some areas of deeper inundation, broadleaf cattail (*Typha latifolia*).

4.5 Animal Populations

The Project Site provides limited habitat for wildlife species, mostly those adapted to open areas and farm fields and disturbed environments. Grasses and herbaceous plants within the Project Site provide limited nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. Seasonal wetlands provide wildlife with a seasonal water source that supports various animal species during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. No Name Creek would be considered a wildlife corridor, but the property is nearly entirely surrounded by development so the extent of wildlife corridors on the property is limited.

A number of wildlife species were documented during a winter season survey conducted at the Project Site by wildlife biologist Gary Deghi of HBG on December 10, 2020. All species documented at the site are common to abundant in the region and would be expected in the non-native grasslands and seasonal wetlands present at the site. Bird species documented included various species adapted to grasslands and open areas including Canada goose (*Branta canadensis*), California gull (*Larus californicus*), mourning dove (*Zenaida macroura),* Eurasian collared-dove (*Streptopelia decaocto*), rock pigeon (*Columba livia*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), black phoebe (Sayo*rnis nigricans*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), red-winged blackbird (*Agelaius phoeniceus),* and western meadowlark (*Sturnella neglecta*). Other species in taller vegetation and landscaping around the edges of the site and just off-site included California scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos)*, European starling (*Sturnis vulgaris*), white-crowned sparrow (*Zonotrichia leucophrys*), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). Raptors (birds of prey) observed foraging over the grasslands and wetlands of the Project Site were fairly common during the winter survey and included American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), Northern harrier (*Circus hudsonius*), and turkey vulture (*Cathartes aura*).

HBG wildlife biologist Emilie Strauss conducted a spring season site reconnaissance on April 16, 2021 on the Project Site. Many of the bird species observed included species observed during the winter, but additional resident species observed during the April visit included ring-necked pheasant (*Phasianus colchicus*), great blue heron (*Ardea herodia*), great egret (*Ardea alba*), and killdeer (*Charadrius vociferus*). Additional species added during the spring survey included

spring arrivals of migrant species. Breeding season raptor observations included foraging Northern harrier (a state designated species of special concern for nesting habitat that was also observed foraging over the site in winter), as well as foraging by state listed threatened Swainson's hawk (*Buteo swainsoni*). A California Fully Protected golden eagle (*Aquila chrysaetos*) was also observed over the Project Site being harassed by the Swainson's hawk and flying low exhibiting foraging behavior. These three special status raptor species have nested in this part of Napa County in the past, and it is entirely possible these individuals could be nesting somewhere in the vicinity of the Project Site. HBG wildlife biologist Emilie Strauss drove about 10 miles of local roads surrounding the Project Site to inspect trees for raptor nest structures. No Swainson's hawk nest structures were observed. Additional species observed in the spring survey included cliff swallow (*Petrochelidon pyrrhonota*) and barn swallow (*Hirundo rustica*).

During their biological studies related to the Green Island Road Widening and Devlin Road Extension Projects in 2018 and 2019, Monk & Associates observed several species of waterfowl and shorebirds in the on-site seasonal wetlands. These species were not observed during the December 10, 2020 or April 16, 2021 surveys by HBG as surface ponding was lacking on the site then due to the paucity of rain. These species included mallard (*Anas platyrhynchos*), American wigeon (*Anas americana),* greater yellowlegs (*Tringa melanoleuca*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), and Wilson's snipe (*Gallinago delicata*).

No amphibians were documented on the property by HBG, but Pacific treefrog (*Pseudacris regilla*) was noted by Monk & Associates biologists while studying the Green Island Road Extension. Reptile sightings at the site by HBG included western fence lizard (*Sceloperus occidentalis);* other reptiles likely include Pacific gopher snake (*Pituophis catenifer)* and common garter snake (*Thamnophis sirtalis elegans)*. Observed evidence of mammals on the site by HBG were black-tailed jackrabbit (*Lepus californicus*), dens of Botta's pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*), several California ground squirrels (*Otospermophilus beecheyi*) in a rubble pile in the southwestern portion of the site, and three mule deer (*Odocoileus hemionus*) in the southeastern portion of the property. Monk & Associates apparently observed raccoon (*Procyon lotor*) while conducting studies for the Devlin Road Extension Project. Other expected mammals would be those adapted to disturbed, urban environments such as Virginia opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and striped skunk, (*Mephitis mephitis*).

4.6 Wetlands

Aquatic Resources Delineation Methodology. Monk & Associates conducted an aquatic resources delineation on the Project Site in 2016. Field work for the delineation was conducted during the period of April 15 to May 26, 2016. Monk & Associates biologists used the Corps' 1987 Wetlands Delineation Manual in conjunction with the regional supplement for the Arid West Region to prepare this wetland delineation. A jurisdictional determination request and the Draft Aquatic Resources Delineation Map were prepared in compliance with the Corps' 2016 Minimum Standards for Acceptance of Aquatic Resources Delineation Reports and the

2016 Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Monk & Associates 2016).

Vegetation, hydrology, and soils information were taken at 142 data points. Data points were mapped using a Trimble Pro-XR Global Positioning System (GPS) having sub-meter accuracy. The delineation map was made from the GPS files using ArcMap 10.2. All spatial data were projected into the California State Plane, NAD 83 coordinate system, Zone 2. Using GPS technology, the boundaries (within 30 inches) of each delineated wetland was transferred to an aerial photograph of the Project Site (Monk & Associates 2016).

Aquatic Resources Delineation Results. The Aquatic Resources Delineation map prepared by Monk & Associates was submitted to the San Francisco District of the USACE on August 29, 2016 and was confirmed by letter from the USACE dated November 8, 2016. The wetlands found on the Project Site as mapped by Monk & Associates (2016) and verified by the USACE are provided in Attachment 4. The mapped areas classified as wetlands exhibited a dominance of hydrophytic vegetation, as well as hydric soils and wetland hydrology. Hydrological indicators in mapped wetlands included the presence of oxidized rhizospheres along living roots (C3), surface soil cracks (B6), algal matting (Biotic Crust B12), aquatic invertebrates (B13), and vegetation suppression (indicating long-term inundation) within these wetland areas. Evidence of hydric soils included Redox Dark Surface F6 and Depleted Matrix F3 as defined in the approved regional supplement for the Arid West Region and the Field Indicators of Hydric Soils in the United States (Monk & Associates 2016).

The majority of the seasonal wetlands on the Project Site gradually drain north toward No Name Creek. No Name Creek, within the Project Site, does not exhibit an ordinary high water mark, and is therefore categorized as a seasonal wetland. No Name Creek flows off the Project Site to the west before draining into Fagan Slough, a tidal water of the United States. Fagan Slough is tributary to the Napa River, a traditional navigable water (TNW) that flows to San Pablo Bay. Therefore, the 11.93 acres of seasonal wetlands in the north and southwest corner of the site are regulated as “waters of the U.S.” pursuant to Section 404 of the Clean Water Act and are subject to USACE jurisdiction (see Attachment 4). Several features in the southeastern portion of the Project Site are mapped as “isolated” seasonal wetlands since they do not have hydrologic connectivity to any water of the U.S. The “isolated” features are contained within discreet topographic depressions, surrounded by uplands and berms that are higher in elevation, thereby isolating these features from any water of the U.S. A total of 0.84 acre of “isolated” features that are mapped on the Project Site are not subject to USACE jurisdiction as shown on Exhibit 6.

The total area of USACE jurisdictional wetlands mapped on the Project Site is 11.93 acres. The total area of “isolated” wetlands mapped on the Project Site is 0.84 acre. HBG has determined that the areas mapped as isolated wetlands and not subject to jurisdiction of the USACE under the federal Clean Water Act would be subject to the wetland criteria of the state Porter-Cologne Water Quality Control Act and the jurisdiction of the San Francisco Bay Regional Water

Quality Control Board as a Water of the State. A total of 12.77 acres of wetlands would be subject to the regulatory jurisdiction of the San Francisco Bay RWQCB (SFBRWQCB) as Waters of the State. The portion of the Project Site along the northern boundary of the site contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the California Department of Fish and Wildlife (CDFW) under Fish and Game Code Section 1602.

4.7 Special Status Species

Special status species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. The California Environmental Quality Act (CEQA) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of Regulations Section 15380. Special status species also include those species listed by CDFW as Species of Concern which face extirpation in California if current population and habitat trends continue, those listed as Fully Protected by CDFW (a designation that provides additional protection to those animals that are rare or face possible extinction), and bird species designated as Bird Species of Conservation Concern by the USFWS. These state and federal Species of Concern must be evaluated in the context of evaluation under CEQA, which also requires evaluation of impacts to plant species on California Native Plant Society (CNPS) Lists 1 and 2. Special status species included in CEQA review also include bat species that have been designated with conservation priority by the Western Bat Working Group.

The CDFW maintains records for the distribution and known occurrences of special status species and sensitive habitats in the California Natural Diversity Database (CNDDB). The CNDDB is organized into map areas based on 7.5 minute topographic quadrangle maps produced by the USGS. All known occurrences of special status species are mapped onto quadrangle maps maintained by the CNDDB. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The Project Site is within the encompasses Cuttings Wharf 7.5 minute quadrangle map.

Tables 2 and 3 in Attachment 2 present a list of special status plants and animals, respectively, that have been reported by the CNDDB in the project vicinity within 10 miles of the site. An evaluation of the potential for all potential sensitive species to occur at the site is included in Tables 2 and 3 in Attachment 2. Key species are discussed below.

4.7.1 Special Status Plant Species

A list of special status plants with potential to occur on the Project Site was developed from the CNDDB. A complete list of special status plant species occurring in the vicinity of the property is included in Table 2 in Attachment 2. The table includes all species of flora mentioned in the CNDDB within approximately ten miles of the site.

A number of special status plant species listed in Table 2 in Attachment 2 are known to occur in the Napa area. No special-status plants have been mapped on or adjacent the Project Site. However, according to the CNPS' Inventory and the California Department of Fish and Wildlife's (CDFW) CNDDB, a number of special-status plant species are known to occur in the Project Site vicinity. No special-status plants were identified on the Project Site by Monk & Associates while conducting various studies on the property in 2016, including an aquatic resources delineation and other evaluations conducted during the March to July flowering season of 2016. However, these studies did not constitute protocol surveys. Therefore, HBG has retained Dr. Brent Helm to conduct protocol rare plant surveys during the 2021 flowering season. These surveys are currently underway, and a special status plant survey report is expected to be completed by July of 2021.

4.7.2 Special Status Animal Species

Animal species noted in the CNDDB as occurring within a 10-mile radius of the site, or that are known to occur in the general vicinity based on the knowledge of HBG biologists, are discussed in Table 3 in Attachment 2. A number of special status animal species are noted in the CNDDB as occurring in the general vicinity of the Project Site with habitat requirements similar to the habitats present on the Project Site. These species include vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (CRLF, *Rana draytonii),* Western pond turtle (*Emmys marmorata*), Swainson's hawk (*Buteo swainsoni*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus hudsonius*), burrowing owl (*Athene cunicularia*) and tricolored blackbird (*Aegelaius tricolor*). These species are discussed in detail below. CDFW is also concerned over rapid declines in populations of monarch butterflies (*Danuas plexippus*), and a discussion of this species in relation to the proposed project is also included below.

None of the other animal species discussed in the table have the potential to occur on the site. This finding is made based on the habitat requirements of species listed in the table and is based on field review of habitats present at the site and the immediate vicinity and an evaluation of the suitability of on-site habitats to support these species.

Monarch Butterfly

Background. The monarch (*Danuas plexippus*) is designated as a California Terrestrial and Vernal Pool Invertebrate of Conservation Priority and has recently been advanced as a candidate species for listing under the federal Endangered Species Act. The species is well-known for its north-south migrations from Canada to Mexico which span the lives of several generations. Monarch butterfly winter roost sites, typically used between October and February, extend along the West Coast from Mendocino County in northern California, south to Baja California in Mexico. Winter roosts consist of hundreds or thousands of monarchs in wind-protected tree groves close to sources of nectar and water. On the California coast, these roosts usually form in eucalyptus, but Monterey pine and Monterey cypress groves are also used. Monarch populations across North America have fallen by as much as 90 percent in the last two decades and in February 2015, the USFWS showed that nearly a billion monarchs had vanished from overwintering sites since 1990. The larval host plant for monarchs is milkweeds,

primarily milkweeds of the genus *Asclepias*. The main reason for the decline has been attributed to herbicides used by farmers and homeowners on milkweed, the butterfly's larval host plant.

Occurrence in the Project Area. No trees are present on the Project Site so there is no possibility for the presence of a monarch overwintering site on the Project Site. Several biological investigators have studied the Project Site and none have reported the presence of milkweed plants, primarily of the genus *Asclepias*, that serve as the larval host plant for monarchs. Monk & Associates prepared an inventory of plants present on the Giovannoni site as part of a wetland delineation conducted at the site in 2016 (this list is included herein as Table 1 in Attachment 2), and no milkweed plants of the genus *Asclepias* are noted in the table. No suitable habitat for monarch butterflies is found on the site. As part of Dr. Brent Helm's protocol rare plant surveys he is currently conducting, any observations of milkweed plants of the genus *Asclepias* will be recorded. The presence of an individual monarch butterfly at the site would be purely incidental and not related to the presence of larval host plants for breeding or of suitable overwintering sites.

Vernal Pool Fairy Shrimp

Background. Vernal pool fairy shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was originally designated on August 6, 2003 (Federal Register 68: 46683-46867), and the designation was revised on August 11, 2005. Critical habitat unit designations by individual fairy shrimp species were published on February 10, 2006 (Federal Register 71:7117). The project site is approximately 0.40-mile southeast of designated critical habitat.

The vernal pool fairy shrimp (*Branchinecta lynchi*) is a small aquatic crustacean that ranges in size from ½ to one inch long that is federally listed as a threatened species. Fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 2005).

Vernal pool fairy shrimp populations are presently known from localities in California, extending from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, and along the central coast range from northern Solano County to Pinnacles National Park in San Benito County. Disjunct populations are located 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, and near Rancho California in Riverside County. Vernal pool fairy shrimp mature quickly and can persist in short-lived shallow pools and longer lasting pools that remain later in the spring. This species inhabits pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed

grasslands, but sometimes in sandstone rock outcrops and alkaline vernal pools. The water in these pools has low total dissolved solids, conductivity, alkalinity, and chloride.

Occurrence in the Project Area. Formal protocol surveys for vernal pool brachiopods, including the federally listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*), were conducted on the Project Site with negative findings. Surveys were conducted following USFWS survey protocol (USFWS 2015) as approved by the USFWS on August 18, 2016. Wet season surveys were completed by Monk & Associates (Monk and Associates 2017) between November 2016, when it could be documented that wetland features on the property had at least 1 inch of standing water, and the end of February 2017. Dry season surveys were conducted by LSA Associates (LSA 2016) during the summer of 2016. No vernal pool brachiopods or their cysts were found during the wet season and dry season protocol surveys conducted at the Project Site. Although vernal pool seasonal wetlands occur on the Project Site, based on the results of the protocol surveys conducted, it can be definitively stated that the federally listed threatened vernal pool fairy shrimp does not occur on the Project Site.

California Red-legged Frog

Background. The California red-legged frog (CRLF, *Rana draytonii)* is a federally threatened species and California Species of Special Concern. The historical range of the California red-legged frog extended from the vicinity of mid-Mendocino County, southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County (61 Federal Register 25813; 75 Federal Register 12816). The frog has sustained a 70 percent reduction in its geographic range. The project area is not part of the critical habitat designated under the Endangered Species Act for the CRLF.

California red-legged frogs have been observed in aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, CRLF are expected to thrive in permanent deep-water pools with dense stands of overhanging willows and emergent vegetation, and suitable sites for basking. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs usually are observed near water but can move long distances over land between water sources during the rainy season.

The life cycle and patterns of movement of the CRLF have evolved along with the local California climate of wet, cool winters and dry, warm summers. With the onset of the winter rains, CRLF move from dry-season refuges to ponds and streams that can support breeding and successful tadpole development. Tadpoles generally take until late summer or early fall to complete metamorphosis, and then the maturing young frogs (metamorphs) move to aquatic areas to take cover from predators. Adult frogs often remain year-round at perennial ponds with deep water, but some depart for dry season refuges once breeding is over. Juveniles (frogs that are older than metamorphs but not yet sexually mature) disperse widely over the landscape during the first winter and will take residence in almost any water source. During the

dry months of summer and fall, CRLF seek suitable dry season refuge sites that may include deep water holes in drying streams, springs and spring boxes, seeps, and small mammal burrows (especially in or near vegetation). However, CRLF need to hydrate at least every couple of days in order to survive. Thus, such small mammal refuge sites must be close to a permanent water source for frogs to rehydrate. To find these refuges, frogs will travel several hundred yards where suitable refuges are abundant and up to three miles in moist coastal areas. Often, long distance movements are in a relatively straight line over hills and drainages between the beginning and end points.

Occurrence in the Project Area. Monk & Associates (2018, 2019) conducted surveys for special status plants and animals, including CRLF, on the small portion of the site slated for road improvements for the Devlin Road and Green Island Road improvements. No CRLF were encountered during these surveys, and they found that the wetlands associated with the road improvements were inundated to only 3 to 4 months of the year (too short to support CRLF breeding) and were too shallow and seasonal to support breeding by CRLF.

Herpetologist Dr. Mark Jennings of Rana Resources conducted a protocol Phase 1 Habitat Assessment for CRLF in 2021 as part of the studies conducted for this Biological Resources Report. Dr. Jennings reported that the project site lacks habitat necessary to support CRLF. The closest known CRLF records to the Project Site are 0.6-2.4 miles to the east and southeast. Additional CRLF records 3.7 miles away lie within Critical Habitat designated for this species (SOL-2 and SOL-3). All of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of drainages into culverts under the freeway. Additionally, the Project Site is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on the Project Site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Dr. Jennings concluded that CRLF do not occupy the Project Site. The CRLF Habitat Assessment prepared by Dr. Jennings is included as Attachment 3.

Western Pond Turtle

Background. The Western pond turtle (*Emmys marmorata*) is a state species of special concern. Pond turtles occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. The turtles also rely on suitable upland areas of scrub and woodlands for aestival refugia and may use upland habitats up to 0.5 km from water for activities such as egg-laying. Pond turtles living in streams may vacate flood-prone areas during the rainy season. Western pond turtles occur broadly in suitable habitats throughout the state of California.

Occurrence in the Project Area. Western pond turtle is known from the project area. The nearest sighting to the Giovannoni site reported in the CNDDB is of two turtles reported in 2002 from North Slough, a location that is approximately 0.25 miles from the southern property boundary. However, suitable habitat for western pond turtle does not occur on the Giovannoni site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Suitable shrub/woodland in surrounding uplands and appropriate basking sites are also lacking. It can be definitively stated that western pond turtle does not occupy the project site due to the lack of suitable habitat.

Swainson's Hawk

Background. The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that is state listed in California under CESA as threatened species. This hawk is also designated by the USFWS as a Bird Species of Conservation Concern. Most Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. Valley oak, Fremont cottonwood, walnut, and large willows with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (CDFW 2007), but eucalyptus is also commonly used. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands. In the Central Valley, Swainson's hawks find suitable foraging habitat in such agricultural areas near suitable nest sites, however, nesting habitat is in decline due primarily to flood control projects, agricultural practices, and urban development. The current population of Swainson's hawk in California's Central Valley is estimated at 1,948 breeding pairs (CDFW 2007), with most of this population occurring in the area from Stanislaus County north to Butte County.

Occurrence in the Project Area. There are no trees located on the 207.8-acre Project Site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity, therefore it can be stated that Swainson's hawk does not nest in the immediate vicinity of the Project Site. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the Project Site in areas nearby, and, indeed, a Swainson's hawk was observed foraging over the Project Site by HBG during a site reconnaissance conducted during the nesting season on April 16, 2021. The closest known nesting record for Swainson's hawk as reported in the CNDDB is a nest site last active in 2008 (CNDDB Occurrence No. 1718) located approximately 2.1 miles north of the Project Site. Eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat.

Biologists with Monk & Associates conducted a formal nesting survey for Swainson's hawk for the Napa Logistics Project (adjacent property to the north of the Giovannoni site) in 2016/2017 using California Department of Fish and Wildlife's Swainson's hawk survey guidelines (CDFG 2000). Swainson's hawk nesting surveys were conducted April 5 and June 10, 2016 and

February 27, 2017 for all potential habitats within a mile of the project site for the Napa Logistics Phase II project, and no Swainson's hawks or evidence of any raptor nesting was observed within a zone of influence of the Project Site. HBG wildlife biologist Emilie Strauss conducted a similar survey for nesting Swainson's hawk for the Giovannoni Logistics Project on April 16, 2021. Ms. Strauss covered approximately 10 miles of local roads to inspect trees within approximately one mile from the Giovannoni Project Site and, again, no Swainson's hawk nests or any other raptor nests were found. Swainson's hawk has been known to nest in the area north of American Canyon and southwest of the City of Napa, and future nesting in suitable nest trees as close as about 0.5 miles from the Giovannoni Logistics Project Site cannot be ruled out.

Northern Harrier

Background. The northern harrier (*Circus hudsonius*) is a state species of special concern. Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices.

Occurrence in the Project Area. The 207.8-acre Project Site provides suitable foraging habitat for northern harrier both for wintering individuals and for individuals that may find suitable nesting sites in the project area. The 207.8-acres of open grasslands and seasonal wetlands over the Project Site also provide suitable nesting habitat for northern harrier. A wintering northern harrier was observed foraging over the site by HBG biologists during an HBG field review conducted on December 10, 2020, and a northern harrier was also observed foraging over the project site during the nesting season on April 16, 2021, suggesting that the species may nest somewhere in the project vicinity.

Golden Eagle

Background. The golden eagle (*Aquila chrysaetos)* is designated as a Bird Species of Conservation Concern by the USFWS and is also listed as a Fully Protected species in California. The golden eagle is also protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). Golden eagles are found breeding throughout western North America in remote open habitats. Typical habitats in North America include savannah woodland, grasslands, aspen parkland, high and low deserts, and taiga. Golden eagles feed on fresh carrion or take live prey ranging in size from small rodents to as large as newborn fawns. More typical prey includes rabbits, hares, and waterfowl. Golden eagles build nests in large trees, often eucalyptus, oaks, or conifers, or on large vertical cliffs. On rare occasions nests are found on the ground, especially in expansive prairie habitats where cliffs and/or trees are scarce. Often this species will return each year to the same nest site and reconstruct the existing nest structure. Golden eagles are very sensitive to disturbance near the nest site, particularly in remote regions where human activities are minimal.

Occurrence in the Project Area. There are no trees located on the 207.8-acre Project Site, and no large trees capable of supporting nesting by golden eagle in the immediate project vicinity, therefore it can be stated that golden eagle does not nest in the immediate vicinity of the Project Site. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagles that may nest away from the Project Site, as demonstrated by the presence of a foraging individual observed on the project site by an HBG biologist during a spring reconnaissance conducted on April 16, 2021. Eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat.

The closest known nesting record for golden eagle as reported in the CNDDB is a nest site (CNDDB Occurrence No. 82) located approximately 3.2 miles north of the Project Site in a eucalyptus tree surrounded by a vineyard. The CNDDB reports that this tree was cut down in 2008 and no longer provides a suitable golden eagle nest site. An additional nesting record is a nest site found by biologists with Monk & Associates approximately 4.5 miles east of the Project Site within the Newell Open Space within the City of American Canyon. This nest, also in a eucalyptus tree, was active in 2016 and 2017.

No nesting golden eagles (or nesting by any bird of prey species) were observed in large trees near the Project Site during formal nesting surveys for Swainson's hawk conducted by Monk & Associates in 2016/2017 for the Napa Logistics Project. Golden eagle was observed being harassed by Swainson's hawk and exhibiting foraging behavior over the Project Site during a spring survey by an HBG wildlife biologist on April 16, 2021. No nesting golden eagles were observed in the vicinity of the property during surveys for nesting Swainson's hawk conducted by biologists with HBG on that same date for the Giovannoni Logistics Project. As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 miles from the Project Site cannot be ruled out.

Burrowing Owl

Background. Burrowing owls (*Athene cunicularia*) are small terrestrial owls commonly found in open grassland ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use burrows of California ground squirrel, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. While foraging, owls will perch on raised burrow mounds or other topographic relief such as rocks, tall plants, fence posts, and debris piles to attain better visibility. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, presence of "decoration" at or near a burrow entrance which can include molted feathers, cast pellets, prey remains, eggshell fragments, or excrement.

The burrowing owl is a USFWS bird species of conservation concern and a California Department of Fish and Wildlife (CDFW) species of special concern (CDFW 2011). CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012 Staff Report (CDFW 2012).

The status of burrowing owl in the San Francisco Bay Area was summarized by Albion Environmental (2000) in a discussion included in the SCVHP. Nesting burrowing owls in the greater San Francisco Bay Area, and in the South Bay area in particular, are a dwindling resource. In the early 1990s there were an estimated 150–170 breeding pairs in the San Francisco Bay Area, representing a 53% decline from the previous census period of 1986–1990. More recent numbers indicate that, if anything, the downward trend is increasing. In those estimates it was assumed that 75% of the San Francisco Bay Area burrowing owl population occurred in Santa Clara County and that nearly all of those owls were congregated around the southern edge of the San Francisco Bay.

Occurrence in the Project Area. The Project Site and surrounding area were investigated for burrowing owls and burrowing owl habitat during site reconnaissance by HBG biologists on December 10, 2020 and April 16, 2021. No burrowing owls were observed on the Project Site by HBG biologists during these field visits, and the only location supporting ground squirrels was an area noted in the rubble pile and compost at the perimeter of Clark's Rocks along Green Island Road that supported several ground squirrels in the spring of 2021. Dens of Botta's pocket gopher and California vole were common throughout the site, but these burrows are not suitable for occupation by burrowing owl. A general lack of ground squirrel burrows and ground squirrel colonies suggests that the habitat currently does not support burrowing owl and is currently not suitable to support burrowing owl.

No burrowing owls were reported at the site by other biologists who have studied the site over the last 5 years, including Monk & Associates (conducted brachiopod surveys and rare plant surveys on the property in 2016 through 2018), LSA Associates (conducted dry season brachiopod surveys in 2016), and Rana Resources (conducted a CRLF habitat assessment in 2021). A small number of burrowing owls have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the Project Site and about 2.5 miles south. Burrowing owls do not currently occur on the Project Site, but future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels.

Tricolored Blackbird

Background. Tricolored blackbird (*Aegelaius tricolor*) is listed as endangered under the California Endangered Species Act. Tricolored blackbird is also currently designated as a state species of special concern and is designated by the USFWS as a Bird Species of Conservation Concern. Tricolored blackbird is a highly colonial nesting species that breeds near freshwater, preferably in emergent wetlands with tall, dense growth of cattails or tules. Even when the preferred nesting substrates are available, other vegetation may be used for nesting including

sedges, nettles, willows, thistles, mustard, blackberry, wild rose, foxtail grass or barley. Since the 1970s with declines in populations, nesting in cereal crops and dairy silage has been documented. Tricolored blackbird foraging areas include rangeland, fields of alfalfa or cut hay, or irrigated pastures with an abundance of insects.

Occurrence in the Project Area. Tricolored blackbird has been known to occur in the vicinity of the Project Site. The nearest documented nesting colony to the Project Site is a colony of about 250 birds that nested in 1993 in two freshwater ponds vegetated with cattails, bulrush and willows located along Highway 29 just about 0.25 miles northeast of the northern border of the Project Site.

HBG conducted an evaluation of the habitat conditions at the proposed Project Site to determine if nesting substrate for a tricolored blackbird nesting colony is present in the project area. Preferred nesting habitat for tricolored blackbird was found not to be present as vegetation that typically provides suitable substrate for a tricolored blackbird nesting colony was not observed. Suitable tricolored blackbird nesting habitat typically consists of certain vegetation to include cattails, bulrushes, willows, blackberries, thistles, or nettles. As detailed in Section 4.4 (Plant Communities), dominant vegetation within the seasonal wetlands found on the property does not include a suite of species that would be conducive to tricolored blackbird nesting. Although sparse growth of some thistles and blackberries is present, few cattails, and no bulrushes, or willows, which are preferred nesting substrates, are present. Suitable nesting habitat for tricolored blackbird does not occur within the Project Site.

5.0 BIOLOGICAL IMPACTS AND MITIGATION MEASURES

5.1 Standards of Significance

The City of American Canyon's environmental review process pursuant to CEQA will evaluate the proposed Project east of Devlin Road with a Project Specific level of analysis based on site plans developed for the project, and the Phase 2 west of Devlin Road at a Program Level based on conceptual plans for the property if development were to occur in the future. The analysis for the proposed Project is independent from the Phase 2. When and if Phase 2 moves forward an addendum to the EIR will need to be conducted and the project will be re-evaluated based on the specifics and any new environmental or CEQA issues that will need to be assessed.

According to CEQA Guidelines (Appendix G), the project would be considered to have a significant impact 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 the California Department of Wildlife and Game or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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.

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

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.

5.2 Impacts and Mitigation Measures

1) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Special Status Plants

Although no special-status plants were identified on the Project Site by Monk & Associates while conducting various studies on the property in 2016, including an aquatic resources delineation and other evaluations conducted during the March to July flowering season of 2016, these studies did not constitute protocol surveys. A determination regarding whether special status plant species are present in proposed development areas can only be made based on systematic rare plant surveys conducted during the flowering period of target plant species. Therefore, HBG has retained Dr. Brent Helm to conduct protocol rare plant surveys during the 2021 flowering season. These surveys are currently underway, and a special status plant survey report is expected to be completed by July of 2021.

Impact 1: If protocol surveys show that special status plant species are present in areas of proposed development, impacts to populations of rare (special status) plants are possible.

> **Mitigation Measure 1-1:** If protocol rare plant surveys conducted during the spring and summer of 2021 show special status plant species are present within or in close proximity to areas of proposed development, mitigation to conserve and/or protect populations of rare plants may be warranted. Such mitigation measures could include avoidance of rare plant populations in the design of project development, and if avoidance of populations is not possible, mitigation measures could require transplanting of plants or development of plans to recover seeds and establish populations to nearby suitable habitats within the approximately 44.8-acre Wetland Preserve.

Special Status Animals

Monarch Butterfly. No trees are present on the Project Site so there is no possibility for the presence of a monarch overwintering site at the site. Several biologists have studied the site or portions of the site, and none have reported the presence of milkweed plants of the genus *Asclepias* that serve as the larval host plant for monarchs. No suitable habitat for monarch butterflies is found on the site, therefore, no potentially significant impacts to monarch butterflies would result from construction of the Giovannoni Logistics Center Project or any future development within a Phase 2.

Vernal Pool Fairy Shrimp. Based on completed protocol surveys for vernal brachiopods (LSA 2016, Monk & Associates 2017), it is clear that the federally listed threatened vernal pool fairy

shrimp does not occur on the Project Site. Therefore, no impacts to vernal pool fairy shrimp would result from construction of the proposed project. No mitigation is warranted for vernal pool fairy shrimp for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

California Red-legged Frog. A protocol Habitat Assessment prepared for the Project Site by Rana Resources found that the Project Site lacks habitat necessary to support CRLF. All records of CRLF from the CNDDB in the project area are from areas east of Highway 29, which forms a barrier to potential movements of CRLF onto the site. Additionally, the Project Site is completely isolated from all areas to the east by Highway 29 by urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. CRLF do not occupy the Project Site, and the proposed Project would have no significant impacts on California red-legged frogs. No mitigation is warranted for this species for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

Western Pond Turtle. Suitable habitat for western pond turtle does not occur on the site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Surrounding uplands of suitable shrub/woodlands and appropriate basking sites are also lacking. Western pond turtle does not occupy the Project Site. No impacts to western pond turtle would result from development of the Project. Mitigation measures for western pond turtle are not warranted for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

Swainson's Hawk. There are no trees located on the Project Site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity, however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawks that may nest away from the Project Site. Swainson's hawk was observed foraging on the site in spring 2021. Development of the Project will remove some foraging area for this species, but the establishment of the 44.8-acre Wetland Preserve will preserve a 44.8-acre area of suitable Swainson's hawk foraging habitat into perpetuity. Although eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat, no nesting by Swainson's hawk (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by HBG in April of 2021.

If an active Swainson's hawk nest is found on or adjacent to the Project Site or within the area of influence of the Project Site (which is generally considered to be within 1,000 feet), CDFW could require that project-related disturbance at active nest sites be reduced or eliminated during the period from March 1- September 15 (CDFW 2000). If Swainson's hawk was found to be nesting within a zone of influence during the construction period, potential impacts to this species could occur, including disturbance to nesting birds and possible mortality of adults and/or young. If nest disturbances are anticipated to occur, a Fish and Game Section 2081 management

authorization would be required. Preconstruction nesting surveys are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that the proposed Project will not impact this hawk species.

Impact 2: Project construction could impact nesting Swainson's hawk if individuals of this species were found to be nesting within 1,000 feet of project construction.

> **Mitigation Measure 2-1:** The mitigation measure for the possibility of nesting Swainson's hawk in the project vicinity should be as required by Monk & Associates (2018) in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project, included (Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project) and for the Biological Resources Analysis for the Green Island Road Reconstruction and Widening Project (Monk 2019) (Appendix C of the Initial/Study Proposed Mitigated Negative Declaration for the project) as summarized below:
>
> Preconstruction surveys for Swainson's hawk shall be conducted in the Project Site vicinity prior to initiation of project construction activities. These preconstruction surveys should include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of Project construction. Surveys should follow CDFW guidelines for conducting surveys for Swainson's hawk (CDFW 2000) that were developed by the Swainson's Hawk Technical Advisory Committee to maximize the potential for locating nesting Swainson's hawks and reduce the potential for nest failures as a result of project activities and/or disturbances.
>
> If Swainson's hawks are found to be nesting within 1,000 feet of the project site, the applicant shall consult with CDFW to determine if a Fish and Game Section 2081 management authorization shall be obtained from CDFW. A nest site buffer shall be established in consultation with the CDFW or as required in any Fish and Game Section 2081 management authorization issued to the project by the CDFW. An established buffer zone of a minimum of 500 feet from a nest site would be typical. The nest protection buffer shall be maintained until the Swainson's hawk nesting attempt is completed as determined by a qualified biologist.

Golden Eagle. There are no trees located on the Project Site, and no large trees capable of supporting nesting by golden eagle in the immediate vicinity of the Project Site, however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagles that may nest away from the Project Site. Golden eagle was observed exhibiting foraging behavior on the site in spring 2021. Although eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat, no nesting by golden eagle (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by HBG in April of 2021.

As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 miles from the Giovannoni Logistics Project Site cannot be ruled out. If a golden eagle were found to be nesting within a zone of influence of the project during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Preconstruction surveys for golden eagle are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that construction activities do not result in impacts to nesting individuals of this species. With a requirement of preconstruction surveys, a potentially significant impact on golden eagle could be mitigated to a level considered less than significant.

Impact 3: Project construction could impact nesting golden eagle if individuals of this species were found to be nesting in the vicinity of project construction.

> **Mitigation Measure 3-1:** The mitigation measure for the possibility of nesting golden eagle in the project vicinity should be as required by Monk & Associates (2018) in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project, included as Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project as summarized below:
>
> Preconstruction golden eagle nesting surveys shall be conducted in the Project Site vicinity within 30 days of initiation of project construction activities. Preconstruction surveys should include investigation of all potential nesting trees within a half-mile radius around all project activities. If active nests of golden eagles are identified within eucalyptus trees or any other trees within a 0.5-mile radius of the project site, a qualified raptor biologist will establish a protection buffer that is adequate to ensure that noise or activity from the project would not cause nest disturbance or mortality of young birds or adults. Buffer zones may be variable in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone could be modified in consultation with CDFW considering behavioral factors and the extent that golden eagles may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified raptor biologist that the young golden eagles have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Northern Harrier. Suitable nesting habitat for the northern harrier (a state designated species of special concern) occurs within the non-native grasslands and seasonal wetlands and swales found within the Project Site. Northern harrier individuals were observed foraging over the Project Site during both winter and spring (breeding) seasons during surveys conducted by HBG. If a northern harrier were found to be nesting on the Project Site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Nesting by northern harrier has not been documented on the Project Site, but nesting by this species at the site is possible.

Preconstruction surveys for northern harrier are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that construction activities do not result in impacts to nesting individuals of this species.

Impact 4: Construction of the proposed project could result in disruption of northern harrier nesting if the species were found to be nesting during the construction period.

> **Mitigation Measure 4-1:** The mitigation measure for the possibility of nesting Northern harrier in the project vicinity should be as required in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project (Monk 2018)(Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project) as summarized below:
>
> Prior to ground disturbance, a preconstruction nesting survey shall be conducted for northern harrier if construction is scheduled during the nesting season (February 1 through September 1). To determine if northern harrier is nesting onsite, a qualified raptor biologist(s) shall conduct walking transects through the Project Site grassland habitat searching for nests. An active northern harrier nest must be protected by implementing a suitable 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer should be extended onto the Project Site and demarcated where it intersects the Project Site. Size of buffer zone could be modified in consultation with CDFW considering behavioral factors and the extent that northern harriers may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified raptor biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Burrowing Owl. A small number of burrowing owls have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the Project Site and about 2.5 miles south. No burrowing owls or occupied California ground squirrel burrows were observed on the Project Site during a field reviews conducted by HBG in December 2020 and April 2021 or during previous biological studies conducted by Monk & Associates, LSA Associates or Rana Resources. The only observed ground squirrels were from the area around the perimeter of Clark's Rocks. It remains possible that ground squirrels could establish colonies on the site in the future prior to project construction, providing new occupiable habitats for burrowing owl. Future use of the site by burrowing owl cannot be ruled out.

Impact 5: Project construction could impact burrowing owl if California ground squirrels were to occupy the site in the future, providing occupiable sites for wintering or nesting by burrowing owl. The following mitigation measure would ensure that no burrowing owls would be impacted by construction activities associated with either the Giovannoni Logistics Center Project or for any future development of a Phase 2.

Mitigation Measure 5-1: Pre-construction surveys for burrowing owls shall be conducted prior to any ground-disturbance to ensure that there are no impacts to burrowing owls. The pre-construction surveys will be conducted within two weeks prior to the onset of any ground disturbing activities. Surveys will be conducted by a qualified biologist following CDFW survey methods (CDFW 2012) to establish the status of burrowing owl on the Project Site.

- If burrowing owls are found to occupy the Project Site during the non-breeding season (September 1 to January 31), occupied burrows will be avoided by establishing a no-disturbance buffer zone around the burrow determined per the CDFW 2012 staff report. If avoidance is not possible a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.

- If burrowing owls are found to be present during the breeding season (February 1 to August 31), the project ground disturbing activities will follow the CDFW recommended avoidance protocol whereby occupied burrows will be avoided with a no-disturbance buffer.

Tricolored Blackbird. No impact to tricolored blackbird nesting colonies would occur as a result of the proposed project. Although tricolored nesting colonies have been documented about 0.25 miles from the Project Site as recently as 1993, HBG has concluded that vegetative characteristics of preferred nesting habitat for tricolored blackbird does not occur at the Project Site. Suitable nesting habitat for tricolored blackbird does not occur within the Project Site, therefore, no impacts to tricolored blackbird nesting colonies would result from implementation of the proposed project.

2) Would the project 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 the California Department of Fish and Wildlife or US Fish and Wildlife Service?

The proposed Project development east of Devlin Road would impact approximately 0.496-acres of palustrine emergent wetlands. If or when Phase 2 west of Devlin Road is developed, approximately 3.7-acres of palustrine emergent wetlands may be impacted. Plans for wetland mitigation, including the preservation of an approximately 44.8-acre Wetland Preserve to include existing wetlands as well as established/created wetlands intended to offset wetland impacts of buildout development of the Project Site, are discussed in response to Item #3.

The portion of the Project Site along the northern boundary contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the CDFW under Fish and Game Code Section 1602. As the area of No Name Creek is contained within the approximately

44.8-acre Wetland Preserve, no impacts to the palustrine emergent wetland swale associated with No Name Creek would occur from either the proposed Project in the area east of Devlin Road or any possible future development that might occur within Phase 2 in the area west of Devlin Road. No impacts would occur to areas that would be subject to CDFW jurisdiction under Fish and Game Code Section 1602, therefore, there would be no requirement to obtain a Streambed Alteration Agreement from CDFW.

3) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetland Impacts. Development of the proposed Project within the area east of Devlin Road will result in impacts to wetlands subject to USACE jurisdiction as a Water of the U.S. (WOUS) and subject to SFBRWQCB jurisdiction as a Water of the State (WOS). Grading activities associated with the proposed Project would result in the permanent placement of fill material (soil) into 0.496 acres of palustrine emergent wetlands considered WOS. Of this 0.496 acres of impacts to WOS, the USACE has determined 0.492 acres are isolated and not considered WOUS. Therefore, the proposed Project will also impact 0.004 acres of palustrine emergent wetlands considered WOUS. The location of wetland impacts associated with development of the proposed Project in the area east of Devlin Road is shown in Figure 5. The City of American Canyon processed a separate Nationwide Permit for impacts to 0.21 acres on the 8.3-acre Project Site for the Devlin Road/Vine Trail Extension project.

An enumeration of the wetland impacts within the proposed Project development is detailed in Table 2.

Table 2. Wetland Impacts

Isolated Wetland (IW)	**Square Feet / Acres**
IW-2	97 / 0.002
IW-3	229 / 0.005
IW-4	3117 / 0.072
IW-5	17019 / 0.391
IW-6	935 / 0.022
USACE Jurisdictional Wetlands	
W-89	189 / 0.004
Total	**21,586 / 0.496**

These wetland impacts will require that the applicant apply for and obtain a Nationwide Permit from USACE for discharge within 0.004 acres of wetlands under Clean Water Act Section 404 jurisdiction. A plan to compensate for impacts to wetlands would also be required. In addition, an accompanying Section 401 Water Quality Certification from the SFBRWQCB would be

required for the USACE permit to be valid. Such a project would also require a separate Waiver of Waste Discharge from the SFBRWQCB for impacts to 0.496 acres of waters of the state.

If the applicant were to pursue a similar warehouse logistics center development as a second phase of development on the remaining 85.9 acre area on the west side of the Devlin Road Extension, such a development would impact up to approximately 3.7 acres of wetlands considered both WOUS and WOS, assuming buildout of Phase 2. The location of these wetland impacts is shown in Figure 6. A project impacting more than 0.5 acres of wetlands would require an Individual Permit rather than Nationwide Permit from USACE. Impacts to wetlands totaling 3.7 acres for a possible Phase 2 project in the future would require that the applicant submit a separate application for an Individual Permit from USACE. The application would require a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines. Such a development on the Phase 2 portion of the Project Site would also require a Clean Water Act Section 401 Water Quality Certification from the SFBRWQCB for the USACE permit to be valid and would also require a Waiver of Waste Discharge Requirements from SFBRWQCB pursuant to the Porter-Cologne Water Quality Control Act.

Wetland Mitigation and Monitoring Plan. As part of this Project an approximately 44.8-Acre Wetland Preserve fronting the northern boundary of the Project Site will be preserved. This Wetland Preserve supports 7.71 acres of the palustrine emergent wetlands out of the existing 12.77 acres of wetlands found on the entirety of the Project Site. Within the Wetland Preserve, the applicant intends to create approximately 0.992 acres of wetlands to offset wetlands impacts of the proposed Project (0.496 acres) at a 2:1 ratio, and to create and an additional 3.7-acres of wetlands that will offset wetlands impacts associated with possible development of a Phase 2 project at a 1:1 ratio. Wetlands created within the Wetland Preserve would include 0.992 acres of wetland mitigation to compensate for wetlands impacts of the proposed Project in the area east of Devlin Road and approximately 3.7 acres of wetland mitigation to compensate for wetland impacts of a potential Phase 2 in the area west of Devlin Road. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed. Wetlands created to compensate for an eventual Phase 2 project would be constructed and monitored with performance standards prior to the implementation of Phase 2 and incorporated into the Wetland Mitigation and Monitoring Plan associated with the Project and protected in perpetuity. This will allow for the created wetlands to establish and function as wetlands and be protected prior to project development of Phase 2, if such development were to happen at all. This allows Phase 2 to provide a 1:1 mitigation ratio compared to the proposed Project which is establishing/creating wetlands concurrent with Project development and therefore must account for temporal loss of wetland functions and values as the wetlands develop over time.

Wetlands created within the approximately 44.8-acre Wetland Preserve as part of the Mitigation Plan would total approximately 4.7 acres of created wetlands. Figure 9 shows a

Wetland Mitigation Site Plan for the general location of the 44.8-acre Wetland Preserve in relation to the Project Site as well as the location of proposed mitigation wetlands in relation to existing wetlands.

A conceptual Wetland Mitigation and Monitoring Plan (Plan) is described herein to compensate for the loss of 0.496 acres of wetlands as a result of implementing the proposed Project in the area east of Devlin Road as shown on Figure 5, and a detailed Plan will be prepared and submitted to the SFBRWQCB for review as part of the process for obtaining a permit from this agency. In addition, the Plan will address the approximate impact to 3.7 acres of wetlands that may occur in the future as part of a Phase 2, assuming Phase 2 is built out. The approximately 44.8 acres of open space on the east and west side of Devlin Road would be preserved to create a contiguous open space area with the adjoining 37-acre Napa Logistics Park wetland preserve. The Plan will include a site protection instrument (e.g., deed restriction or conservation easements) that will restrict use of the Wetland Preserve area to offset wetland impacts for both the 0.992 acres of created wetlands for the proposed Project as well as the created approximately 3.7 acres of additional wetlands for a potential Phase 2 project. Regardless of whether or not Phase 2 is implemented, a long-term endowment would be fully funded by the proposed Project to manage the entire 44.8-acre open space preserve and both existing and created wetlands in perpetuity.

The Plan will be prepared in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board Procedures, and in accordance with the State Water Resources Control Board *Implementation Guidance* dated April 2020. The basic objective of the Plan is to ensure that the project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, will provide an increase in the overall abundance of wetlands (e.g. increase in acreage), and the created wetlands will have an overall increase in plant diversity and structural complexity compared to the wetlands that will be filled. The purpose is to ensure the Plan offsets the permanent wetland impacts, and any temporal loss of function attributed to the Project and future Phase 2 development, assuming Phase 2 is built out. In summary, the Plan will:

1. Establish within the Wetland Preserve 0.992 acres of palustrine emergent wetlands in advance of or concurrent with implementation of Project impacts to 0.496 acres of palustrine emergent wetlands at a 2:1 ratio.
2. Establish within the Wetland Preserve approximately 3.7 acres of palustrine emergent wetlands in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed.

3. In select areas, install native trees and shrubs to enhance the upland buffer areas adjacent to the established wetlands. The site is lacking vertical biotic structure likely due to past grazing activities. As part of the Plan, native trees and shrubs will be planted in select areas to enhance the upland buffer areas adjacent to established and existing wetlands.
4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation will be successfully completed, in accordance with applicable performance standards.
5. Design ecological performance standards to assess whether the Plan is achieving the overall objectives, so that it can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected conditions or function, and attaining any other applicable metrics such as acres, percent cover of native plants, structural patch richness, control of invasive plants, water depth etc.
6. Monitor the site for a duration necessary to determine if the Plan is meeting the performance standards. Established palustrine emergent wetlands typically develop quickly and a 5 year monitoring period would be sufficient to determine if performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.
7. Protect the approximately 44.8 acre Wetland Preserve in perpetuity using a site protection instrument such as a deed restriction or conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan; and
8. Assess the potential effects of changing weather patterns that are currently occurring, and that may occur due to climate change in the foreseeable future and how these changes may impact the long-term viability of the constructed wetlands. The purpose of this assessment is to locate and design the wetlands to avoid and minimize impacts from climate change and to develop adaptive management measures into the Plan specifically to minimize these potential effects.

The Plan will include a watershed profile of the evaluation area which, for the purpose of this Project, will encompass the approximate watershed area of No Name Creek. In addition, an overall assessment of the condition of the wetlands that will be filled by the Project will be conducted. Using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM, each similar wetland type that may be impacted will be assessed to describe and measure the plant community/diversity composition, hydrology source and connectivity within the watershed, physical structure such as topographic complexity and physical features that may provide habitat for aquatic species, plant zones within the wetlands, maximum water depth, and stressors that may be indirectly affecting the wetlands that will be filled by the Project. The purpose of this assessment is to ensure the design of the wetlands will provide a similar or more complex and diverse habitat as the

wetlands prior to being filled and to ensure the performance standards proposed in the Plan will be able to measure the success of the newly established wetlands.

Impact 6: Grading activities would result in the permanent placement of fill material (soil) into 0.496 acres of palustrine emergent wetlands considered WOS under the Porter-Cologne Water Quality Control Act. Of the 0.496 acres of WOS, the USACE has determined 0.492 acres are isolated and not considered WOUS under the federal Clean Water Act, so the proposed Project would also impact the remaining 0.004 acres of palustrine emergent wetlands considered WOUS. These impacts will require that the applicant apply for and obtain a Nationwide Permit from USACE for discharge within 0.004 acres of wetlands under Clean Water Act Section 404 jurisdiction along with an accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will also need to apply for and obtain a separate Waiver of Waste Discharge from the SFBRWQCB for impacts to 0.496 acres of Waters of the State.

> **Mitigation Measure 6-1**: The Project applicant for the proposed Giovannoni Logistics Center Project will apply for and obtain a Nationwide Permit from the San Francisco District of USACE for discharge within 0.004 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant will apply for and obtain the accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will apply for and obtain a separate Waiver of Waste Discharge Requirements from the SFBRWQCB for impacts to 0.496 acres of waters of the state.
>
> **Mitigation Measure 6-2:** A detailed Wetland Mitigation and Monitoring Plan will be prepared and submitted to the SFBRWQCB for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan will address the loss of 0.496 acres of wetlands impact due to the proposed Project as well as the potential loss of approximately 3.7 acres of wetlands that may occur in the future as part of a Phase 2, assuming Phase 2 is built out. The Wetland Mitigation and Monitoring Plan will include a site protection instrument (e.g., deed restriction or conservation easements) that will restrict use of both the 0.992 acres of created wetlands for the proposed Project as well as approximately 3.7 acres of additional wetlands created for a potential Phase 2 project. The Wetland Mitigation and Monitoring Plan will also include a long-term endowment that would be fully funded by the proposed Project to manage approximately 44.8-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed.

Impact 7: If the applicant were to pursue a development within the Phase 2 area, such a development would impact approximately 3.7 acres of wetlands considered both WOUS and WOS, assuming buildout of Phase 2. Impacts to approximately 3.7 acres of wetlands for a

possible Phase 2 project would require that the applicant submit a separate application for an Individual Permit from USACE to include a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines to include a detailed evaluation of both onsite and offsite alternatives for the proposed project. Such a development on the Phase 2 portion of the Project Site would also require a Clean Water Act Section 401 Water Quality Certification from the SFBRWQCB for the USACE permit to be valid and would also require a Waiver of Waste Discharge Requirements for SFBRWCB pursuant to the Porter-Cologne Water Quality Control Act.

> **Mitigation Measure 7-1**: The project applicant for a future development in the Phase 2 area west of Devlin Road will apply for and obtain an Individual Permit from the San Francisco District of USACE for the placement of fill material within approximately 3.7 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant will apply for and obtain the accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will apply for and obtain a separate Waiver of Waste Discharge Requirements from the SFBRWQCB for the discharge of fill material within approximately 3.7 acres of Waters of the state.

4) Would the project 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?

Although a number of wildlife species, including a variety of bird species that potentially include special status species, were observed on the property during field surveys, neither the development of the proposed Project nor potential development of a future Phase 2 project would result in significant impacts to wildlife populations on the site. Mitigation measures to address impacts to sensitive habitats, most notably seasonal wetlands, are included herein that include the preparation and implementation of a detailed Compensatory Wetland Mitigation Plan. The site design includes the preservation of the approximately 44.8-acre Wetland Preserve that will preserve 7.71 acres of existing wetlands but will also include creation of approximately 4.7 additional wetland acres. Potential impacts to special status avian species will be mitigated as the applicant for either the proposed Project or future potential development of a Phase 2 is required herein to conduct preconstruction surveys for nesting by special status bird species including Swainson's hawk, golden eagle, northern harrier, and burrowing owl.

Any species of fauna that may be displaced during preparation of the site for development of the proposed Project or the possible development of a Phase 2 project should find nearby available habitats, including habitats within the approximately 44.8-acre Wetland Preserve or adjacent and contiguous 37-acre preserve for the Napa Logistics Project on the adjacent property. The major wildlife corridor along No Name Creek will remain unaffected as the entirety of No Name Creek will be incorporated into the Wetland Preserve. The project will not result in substantial change in animal populations at the site, nor will it cause a fish or wildlife population to drop below self-sustaining levels.

Nesting Birds. Nesting bird species protected by the federal Migratory Bird Treaty Act or California Fish and Game Code could be impacted during project construction. Work related to construction involving the removal of vegetation during the February 1 to August 1 breeding season of birds could result in mortality of nesting avian species if they are present. Many species of raptors (birds of prey) are sensitive to human incursion and construction activities, and it is necessary to ensure that nesting raptor species are not present in the vicinity of construction sites.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Required setbacks to protect active nests from construction activity are usually in the order of about 250 feet for passerines (songbirds) and 500 feet or more for raptors (birds of prey).

Habitats within the Project Site were shown to support a number of bird species during field surveys conducted in the winter and spring of 2021 by HBG. The onsite grasslands and seasonal wetlands provide suitable nesting substrate for a number of species. Many of the bird species documented on or near the site as described in Section 4.4 could possibly nest within the vegetation in the onsite grasslands or seasonal wetlands. If active nests were present in this vegetation during construction operations on the Project Site, direct or indirect impacts could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of construction activity.

Impact 8: The removal of vegetation during the February 1 to August 31 breeding season, either for the proposed Project or for a potential future Phase 2 development, could result in mortality of nesting avian species if they are present.

> **Mitigation Measure 8-1:** If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist should conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. Nesting bird surveys should cover the project footprint and adjacent areas. If bird nests are found, appropriate buffer zones should be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones should be determined per recommendations of the qualified biologist based on site conditions and species involved. Buffer zones should be maintained until it can be documented that either the nest has failed, or the young have fledged.

Water Quality. Construction activities for the proposed project will occur in within 0.496 acres of wetlands subject to State jurisdiction and in close proximity to areas within the upper reaches of No Name Creek, but water quality impacts to these features would not be significant

for several reasons. The requirement for the implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and Best Management Practices (BMPs) will be required and will provide assurance that water quality of nearby waterways is not affected by onsite construction activities. In particular, silt fence and straw wattles will be installed along portions of the Project Site to maintain levels of water pollutants migrating offsite. In addition, vegetation will only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates should be stabilized as quickly as possible to prevent erosion and runoff. These requirements would be germane to any development for the proposed Project or for potential development of a Phase 2 west of Devlin Road.

Grading, excavation, placement of fill material, and other ground-disturbing activities associated with construction activities within the Project Site will not promote erosion that would allow elevated levels of sediment to wash into aquatic areas downstream, including No Name Creek, where such pollutants could result in potential impacts to fish and wildlife resources. Indirect impacts to resident animal populations in downstream areas would not result from the proposed project due to elevated turbidity levels from increased sedimentation or increases in other contaminants in stormwater runoff.

5) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with any local policies related to protection of natural resources. No trees are present on the Project Site so no trees would need to be removed to accommodate either the proposed Project or any future development within Phase 2.

All work for the Project would take place consistent with biological requirements of the General Plan and Zoning Ordinance of the City of American Canyon. This Biological Resources Report provides the detailed assessment of biological resources required by General Plan Policies 8.1.1 and 8.1.4. Studies of sensitive biological resources have been either conducted by HBG as part of this Biological Resources Report or were conducted by other consultants and independently reviewed and incorporated into the Biological Resources Report, consistent with General Plan Policy 8.2.1. Studies conducted by HBG include a protocol Phase 1 Habitat Assessment for the federally listed threatened California red-legged frog, surveys for state listed threatened Swainson's hawk and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season. Studies conducted by others include wet and dry season protocol surveys for the federally listed threatened vernal pool fairy shrimp and rare plant surveys. The proposed project results in impacts to seasonal wetlands and the applicant has prepared a conceptual plan to mitigate for these wetlands consistent with General Plan Policies 8.3.1.a, 8.3.1.h and 8.4.3. The wetland mitigation would be accomplished through establishment of an approximately 44.8-acre Wetland Preserve within the Project Site to include 7.71 acres of existing wetlands and creation of an additional 4.7 acres of seasonal wetlands to compensate for onsite losses from the proposed Project and from a potential future development project within Phase 2.

6) Would the project 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 project site is not within an area where the provisions of a Habitat Conservation Plan or Natural Community Conservation Plan would apply.

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ATTACHMENT 1.

Figures

Figure 1. Regional Location Map
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Huffman-Broadway Group, Inc.
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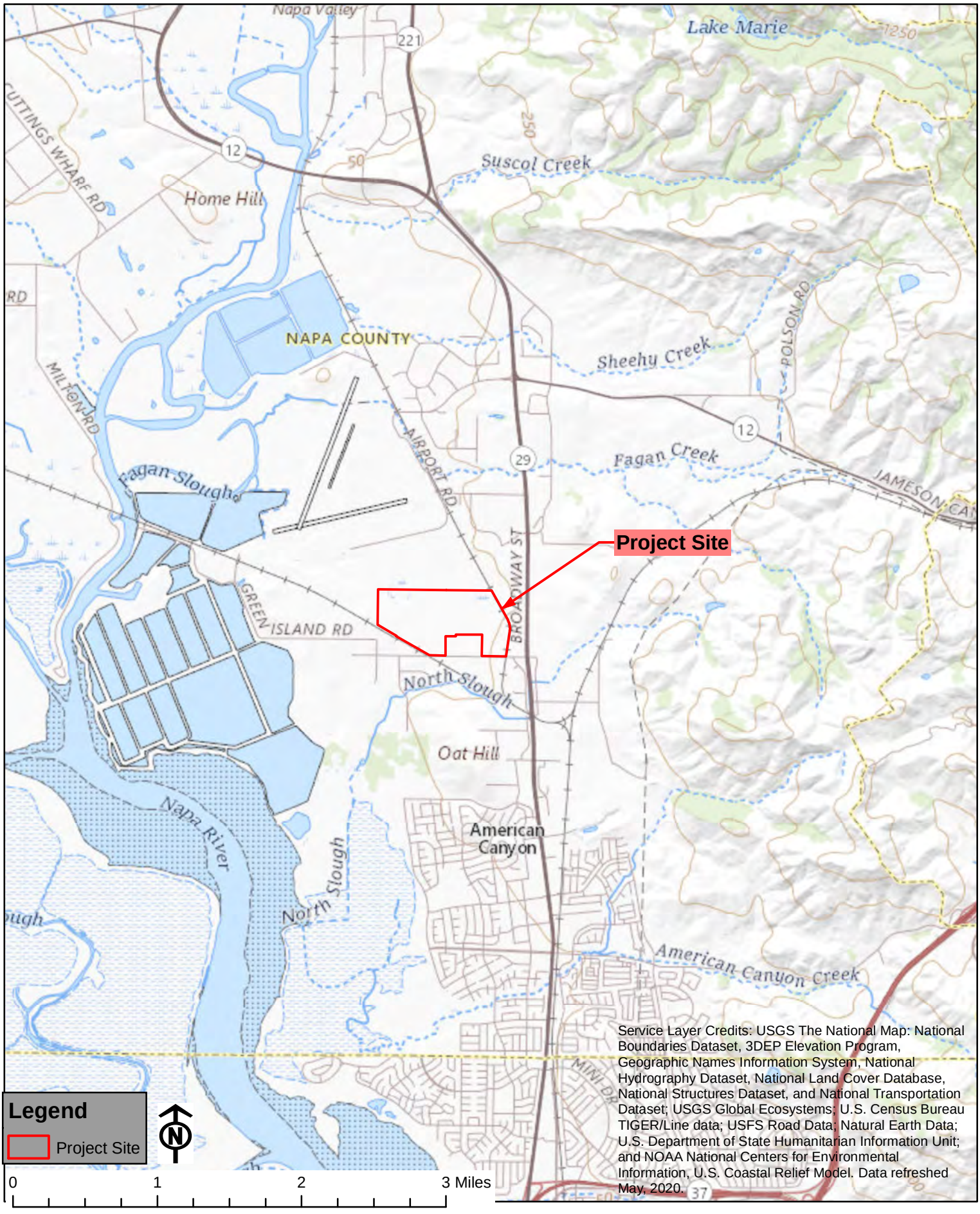


Figure 2. Local Vicinity Map
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

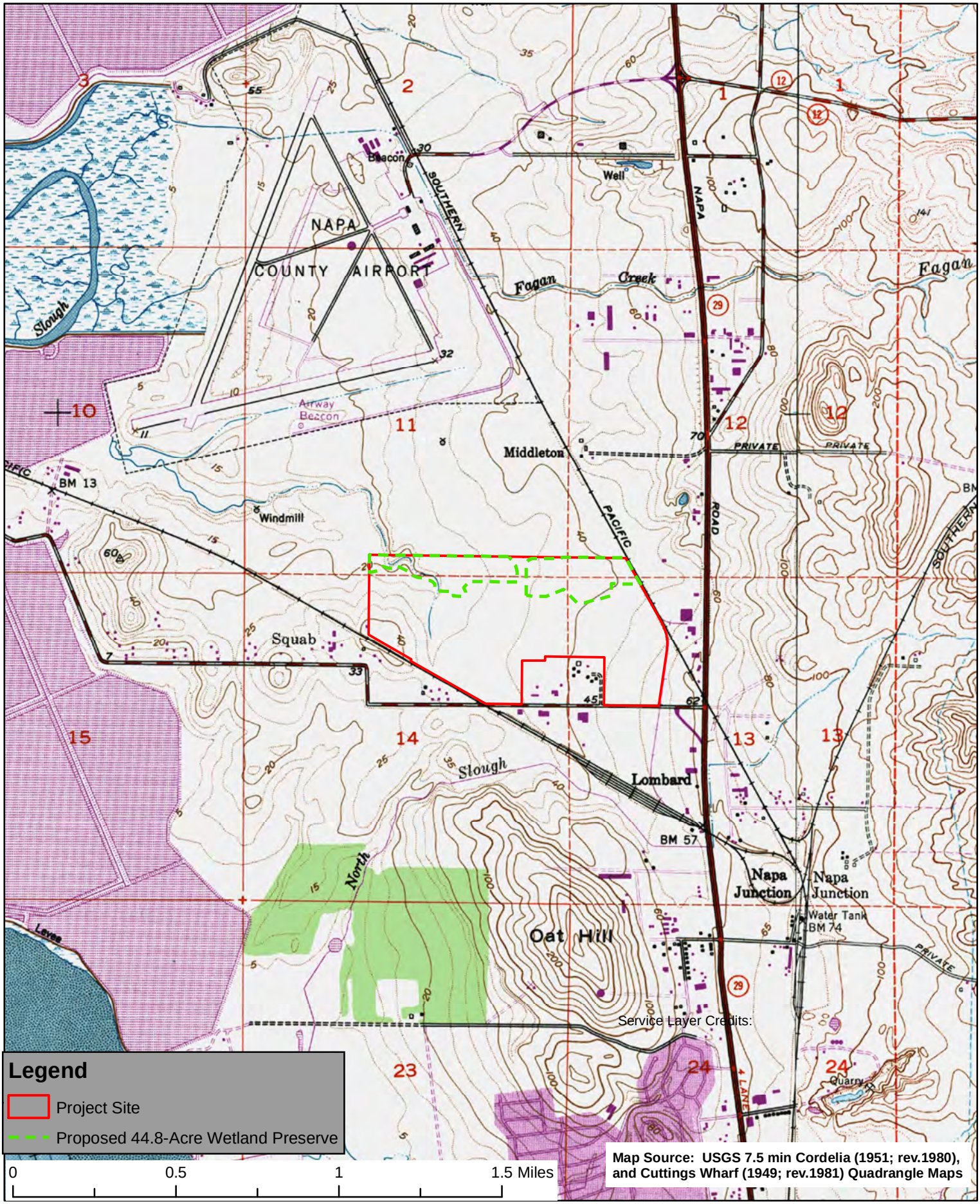


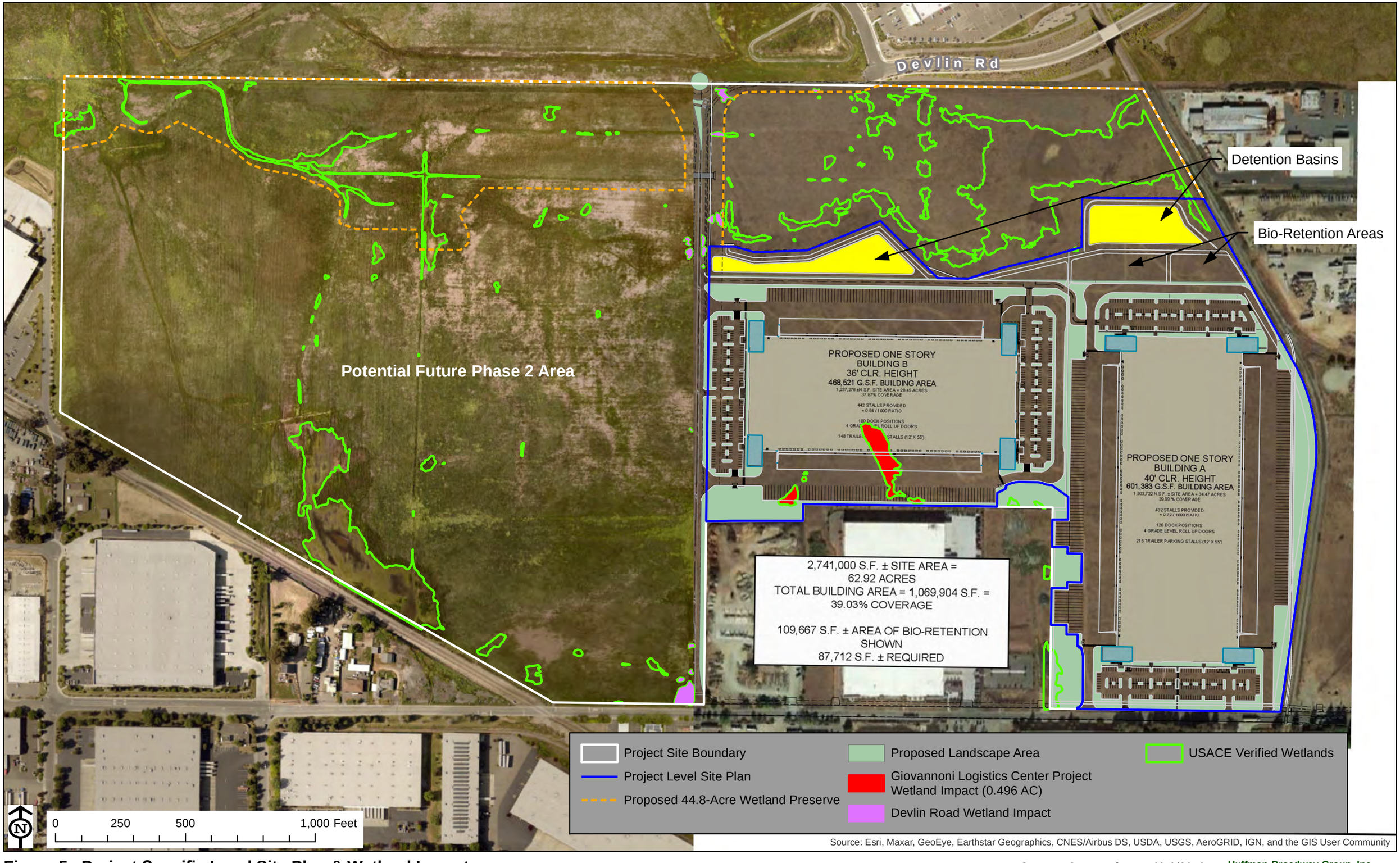
Figure 3. USGS Topographic Map

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Figure 4. Aerial Imagery With USACE Verified Wetlands
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 5. Project Specific Level Site Plan & Wetland Impacts

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

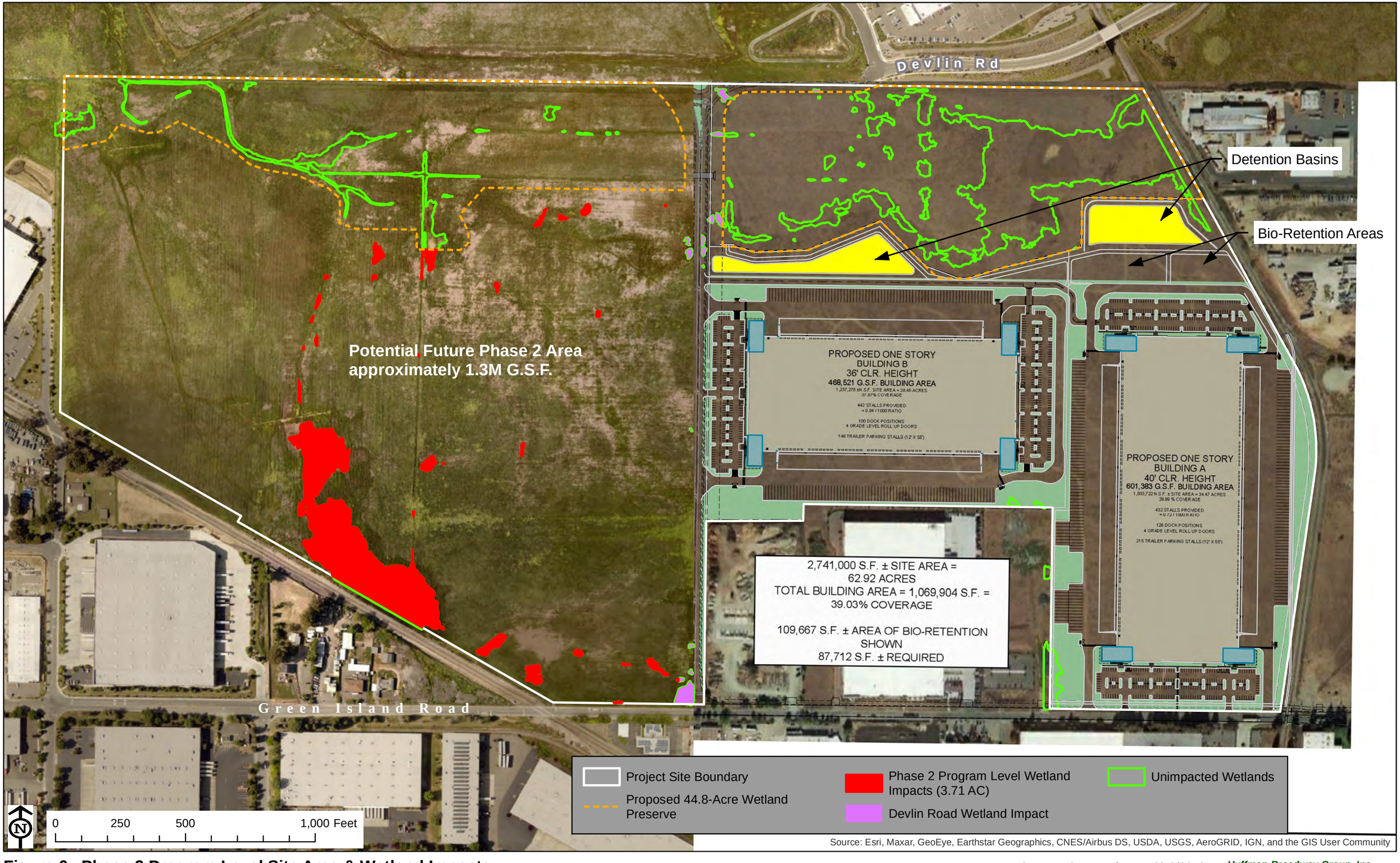


Figure 6. Phase 2 Program Level Site Area & Wetland Impacts

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Figure 7. USGS HUC 10 Hydrologic Units
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

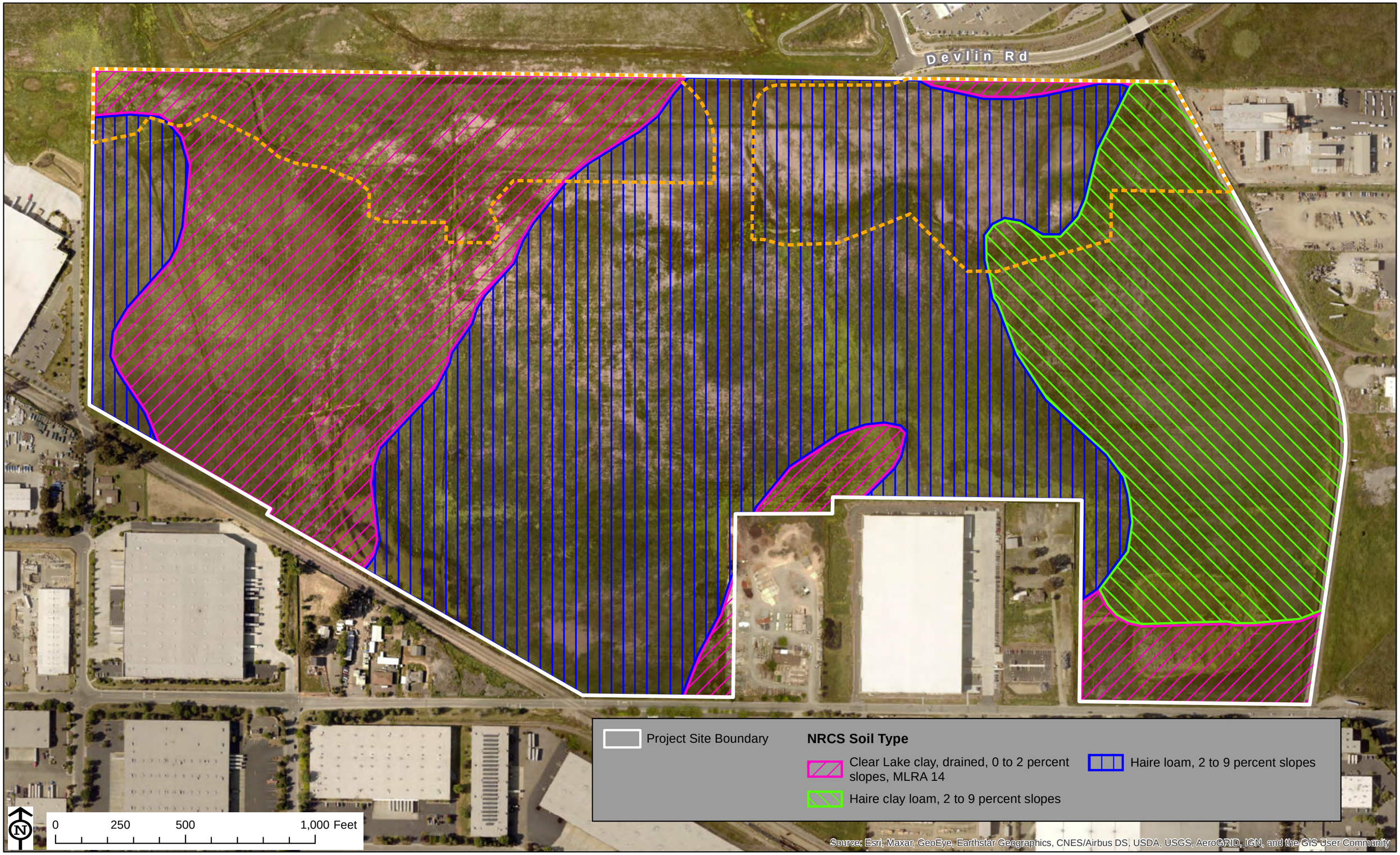
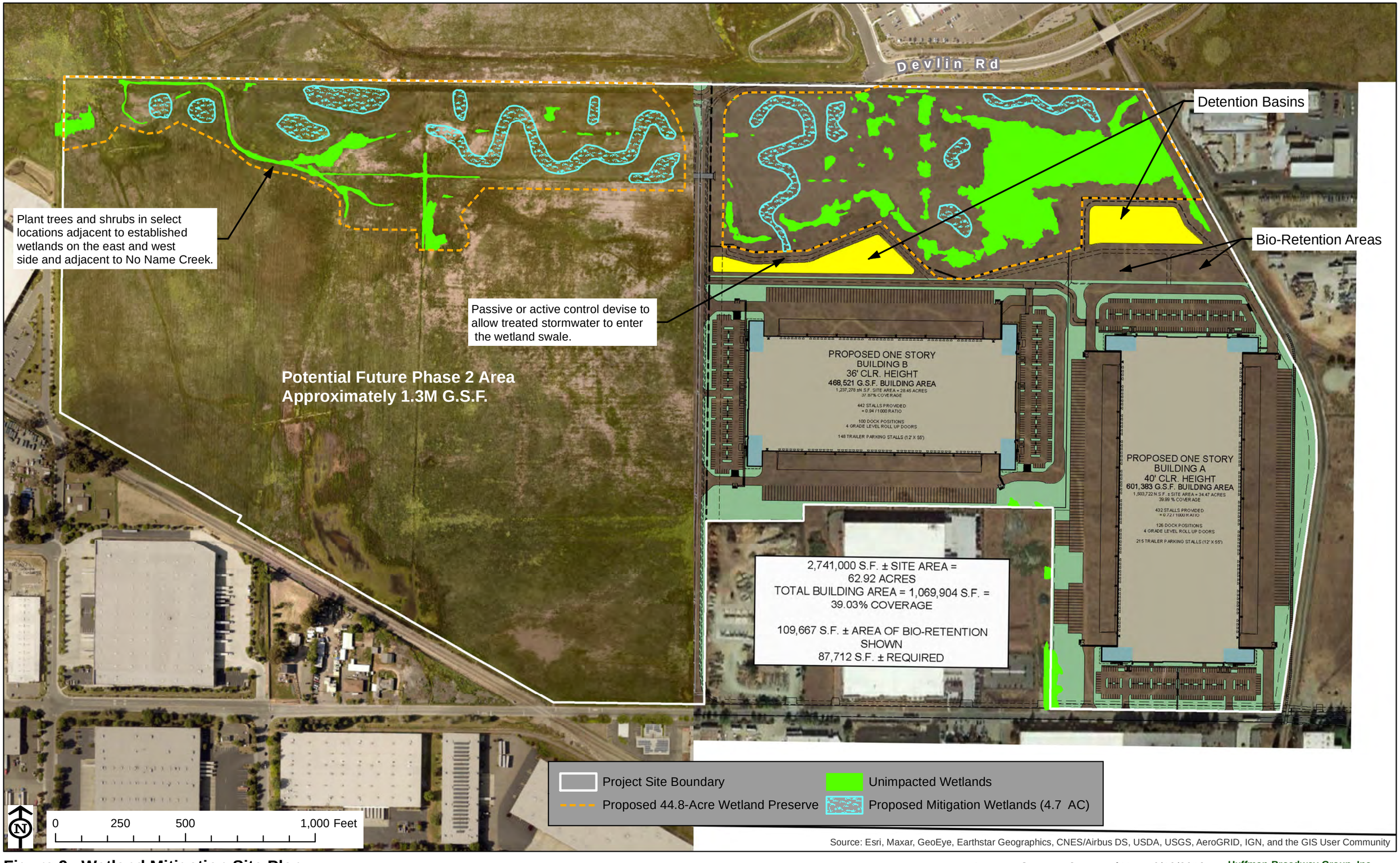


Figure 8. NRCS Soil Map

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 9. Wetland Mitigation Site Plan

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
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ATTACHMENT 2.

TABLES

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
DICOTS	
Apiaceae	
Eryngium aristulatum var. aristulatum	California coyote-thistle
*Foeniculum vulgare	Sweet fennel
Perideridia kelloggii	Kellogg's yampah
Asteraceae	
Agoseris grandiflora	giant mountain dandelion
**Anthemis cotula*	Mayweed
Baccharis pilularis subsp. consanguinea	Coyote brush
**Calendula arvensis*	Field-marigold
**Carduus pycnocephalus subsp. pycnocephalus*	Italian thistle
**Centaurea calcitrapa*	Purple starthistle
**Centaurea solstitialis*	Yellow starthistle
**Cichorium intybus*	Chicory
**Cirsium vulgare*	Bull thistle
**Cotula coronopifolia*	Brass-buttons
Deinandra corymbosa	Coast tarweed
**Helminthotheca echioides*	Bristly ox-tongue
Hemizonia congesta subsp. luzulifolia	White hayfield tarweed
**Hypochaeris radicata*	Rough cat's-ear
**Lactuca saligna*	Willow lettuce
**Lactuca serriola*	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
**Leontodon saxatilis subsp. longirostris*	Long-beaked hawkbit
Microseris douglasii subsp. douglasii	Douglas' silverpuffs
**Pseudognaphalium luteoalbum*	Everlasting cudweed
Psilocarphus brevissimus var. brevissimus	Dwarf woolly-heads
**Senecio vulgaris*	Common groundsel
**Sonchus asper subsp. asper*	Prickly sow-thistle
**Sonchus oleraceus*	Common sow-thistle
**Taraxacum officinale*	Common dandelion
**Tragopogon porrifolius*	Common salsify
Boraginaceae	
Plagiobothrys stipitatus var. micranthus	Great Valley popcornflower
Plagiobothrys undulatus	Wavy-stemmed popcornflower
Brassicaceae	
**Brassica nigra*	Black mustard

[2] List includes Angiosperms only.

[3] * Denotes California native species.

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
**Brassica rapa*	Field mustard
Cardamine californica	Milk maids
**Lepidium latifolium*	Broadleaf pepperweed
**Nasturtium officinale*	Water cress
**Raphanus raphanistrum*	Jointed charlock
**Raphanus sativus*	Wild radish
**Sisymbrium altissimum*	Tumble mustard
Campanulaceae	
Downingia concolor var. concolor	Downingia
Caryophyllaceae	
Cerastium arvense subsp. strictum	Meadow chickweed
**Silene gallica*	Windmill-pink
Convolvulaceae	
**Convolvulus arvensis*	Bindweed
Cuscuta sp.	Dodder
Crassulaceae	
Crassula aquatica	Water pygmy-weed
Fabaceae	
**Lotus corniculatus*	Birdfoot trefoil
Lupinus bicolor	Bicolored lupine
**Medicago polymorpha*	California burclover
Trifolium ciliolatum	Foothill clover
**Trifolium dubium*	Little hop clover
**Trifolium fragiferum*	Strawberry clover
**Trifolium hirtum*	Rose clover
**Trifolium incarnatum*	Crimson clover
**Trifolium repens*	White clover
**Trifolium subterraneum*	Subterranean clover
Trifolium variegatum	White-tip clover
**Vicia benghalensis*	Purple vetch
**Vicia sativa*	Common vetch
Gentianaceae	
Zeltnera muehlenbergii	June centaury
Geraniaceae	
**Erodium botrys*	Broad-leaf filaree
**Erodium cicutarium*	Red-stem filaree
**Erodium moschatum*	White-stem filaree
**Geranium dissectum*	Cut-leaf geranium
Gentianaceae	
Zeltnera muehlenbergii	June centaury

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Lamiaceae	
**Mentha pulegium*	Pennyroyal
Stachys albens	White-stem hedge-nettle
Linaceae	
**Linum bienne*	Flax
Lythraceae	
**Lythrum hyssopifolia*	Hyssop loosestrife
Malvaceae	
**Malva parviflora*	Cheeseweed
Montiaceae	
Claytonia perfoliata	Miner's lettuce
Myrsinaceae	
**Lysimachia arvensis*	Scarlet pimpernel
Onagraceae	
Epilobium brachycarpum	Summer cottonweed
Epilobium ciliatum	Hairy willow-herb
Taraxia ovata	Sun cup
Orobanchaceae	
**Bellardia trixago*	Mediterranean linseed
Castilleja attenuate	Valley tassels
Castilleja exserta subsp. exserta	Purple owl's-clover
**Parentucellia viscosa*	Yellow glandweed
Triphysaria versicolor subsp. faucibarbata	Yellow owl's-clover
Plantaginaceae	
Callitriche marginate	Winged water starwort
**Plantago lanceolata*	English plantain
**Veronica anagallis-aquatica*	Water speedwell
Veronica peregrina subsp. Xalapensis	Purslane speedwell
Polygonaceae	
**Polygonum aviculare*	Common knotweed
**Rumex acetosella*	Sheep sorrel
**Rumex crispus*	Curly dock
**Rumex pulcher*	Fiddle dock
Ranunculaceae	
**Ranunculus muricatus*	Spiny-fruit buttercup
Ranunculus pusillus	Low buttercup
Rosaceae	
**Rubus armeniacus*	Himalayan blackberry
Rubiaceae	
Galium aparine	Goose grass

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Verbenaceae	
Phyla nodiflora	Common frog fruit
MONOCOTS	
Alismataceae	
**Alisma lanceolatum*	Lance-leaf water-plantain
Cyperaceae	
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. occidentalis	Common tule
Iridaceae	
Sisyrinchium bellum	Western blue-eyed grass
Juncaceae	
Juncus balticus subsp. Ater	Baltic rush
Juncus bufonius var. bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus phaeocephalus	Brown-headed rush
Juncus xiphioides	Iris-leaved rush
Juncaginaceae	
Triglochin scilloides	Flowering quillwort
Poaceae	
**Aegilops triuncialis*	Barbed goatgrass
**Avena barbata*	Slender wild oat
**Briza minor*	Small quaking grass
**Bromus diandrus*	Ripgut grass
**Bromus hordeaceus*	Soft chess
**Elymus caput-medusae*	Medusahead
Elymus multisetus	Big squirreltail
Elymus triticoides	Creeping wildrye
**Festuca bromoides*	Brome fescue
**Festuca perennis*	perennial ryegrass
**Holcus lanatus*	Common velvet grass
Hordeum brachyantherum	Meadow barley
**Hordeum marinum subsp. Gussoneanum*	Mediterranean barley
**Hordeum murinum subsp. leporinum*	Hare barley
**Phalaris aquatica*	Harding grass
**Phalaris paradoxa*	Paradox canary-grass
Pleuropogon californicus var. californicus	Annual semaphore grass
**Poa annua*	Annual bluegrass
**Polypogon interruptus*	Ditch beard grass
**Polypogon monspeliensis*	Annual beard grass

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Themidaceae	
Brodiaea elegans subsp. elegans	Harvest brodiaea
Dichelostemma capitatum subsp. capitatum	Blue dicks
Triteleia laxa	Ithuriel's spear
Typhaceae	
Typha latifolia	Broad-leaved cattail

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
ANIMALS			
Invertebrates			
Valley Elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/--	Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills.	Not present. Suitable habitat is not present at the project site. No elderberry plants were observed during the field review.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE/--	Habitat for this species is grassland, often with a significant component of native grasses including the host plant (*Viola pedunculata*) and characterized by shallow rocky soils and numerous rock outcrops.	Not present. Suitable habitat is not present at the site.
Monarch butterfly (*Danaus plexippus*) (wintering sites)	--/--	Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. Larval host plant is milkweed, primarily of the genus *Asclepias*.	Not present. Suitable habitat for an overwintering site is not present at the site. No milkweed plants of the genus *Asclepias* were found on the property.
California freshwater shrimp *(Syncaris pacifica)*	FE/CE	Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Prefers shallow pools removed from the main flow. In winter, prefers undercut banks with exposed roots; in	Not present. Suitable habitat is not present at the site.

[4] Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cuttings Wharf 7.5 Minute Quadrangle Map and surrounding areas, February 2021.

[5] Definitions of status codes can be found in Table 4.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
		summer low flows, clings to submerged portions of overhanging tree shrub branches.	
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Inhabits vernal pools; occurs throughout the Delta and Central Valley.	Not present. Protocol surveys were negative for this species.
Western ridged mussel (*Gonidea angulata*)	--/--	Primarily creeks and rivers and less often lakes. Originally found in most of California, but now extirpated from Central and Southern California. Specimens known from Napa River area.	Not present. Suitable habitat is not present at the site.
Fish			
Steelhead – Central CA Coast ESU (*Oncorhynchus mykiss*)	FT/CSC	Well-oxygenated streams with riffles; loose, silt-free gravel substrate.	Not present. Suitable habitat is not present at the site.
Longfin smelt *(Spirinchus thaleichthys)*	FC/CE,CSC	Found in open waters of estuaries, mostly in the middle or bottom of the water column. Euryhaline, nektonic and anadromous. Prefers salinities of 15030 ppt but can be found in both freshwater and seawater.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Delta smelt (*Hypomesus transpacificus*)	FT/CT	During spawning they migrate upstream into shallow fresh or slightly brackish tidally-influenced backwater sloughs and channel edges. In Solano County, Delta Smelt are found in Suisun Bay/Suisun Marsh sloughs upstream through the delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties.	Not present. Suitable habitat is not present at the site.
Sacramento splittail (*Pogonichthys macrolepidotus*)	--/CSC	Adult Sacramento Splittail migrate upstream from brackish areas to spawn in freshwater areas subject to flooding, such as the lower reaches of rivers, dead end sloughs, and in larger sloughs such as Montezuma Slough.	Not present. Suitable habitat is not present at the site.
Amphibians			
Foothill yellow-legged Frog (*Rana boylii*)	--/CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying; larvae need at least 15 weeks to attain metamorphosis.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
California red-legged frog *(Rana draytonii*)	FT/CSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to aestivation habitat.	Not present. Suitable habitat is not present at the site as verified by a protocol Phase 1 Habitat Assessment.
Reptiles			
Western pond turtle (*Emys marmorata*)	--/CSC	Aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Not present. Suitable habitat is not present at the site.
Birds			
Great blue heron (*Ardea herodias*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Not present. Suitable habitat for a rookery is not present at the site.
Black-crowned night-heron *(Nycticorax nycticorax)* [Nesting]	--/--	Colonial nester, usually in trees but occasionally in tule patches. Rookery sites are located adjacent to foraging areas including lake margins, mud-bordered bays and marshy spots.	Not present. Suitable habitat for nesting is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Golden eagle (*Aquila chrysaetos*) [nesting and wintering]	BCC/FP, WL	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	Not present as a nesting species. Suitable nesting habitat is not present at the site. Seen foraging on the property in spring 2021. Preconstruction nesting surveys are required to ensure no indirect impacts to eagles that could nest nearby.
Northern harrier (*Circus cyaneus*) [Nesting]	--/CSC	Coastal salt marsh and freshwater marsh; nests and forages in grasslands; nests on ground in shrubby vegetation, usually at marsh edge.	Possible. Suitable nesting habitat may be present at the site. Observed on site during winter as well as nesting season. Preconstruction nesting surveys are required to ensure no impact to nesting birds.
White-tailed kite (*Elanus caeruleus*) [nesting]	--/CFP	Open grassland and agricultural areas throughout Central California.	Not present. Suitable nesting habitat is not present on site. Species observed foraging on the site during winter.
Cooper's hawk (*Accipiter cooperii*) [nesting]	-/WL	Nests primarily in deciduous riparian forests; forages in open woodlands.	Not present. Suitable nesting habitat is not present on site. Species likely forages on or near the site, especially in winter.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Sharp-shinned hawk (*Accipiter striatus*) [nesting]	--/WL	Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. All habitats except alpine, open prairie, and bare desert used in winter.	Not present. Suitable nesting habitat is not present on site. Species likely forages on or near the site, especially in winter.
Swainson's hawk (nesting) *(Buteo swainsoni)*	BCC/CT	Nests in trees and riparian stands; summer migrant to Central Valley. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands.	Not present as a nesting species. Suitable nesting habitat is not present at the site. Seen foraging on the property in spring 2021. Preconstruction nesting surveys are required to ensure no indirect impacts to Swainson's hawks that could nest nearby.
Ferruginous hawk *(Buteo reglais)* (wintering)	--/WL	Inhabits open country. Winters in small numbers along California coast and inland valleys.	Wintering possible. The site is considered suitable winter foraging habitat, however, the species has not been observed using the site.
Osprey (*Pandion haliaetus*) [Nesting]	--/WL	Breeds in northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin County. Associated strictly with large, fish-bearing waters, primarily in Ponderosa pine through mixed conifer habitats. Nests on Inverness Ridge.	Not present. Suitable nesting habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
American Peregrine falcon (*Falco peregrinus anatum*)	BCC/FP	Nests in woodland, forest, and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structure. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	Not present. Occurs in the area but suitable nesting habitat is not present at the site.
Merlin (*Falco columbarius*) [wintering]	-/WL	Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	Not present. May occasionally forage at the site during the winter.
Ridgway's (California clapper) rail (*Rallus obsoletus*)	FE/CE,FP	Found in saltwater marshes traversed by tidal sloughs in the vicinity of San Francisco Bay; associated with abundant growths of pickleweed; feeds on mollusks obtained from mud-bottomed sloughs.	Not present. Suitable habitat is not present at the site.
California black rail *(Laterallus jamaicensis coturniculus*)	--/CT,FP	Mainly inhabits salt-marshes bordering larger bays. Occurs in tidal salt marsh with dense growths of pickleweed; also occurs in freshwater and brackish marshes.	Not present. Suitable habitat is not present at the site.
Yellow rail (*Coturnicops noveboracensis*)	BCC/CSC	Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County.	Not present. Suitable habitat is not present at the site.
Western snowy plover (*Charadrius alexandrinus nivosus*) [nesting]	FT,BCC/CSC	Found on sandy beaches or marine and estuarine shores; also salt pond levees and shores of large alkali lakes; requires sandy, gravelly or friable soil substrate for nesting.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Caspian tern *(Hydroprogne caspia)*	BCC/--	Nests on sandy or gravely beaches and shell banks in small colonies inland and along the Coast. Found in inland freshwater lakes and marshes, and also brackish or salt waters of estuaries and bays.	Not present. Suitable habitat is not present at the site.
Burrowing owl (*Athene cunicularia*)	BCC/CSC	Found in open dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. This species is a subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Not present. Suitable habitat is not currently present at the site due to general lack of ground squirrels and ground squirrel colonies. Could possibly inhabit the site in the future. Preconstruction nesting surveys are required to ensure no impact to nesting birds.
Short-eared owl (*Asio flammeus)* (nesting)	--/CSC	Found in marshes, both freshwater and salt; lowland meadows; irrigated alfalfa fields. Tule patches/full grass needed for nesting and daytime seclusion. Nests on dry ground in a depression concealed in vegetation.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Bank swallow *(Riparia riparia)* (nesting)	--/CT	A migrant found primarily in riparian and other lowland habitats in California west of the deserts. A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. In summer, restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil, into which it digs its nesting holes.	Not present. Suitable habitat is not present at the site.
Loggerhead shrike (*Lanius ludovicianus*)	BCC/CSC	Habitat includes open areas such as desert, grasslands and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitats, which contain trees, fence posts, utility poles, and other perches.	Not present. Suitable habitat is not present at the site.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	BCC/CSC	Requires thick continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not present. Suitable habitat is not present at the site.
Yellow warbler *(Dendroica petechia*) [nesting]	BCC/CSC	Breeds in deciduous riparian woodlands, widespread during fall migration.	Not present. Suitable habitat is not present at the site.
San Pablo song sparrow *(Melospiza melodia samuelis)*	BCC/CSC	Tidal, brackish or salt marshes, San Pablo Bay.	Not present. Suitable habitat is not present at the site.
Suisun song sparrow *(Melospiza melodia maxillaris)*	BCC/CSC	Forages and nests in dense marsh and scrub habitat along the margins of Suisun Bay.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Tri-colored blackbird (*Agelaius tricolor*) [Nesting colony]	BCC/CE,CSC	Breeds near freshwater, usually in tall emergent vegetation. Requires open water with protected nesting substrate. Colonies prefer heavy growth of cattails and tules. Uses grasslands and agricultural lands for foraging.	Not present. Suitable habitat is not present at the site.
Mammals			
Salt Marsh harvest mouse (*Reithrodontomys raviventris*)	FE/CE,FP	Inhabits saline emergent wetlands in the San Francisco Bay and its tributaries. Pickleweed is the primary habitat.	Not present. Suitable habitat is not present at the site.
Suisun shrew *(Sorex ornatus sinuosus)*	--/CSC	Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays.	Not present. Suitable habitat is not present at the site.
American badger (*Taxidea taxus*)	--/CSC	Drier open stages of most shrub, forest, and herbaceous habitats; needs sufficient food, friable soils and open, uncultivated ground.	Not present. Suitable habitat is not present at the site.
Pallid bat *Antrozous pallidus*	--/CSC	Roosts primarily in oak woodland and ponderosa pine habitats; forages in open areas.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Henderson's bent grass *(Agrostis hendersonii)*	--/--/3.2	Found in moist places in valley and foothill grassland or vernal pools. 65-1030m.	Not present. Suitable habitat is not present at the site.
Franciscan onion (*Allium peninsulare franciscanum*)	--/--/1B.2	Found in cismontane woodland and valley and foothill grassland in clay soils and serpentine on dry hillsides. 100-300m.	Not present. Suitable habitat is not present at the site.
Napa false indigo (*Amorpha californica* var. *napensis*)	--/--/1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2000m.	Not present. Suitable habitat is not present at the site.
Alkali Milk-vetch (*Astragalus tener* var. *tener*)	--/--/1B.2	Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m.	Not present. Suitable habitat is not present at the site.
Big-scale (California) balsamroot (*Balsamorhiza macrolepis var. macrolepis*)	--/--/1B.2	Chaparral, cismontane woodland, valley and foothill grassland, sometimes on serpentinite. 90-1555m.	Not present. Suitable habitat is not present at the site.
Big tarplant (*Blepharizonia plumosa*)	--/--/1B.1	Valley and foothill grasslands. Found in dry hill and plains in annual grassland in clay and clay-loam soils, usually on slopes. Often in burned areas. 60-505m.	Not present. Suitable habitat is not present at the site.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	--/--/1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest. 110-915m. Nearest location is near Mt. George about 4 miles northeast of the site.	Not present. Suitable habitat is not present at the site.

[6] Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cuttings Wharf 7.5 Minute Quadrangle Map and surrounding areas, February 2021.

[7] Definitions of status codes can be found in Table 4.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Lyngbye's sedge (*Carex lyngbyei*)	-/-/2B.2	Marshes and swamps (brackish or freshwater) at sea level.	Not present. Suitable habitat is not present at the site.
Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta*)	FE/ST/1B.2	Rocky serpentine sites within valley and foothill grassland. 75-400m.	Not present. Suitable habitat is not present at the site.
Rincon Ridge ceanothus (*Ceanothus confuses)*	--/--/1B.1	Known from volcanic or serpentine soils on dry shrubby slopes in closed-cone coniferous forest, chaparral, and cismontane woodland. 75-1065m.	Not present. Suitable habitat is not present at the site.
Holly-leaved ceanothus (*Ceanothus purpureus)*	--/--/1B.2	Rocky volcanic slopes in chaparral. 120-640m.	Not present. Suitable habitat is not present at the site.
Congdon's tarplant (*Centromedia parryi congdonii*)	--/--/1B.2	Alkaline soils in valley and foothills grassland.	Not present. Suitable habitat is not present at the site.
Pappose tarplant (*Centromadia parryi ssp. parryi*)	--/--/1B.2	Found in mesic and often alkaline site in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m	Not present. Suitable habitat is not present at the site.
Soft salty bird's beak *Chloropyron molle ssp. molle*	FT/--/1B.1	Found in Coastal salt marsh with *Distichlis*, *Salicornia, Frankenia*, etc. 0-5 m.	Not present. Suitable habitat is not present at the site.
Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*)	--/--/2B.1	Fresh or brackish water marshes. 0-200m.	Not present. Suitable habitat is not present at the site.
Dwarf Downingia (*Downingia pusilla*)	--/--/2B.2	Inhabits vernal pools and vernal lake margins. 1-445m.	Not present. Suitable habitat is not present at the site.
Greene's narrow-leaved daisy (*Erigeron greenei*)	--/--/1B.2	Serpentine and volcanic substrates in chaparral. 75-1060m.	Not present. Suitable habitat is not present at the site.
Jepson's coyote-thistle *(Eryngium jepsonii)*	--/--/1B.2	On clay soils in vernal pools and valley and foothill grassland. 3-305 m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
San Joaquin spearscale (*Etriplex joaquiniana*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with *Distichlis*, *Frankenia*, etc. 1-835m.	Not present. Suitable habitat is not present at the site.
Fragrant fritillary (*Fritillaria liliacea*)	--/--/1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	Not present. Suitable habitat is not present at the site.
Diablo helianthela *(Helianthela castenea)*	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	Not present. Suitable habitat is not present at the site.
Brewer's western flax (*Hesperolinon breweri*)	--/--/1B.2	Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885 m.	Not present. Suitable habitat is not present at the site.
Carquinez goldenbush *(Isocoma argute)*	--/--/1B.1	Found in Valley and Foothill grassland. On alkaline soils, flats and lower hill. Found on low benches near drainages and on tops and sides of mounds in swale habitat. 1-50 m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Contra Costa goldfields (*Lasthenia conjugens*)	FE/--/1B.1	Vernal pools, swales, low depressions, in open grassy areas. 1-445m. Extirpated from most of its range. Most remaining occurrences restricted to the Fairfield region.	Not present. Suitable habitat is not present at the site.
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	--/--/1B.2	Inhabits the banks of sloughs and bays in the Suisun Bay and Delta. Found in freshwater and brackish marshes.	Not present. Suitable habitat is not present at the site.
Legenere (*Legenere limosa*)	--/--/1B.1	Inhabits the beds of vernal pools. 1-880m.	Not present. Suitable habitat is not present at the site.
Jepson's leptosiphon (*Leptosiphon jepsonii*)	--/--/1B.2	Found on volcanics or the periphery of serpentine substrates in chaparral, cismontane woodland, and open to partially shaded grassy slopes. 55-855 m.	Not present. Suitable habitat is not present at the site.
Mason's lilaeopsis (*Lilaeopsis masonii*)	--/Rare/1B.1	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10m.	Not present. Suitable habitat is not present at the site.
Marin knotweed (*Polygonum marinense*)	--/--/3.1	Coastal salt marshes and brackish marshes. 0-10m.	Not present. Suitable habitat is not present at the site.
California beaked-rush (*Rhynchospora californica*)	--/--/1B.1	Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m.	Not present. Suitable habitat is not present at the site.
Chaparral ragwort *(Senecio aphanactis)*	--/--/1B.2	Known from foothill woodland and chaparral habitats.	Not present. Suitable habitat is not present at the site.
Napa checkerbloom *(Sidalcea hickmanii* ssp. *napensis)*	--/--/1B.1	Occurs on rhyolite substrates in chaparral. 415-610m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Suisun Marsh aster (*Symphyotrichum lentum*)	--/--/1B.2	Both brackish and freshwater marshes and swamps. 0-3m.	Not present. Suitable habitat is not present at the site.
Napa bluecurls (*Trichostema ruygtii*)	--/--/1B.2	Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower montane coniferous forest. 30-590 m.	Not present. Suitable habitat is not present at the site.
Two-fork clover (*Trifolium amoenum*)	FE/--/1B.1	Valley and foothill grassland, coastal bluff scrub, sometimes on serpentine soil. 5-560m.	Not present. Suitable habitat is not present at the site.
Saline clover (*Trifolium depauperatum* var. *hydrophilum*)	--/--/1B.2	Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m.	Not present. Suitable habitat is not present at the site.
Oval-leaved viburnum (*Viburnum ellipticum*)	--/--/2B.3	Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m.	Not present. Suitable habitat is not present at the site.

Table 4. Status Code Definitions for Table 2 & 3	
Federal Codes	**State Codes**
FE - Federally listed Endangered FT – Federally listed Threatened FPE - Federally Proposed Endangered FPT - Federally Proposed Threatened BCC - USFWS Bird Species of Conservation Concern	CE - California State-listed Endangered CT - California State-listed Threatened CR - California Rare FP - California Fully Protected CSC - CDFW Species of Special Concern WL - CDFW Watch List Species
CNPS Rare Plant Rank Codes	
California Rare Plant Rank 1A	Plants presumed extirpated in California and either rare or extinct elsewhere
California Rare Plant Rank 1B	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3	Plants about which more information is needed – a review list.
California Rare Plant Rank 4	Plants of limited distribution – a watch list.
CNPS Threat Rank Codes	
0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

ATTACHMENT 3.

Habitat Assessment for the California Red-legged Frog at the Proposed Giovannoni Logistics Project Site, American Canyon, California. Prepared by Mark Jennings of Rana Resources for Huffman-Broadway Group, Inc. March 11, 2021

HABITAT ASSESSMENT
FOR THE CALIFORNIA RED-LEGGED FROG,
AT THE PROPOSED GIOVANNONI LOGISTICS PROJECT SITE,
AMERICAN CANYON, NAPA COUNTY, CALIFORNIA

March 11, 2021

Prepared for:

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TABLE OF CONTENTS

FIGURES

SUMMARY

This report is a Habitat Assessment for the federally threatened California red-legged frog (*Rana draytonii*, hereafter CRLF) at the location of the approximately 210-acre infill development [=Giovannoni Logistics Project] between Devlin Road to the north and Green Island Road to the south in the northwestern part of the City of American Canyon, Napa County (Project). The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings, along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east. The Napa River estuary lies further to the west.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The closest known CRLF records to the site are 0.6-2.4 miles to the east and southeast; additional CRLF records 3.7 miles and further away lie within Critical Habitat designated for this species (SOL-2 and SOL-3). All of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

1.0 INTRODUCTION

A proposed development for 6 warehouse and office buildings on the Giovannoni Parcel within the northwest portion of the City of American Canyon, Napa County, California, has been proposed (Figure 1). Since the 210-acre site lies within the historic range for the California red-legged frog (*Rana draytonii*, hereafter CRLF) [Stebbins 2003], and is near occupied Critical Habitat for CRLF (USFWS 2010), a habitat assessment was conducted for this species.

2.0 PROJECT DESCRIPTION AND SETTING

The 210-acre project site is located between Devlin Road to the north and Green Island Road to the south in the northwestern part of American Canyon, Napa County (Project) [Figure 1]. The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings,

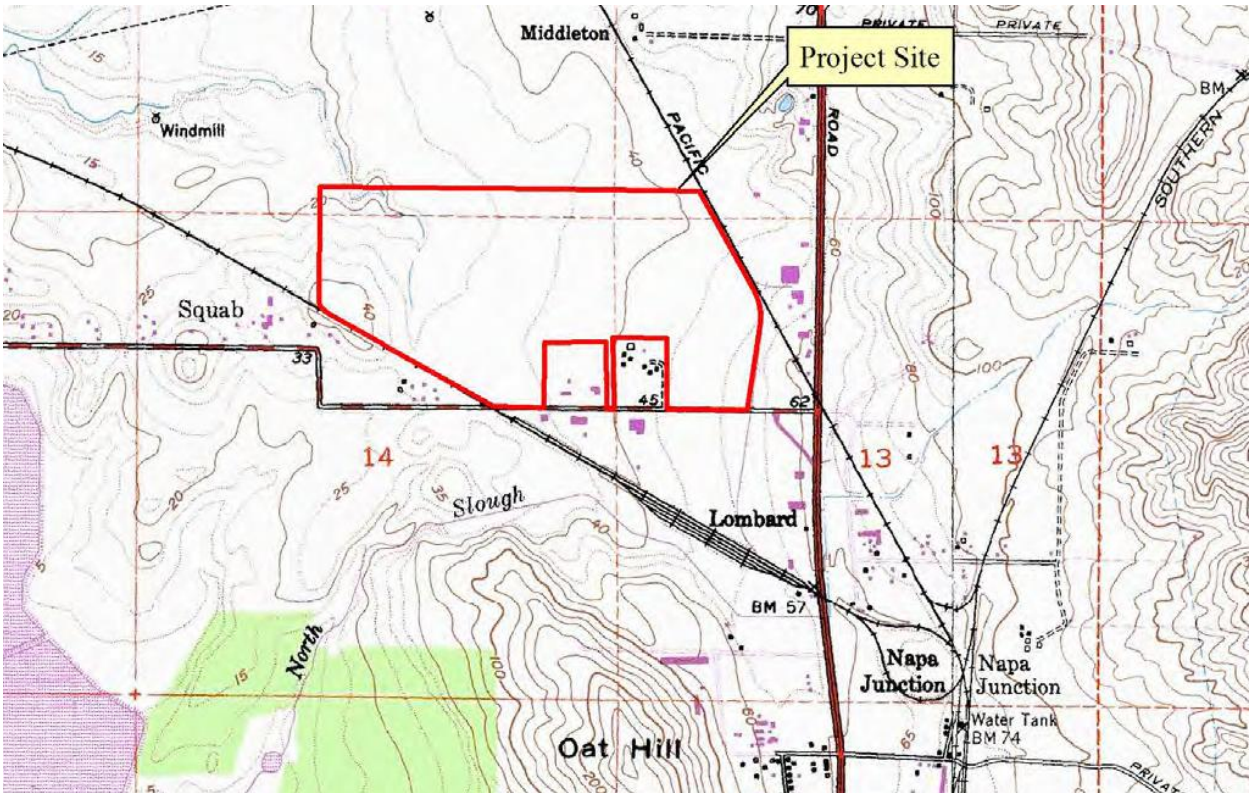

Figure 1. Location of 210-acre Giovannoni parcel within the City of American Canyon.

along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east (Figure 2). The Napa River estuary lies further to the west.

Figure 2. Location of the 210-acre Giovannoni parcel in American Canyon showing surrounding infrastructure and development. Google Earth photograph taken in 2020.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands that has used for cattle (*Bos taurus*) grazing. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road and eventually drains into the Napa River estuary. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The Project site has been previously surveyed and mapped for wetlands by Monk and Associates (2018). They also conducted surveys for special status plants and animals, including CRLF on a small portion of the site (for the Devlin Road and Napa Valley Vine Trail Project). All of the wetlands were determined to be shallow and seasonal, with inundation limited to only about 3-4 months during the year after sufficient winter and spring rainfall.

There are no trees or dense riparian vegetation thickets of any type on site. Botta pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*) burrows are scattered throughout the more upland areas.

3.0 METHODS

The methods employed to produce this report include evaluating the suitability of habitat for CRLF on site by conducting a reconnaissance-level site visit during the day by me on 10 February 2021. I followed the U.S. Fish and Wildlife Service protocol for the CRLF habitat assessment (USFWS 2005) and made observations regarding any amphibians and reptiles observed, or potentially inhabiting the vicinity. Additionally, CRLF occurrence records within 3.1 miles of the Project site (CNDDB 2021) were mapped. Finally, I examined 7.5' USGS quadrangles and aerial photographs for potentially suitable aquatic habitats within a 3.1-mile radius of the site and connectivity of these habitats with the Project site.

4.0 RESULTS AND DISCUSSION

No CRLF were observed during my day visit of the Project site on February 10, 2021 (see Appendix). I also did not observe any other amphibian species other than some Pacific treefrog (*Hyla regilla*) egg masses.

Suitable breeding and rearing habitat for CRLF is generally characterized by dense, shrubby riparian vegetation associated with deep (>2.3 feet), still or slow-moving water (see Jennings and Hayes 1994, Jennings 1988, Hayes and Jennings 1988). All of the inundated wetlands that I observed on site were too shallow and ephemeral to support a breeding population of CRLF.

These findings are consistent with previous findings recorded by Monk and Associates (2018) for a small portion of the proposed road alignments on through the eastern part of the Project site.

A review of the most recent California Natural Diversity Database files (CNDDB 2021) revealed that there are no records of CRLF in American Canyon west of Highway 29 almost certainly due to the high amount of vehicle traffic, highway berms, and stream courses being diverted into buried culverts below the freeway. Based on the data from the CNDDB, 3 CRLF occurrences are located within a 3.1-mile radius of the southeast corner of the Study Area, all located east of Highway 29 (Figure 3). The closest sighting is a single adult observed 0.6 miles to the east in the North Slough drainage on July 26, 2006, 2008 (Record #1062). The next closest is another single adult observed 1.1 miles to the southeast in a marsh area near an old quarry pond on August 04, 2008 (Record #896). The third closest is 2.4 miles to the southeast near the Flosden Road where multiple larvae, juveniles, and adults have been observed between 2008 and 2015 (Record #228). There are other records further away within Critical Habitat units SOL-2 and SOL-3 to east and southeast. However, there are no hydrologic connections with any streams that drain the agricultural fields and adjacent foothills east of Highway 29 (a finding also noted by Monk and Associates (2018, 2019). Additionally, the Project site is now nearly entirely surrounded by extensive urban development and infrastructure. Thus, there is no chance for any CRLF to access the site from occupied habitats to the east and southeast due to the presence of Highway 29 (as described above), as well as railroads, urban streets, fences, and buildings.

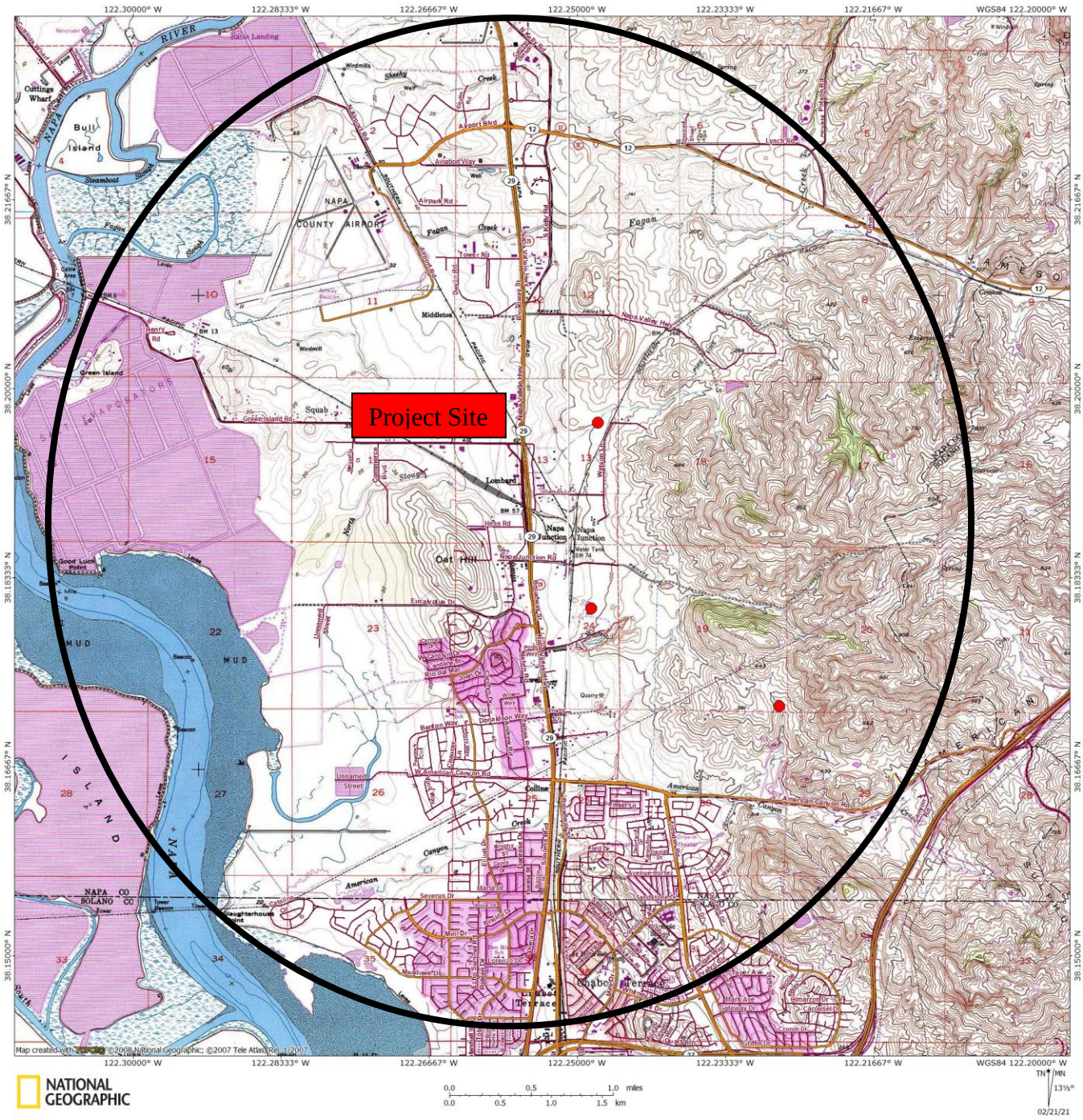

Figure 3. Locations of CRLF within 3.1 miles of the southeast corner of the Project site.

5.0 CONCLUSIONS

Although occupied CRLF habitat is present within 0.6-2.4 miles east and southeast of the Project site, all of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of

drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29.. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

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USFWS (U.S. Fish and Wildlife Service). 2010. Endangered and threatened wildlife and plants; revised designation of critical habitat for the California red-legged frog. Federal Register, 75(51):12816-12959. [Wednesday, March 17, 2010].

7.0 APPENDIX

Data Sheet from Appendix D of the *Revised guidance on site assessment and field surveys for the California red-legged frog* (USFWS 2005) completed on 10 February 2021.

California Red-Legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 02/10/2021
(mm/dd/yyyy)

Site Assessment Biologists: Jennings, Mark _____
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

Site Location: Napa, City of American Canyon, T.4N, R.4W, Sections 1(NE) and 13(NW
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Giovannoni Logistics Project
Brief description of proposed action: Proposed development of 6 warehouse and office buildings on a 210-acre site in the northwest portion of the City of American Canyon

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? (YES) NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 8' x 15' Maximum depth: 4 inches

Vegetation: emergent, overhanging, dominant species: mostly sedges and grasses with a few cockleburs. No trees or denser riparian vegetation present

Substrate: clay and sand.

Perennial or Ephemeral (*circle one*). If ephemeral, date it goes dry: April - May most years

California Red-Legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 2 feet
Depth at bank full: 1 foot
Stream gradient: 2 degrees

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum Depth of stream Pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Mostly riffle.

Vegetation: emergent, overhanging, dominant species: Grasses and sedges. No willows or cattails or tules.

Substrate: Clay and sand

Bank description: Ruderal grasslands.

Perennial or (Ephemeral) (*circle one*). If ephemeral, date it goes dry: April - May most years

Other aquatic habitat characteristics, species observations, drawings, or comments:

Only observed a Pacific treefrog egg masses. Lots of California vole and Botta pocket gopher burrows present.

Area used for livestock grazing. Now completely surrounded by development and urban infrastructure.

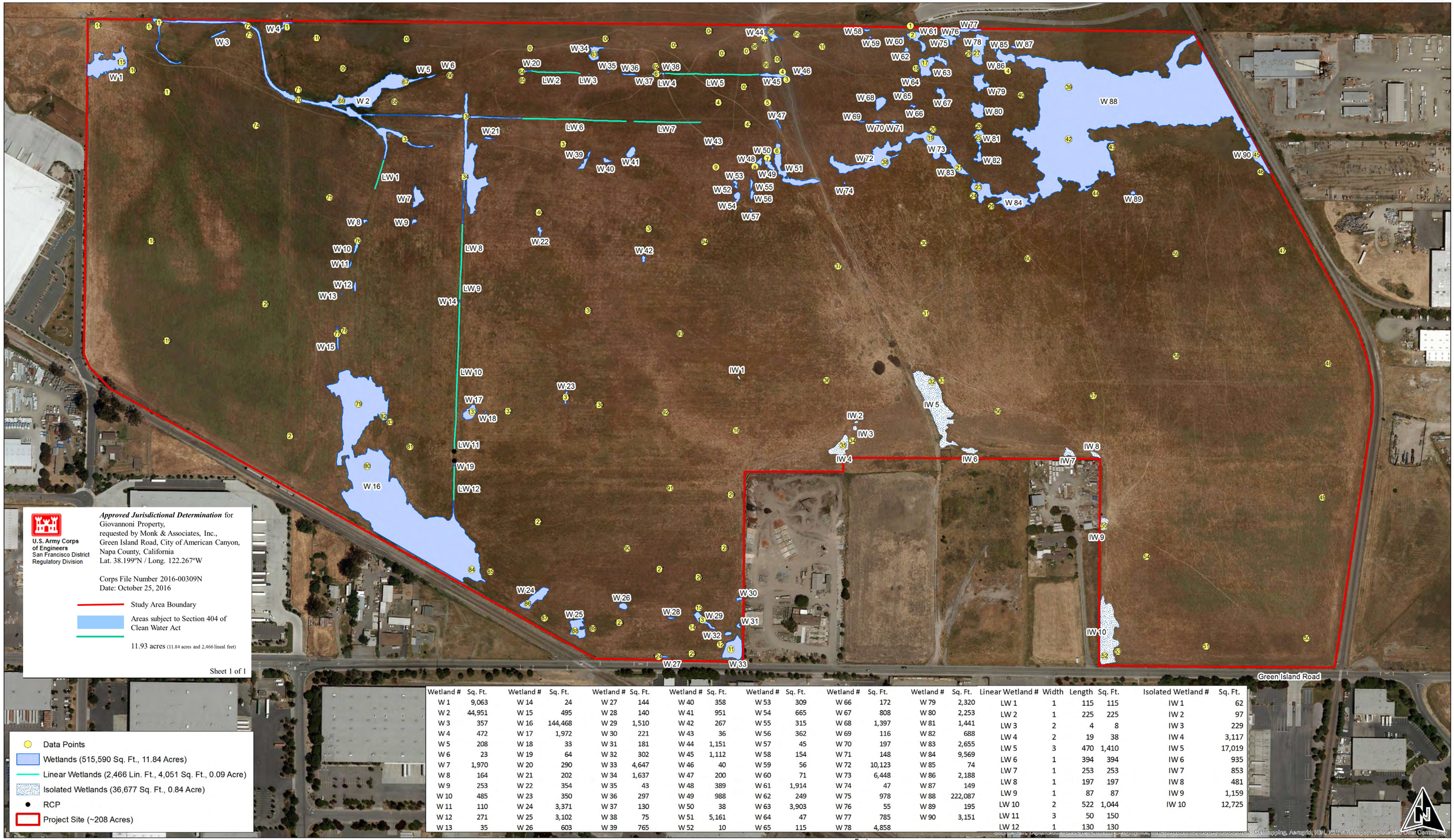
Wetlands too ephemeral and shallow to be used by CRLF. Thus, no habitat present. Also, no riparian connection with drainages to the east of Hwy 29. Therefore, adjacent CRLF occupied habitats to the east and southeast are disconnected from the project site and no overland movements can occur to the site.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs.
3. Maps with important habitat features and species locations

ATTACHMENT 3.

USACE Approved Jurisdictional Determination Map



U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination for
Giovannoni Property,
requested by Monk & Associates, Inc.,
Green Island Road, City of American Canyon,
Napa County, California
Lat. 38.199°N / Long. 122.267°W

Corps File Number 2016-00309N
Date: October 25, 2016

Study Area Boundary

Areas subject to Section 404 of Clean Water Act

11.93 acres (11.84 acres and 2,466 lineal feet)

Sheet 1 of 1

- Data Points
- Wetlands (515,590 Sq. Ft., 11.84 Acres)
- Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Isolated Wetlands (36,677 Sq. Ft., 0.84 Acre)
- RCP
- Project Site (~208 Acres)

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Linear Wetland #	Width	Length	Sq. Ft.
LW 1	1	115	115
LW 2	1	225	225
LW 3	2	4	8
LW 4	2	19	38
LW 5	3	470	1,410
LW 6	1	394	394
LW 7	1	253	253
LW 8	1	197	197
LW 9	1	87	87
LW 10	2	522	1,044
LW 11	3	50	150
LW 12	1	130	130

Isolated Wetland #	Sq. Ft.
IW 1	62
IW 2	97
IW 3	229
IW 4	3,117
IW 5	17,019
IW 6	935
IW 7	853
IW 8	481
IW 9	1,159
IW 10	12,725

0 100 200 400 600 800 1,000 Feet

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Sheet 1. Confirmed Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Scale: 1 inch = 200 feet
Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Confirmation Date: September 26, 2016
Map Confirmed by Daniel Breen, Corps
Map Preparation Date: October 25, 2016

C.2 - M & A 2016 Wetland Juridictional Delineation Report

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MONK & ASSOCIATES
Environmental Consultants

August 29, 2016

San Francisco Regulatory Division
U.S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, California 94103-1398

Attention: Ms. Holly Costa, North Section Chief

RE: Request for a Confirmed/Approved Jurisdictional Determination
Aquatic Resources Delineation Report
Giovannoni Property, City of American Canyon, Napa County, California

Dear Ms. Costa:

1. INTRODUCTION

On behalf of the Albert D. Giovannoni Trust (Applicant), Monk & Associates, Inc. (M&A) is submitting this jurisdictional determination request to the U.S. Army Corps of Engineers (Corps) for the Giovannoni Property (herein referred to as the "project site") located in the City of American Canyon, Napa County, California (Figures 1, 2 and 3). This letter-report presents the results of M&A's delineation of potential waters of the United States on the project site. M&A requests that the Corps confirm those areas on the project site that meet criteria as wetlands subject to the Corps' jurisdiction pursuant to Section 404 of the Clean Water Act, and/or all other areas that meet the definitions of wetlands even if not within the Clean Water Act Section 404 jurisdiction of the Corps. M&A acknowledges that only the Corps can determine the actual acreage of "waters of the U.S." pursuant to Section 404 of the Clean Water Act.

2. APPLICANT

Albert D. Giovannoni Trust
3333 Cuttings Wharf Road
Napa, California 94559
Attention: Ms. Christine Giovannoni – Trustee of the Giovannoni Trust

3. PROPERTY OWNER

Albert D. Giovannoni Trust
3333 Cuttings Wharf Road
Napa, California 94559
Attention: Ms. Christine Giovannoni – Trustee of the Giovannoni Trust

4. APPLICANT'S AGENT

Monk & Associates, Inc.
1136 Saranap Ave. Suite Q
Walnut Creek, CA 94595
Attention: Ms. Hope Kingma
Phone: (925)-947-4867, ext 212
Email: Hope@monkassociates.com

5. ASSESSORS PARCEL NUMBERS

APNs: 057-090-008 & 057-130-005 (~208 Acres)

6. SETTING/PROJECT SITE DESCRIPTION

The approximately 210-acre project site is located in northwestern American Canyon, Napa County (Figures 1 and 2). The project site is located west of Highway 29 and east of the Napa River. Southern Pacific Railroad and Green Island Road occur along the southern project site boundary, and a freight-only railroad borders the project site to the west. Northeast of the project site there is a recently constructed industrial warehouse and northwest of the project site is an open field with non-native annual grassland. Industrial businesses occur to the west, east and south of the project site. Figure 3 provides an aerial photograph of the project site that illustrates the project site and the surrounding land use.

The project site is characterized by a mosaic of non-native annual grassland and seasonal wetlands and swales. Most of the wetlands on the project site drain northwest into No-Name Creek. The site is currently grazed by cattle. Five representative photographs of the project site are attached to this report.

7. DIRECTIONS TO THE PROJECT SITE

Coming from San Francisco, take Interstate-80 East towards Vallejo. From I-80 in Vallejo, exit at Columbus Parkway/American Canyon Road towards Highway 37. Take the Highway 29 exit off of Highway 37. Go north on Highway 29. Take the South Kelly Road exit which is a left turn at a stop light off of Highway 29. Once on South Kelly Road you will reach a stop sign which is your intersection with Devlin Road. At this stop sign turn left onto Devlin Road (there will be a k-rail half blocking Devlin Road that you will need to drive around to get on this portion of Devlin Road). Follow the road until it dead ends. The project site will be on your left (to the south) once you reach the end of the road (see Figures 2 and 3).

8. WETLAND DELINEATION METHODS

On April 15th, 2016, M&A biologists Mr. Geoff Monk and Ms. Hope Kingma conducted a wetland delineation of the project site. The wetland delineation was continued by M&A biologists Ms. Kingma and Mr. Devin Jokerst on April 21st, May 5th, May 23rd and May 26th of

2016. M&A biologists used the Corps' 1987 *Wetlands Delineation Manual*[1] in conjunction with the regional supplement for the Arid West Region[2] to prepare this wetland delineation. This jurisdictional determination request and the Draft Aquatic Resources Delineation Map (Sheet 1) were prepared in compliance with the Corps' 2016 *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports*[3] and the 2016 *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*[4].

Vegetation, hydrology, and soils information were taken at 142 data points. The locations of data points are indicated on the attached Draft Aquatic Resources Delineation Map (Sheet 1). Data points were mapped using a Trimble Pro-XR Global Positioning System (GPS) having sub-meter accuracy. The delineation map was made from the GPS files using ArcMap 10.2. All spatial data were projected into the California State Plane, NAD 83 coordinate system, Zone 2. Using GPS technology, the boundaries (within 30 inches) of each delineated wetland was transferred to an aerial photograph of the project site (Sheet 1). The GPS/GIS data are provided on the attached CD (Environmental Systems Research Institute (ESRI) shapefile format).

9. WETLAND DELINEATION RESULTS

9.1 Soils

The Soils Conservation Service (SCS), now called the Natural Resource Conservation Service (NRCS), mapped two soil types for the project site, as noted in Figure 4. The mapped soil units include: Clear Lake clay drained (116), 0 to 2 percent slopes, Haire loam (146), 2 to 9 percent slopes, and Haire clay loam (148), 2 to 9 percent slopes (USDA 1972) [5].

9.1.1 CLEAR LAKE CLAY DRAINED

The Clear Lake series consists of poorly drained soils on old alluvial fans and basins. Elevation is 25 to 2000 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 35 inches and the mean annual temperature is 59 to 63 degrees. *Clear Lake clay drained soil is classified as a hydric soil (*i.e., those soils that form in wetlands) by the Natural Resources Conservation Service[6].

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[1] U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report, Y-87-1. US Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. 100 pp.

[2] U.S. Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2). Ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center. September 2008.

[3] U.S. Army Corps of Engineers. 2016. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, January 2016

[4].U.S. Army Corps of Engineers, 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10, 2016.

[5] USDA. 1972. Soil Survey of Sonoma County, California. United States Department of Agriculture, Forest Service and Soil Conservation Service. In cooperation with University of California (Agricultural Experiment Station). May 1972.

[6] USDA 1972. *op. cit.*

9.1.2 HAIRE LOAM

The Haire Loam series consists of moderately well-drained soils, slow to rapid runoff, and very slow permeability on alluvial fans and terraces. Elevation is 20 to 2,402 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual temperature is 57 to 61 degrees Farenheit. *Haire Loam soil is not classified as hydric soil* (i.e., those that form in wetlands) by the Natural Resources Conservation Service.

9.1.3 HAIRE CLAY LOAM

The Haire clay loam series consists of moderately well-drained soils, with high run off, on alluvium derived from sedimentary rock. Elevation is 20 to 2402 feet. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual temperature is 57 to 61 degrees Farenheit. *Haire Clay Loam is not classified as a hydric soil* (i.e., those that form in wetlands) by the Natural Resources Conservation Service.

During the site investigation, test pits dug by M&A at each sample site confirmed that much of the project site's soils were consistent with the soil descriptions provided by the NRCS.

9.2 Project Site Topography and Hydrology

The majority of the project site is relatively flat, and generally slopes to the northwestern corner where No Name Creek flows off the site. A small hill characterizes the southwestern portion of the site. Although the remaining portions of the project site are relatively flat, grazing and long-term inundation in topographic low areas has created a hummocky landscape with depressional microrelief. As a result there are small seasonal wetlands and swales scattered throughout the site. Several more natural looking (not grazing induced) large, deep wetlands occur on the eastern and southern portions of the site.

In the southeastern portion of the project site a berm confines surface water sheet flows creating several inundated depressional features. In addition, a leaking water trough contributes artificial hydrology to several wetlands in the southeastern portion of the project site. These features are characterized as "isolated" seasonal wetlands (see Sheet 1) because they do not have hydrologic connectivity to any water of the U.S. Consequently, these features would not be subject to Corps jurisdiction.

9.3 Vegetation

M&A biologists examined the habitats and characterized the vegetation present on the project site. A complete list of plant species observed within the project site is presented in Table 1. Nomenclature used for plant names follows *The Jepson Manual, 2nd edition*[7] and changes made to this manual as published on the Jepson Interchange Project website[8]. Habitat affinities were

[7] Baldwin D.H, Goldman D.H., Keil D.J., Patterson R, Rosatti T.J., Wilken D.H. (ed.). 2012. The Jepson Manual Vascular Plants of California: Second Edition. University of California Press, Berkeley. 1568 pps.

[8] Jepson Interchange Project. 2015. INTERNET: http://ucjeps.berkeley.edu/interchange/index.html

assigned following the classification of Lichvar and Kartesz (2014)[9]. Habitat affinities include the following categories:

- Obligate wetland plants (OBL) – Plants that occur over 99% of the time in wetlands.
- Facultative wetland plants (FACW) - Plants that occur 67 to 99% of the time in wetlands.
- Facultative plants (FAC) - Plants that occur 33 to 67% of the time in wetlands.
- Facultative upland plants (FACU) - Plants that occur 1 to 33% of the time in wetlands.
- Upland plants (UPL) - Plants that occur less than 1% of the time in wetlands.
- Non-indicator plants (NI) – No classification given due to lack of information.

Wetland indicator species are those plant species that are classified as OBL, FACW, and FAC; they can tolerate prolonged inundation or soil saturation during the growing season.

9.3.1 NON-NATIVE ANNUAL GRASSLAND

Non-native annuals grasslands characterize much of the project site. Dominant non-native annual grass species on the project site include: Italian ryegrass (*Festuca perennis*)(FAC), Mediterranean barely (*Hordeum marinum* ssp. *gussoneanum*)(FAC), medusa head (*Elymus caput-medusae*), and soft chess (*Bromus hordeaceus*)(FACU). Common non-native forbs found on the project site include bird's foot trefoil (*Lotus corniculatus*)(FAC), subterranean clover (*Trifolium subterranean*)(FAC), broad-leaf filaree (*Erodium botrys*)(FAC), English plantain (*Plantago lanceolata*)(FAC), yellow glandweed (*Parentucellia viscosa*)(FAC), Mediterranean linseed (*Bellardia trixago*)(UPL), spring vetch (*Vicia sativa*)(FACU), and bristly ox-tongue (*Helminthotheca echioides*)(FACU). Native forbs and wildflowers include yellow owl's clover (*Triphysaria versicolor* subsp. *faucibarbata*)(UPL), hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*)(UPL), and coastal tarweed (*Deinandra corymbosa*)(UPL).

9.3.2 SEASONAL WETLANDS AND SWALES

Seasonal wetlands and interconnecting swales occur as a network throughout the annual grassland. The boundaries of the wetlands and swales are defined by a distinct transition from wetland plant species to upland species.

The seasonal wetlands are dominated primarily by native wetland species including annual semaphore grass (*Pleuropogon californicus var. californicus*)(OBL), creeping spikerush (*Eleocharis macrostachya*)(OBL), iris-leaved rush (*Juncus xiphioides*)(OBL), California coyote thistle (*Eryngium aristulatum* var. *aristulatum*)(OBL), meadow barley (*Hordeum brachyantherum*)(FACW), smooth goldfields (*Lasthenia glaberrima*)(OBL), Great Valley popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*)(FACW) and wavy stemmed popcorn flower (*P. undulatus*) (OBL). Non-native wetland species include rabbit's foot grass *(Polypogon monspilensis*)(FACW) and brass buttons (*Cotula coronopifolia*)(OBL).

[9] Lichvar, R.W., M. Butterw ick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

9.3.3 ISOLATED WETLANDS

The seasonal "isolated" wetlands are dominated by native and non-native wetland species including: creeping spikerush (OBL), Italian ryegrass (FAC), Mediterranean barley (FAC), rabbit's foot grass (FACW), brass buttons (OBL), and curly dock (FAC).

10. TOTAL MAPPED AREA OF WATERS OF THE UNITED STATES

To be classified as a wetland, the Corps' 1987 *Wetlands Delineation Manual*[10] states that in addition to a dominance of hydrophytic vegetation, an area must also exhibit hydric soils and wetland hydrology. The seasonal wetlands and "isolated" wetlands mapped on the project site are dominated by hydrophytic species and support wetland hydrology indicators. Hydrological indicators in mapped wetlands included the presence of oxidized rhizospheres along living roots (C3), surface soil cracks (B6), algal matting (Biotic Crust B12), aquatic invertebrates (B13), and vegetation suppression (indicating long-term inundation) within these wetland areas.

M&A examined the soils for evidence of redoximorphic features, such as oxidized rhizospheres and/or mottles, to confirm or negate the presence of hydric soils. Soil matrix colors in the wetland areas identified in the field were noted as 10YR2/1, 10YR2/2, 10YR3/1, 10YR3/2, 10YR4/1 and 10YR4/2 with redoximorphic features 5YR3/4, 5YR4/3, 5YR4/4, 5YR4/6, 5YR5/6, 5YR5/8 (Redox Dark Surface F6 and Depleted Matrix F3) as defined in the approved regional supplement for the Arid West Region and the *Field Indicators of Hydric Soils in the United States*[11]. Soil matrix colors in areas mapped as non-hydric soils were preliminarily noted as 10YR3/2 and 10YR3/3 with no redoximorphic features.

The routine data sheets attached to this report indicate the plant species and percent cover of those plant species that were identified as dominants during the site investigation for the property. In addition, the data sheets indicate the wetland indicator status for each listed plant, the soil characteristics at each datapoint, and hydrology indicators. A total of 45 sample sites had a dominance of hydrophytic vegetation, hydric soils, and the presence of/or evidence of wetland hydrology, thereby meeting all the wetland criteria presented in the Corps' 1987 wetland delineation manual.

10.1 Rapanos Considerations

The majority of the seasonal wetlands on the Giovannoni property drain northwest to No Name Creek. No Name Creek flows to the west before draining into Fagan Slough, a tidal water of the United States. Fagan Slough is tributary to the Napa River, a traditional navigable water (TNW) that flows to San Pablo Bay. Therefore, the 12.83 acres of potential seasonal wetlands in the north and southwest corner of the site would likely be regulated as "waters of the U.S." pursuant to Section 404 of the Clean Water Act and would be subject to Corps' jurisdiction (Sheet 1).

---

[10] U.S. Army Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station. Technical Report, Y-87-1. Vicksburg, Mississippi. 100 pp.

[11] USDA 2006. *Field Indicators of Hydric Soils in the United States.* Version 6.0 G.W. Hurt and L.M Vasilas (eds.) USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

Several features in the southeastern portion of the project site are mapped as "isolated" seasonal wetlands since they do not have hydrologic connectivity to any water of the U.S. The "isolated" features are contained within discreet topographic depressions, surrounded by uplands and berms that are higher in elevation, thereby isolating these features from any water of the U.S. A total of 0.90 acre of "isolated" features that are mapped on the project site would not likely be subject to Corps jurisdiction.

11. CONCLUSION

In addition to the regional location and project site location maps (Figures 1 and 2), M&A is including an aerial photograph map (Figure 3), a soils map (Figure 4), a list of plant species observed on site (Table 1), and a draft Aquatic Resources Delineation Map depicted over an aerial photograph showing the locations of all data points and aquatic resources mapped on the project site (Sheet 1). We have attached routine data sheets for 142 sampling sites that were investigated in 2016 and representative photographs taken of the project site in 2016. We have also attached a table listing the aquatic resources found on the project site (Attachment A), as required by the Corps' 2016 *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports.*[12] A Microsoft Excel file of the table of aquatic resources is provided with the GPS/GIS data on the attached CD. A hardcopy of the aquatic resources table is provided in Appendix A.

Sheet 1 indicates all areas on the project site that may be regulated as "waters of the U.S" by the Corps. The total area of jurisdictional wetlands mapped on the project site is 12.83 acres. The total area of "isolated" wetlands mapped on the project is 0.90 acre. M&A acknowledges that pursuant to Section 404 of the Clean Water Act only the Corps can determine the actual acreage of "waters of the U.S." on a project site. M&A respectfully requests that the Corps verify the areas on the project site that would be regulated as "waters of the U.S." pursuant to Section 404 of the Clean Water Act. The applicant will accept a Preliminary Jurisdictional Determination (PJD) to satisfy this request.

Should you have questions or need other information, please do not hesitate to call me at (925) 947-4867 (ext. 217). Thank you for your time and effort on this project.

Sincerely,

Ms. Hope Kingma
Associate Biologist

cc: Albert D. Giovannoni Trust, Christine Giovannoni – Trustee (Applicant)

[12] U.S. Army Corps of Engineers. 2016. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, January 2016

12. ACCESS

The Giovannoni Trust (Property Owner) authorizes Corps personnel to enter the property and to collect samples as needed to conduct and verify the wetland delineation.

_____

Signature of Christine Giovannoni – Trustee of the Giovannoni Trust.

Attachments:

Project Site Representative Photographs
Figures: 1-4
Table 1. Plant Species Observed on the Giovannoni Project Site
Sheet 1. Draft Aquatic Resources Delineation Map
Data Sheets: 1-142
Attachment A: Table of Aquatic Resources
CD: GIS data, Excel file of aquatic resources table and electronic versions of the delineation report and map.

Giovannoni Project Site Representative Photographs

Photograph 1: Non-native annual grassland

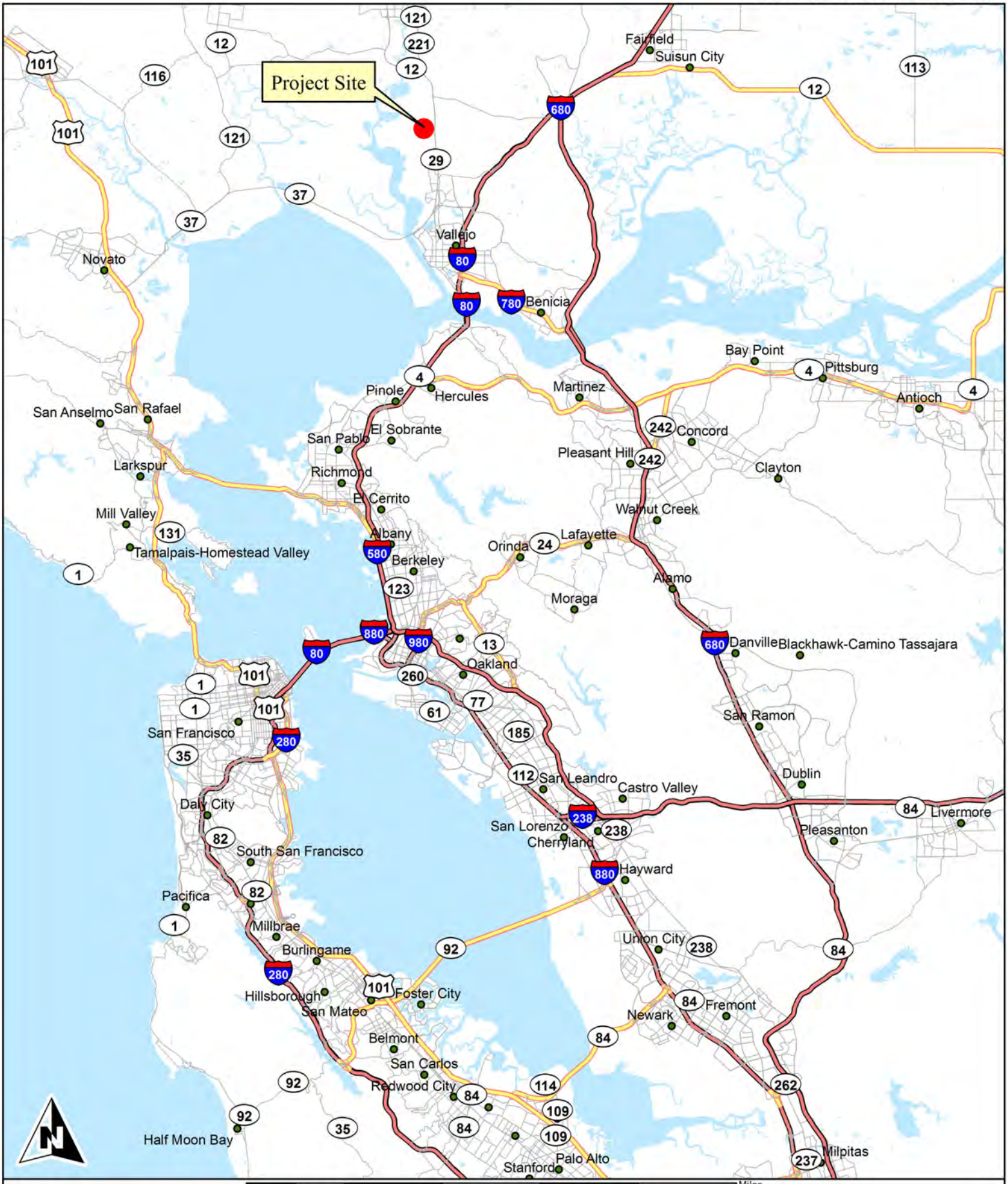
Photograph 2: Seasonal wetland dominated by
annual semaphore grass (*Pleuropogon californicus var. californicus*)

Photograph 3: Seasonal wetland with open water, dominated by annual semaphore grass (*Pleuropogon californicus var. californicus*)

Photograph 4: Seasonal wetland dominated by Water plantain (*Alisma triviale*) and brass-buttons (*Cotula coronopifolia*)

Photograph 5: No Name Creek in northwestern corner of the project site, dominated by iris-leaved rush (*Juncus xiphioides*)

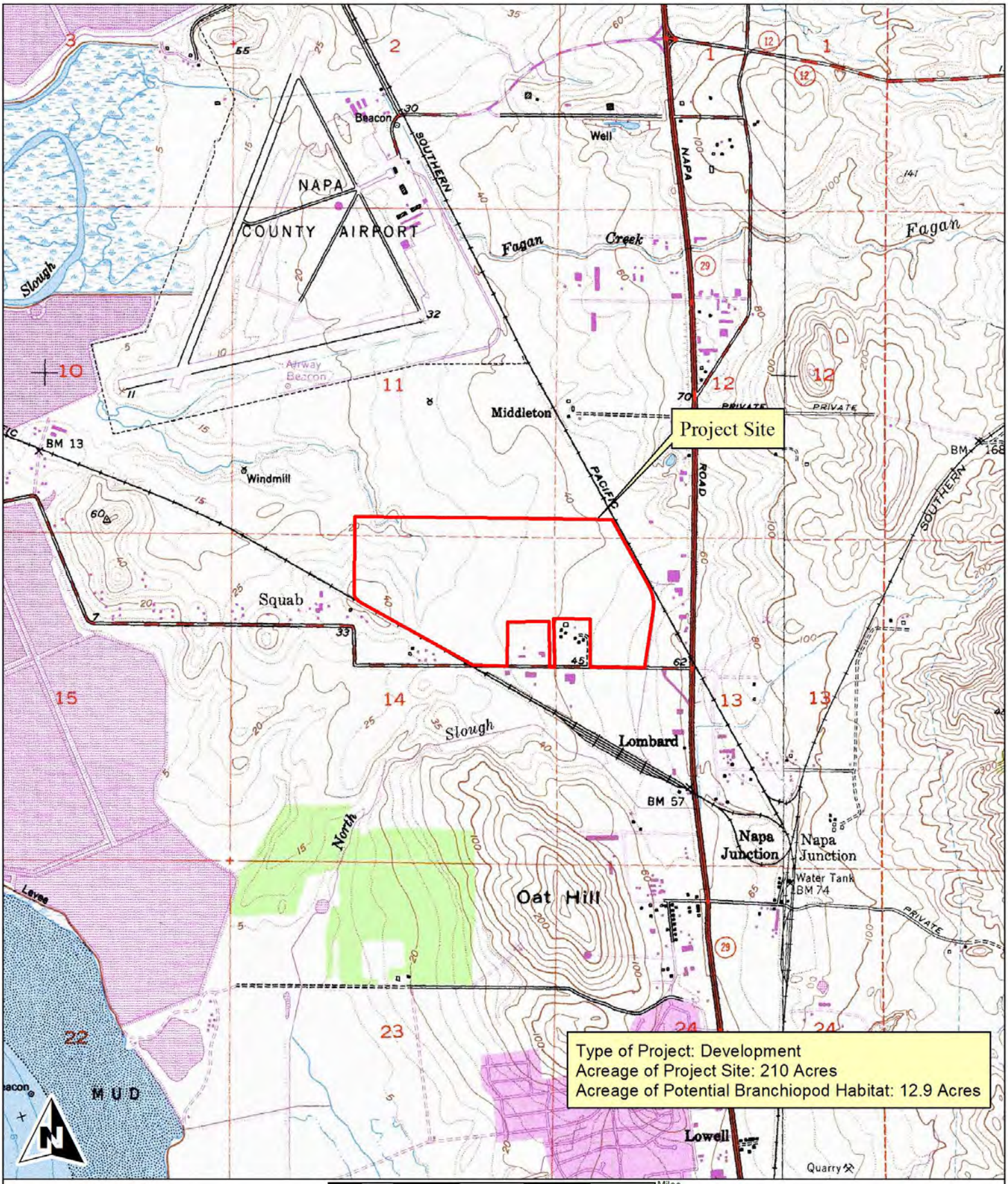
Photograph 6. Large seasonal wetland in northeastern portion of the project site.



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 1. Giovannoni Property Project Site
Regional Map
City of American Canyon, California

County: Napa
Map Preparation Date: January 21, 2015



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(925) 947-4867

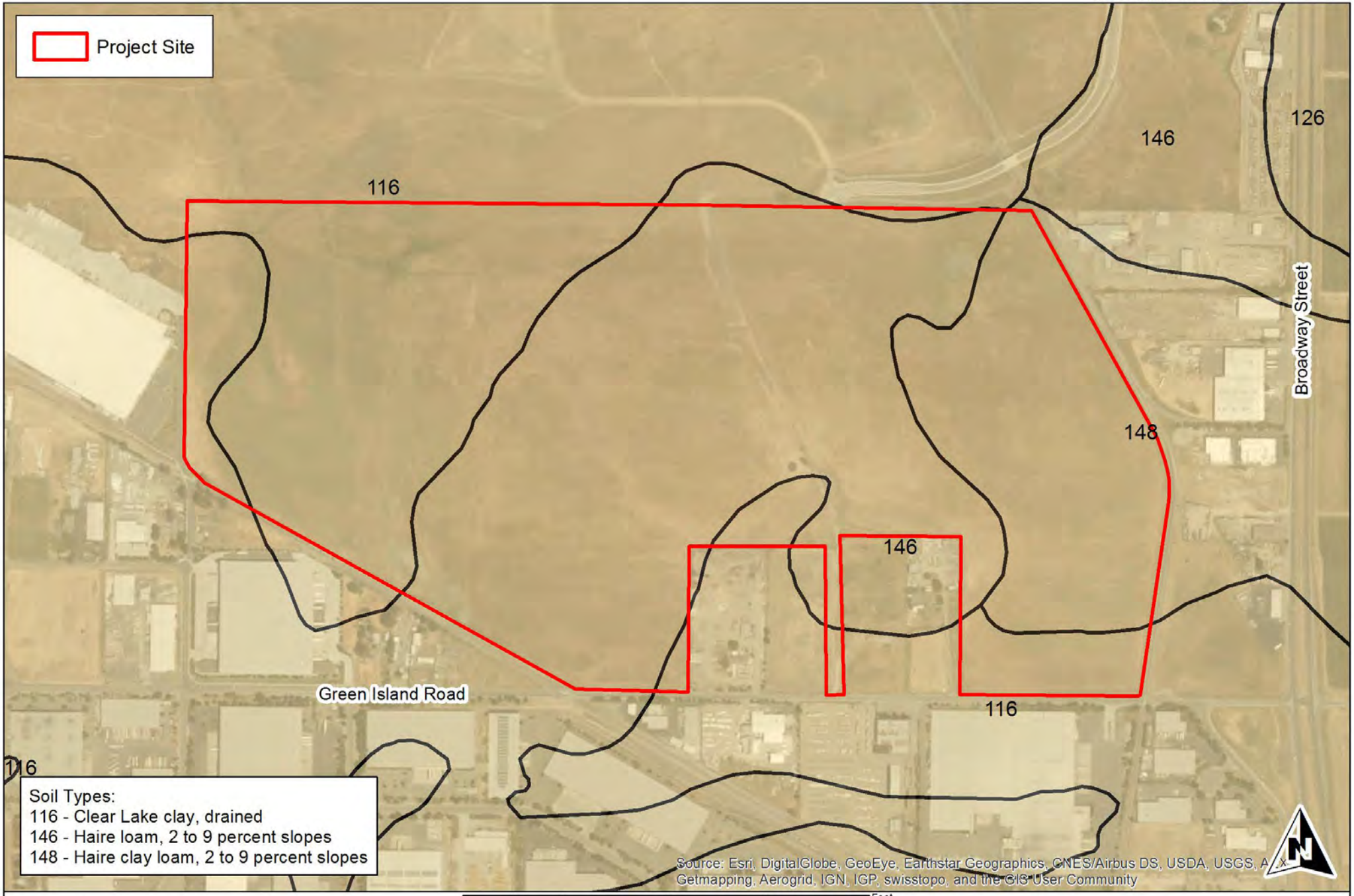
Figure 2. Giovannoni Property Project Site
Locatrion Map
City of American Canyon, California

Sections: 11, 12, 13, 14 ; T4N R4W
7.5-Minute Cuttings Wharf quadrangle
Topography Source: USGS
Map Preparation Date: August 3, 2016

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 3. Aerial Photograph of the
Giovannoni Property Project Site
City of American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: January 21, 2015



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Figure 4. Soils of the
Giovannoni Property Project Site
City of American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: June 16, 2016

Table 1

Plant Species Observed March through May 2016 at the Giovannoni Project Site

Angiosperms - Dicots

Apiaceae

Eryngium aristulatum var. aristulatum	California coyote-thistle
**Foeniculum vulgare*	Sweet fennel
Perideridia kelloggii	Kellogg's yampah

Asteraceae

Agoseris grandiflora	giant mountain dandelion
**Anthemis cotula*	Mayweed
**Calendula arvensis*	Field-marigold
**Carduus pycnocephalus subsp. pycnocephalus*	Italian thistle
**Centaurea calcitrapa*	Purple starthistle
**Centaurea solstitialis*	Yellow starthistle
**Cichorium intybus*	Chicory
**Cirsium vulgare*	Bull thistle
**Cotula coronopifolia*	Brass-buttons
Deinandra corymbosa	Coast tarweed
**Helminthotheca echioides*	Bristly ox-tongue
Hemizonia congesta subsp. luzulifolia	White hayfield tarweed
**Lactuca serriola*	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
**Leontodon saxatilis subsp. longirostris*	Long-beaked hawkbit
Microseris douglasii subsp. douglasii	Douglas' silverpuffs
**Pseudognaphalium luteoalbum*	Everlasting cudweed
Psilocarphus brevissimus var. brevissimus	Dwarf woolly-heads
**Senecio vulgaris*	Common groundsel
**Sonchus asper subsp. asper*	Prickly sow-thistle
**Sonchus oleraceus*	Common sow-thistle
**Taraxacum officinale*	Common dandelion

Boraginaceae

Plagiobothrys stipitatus var. micranthus	Great Valley popcornflower
Plagiobothrys undulatus	Wavy-stemmed popcornflower

Brassicaceae

**Brassica rapa*	Field mustard
Cardamine californica	Milk maids
**Lepidium latifolium*	Broadleaf pepperweed
**Nasturtium officinale*	Water cress
**Raphanus raphanistrum*	Jointed charlock
**Raphanus sativus*	Wild radish
**Sisymbrium altissimum*	Tumble mustard

Campanulaceae

Downingia concolor var. concolor	Downingia

Caryophyllaceae

Cerastium arvense subsp. strictum	Meadow chickweed
**Silene gallica*	Windmill-pink

Table 1

Plant Species Observed March through May 2016 at the Giovannoni Project Site

Convolvulaceae	
**Convolvulus arvensis*	Bindweed
Cuscuta sp.	Dodder
Crassulaceae	
Crassula aquatica	Water pygmy-weed
Fabaceae	
**Lotus corniculatus*	Birdfoot trefoil
Lupinus bicolor	Bicolored lupine
**Medicago polymorpha*	California burclover
Trifolium ciliolatum	Foothill clover
**Trifolium dubium*	Little hop clover
**Trifolium fragiferum*	Strawberry clover
**Trifolium hirtum*	Rose clover
**Trifolium incarnatum*	Crimson clover
**Trifolium repens*	White clover
**Trifolium subterraneum*	Subterranean clover
Trifolium variegatum	White-tip clover
**Vicia sativa*	Common vetch
Gentianaceae	
Zeltnera muehlenbergii	June centaury
Geraniaceae	
**Erodium botrys*	Broad-leaf filaree
**Erodium cicutarium*	Red-stem filaree
**Erodium moschatum*	White-stem filaree
**Geranium dissectum*	Cut-leaf geranium
Lamiaceae	
Stachys albens	White-stem hedge-nettle
Linaceae	
**Linum bienne*	Flax
Lythraceae	
**Lythrum hyssopifolia*	Hyssop loosestrife
Malvaceae	
**Malva parviflora*	Cheeseweed
Montiaceae	
Claytonia perfoliata	Miner's lettuce
Myrsinaceae	
**Lysimachia arvensis*	Scarlet pimpernel
Onagraceae	
Epilobium ciliatum	Hairy willow-herb
Taraxia ovata	Sun cup
Orobanchaceae	
**Bellardia trixago*	Mediterranean linseed

* Indicates a non-native species

Table 1

Plant Species Observed March through May 2016 at the Giovannoni Project Site

Castilleja attenuata	Valley tassels
Castilleja exserta subsp. exserta	Purple owl's-clover
**Parentucellia viscosa*	Yellow glandweed
Triphysaria versicolor subsp. faucibarbata	Yellow owl's-clover
Plantaginaceae	
Callitriche marginata	Winged water-starwort
**Plantago lanceolata*	English plantain
**Veronica anagallis-aquatica*	Water speedwell
Veronica peregrina subsp. xalapensis	Purslane speedwell
Polygonaceae	
**Polygonum aviculare*	Common knotweed
**Rumex acetosella*	Sheep sorrel
**Rumex crispus*	Curly dock
**Rumex pulcher*	Fiddle dock
Ranunculaceae	
**Ranunculus muricatus*	Spiny-fruit buttercup
Ranunculus pusillus	Low buttercup
Rosaceae	
**Rubus armeniacus*	Himalayan blackberry
Rubiaceae	
Galium aparine	Goose grass
Angiosperms -Monocots	
Alismataceae	
**Alisma lanceolatum*	Lance-leaf water-plantain
Cyperaceae	
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. occidentalis	Common tule
Iridaceae	
Sisyrinchium bellum	Western blue-eyed grass
Juncaceae	
Juncus balticus subsp. ater	Baltic rush
Juncus bufonius var. bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus phaeocephalus	Brown-headed rush
Juncus xiphioides	Iris-leaved rush
Juncaginaceae	
Triglochin scilloides	Flowering quillwort
Poaceae	
**Avena barbata*	Slender wild oat
**Briza minor*	Small quaking grass
**Bromus diandrus*	Ripgut grass

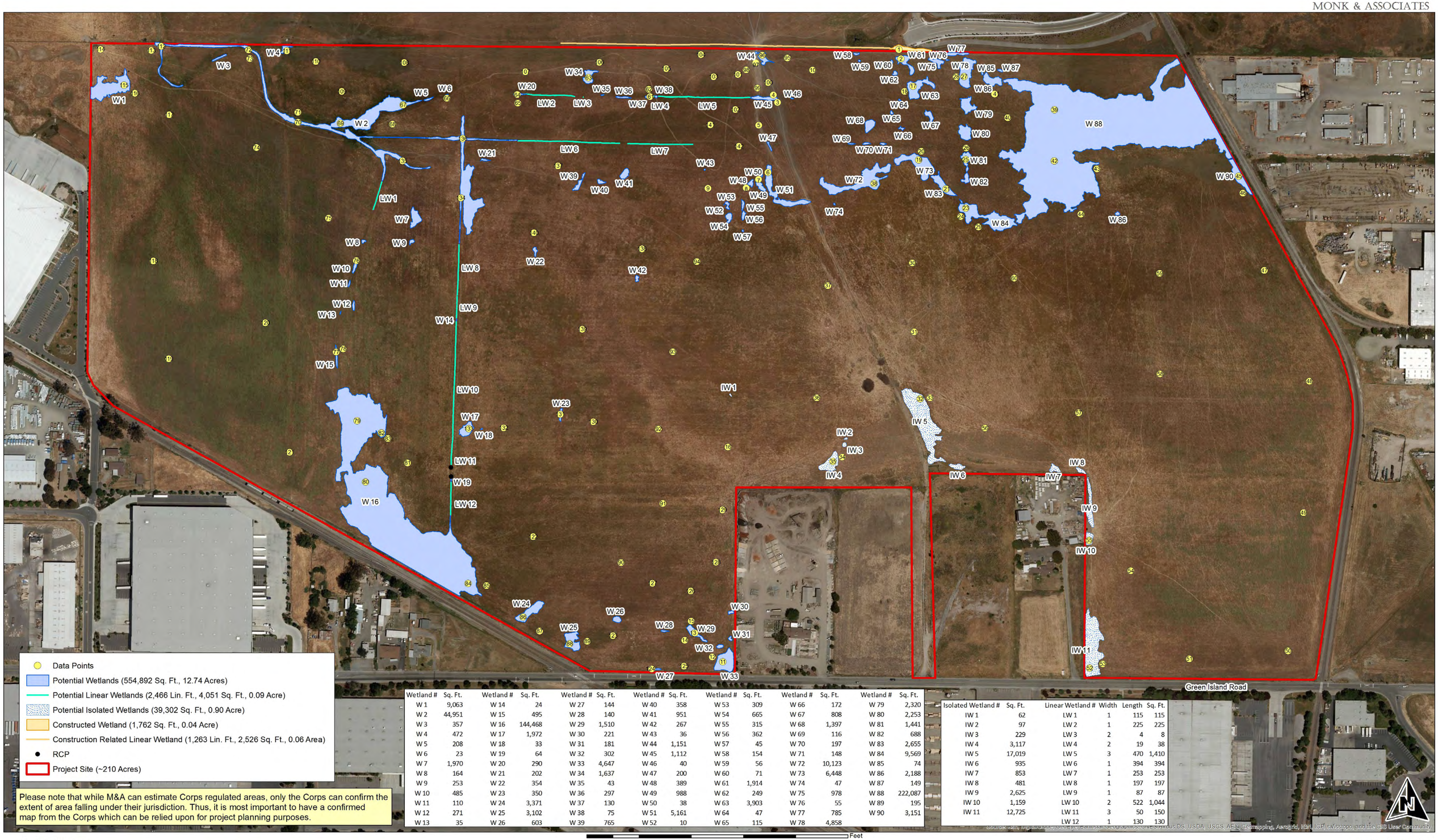
* Indicates a non-native species

Table 1

Plant Species Observed March through May 2016 at the Giovannoni Project Site

**Bromus hordeaceus*	Soft chess
**Elymus caput-medusae*	Medusahead
Elymus multisetus	Big squirreltail
**Festuca bromoides*	Brome fescue
**Festuca perennis*	Italian ryegrass
Hordeum brachyantherum	Meadow barley
**Hordeum marinum subsp. gussoneanum*	Mediterranean barley
**Hordeum murinum subsp. leporinum*	Hare barley
**Phalaris aquatica*	Harding grass
**Phalaris paradoxa*	Paradox canary-grass
Pleuropogon californicus var. californicus	Annual semaphore grass
**Poa annua*	Annual bluegrass
**Polypogon interruptus*	Ditch beard grass
Themidaceae	
Dichelostemma capitatum subsp. capitatum	Blue dicks
Triteleia laxa	Ithuriel's spear
Typhaceae	
Typha latifolia	Broad-leaved cattail

* Indicates a non-native species



- Data Points
- Potential Wetlands (554,892 Sq. Ft., 12.74 Acres)
- Potential Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Potential Isolated Wetlands (39,302 Sq. Ft., 0.90 Acre)
- Constructed Wetland (1,762 Sq. Ft., 0.04 Acre)
- Construction Related Linear Wetland (1,263 Lin. Ft., 2,526 Sq. Ft., 0.06 Area)
- RCP
- Project Site (~210 Acres)

Please note that while M&A can estimate Corps regulated areas, only the Corps can confirm the extent of area falling under their jurisdiction. Thus, it is most important to have a confirmed map from the Corps which can be relied upon for project planning purposes.

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Isolated Wetland #	Sq. Ft.	Linear Wetland #	Width	Length	Sq. Ft.
IW 1	62	LW 1	1	115	115
IW 2	97	LW 2	1	225	225
IW 3	229	LW 3	2	4	8
IW 4	3,117	LW 4	2	19	38
IW 5	17,019	LW 5	3	470	1,410
IW 6	935	LW 6	1	394	394
IW 7	853	LW 7	1	253	253
IW 8	481	LW 8	1	197	197
IW 9	2,625	LW 9	1	87	87
IW 10	1,159	LW 10	2	522	1,044
IW 11	12,725	LW 11	3	50	150
		LW 12	1	130	130

0 100 200 400 600 800 1,000 Feet

Sheet 1. Draft Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Scale: 1 inch = 200 feet
Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Preparation Date: August 29, 2016

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 1

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lotus corniculatus	10		FAC
2. Trifolium subterraneum	50	x	UPL
3. Trifolium dubium	20	x	UPL
4. Geranium dissectum	15		UPL
5. Pleuropogon californicus var. californicus	5		OBL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria

SOIL

Sampling Point: 1

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	10YR2/2	85	10YR 5/8	15	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 2

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Wetland in slight depression.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	80	x	OBL
2. Rumex crispus	5		FAC
3. Lotus corniculatus	10		FAC
4. Ranunculus muricatus	5		FACW
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria

SOIL

Sampling Point: 2

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	10 YR4/1	80	10YR 5/8	20	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Depressional topography and hoof prints present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 3

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Wetland swale.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Veronica peregrina subsp. xalapensis	10	x	OBL
2. Cotula coronopifolia	2		OBL
3. Medicago polymorpha	5		FACU
4. Helminthotheca echioides	5		FACU
5. Festuca perennis	45	x	FAC
6. Cyperus eragrostis	3		FACW
7. Lythrum hyssopifolia	8	x	OBL
8. Trifolium dubium	2		UPL
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: 3

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	10 YR4/1	90	10YR 5/8	10	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Deep hoof prints, evidence of prolonged inundation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 4

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	50	x	UPL
2. Medicago polymorpha	8		FACU
3. Bellardia trixago	1		FACU
4. Festuca perennis	20	x	FAC
5. Trifolium dubium	20	x	UPL
6. Lysimachia arvensis	1		UPL
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33% (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:

Trifolium hirtum also present.

SOIL

Sampling Point: 4

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	10 YR3/2	95	10YR 4/4	5	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Marginal.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 5

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 with upland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Lotus corniculatus	10		FAC
2. Helminthotheca echioides	10		FACU
3. Trifolium subterraneum	15		UPL
4. Trifolium dubium	20	x	UPL
5. Festuca perennis	20	x	FAC
6. Cotula coronopifolia	1		OBL
7. Avena fatua	2		UPL
8. Bromus hordeaceus	20	x	FACU
	98	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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: 5

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	10 YR 3/2							
0-12	10 YR 4/3							

[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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No redoximorphic features; soil mixing.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☒ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 6

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Depressional topography

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Plagiobothrys stipitatus var. micranthus	30	x	OBL
2. Cotula coronopifolia	25	x	OBL
3. Eryngium aristulatum var. aristulatum	20	x	OBL
4. Pleuropogon californicus var. californicus	25	x	OBL
5. Lasthenia glaberrima	10		OBL
6. Festuca perennis	10		FAC
7.			
8.			
	120 = 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: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

120% cover present.

SOIL

Sampling Point: 6

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	10 YR 4/1	60	5 YR 5/8	40	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

40% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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 matting, portion of swale inundated.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 7

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland "island".

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. Trifolium subterraneum	35	x	UPL
2. Geranium dissectum	15		UPL
3. Anthemis cotula	5		FACU
4. Festuca perennis	25	x	FAC
5. Trifolium dubium	20	x	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33% (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:

Upland point.

SOIL

Sampling Point: 7

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	10 YR 4/1	60	5 YR 5/8	40	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

40% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 8

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	20	x	UPL
2. Trifolium dubium	20	x	UPL
3. Geranium dissectum	20	x	UPL
4. Triphysaria versicolor subsp. faucibarbata	5		UPL
5. Festuca perennis	30	x	FAC
6. Vicia sativa	5		FACU
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25% (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: 8

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	10 YR 4/1	80	5 YR 4/6	20	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 Soil[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 9

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	40	x	UPL
2. Geranium dissectum	10		UPL
3. Triphysaria versicolor var. faucibarbata	10		UPL
4. Festuca perennis	30	x	FAC
5. Trifolium dubium	10		UPL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	30	x 3 =	90
FACU species	_____	x 4 =	_____
UPL species	70	x 5 =	350
Column Totals:	100 (A)		440 (B)

Prevalence Index = B/A = 4.4

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:

Does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: 9

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	10 YR 4/1	75	5 YR 4/6	25	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 10

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Medicago polymorpha	15		FACU
2. Geranium dissectum	35	x	UPL
3. Lysimachia arvensis	5		FAC
4. Vicia sativa	5		FACU
5. Trifolium dubium	20	x	UPL
6. Festuca perennis	20	x	FAC
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33% (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: 10

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	10 YR 2/2	98	5 YR 4/6	2	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

Insufficient Redox. Does not meet soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 11

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Clear lake clay, drained 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:

Topographic low with standing water.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eleocharis macrostachya	85	x	OBL
2. Pleuropogon californicus var. californicus	10		OBL
3. Eryngium aristulatum var. aristulatum	1		OBL
4. Rumex crispus	4		FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Cyperus eragrostis. also present.

SOIL

Sampling Point: 11

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	10 YR 4/1	65	5 YR 4/6	35	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

See photo, 35% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☒ Surface Water (Al)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☐ 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): 0.1

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:

Standing water present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 12

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Clear lake clay, drained 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:

Adjacent upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover		Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
	_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
Herb Stratum (Plot size: _____)				
1. Trifolium subterraneum	35	x		UPL
2. Parentucellia viscosa	1			FAC
3. Trifolium dubium	40	x		UPL
4. Festuca perennis	20	x		FAC
5. Geranium dissectum	5			UPL
6.				
7.				
8.				
	101 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33% (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: 12

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	10 YR 4/1	85	5 YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 13

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Wetland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	70	x	OBL
2. Eleocharis macrostachya	25	x	OBL
3. Rumex crispus	5		FAC
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: 13

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	10 YR 4/1	70	5 YR 4/6	30	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

30% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 14

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium dubium	25	x	UPL
2. Rumex crispus	5		FAC
3. Geranium dissectum	10		UPL
4. Trifolium subterraneum	30	x	UPL
5. Festuca perennis	30	x	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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33% (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: 14

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	10 YR 4/1	85	5 YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 15

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Leontodon taraxacoides subsp. longirostris	20	x	FACU
2. Parentucellia viscosa	25	x	FAC
3. Lysimachia arvensis	5		FAC
4. Briza minor	5		FAC
5. Festuca perennis	20	x	FAC
6. Trifolium dubium	25	x	UPL
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	55	x 3 =	165
FACU species	20	x 4 =	80
UPL species	25	x 5 =	125
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.7

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:

Does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: 15

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	10 YR 4/1	85	5 YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-15-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 16

Investigator(s): Geoff Monk, Hope Kingma Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland point.

VEGETATION - Use scientific names of plants.

	Absolute % Cover		Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
	_____ = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
	_____ = Total Cover			
Herb Stratum (Plot size: _____)				
1. Erodium cicutarium	50	x		UPL
2. Anthemis cotula	5			FACU
3. Rumex crispus	10			FAC
4. Vicia sativa	5			FACU
5. Festuca perennis	30	x		FAC
6.				
7.				
8.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: _____)				
1.				
2.				
	_____ = Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	10	x 4 =	40
UPL species	50	x 5 =	250
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

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:

Does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: 16

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	10 YR 4/1	80	5 YR 4/6	20	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovanonni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 17

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 topographic depression dominated by hydrophytic vegetation

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	70	X	OBL
2. Hordeum brachyantherum	15		FACW
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Lotus corniculatus	3		FAC
5. Eryngium aristulatum var. aristulatum	2		OBL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 17

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 2/1	95	5YR 4/4	5	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 18

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Geranium dissectum	7		UPL
2. Trifolium dubium	10		UPL
3. Trifolium subterraneum	20	X	UPL
4. Lysimachia arvensis	10		FAC
5. Festuca perennis	20	X	FAC
6. Festuca myuros	20	X	FACU
7. Medicago polymorpha	30	X	FACU
8. Parentucellia viscosa	3		FAC
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: 18

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 2/1	93	5YR 4/4	7	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

7% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 19

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	45	X	OBL
2. Lotus corniculatus	10		FAC
3. Lasthenia glaberrima	40	X	OBL
4. Eryngium articulatum	10		OBL
5. Plagiobothrys stipitatus var. micranthus	3		FACW
6. Ranunculus muricatus	22	X	FACW
7.			
8.			
	120 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 19

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 2/1	85	5YR 4/4	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 20

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland.

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. Hordeum marinum subsp. gussoneanum	10		FAC
2. Trifolium subterraneum	50	X	UPL
3. Medicago polymorpha	20	X	FACU
4. Lysimachia arvensis	5		FAC
5. Geranium dissectum	5		UPL
6. Festuca perennis	20	X	FAC
7.			
8.			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33.33 (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:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 20

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 2/1	85	5YR 4/4	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 21

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lasthenia glaberrima	40	X	OBL
2. Plagiobothrys stipitatus var. micranthus	10		FACW
3. Pleuropogon californicus var. californicus	25	X	OBL
4. Eryngium aristulatum var. aristulatum	30	X	OBL
5. Ranunculus muricatus	5		FACW
6.			
7.			
8.			
	120 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 21

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 2/1	80	5YR 4/4	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox; Organic inclusions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Evidence of wetland hydrology present; Algal matting; Matted vegetation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 22

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Anthemis cotula	30	X	FACU
2. Parentucellia viscosa	15		FAC
3. Juncus bufonius var. bufonius	15		FACW
4. Briza minor	5		FAC
5. Festuca perennis	10		FAC
6. Erodium botrys	20	X	FACU
7. Rumex acetosella	5		FACU
8. Trifolium dubium	20.	X	UPL
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 22

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	80	5YR 4/4	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox;

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 23

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 dominated by hydrophytic vegetation satisfies wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	30	X	OBL
2. Lasthenia glaberrima	50	X	OBL
3. Plagiobothrys stipitatus var. micranthus	10		FACW
4. Eryngium aristulatum var. aristulatum	20	X	OBL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 23

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 2/1	75	5YR 4/6	25	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% Redox. Very moist soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present. Algal matting.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 24

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	40	X	UPL
2. Trifolium dubium	10		UPL
3. Parentucellia viscosa	10		FAC
4. Anthemis cotula	20	X	FACU
5. Geranium dissectum	3		UPL
6. Bromus hordeaceus	15		FACU
7. Juncus bufonius var. bufonius	20	X	FACW
8. Briza minor	2		FAC
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy hydrophytic vegetation criteria. Upland 6-8 inches higher that wetland.

SOIL

Sampling Point: 24

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	10YR 3/2	80	5YR 3/4	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 25

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression satisfies hydrophytic vegetation wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	50	X	OBL
2. Hordeum marinum subsp. gussoneanum	20	X	FAC
3. Lotus corniculatus	20	X	FAC
4. Trifolium fragiferum	15		FACU
5. Helminthotheca echioides	5		FACU
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 25

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 2/1	85	5YR 4/4	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 26

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Adjacent upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	30	X	FAC
2. Hordeum marinum subsp. gussoneanum	10		FAC
3. Trifolium dubium	25	X	UPL
4. Medicago polymorpha	25	X	FACU
5. Geranium dissectum	10		UPL
6. Helminthotheca echioides	10		FACU
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 26

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 2/1	95	5YR 4/3	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 27

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 satisfies hydrophytic vegetation wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	40	X	OBL
2. Eryngium aristulatum var. aristulatum	25	X	OBL
3. Hordeum marinum subsp. gussoneanum	30	X	FAC
4. Lotus corniculatus	10		FAC
5. Trifolium subterraneum	15		UPL
6.			
7.			
8.			
	120 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 27

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 2/1	80	5YR 4/3	20	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present. Moist soil

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 28

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	10		FACU
2. Hordeum marinum subsp. gussoneanum	30	X	FAC
3. Festuca perennis	5		FAC
4. Trifolium subterraneum	25	X	UPL
5. Trifolium dubium	20	X	UPL
6. Medicago polymorpha	20	X	FACU
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 28

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 2/1	90	5YR 4/4	10	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 29

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	10		FAC
2. Triteleia hyacinthia	5		FAC
3. Trifolium subterraneum	30	X	UPL
4. Anthemis cotula	30	X	FACU
5. Bromus diandrus	5		UPL
6. Bromus hordeaceus	35	X	FACU
7. Trifolium dubium	5		UPL
8. Erodium botrys	5		FACU
	125	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 29

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 2/1	90	5YR 4/5	10	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 30

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	40	X	UPL
2. Bromus hordeaceus	20	X	FACU
3. Erodium cicutarium	30	X	UPL
4. Anthemis cotula	20	X	FACU
5. Plantago lanceolata	5		FAC
6. Raphanus sativus	5		UPL
7. Trifolium subterraneum	10		UPL
8. _____			
	130 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 30

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	5YR 4/6	5	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 31

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	40	X	UPL
2. Bromus hordeaceus	15		FACU
3. Vicia sativa	10		UPL
4. Raphanus sativus	35	X	FACU
5. Trifolium subterraneum	20	X	UPL
6.			
7.			
8.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 31

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	98	5YR 4/4	2	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

Insufficient Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☐ 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:

None.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 32

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Satisfies hydrophytic vegetation criteria. Edge of wetland with open water.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Lythrum hyssopifolia	25	X	OBL
2. Triglochin scilloides	5		OBL
3. Anthemis cotula	10		FACU
4. Rumex crispus	10		FAC
5. Hordeum brachyantherum,	5		FACW
6. Plagiobothrys stipitatus var. micranthus	15	X	FACW
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 32

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	10YR 4/1	80	5YR 4/6	20	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Surface water present in middle of wetland feature.
Vegetation matting
Vegetation suppression indicates long term inundation

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 33

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	60	X	UPL
2. Bromus hordeaceus	30	X	FACU
3. Erodium cicutarium	5		UPL
4. Trifolium dubium	5		UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 33

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	90	5YR 4/6	10	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 34

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	60	X	UPL
2. Bromus hordeaceus	20.	X	FACU
3. Festuca perennis	10		FAC
4. Festuca myuros	10		FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 34

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	80	5YR 4/6	20	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 35

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 satisfies hydrophytic vegetation criteria to be considered a wetland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Plagiobothrys stipitatus var. micranthus	10		FACW
2. Eryngium aristulatum var. aristulatum	30	X	OBL
3. Ranuculus muricatus	5		FACW
4. Lythrum hyssopifolia	5		OBL
5. Triglochin scilloides	20	X	OBL
6. Lasthenia glaberrima	5		OBL
7. Rumex crispus	10		FAC
8. Festuca perennis	5		FAC
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 35

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	10YR 4/1	75	5YR 4/6	25	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Evidence of wetland hydrology present. Vegetation suppression indicating long-term inundation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 36

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	70	X	UPL
2. Plantago lanceolata	5		FAC
3. Bromus hordeaceus	30	X	FACU
4. Parentucellia viscosa	10		FAC
5. Vicia sativa	5		FACU
6. _____			
7. _____			
8. _____			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 36

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	5YR 4/5	5	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 37

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	15		UPL
2. Erodium cicutarium	30	X	UPL
3. Bromus hordeaceus	20	X	FACU
4. Bromus diandrus	15		UPL
5. Vicia sativa	5		FACU
6. Raphanus sativus	15		UPL
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Upland does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 37

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	5YR 4/5	5	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 04-21-16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 38

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 satisfies hydrophytic vegetation wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	50	X	OBL
2. Eryngium aristulatum var. aristulatum	30	X	OBL
3. Bromus hordeaceus	10		FACU
4. Lasthenia glaberrima	5		OBL
5. Anthemis cotula	5		FACU
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 38

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	10YR 4/1	80	5YR 4/6	20	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Evidence of wetland hydrology present. Algal matting.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 39

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation criteria.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum marinum subsp. gussoneanum	20	X	FAC
2. Pleuropogon californicus var. californicus	40	X	OBL
3. Lotus corniculatus	10		FAC
4. Festuca perennis	5		FAC
5. Eleocharis macrostachya	10		OBL
6. Trifolium dubium	5		UPL
7. Hordeum brachyantherum	30	X	FACW
8. _____			
	120 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 39

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 2/1	95	5YR 5/6	5	C	Pl/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology present.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 40

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	30	X	UPL.
2. Lotus corniculatus	5		FAC
3. Trifolium dubium	10		UPL
4. Festuca perennis	15		FAC
5. Helminthotheca echioides	30	X	FACU
6. Hordeum marinum subsp. gussoneanum	20	X	FAC
7.			
8.			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 40

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 2/1	93	5YR 4/6	7	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

7% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 41

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum brachyantherum	50	X	FACW.
2. Lotus corniculatus	25	X	FAC
3. Hordeum marinum subsp. gussoneanum	40		FAC
4. Eleocharis macrostachya	10	X	OBL
5. Cyperus eragrostis	10.		FACW
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Depression satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 41

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 2/1	90	5YR 4/4	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology present. Deep hoof prints.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 42

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum brachyantherum	50	X	FACW.
2. Lotus corniculatus	25	X	FAC.
3. Hordeum marinum subsp. gussoneanum	5		FAC
4. Eleocharis macrostachya	10		OBL
5. Cyperus eragrostis	10		FACW.
6. _____			
7. _____			
8. _____			
	115 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Depression satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 42

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 2/1	90	5YR 4/4	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology present. Algal matting, biotic crust.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 43

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	40	X	FACU.
2. Erodium cicutarium	10		UPL
3. Trifolium hirtum	10		UPL
4. Hordeum marinum subsp. gussoneanum	20	X	FAC
5. Trifolium dubium	30	X	UPL
6. Trifolium subterraneum	10		UPL
7. Helminthotheca echioides	5		FACU.
8. _____			
	115 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy hydrophytic vegetation wetland criteria.

SOIL

Sampling Point: 43

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	90	5YR 4/4	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 44

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	35	X	UPL.
2. Trifolium dubium	15		UPL.
3. Bellardia trixago	10		UPL
4. Bromus hordeaceus	20	X	FACU.
5. Taraxacum officinale	20	X	FACU.
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: 44

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	80	5YR 4/6	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 45

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation. Topography low; adjacent to rail road tracks.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cyperus eragrostis	70	X	FACW.
2. Lotus corniculatus	10		FAC.
3. Alisma lanceolatum	5		OBL
4. Veronica anagallis-aquatica	5		OBL.
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20. % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies hydrophytic vegetation criteria.

SOIL

Sampling Point: 45

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 2/1	90	5YR 4/4	10	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology present. Vegetation suppression indicating long term inundation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 46

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	20.	X	UPL.
2. Trifolium subterraneum	20	X	UPL.
3. Festuca perennis	20	X	FAC.
4. Lotus corniculatus	20	X	FAC.
5. Bromus hordeaceus	5		FACU.
6. Helminthotheca echioides	10		FACU.
7. Geranium dissectum	5		UPL.
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 40	x 3 =	120
FACU species 15	x 4 =	60
UPL species 45	x 5 =	225
Column Totals: 100 (A)		405 (B)

Prevalence Index = B/A = 4.05

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 46

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	5YR 4/4	5	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Higher in elevation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 47

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Avena barbata	40.	X	UPL.
2. Vicia sativa	20.	X	FACU
3. Trifolium subterraneum	25	X	UPL.
4. Leontodon saxatilis subsp. longirostris	20	X	FACU.
5. Plantago lanceolata	5.		FAC
6. Briza minor	5		FAC
7. Festuca perennis	5		FAC
8. Festuca bromoides	10		UPL.
	130 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 47

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	100					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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

Higher in elevation. No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 48

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bellardia trixago	20.	X	UPL.
2. Parentucellia viscosa	20	X	FAC
3. Bromus hordeaceus	20	X	FACU.
4. Trifolium subterraneum	35	X	UPL.
5. Vicia sativa	5.		FACU.
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 48

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	100					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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

Higher in elevation. No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 49

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	40	X	FACU
2. Trifolium subterraneum	30	X	UPL.
3. Convolvulus arvensis	15		UPL.
4. Rumex crispus	10		FAC
5. Festuca perennis	5		FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 49

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	100		0			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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

Higher in elevation. No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 50

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	10		FACU
2. Elymus caput-medusae	10		UPL.
3. Trifolium subterraneum	80	X	UPL.
4. Convolvulus arvensis	5		UPL
5. Vicia sativa	5		FACU
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 50

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	100		0			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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

Higher in elevation. No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 51

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	50	X	FAC
2. Trifolium subterraneum	60	X	UPL
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Bromus madritensis	10		UPL
5.			
6.			
7.			
8.			
	130 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	60	x 3 =	180
FACU species	70	x 4 =	280
UPL species	_____	x 5 =	_____
Column Totals:	130 (A)		460 (B)

Prevalence Index = B/A = 3.5

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 51

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 2/2	85	5YR 4/4	15	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 52

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Pleuropogon californicus var. californicus	70	X	OBL
2. Eleocharis macrostachya	10		OBL
3. Lasthenia glaberrima	10		OBL
4. Eryngium aristulatum var. aristulatum	20	X	OBL
5. Hordeum brachyantherum	10		FACW
6. _____			
7. _____			
8. _____			
	130 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 52

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	85	5YR 5/6	15	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 53

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	60	X	FAC
2. Trifolium subterraneum	40	X	UPL.
3. Hordeum marinum subsp. gussoneanum	15		FAC
4. Geranium dissectum	5		UPL
5.			
6.			
7.			
8.			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 75	x 3 =	225
FACU species	x 4 =	
UPL species 45	x 5 =	225
Column Totals: 120 (A)		450 (B)

Prevalence Index = B/A = 3.7

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 53

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	90	5YR 5/5	10	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 54

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordaceous	40	X	FACU
2. Convolvulus arvensis	10		UPL.
3. Trifolium subterraneum	30	X	UPL
4. Hordeum marinum subsp. gussoneanum	20	X	FAC
5. Vicia sativa	10		FACU
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 54

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

Higher elevation. No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 55

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Ranuculus muricatus	10		FACW
2. Polypogon monspeliensis	10		FACW
3. Pleuropogon californicus var. californicus	50	X	OBL
4. Hordeum marinum subsp. gussoneanum	10		FAC
5. Festuca perennis	20	X	FAC
6.			
7.			
8.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 55

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	5YR 5/4	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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 may be artificial due to watering trough. Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 56

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	80	X	UPL
2. Bromus hordaceous	10		FACU
3. Festuca perennis	5		FAC
4. Hordeum marinum subsp. gussoneanum	15	X	FAC
5. _____			
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	80	x 5 =	400
Column Totals:	110 (A)		500 (B)

Prevalence Index = B/A = 4.5

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 56

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	5YR 5/4	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 57

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	40	X	UPL
2. Bellardia trixago	20	X	UPL
3. Plantago lanceolata	5		FAC
4. Bromus diandrus	20	X	Upl
5. Festuca perennis	15		FAC
6.			
7.			
8.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 57

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	100					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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☐ 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:

Higher ground

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 58

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordaceous	50	X	FACU
2. Bellardia trixago	25	X	UPL
3. Erodium cicutarium	5		UPL
4. Festuca perennis	20	X	FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 58

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	5YR 5/6	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 59

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordaceous	20	X	FACU
2. Trifolium subterraneum	60	X	UPL
3. Parentucellia viscosa	10		FAC
4. Festuca perennis	10		FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 59

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	90	5YR 5/5	10	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/5/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 60

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" none Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hemizonia congesta subsp. luzulifolia	30	X	UPL
2. Triteleia hyacinthina	10		FAC
3. Rumex acetosella	10		FACU
4. Festuca perennis	10		FAC
5. Bromus hordaceous	30	X	FACU
6. Trifolium subterraneum	40	X	UPL
7. _____			
8. _____			
	130 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 60

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	90	5YR 4/6	10	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 61

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	20	X	OBL
2. Cyperus eragrostis	15		FACW
3. Festuca perennis	30	X	FAC
4. Hordeum marinum subsp. gussoneanum	15		FAC
5. Lotus corniculatus	20	X	FAC
6. _____			
7. _____			
8. _____			
	130 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 61

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	85	5YR 5/8	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☒ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 62

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Lotus corniculatus	20	X	FAC
3. Bromus hordeaceus	15		FACU
4. Festuca perennis	10		FAC
5. Helminthotheca echioides	15		FACU
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	30	x 3 =	90
FACU species	30	x 4 =	120
UPL species	40	x 5 =	200
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.1

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 62

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	85	5YR 5/8	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 63

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	50	X	OBL
2. Rumex crispus	10		FAC
3. Polypogon monspeliensis	20	X	FACW
4. Hordeum marinum subsp. gussoneanum	10		FAC
5. Lotus corniculatus	20	X	FAC
6. _____			
7. _____			
8. _____			
	115 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 63

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	5YR 5/4	5	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 64

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Polypogon monspeliensis	20	X	FACW
2. Rumex crispus	15		FAC
3. Lotus corniculatus	40	X	FAC
4. Festuca perennis	10		FAC
5. Eryngium aristulatum var. aristulatum	20	X	OBL
6.			
7.			
8.			
	115 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 64

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	90	5YR 4/6	10	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 65

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	30	X	UPL
2. Festuca perennis	20	X	FAC
3. Helminthotheca echioides	20	X	FACU
4. Trifolium subterraneum	30	X	UPL
5.			
6.			
7.			
8.			
	115 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 65

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	90	5YR 4/6	10	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 66

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Polypogon monspeliensis	100	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 66

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	93	5YR 5/4	7	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

7% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 67

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Leontodon saxatilis subsp. longirostris	30	X	FACU
2. Hordeum marinum subsp. gussoneanum	10		FAC
3. Lotus corniculatus	30	X	FAC
4. Juncus xiphioides	30	X	OBL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 66 (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:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 67

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	85	5YR 4/4	15	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 68

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	30	X	UPL
2. Lotus corniculatus	30	X	FAC
3. Convolvulus arvensis	10		UPL
4. Leontodon saxatilis subsp. longirostris	15		FACU
5. Festuca perennis	15		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	45	x 3 =	135
FACU species	15	x 4 =	60
UPL species	40	x 5 =	200
Column Totals:	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 68

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	85	5YR 4/6	15	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 69

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	15		UPL
2. Juncus xiphioides	60	X	FAC
3. Polypogon monspeliensis	20	X	FACW
4. Festuca perennis	15		FAC
5.			
6.			
7.			
8.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 69

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	10YR 2/1	98	5YR 4/4	2	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

2% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 70

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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 is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cotula coronopifolia	20	X	OBL
2. Alisma lanceolatum	20	X	OBL
3. Polypogon monspeliensis	20	X	FACW
4. Juncus xiphioides	20	X	OBL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 70

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 2/1	20	5YR 4/4	15	C	M	clay	with fine sand
0-12	10YR 4/2	65						

[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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox. Organic inclusions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology. Deep hoof prints. Vegetation suppression indicating long term inundation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 71

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	60	X	FACU
2. Plantago lanceolata	15		FAC
3. Lotus corniculatus	15		FAC
4. Helminthotheca echioides	20	X	FACU
5. _____			
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 71

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	5YR 4/4	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 72

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus xiphioides	40	X	OBL
2. Cotula coronopifolia	10		OBL
3. Trifolium subterraneum	40	X	UPL
4. Polypogon monspeliensis	20	X	FACW
5. _____			
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 66 (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:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 72

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	80	5YR 4/4	20	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 73

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	65	X	UPL
2. Convolvulus arvensis	15		UPL
3. Helminthotheca echioides	15		FACU
4. Plantago lanceolata	5		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 73

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	5YR 5/8	5	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 74

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland. There is no evidence of hydric soils or hydrology.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Helminthotheca echioides	65	X	FACU
2. Bromus hordeaceus	15		FACU
3. Elymus caput-medusae	15		UPL
4. Avena barbata	5		UPL
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 74

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 75

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland. There is no evidence of hydric soils or hydrology.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	90	X	UPL
2. Festuca perennis	10		FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 75

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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:

No evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 76

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	25	X	OBL
2. Polypogon monspeliensis	30	X	FACW
3. Hordeum brachyantherum	25	X	FACW
4. Hordeum marinum subsp. gussoneanum	10		FAC
5. Festuca perennis	10		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria. Lythrum hyssopifolia present.

SOIL

Sampling Point: 76

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	75	5YR 5/8	25	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 77

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
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. Eryngium aristulatum var. aristulatum	10		OBL
3. Rumex crispus	30	X	FAC
4. Hordeum marinum subsp. gussoneanum	20	X	FAC
5. Malvella leprosa	10		FACU
6. Festuca perennis	15		FAC
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 77

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	80	5YR 5/8	20	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 78

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Vicia sativa	15		FACU
2. Bromus hordeaceus	50	X	FACU
3. Festuca perennis	20	X	FAC
4. Elymus caput-medusae	15		UPL
5. Malvella leprosa	10		FACU
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	20	x 3 =	60
FACU species	75	x 4 =	300
UPL species	15	x 5 =	75
Column Totals:	110 (A)		435 (B)

Prevalence Index = B/A = 3.95

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 78

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	90	5YR 5/8	10	C	Pl	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 79

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	30	X	OBL
2. Polypogon monspeliensis	30	X	FACW
3. Plagiobothrys stipitatus var. micranthus	20	X	FACW
4. Lotus corniculatus	15		FAC
5. Convolvulus arvensis	5		Upl
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 79

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	10YR 3/2	70	5YR 5/8	30	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

30% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 80

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cotula coronopifolia	20	X	OBL
2. Eryngium aristulatum var. aristulatum	40	X	FACW
3. Plagiobothrys stipitatus var. micranthus	20	X	FACW
4. Lotus corniculatus	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 80

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 3/1	60	5YR 5/8	40	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

40% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology. Vegetation suppression indicating long term inundation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 81

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Convolvulus arvensis	10		UPL
3. Helminthotheca echioides	15		FACU
4. Plantago lanceolata	40	X	FAC
5. Hemizonia congesta ssp. luzulifolia	10		UPL
6. _____			
7. _____			
8. _____			
	115 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	15	x 4 =	60
UPL species	60	x 5 =	300
Column Totals:	115 (A)		480 (B)

Prevalence Index = B/A = 4.7

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 81

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	90	5YR 5/8	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 82

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Lotus corniculatus	15		FAC
2. Plagiobothrys stipitatus var. micranthus	10		FACW
3. Festuca perennis	40	X	FAC
4. Hordeum marinum subsp. gussoneanum	20	X	FAC
5. Polypogon monspeliensis	10		FACW
6. Eryngium aristulatum var. aristulatum	20	X	OBL
7.			
8.			
	115 = 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 82

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	85	5YR 5/8	15	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 83

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hemizonia congesta ssp. luzulifolia	50	X	UPL
2. Festuca perennis	30	X	FAC
3. Bromus hordeaceus	20	X	FACU
4. Helminthotheca echioides	10		FACU
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 83

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	90	5YR 5/6	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 84

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lythrum hyssopifolia	20	X	OBL
2. Cotula coronopifolia	10		OBL
3. Eryngium aristulatum var. aristulatum	30	X	OBL
4. Plagiobothrys stipitatus var. micranthus	20	X	FACW
5. Polypogon monspeliensis	20	X	FACW
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 84

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	70	5YR 5/8	30	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

30% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 85

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	50	X	FACU
2. Convolvulus arvensis	5		UPL
3. Triphysaria versicolor	20	X	UPL
4. Plantago lanceolata	20	X	FAC
5. Elymus caput-medusae	5		UPL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 85

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	5YR 5/6	5	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 86

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	30	X	OBL
2. Rumex crispus	30	X	FAC
3. Festuca perennis	60	X	FAC
4. Lotus corniculatus	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 86

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	80	5YR 4/6	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 87

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	80	X	UPL
2. Avena barbata	10		UPL
3. Helminthotheca echioides	30	X	FACU
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 87

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	90	5YR 5/6	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 88

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	35	X	OBL
2. Festuca perennis	35	X	FAC
3. Rumex crispus	10		FACU
4. Polypogon monspeliensis	10		FAC
5. Hordeum marinum subsp. gussoneanum	10		FAC
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 88

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	80	5YR 5/8	20	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Oxidized rhizospheres indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 89

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	45	X	UPL
2. Plantago lanceolata	30	X	FAC
3. Bromus hordeaceus	20	X	FACU
4. Festuca perennis	15		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 89

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	5YR 5/6	5	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 90

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Convolvulus arvensis	10		FAC
2. Plantago lanceolata	15		FAC
3. Leontodon saxatilis subsp. longirostris	25	X	FACU
4. Bromus hordeaceus	30	X	FAC
5. Elymus caput-medusae	20	X	UPL
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 90

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	85	5YR 5/8	15	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 91

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Centaurea calcitrapa	20	X	UPL
2. Plantago lanceolata	15		FAC
3. Rumex acetosella	30	X	FACU
4. Bromus hordeaceus	10		FACU
5. Lotus corniculatus	10		FAC
6. Convolvulus arvensis	15		UPL
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 00 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 91

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	80	5YR 5/8	20	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 92

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hemizonia congesta ssp. luzulifolia	60	X	UPL
2. Festuca perennis	25	X	FAC
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Plantago lanceolata	5		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	_____	x 4 =	_____
UPL species	60	x 5 =	300
Column Totals:	100 (A)		420 (B)

Prevalence Index = B/A = 4.2

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 92

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	10YR 4/2	92	5YR 4/6	8	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

8% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 93

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Aegilops triuncialis	70	X	UPL
2. Hemizonia congesta ssp. luzulifolia	5		UPL
3. Bromus diandrus	10		UPL
4. Erodium cicutarium	10		UPL
5. Convolvulus arvensis	5		UPL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 93

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	10YR 4/2	92	5YR 4/6	8	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

8% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/23/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 94

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Hemizonia congesta ssp. luzulifolia	5		UPL
3. Leontodon saxatilis subsp. longirostris	20		FACU
4. Plantago lanceolata	30		FAC
5. Rumex crispus	15		FAC
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 94

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	10YR 4/2	92	5YR 4/6	8	C	PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

8% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 95

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hemizonia congesta ssp. luzulifolia	50	X	UPL
2. Trifolium subterraneum	5		UPL
3. Festuca perennis	30	X	FAC
4. Phalaris paraxoda	10		FAC
5. Hordeum marinum subsp. gussoneanum	5		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	45	x 3 =	135
FACU species	_____	x 4 =	_____
UPL species	55	x 5 =	275
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.1

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 95

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 2/2	95	5YR 5/8	5	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Marginal evidence of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 96

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Topographic low is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Phalaris paradoxa	30	X	FAC
2. Polypogon monspeliensis	30	X	OBL
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Festuca perennis	20	X	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 96

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 2/2	90	5YR 5/8	10	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Deep hoof prints.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 97

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Helminthotheca echioides	50	X	FACU
2. Festuca perennis	20	X	FAC
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Anthemis cotula	20	X	FACU
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 97

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 4/2	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox. Imported fill material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 98

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Lotus corniculatus	10		FAC
2. Helminthotheca echioides	40	X	FACU
3. Trifolium subterraneum	40	X	UPL
4. Hemizonia congesta ssp. luzulifolia	10		UPL
5. Festuca perennis	25	X	FAC
6. _____			
7. _____			
8. _____			
	125 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 98

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 2/2	90	5YR 5/8	10	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 99

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum marinum subsp. gussoneanum	10		FAC
2. Helminthotheca echioides	20	X	FACU
3. Elymus caput-medusae	50	X	UPL
4. Hemizonia congesta ssp. luzulifolia	20	X	UPL
5. Deinandra corymbosa	10		UPL
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 99

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	90	5YR 5/8	10	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox. Imported fill material. Mixed soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 100

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	25	X	UPL
2. Hemizonia congesta ssp. luzulifolia	25	X	UPL
3. Festuca perennis	25	X	FAC
4. Trifolium subterraneum	25	X	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 100

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 2/2	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 101

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Festuca perennis	20	X	FAC
3. Hemizonia congesta ssp. luzulifolia	20	X	UPL
4. Bromus hordeaceus	10		FACU
5. Vicia sativa	10		FACU
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 101

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	5YR 5/8	5	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 102

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	30	X	FAC
2. Bromus hordeaceus	10		FACU
3. Elymus caput-medusae	30	X	UPL
4. Hemizonia congesta ssp. luzulifolia	20	X	UPL
5. Hordeum marinum subsp. gussoneanum	10		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 102

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 2/2	85	5YR 4/6	15	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 103

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	50	X	UPL
2. Festuca perennis	40	X	FAC
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Hemizonia congesta ssp. luzulifolia	10		UPL
5. Vicia Sativa	10		FACU
6. _____			
7. _____			
8. _____			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 50	x 3 =	150
FACU species 10	x 4 =	10
UPL species 60	x 5 =	300
Column Totals: 120 (A)		460 (B)

Prevalence Index = B/A = 3.83

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 103

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 2/2	95	5YR 5/8	5	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 104

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	60	X	FAC
2. Hemizonia congesta ssp. luzulifolia	20	X	UPL
3. Vicia sativa	10		FAC
4. Helminthotheca echioides	10		FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	70	x 3 =	210
FACU species	10	x 4 =	40
UPL species	20	x 5 =	100
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.5

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 104

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 2/2	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 105

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Festuca perennis	40	X	FAC
2. Lotus corniculatus	10		FAC
3. Bromus hordeaceus	20	X	FACU
4. Hemizonia congesta ssp. luzulifolia	10		UPL
5. Helminthotheca echioides	20	X	FACU
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 105

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 2/2	90	5YR 5/8	10	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 106

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	35	X	UPL
2. Festuca perennis	35	X	FAC
3. Hordeum marinum subsp. gussoneanum	10		FAC
4. Hemizonia congesta ssp. luzulifolia	15		UPL
5. Phalaris paradoxa	5		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	50	x 3 =	150
FACU species	_____	x 4 =	_____
UPL species	50	x 5 =	250
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 106

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 2/2	95	5YR 5/8	5	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 107

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
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	20	X	FACU
2. Helminthotheca echioides	30	X	FACU
3. Bromus hordeaceus	10		FACU
4. Festuca perennis	20	X	FAC
5. Trifolium subterraneum	20	X	UPL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 25 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 107

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 2/2	90	5YR 5/8	10	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 108

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Plantago lanceolata	30	X	FAC
2. Bromus diandrus	20	X	UPL
3. Bromus hordeaceus	30	X	FACU
4. Lotus corniculatus	20	X	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	50	x 3 =	150
FACU species	30	x 4 =	120
UPL species	20	x 5 =	100
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.7

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 108

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 2/2	95	5YR 5/8	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 109

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	30	X	UPL
2. Plantago lanceolata	20	X	FAC
3. Bromus hordeaceus	25	X	FACU
4. Hordeum marinum subsp. gussoneanum	15		FAC
5. Briza minor	10		FAC
6. Festuca perennis	10		FAC
7.			
8.			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 109

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 110

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	35	X	UPL
2. Parentucellia viscosa	25	X	FAC
3. Lotus corniculatus	15		FAC
4. Helminthotheca echioides	30	X	FACU
5. Festuca perennis	15		FAC
6. _____			
7. _____			
8. _____			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 110

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	5YR 5/8	5	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 111

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Juncus xiphioides	20	X	OBL
2. Lythrum hyssopifolia	5		OBL
3. Bromus hordeaceus	15		FACU
4. Helminthotheca echioides	15		FACU
5. Lotus corniculatus	25	X	FAC
6. Leontodon saxatilis subsp. longirostris	15		FACU
7. Hordeum marinum subsp. gussoneanum	5		FAC
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 111

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 2/2	95	5YR 5/6	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 112

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by wetland vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	20	X	OBL
2. Eleocharis macrostachya	40	X	OBL
3. Pleuropogon californicus var. californicus	10		OBL
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 112

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	80	5YR 5/8	20	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☒ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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:

Vegetation suppression indicating long term inundation; Deep hoof prints

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 113

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	30	X	UPL
2. Bromus hordeaceus	10		FACU
3. Festuca perennis	20	X	FAC
4. Leontodon saxatilis subsp. longirostris	20	X	FACU
5. Elymus triticoides	20	X	FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	50	x 3 =	150
FACU species	20	x 4 =	80
UPL species	30	x 5 =	150
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.8

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 113

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 114

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum marinum subsp. gussoneanum	30	X	FAC
2. Festuca perennis	15		FAC
3. Centaurea calcitrapa	35	X	UPL
4. Hordeum murinum ssp. leporinum	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	55	x 3 =	165
FACU species	_____	x 4 =	_____
UPL species	35	x 5 =	175
Column Totals:	90 (A)		340 (B)

Prevalence Index = B/A = 3.4

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:

Does not satisfy wetland vegetation criteria. Cirsium vulgare and Raphanus sativus also present

SOIL

Sampling Point: 114

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	5YR 4/4	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 115

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Plagiobothrys stipitatus var. micranthus	20	X	FACW
2. Pleuropogon californicus var. californicus	30	X	OBL
3. Eryngium aristulatum var. aristulatum	20	X	OBL
4. Polypogon monspeliensis	15		FACW
5. Rumex crispus	15		FAC
6. Cotula coronopifolia	10		OBL
7. Hordeum brachyantherum	5		FACW
8. Festuca perennis	5		FAC
	120	= 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria. Cuscata sp. and Lythrum hyssopifolia also present.

SOIL

Sampling Point: 115

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	75	5YR 5/8	25	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 116

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Convolvulus arvensis	10		UPL
3. Festuca perennis	20	X	FAC
4. Bromus hordeaceus	10		FACU
5. Taraxacum officinale	20	X	FACU
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 116

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	90	5YR 5/4	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 117

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Trifolium subterraneum	40	X	UPL
3. Convolvulus arvensis	10		UPL
4. Festuca perennis	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 117

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	85	5YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 118

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	80	X	UPL
2. Leontodon saxatilis subsp. longirostris	5		FACU
3. Convolvulus arvensis	5		UPL
4. Lysimachia arvensis	5		FAC
5. Festuca perennis	5		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria. On the 'hill'

SOIL

Sampling Point: 118

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	5YR 4/6	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 119

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	60	X	UPL
2. Hemizonia congesta ssp. luzulifolia	10		UPL
3. Festuca perennis	40	X	FAC
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	_____	x 4 =	_____
UPL species	70	x 5 =	350
Column Totals:	110 (A)		470 (B)

Prevalence Index = B/A = 4.2

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 119

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	5YR 4/6	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 120

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%) 3

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Elymus caput-medusae	40	X	UPL
2. Leontodon saxatilis subsp. longirostris	10		FACU
3. Bromus hordeaceus	20	X	FACU
4. Festuca perennis	30	X	FAC
5. Centaurea solstitialis	10		UPL
6.			
7.			
8.			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 120

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	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 121

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Helminthotheca echioides	30	X	FACU
2. Elymus caput-medusae	70	X	UPL
3. Vicia sativa	5		FACU
4. Festuca perennis	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	115 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 121

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
fill	10YR 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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox. Mixed Soil Profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 122

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	40	X	UPL
2. Plantago lanceolata	10		FAC
3. Taraxacum officinale	20	X	FACU
4. Festuca perennis	30	X	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 122

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 3/3	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 123

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus hordeaceus	35	X	FACU
2. Elymus caput-medusae	50	X	UPL
3. Leontodon saxatilis subsp. longirostris	5		FACU
4. Plantago lanceolata	10		FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 00 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 123

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	10YR 3/2	98	5YR 4/6	2	C	M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

Insufficient Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 124

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	20	X	UPL
2. Bromus hordeaceus	20	X	FACU
3. Hordeum marinum subsp. gussoneanum	20	X	FAC
4. Festuca perennis	30	X	FAC
5. Helminthotheca echioides	5		FACU
6. Lotus corniculatus	5		FAC
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	55	x 3 =	175
FACU species	25	x 4 =	100
UPL species	20	x 5 =	100
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 124

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	75	5YR 4/6	25	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

25% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 125

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	60	X	UPL
2. Bromus hordeaceus	30	X	FACU
3. Festuca perennis	20	X	FAC
4. Helminthotheca echioides	10		FACU
5.			
6.			
7.			
8.			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 125

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	85	5YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 126

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	100	X	UPL
2. Leontodon saxatilis subsp. longirostris	10		FACU
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
	110 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 126

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	5YR 5/4	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 127

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	50	X	UPL
2. Festuca perennis	40	X	FAC
3. Hemizonia congesta ssp. luzulifolia	10		UPL
4. Bellardia trixago	10		UPL
5.			
6.			
7.			
8.			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	_____	x 4 =	_____
UPL species	70	x 5 =	350
Column Totals:	110 (A)		470 (B)

Prevalence Index = B/A = 4.27

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 127

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	80	5YR 4/4	20	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 128

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Trifolium subterraneum	40	X	UPL
2. Leontodon saxatilis subsp. longirostris	5		FACU
3. Bromus hordeaceus	20	X	FACU
4. Festuca perennis	20	X	FAC
5. Helminthotheca echioides	5		FACU
6. Hordeum marinum subsp. gussoneanum	10		FAC
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 128

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	85	5YR 4/4	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 129

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	30	X	UPL
2. Hordeum marinum subsp. gussoneanum	30	X	FAC
3. Bromus hordeaceus	20	X	FACU
4. Festuca perennis	20	X	FAC
5. _____			
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	50	x 3 =	150
FACU species	20	x 4 =	80
UPL species	30	x 5 =	150
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.8

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 129

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	5YR 4/4	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 130

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Deinandra corymbosa	40	X	UPL
2. Festuca perennis	40	X	FAC
3. Briza minor	15		FAC
4. Plantago lanceolata	15		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	110 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 70	x 3 = 210
FACU species _____	x 4 = _____
UPL species 40	x 5 = 200
Column Totals: 110 (A)	410 (B)

Prevalence Index = B/A = 3.72

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 130

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	5YR 4/6	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 131

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	30	X	OBL
2. Lythrum hyssopifolia	15		OBL
3. Hordeum marinum subsp. gussoneanum	30	X	FAC
4. Festuca perennis	25	X	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 131

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	80	5YR 4/6	20	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

20% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 132

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Deinandra corymbosa	20	X	UPL
2. Elymus caput-medusae	70	X	UPL
3. Festuca perennis	20	X	FAC
4. Hordeum marinum subsp. gussoneanum	10		FAC
5. _____			
6. _____			
7. _____			
8. _____			
	120 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 132

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	90	5YR 4/4	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 133

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	35	X	OBL
2. Hordeum marinum subsp. gussoneanum	35	X	FAC
3. Rumex crispus	15		FAC
4. Plagiobothrys stipitatus var. micranthus	10		FACW
5. Festuca perennis	15		FAC
6. _____			
7. _____			
8. _____			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 133

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	85	5YR 4/6	15	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

15% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 134

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	35	X	OBL
2. Lotus corniculatus	20	X	FAC
3. Polypogon monspeliensis	25	X	FACW
4. Rumex crispus	20	X	FAC
5. Festuca perennis	10		FAC
6. Hordeum marinum subsp. gussoneanum	10		FAC
7.			
8.			
	120 = 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: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 134

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 3/1	90	5YR 4/4	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 135

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum brachyantherum	35	X	FACW
2. Hordeum marinum subsp. gussoneanum	20	X	FAC
3. Polypogon monspeliensis	15		FACW
4. Lotus corniculatus	20	X	FAC
5. Festuca perennis	10		FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 136

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	90	5YR 4/6	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 136

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Seasonally inundated depression is dominated by hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Eryngium aristulatum var. aristulatum	25	X	OBL
2. Polypogon monspeliensis	35	X	FACW
3. Hordeum brachyantherum	15		FACW
4. Rumex crispus	10		FAC
5. Lotus corniculatus	15		FAC
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

Satisfies wetland vegetation criteria.

SOIL

Sampling Point: 136

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	90	5YR 5/6	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 137

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	40	X	UPL
2. Festuca perennis	20	X	FAC
3. Hordeum marinum subsp. gussoneanum	20	X	FAC
4. Helminthotheca echioides	10		FACU
5. Bromus hordeaceus	30	X	FACU
6. _____			
7. _____			
8. _____			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	40	x 5 =	200
Column Totals:	120 (A)		380 (B)

Prevalence Index = B/A = 3.17

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 137

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	90	5YR 5/4	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 138

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Deinandra corymbosa	30	X	UPL
2. Taraxacum officinale	15		FACU
3. Parentucellia viscosa	10		FACU
4. Elymus caput-medusae	20	X	UPL
5. Bromus diandrus	30	X	UPL
6. _____			
7. _____			
8. _____			
	105 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is: ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 138

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	98	5YR 5/4	2	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

Insufficient Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 139

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Hordeum marinum subsp. gussoneanum	15		FAC
2. Elymus caput-medusae	40	X	UPL
3. Festuca perennis	30	X	FAC
4. Deinandra corymbosa	15		FACU
5. _____			UPL
6. _____			
7. _____			
8. _____			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	45	x 3 =	135
FACU species	15	x 4 =	60
UPL species	40	x 5 =	200
Column Totals:	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 139

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	90	5YR 4/4	10	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

10% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 140

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	35	X	UPL
2. Bromus hordeaceus	35	X	FACU
3. Festuca perennis	20	X	FAC
4. Vicia sativa	10		FACU
5. Hemizonia congesta ssp. luzulifolia	5		UPL
6.			
7.			
8.			
	105 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 140

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	5YR 4/6	5	C	M/PL	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (Cl)
- ☒ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 141

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus caput-medusae	50	X	UPL
2. Festuca perennis	50	X	FAC
3. Deinandra corymbosa	5		UPL
4.			
5.			
6.			
7.			
8.			
	105 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 50	x 3 =	150
FACU species _____	x 4 =	_____
UPL species 55	x 5 =	275
Column Totals: 105 (A)		425 (B)

Prevalence Index = B/A = 4.04

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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 141

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 2/2	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

No Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☐ 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: Giovannoni City/County: American Canyon, Napa Sampling Date: 05/26/16

Applicant/Owner: Giovannoni Trust State: CA Sampling Point: 142

Investigator(s): Hope Kingma, Devin Jokerst Section, Township, Range: Section 11&14, Township 4 North, Range 4 West

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

Subregion (LRR): California Lat: 38 11' 56.61" N Long: 122 16' 0.82" W Datum: NAD83

Soil Map Unit Name: Haire loam, 2 to 9 percent slopes 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:

Upland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Helminthotheca echioides	10		FACU
2. Hemizonia congesta ssp. luzulifolia	25	X	UPL
3. Elymus caput-medusae	10		UPL
4. Hordeum marinum subsp. gussoneanum	5		FAC
5. Leontodon saxatilis subsp. longirostris	10		FACU
6. Festuca perennis	20	X	FAC
7. Trifolium subterraneum	20	X	UPL
8. _____			
	105 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 33 (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:

Does not satisfy wetland vegetation criteria.

SOIL

Sampling Point: 142

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	10YR 2/2	95	5YR 4/4	5	C	PL/M	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 (Al)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (Al 1)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (Sl)
- ☐ Sandy Gleyed Matrix **(S4)**
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (Fl)
- ☐ 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 SoilS3:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (I-RR 13)
- ☐ 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:

5% Redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one reciuired: check all that apply)

- ☐ Surface Water (Al)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (BI) **(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 (B1 1)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (CI)
- ☒ 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:

Attachment A: Table of Aquatic Resources

Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
W 1	PEM2	DEPRESS	Area	9,063	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 2	PEM2	DEPRESS	Area	44,951	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 3	PEM2	DEPRESS	Area	357	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 4	PEM2	DEPRESS	Area	472	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 5	PEM2	DEPRESS	Area	208	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 6	PEM2	DEPRESS	Area	23	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 7	PEM2	DEPRESS	Area	1,970	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 8	PEM2	DEPRESS	Area	164	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 9	PEM2	DEPRESS	Area	253	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 10	PEM2	DEPRESS	Area	485	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 11	PEM2	DEPRESS	Area	110	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 12	PEM2	DEPRESS	Area	271	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 13	PEM2	DEPRESS	Area	35	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 14	PEM2	DEPRESS	Area	24	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 15	PEM2	DEPRESS	Area	495	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 16	PEM2	DEPRESS	Area	144,468	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 17	PEM2	DEPRESS	Area	1,972	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 18	PEM2	DEPRESS	Area	33	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 19	PEM2	DEPRESS	Area	64	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 20	PEM2	DEPRESS	Area	290	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 21	PEM2	DEPRESS	Area	202	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 22	PEM2	DEPRESS	Area	354	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 23	PEM2	DEPRESS	Area	350	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 24	PEM2	DEPRESS	Area	3,371	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 25	PEM2	DEPRESS	Area	3,102	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 26	PEM2	DEPRESS	Area	603	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 27	PEM2	DEPRESS	Area	144	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 28	PEM2	DEPRESS	Area	140	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 29	PEM2	DEPRESS	Area	1,510	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 30	PEM2	DEPRESS	Area	221	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 31	PEM2	DEPRESS	Area	181	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 32	PEM2	DEPRESS	Area	302	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 33	PEM2	DEPRESS	Area	4,647	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 34	PEM2	DEPRESS	Area	1,637	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 35	PEM2	DEPRESS	Area	43	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 36	PEM2	DEPRESS	Area	297	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 37	PEM2	DEPRESS	Area	130	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 38	PEM2	DEPRESS	Area	75	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 39	PEM2	DEPRESS	Area	765	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 40	PEM2	DEPRESS	Area	358	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 41	PEM2	DEPRESS	Area	951	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 42	PEM2	DEPRESS	Area	267	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 43	PEM2	DEPRESS	Area	36	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 44	PEM2	DEPRESS	Area	1,151	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 45	PEM2	DEPRESS	Area	1,112	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 46	PEM2	DEPRESS	Area	40	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 47	PEM2	DEPRESS	Area	200	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 48	PEM2	DEPRESS	Area	389	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 49	PEM2	DEPRESS	Area	988	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek

Attachment A: Table of Aquatic Resources

W 50	PEM2	DEPRESS	Area	38	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 51	PEM2	DEPRESS	Area	5,161	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 52	PEM2	DEPRESS	Area	10	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 53	PEM2	DEPRESS	Area	309	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 54	PEM2	DEPRESS	Area	665	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 55	PEM2	DEPRESS	Area	315	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 56	PEM2	DEPRESS	Area	362	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 57	PEM2	DEPRESS	Area	45	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 58	PEM2	DEPRESS	Area	154	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 59	PEM2	DEPRESS	Area	56	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 60	PEM2	DEPRESS	Area	71	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 61	PEM2	DEPRESS	Area	1914	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 62	PEM2	DEPRESS	Area	249	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 63	PEM2	DEPRESS	Area	3903	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 64	PEM2	DEPRESS	Area	47	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 65	PEM2	DEPRESS	Area	115	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 66	PEM2	DEPRESS	Area	172	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 67	PEM2	DEPRESS	Area	808	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 68	PEM2	DEPRESS	Area	1397	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 69	PEM2	DEPRESS	Area	116	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 70	PEM2	DEPRESS	Area	197	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 71	PEM2	DEPRESS	Area	148	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 72	PEM2	DEPRESS	Area	10123	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 73	PEM2	DEPRESS	Area	6,448	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 74	PEM2	DEPRESS	Area	47	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 75	PEM2	DEPRESS	Area	978	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 76	PEM2	DEPRESS	Area	55	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 77	PEM2	DEPRESS	Area	785	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 78	PEM2	DEPRESS	Area	4858	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 79	PEM2	DEPRESS	Area	2,320	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 80	PEM2	DEPRESS	Area	2,253	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 81	PEM2	DEPRESS	Area	1,441	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 82	PEM2	DEPRESS	Area	688	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 83	PEM2	DEPRESS	Area	2655	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 84	PEM2	DEPRESS	Area	9,569	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 85	PEM2	DEPRESS	Area	74	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 86	PEM2	DEPRESS	Area	2188	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 87	PEM2	DEPRESS	Area	149	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 88	PEM2	DEPRESS	Area	222087	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 89	PEM2	DEPRESS	Area	195	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W 90	PEM2	DEPRESS	Area	3151	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 1	PEM2	DEPRESS	Area	115	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 2	PEM2	DEPRESS	Area	225	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 3	PEM2	DEPRESS	Area	8	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 4	PEM2	DEPRESS	Area	38	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 5	PEM2	DEPRESS	Area	1,410	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 6	PEM2	DEPRESS	Area	394	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 7	PEM2	DEPRESS	Area	253	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 8	PEM2	DEPRESS	Area	197	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek

Attachment A: Table of Aquatic Resources

LW 9	PEM2	DEPRESS	Area	87	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 10	PEM2	DEPRESS	Area	1,044	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 11	PEM2	DEPRESS	Area	150	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
LW 12	PEM2	DEPRESS	Area	130	SQ_FT	NRPWW	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 1	PEM2	DEPRESS	Area	62	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 2	PEM2	DEPRESS	Area	97	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 3	PEM2	DEPRESS	Area	229	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 4	PEM2	DEPRESS	Area	3,117	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 5	PEM2	DEPRESS	Area	17019	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 6	PEM2	DEPRESS	Area	935	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 7	PEM2	DEPRESS	Area	853	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 8	PEM2	DEPRESS	Area	481	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 9	PEM2	DEPRESS	Area	2,625	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 10	PEM2	DEPRESS	Area	1159	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
IW 11	PEM2	DEPRESS	Area	12725	SQ_FT	ISOLATE	38º11' 56.61" N	122º16' 0.82" W	No Name Creek
W = Seasonal Wetland									
LW = Linear Wetland									
IW = Isolated Wetland									

C.3 - USACE 2016 Weland Verification Map

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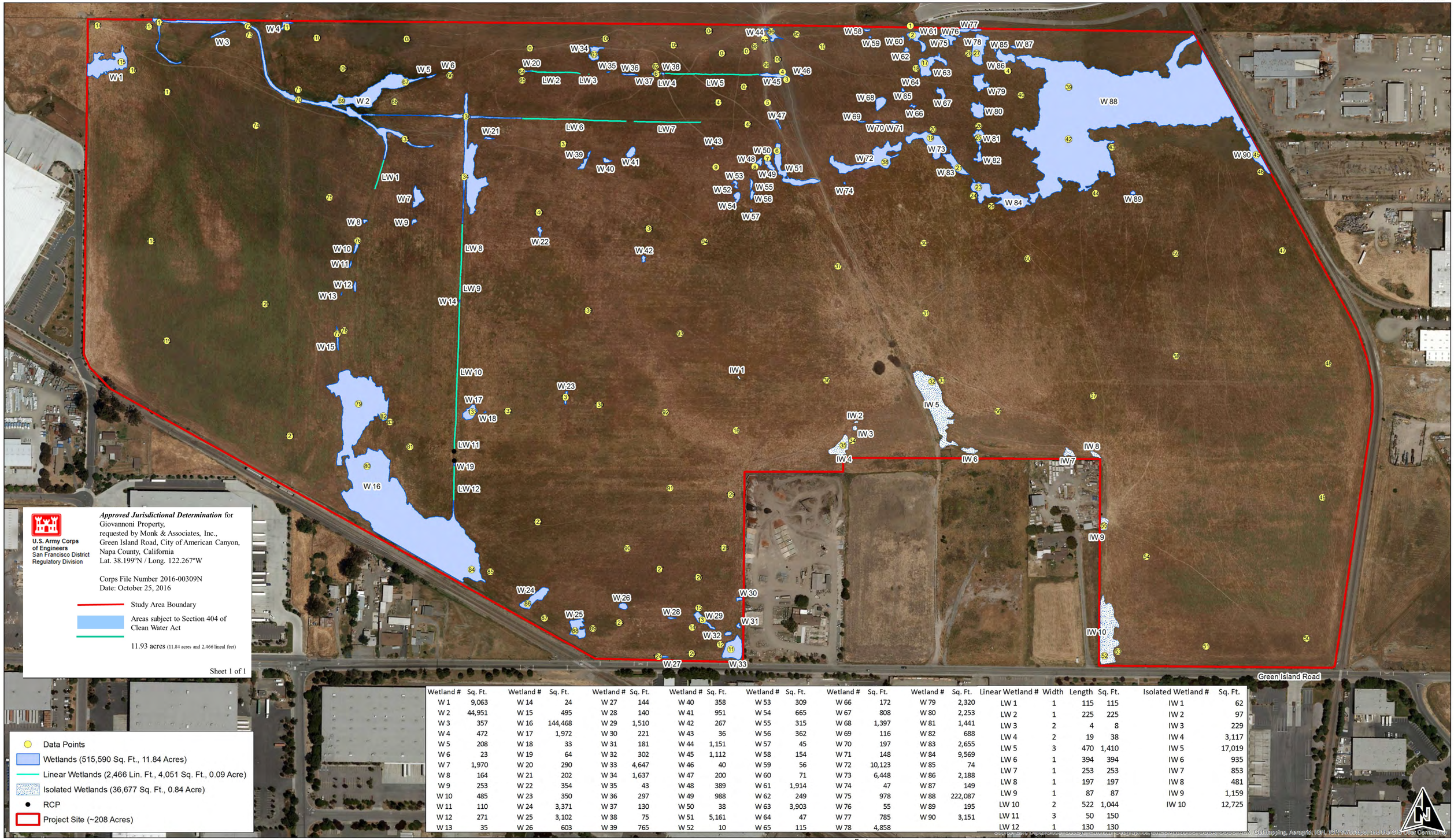

U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination for
Giovannoni Property,
requested by Monk & Associates, Inc.,
Green Island Road, City of American Canyon,
Napa County, California
Lat. 38.199°N / Long. 122.267°W

Corps File Number 2016-00309N
Date: October 25, 2016

Study Area Boundary

Areas subject to Section 404 of Clean Water Act

11.93 acres (11.84 acres and 2,466 lineal feet)

Sheet 1 of 1

- Data Points
- Wetlands (515,590 Sq. Ft., 11.84 Acres)
- Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Isolated Wetlands (36,677 Sq. Ft., 0.84 Acre)
- RCP
- Project Site (~208 Acres)

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Linear Wetland #	Width	Length	Sq. Ft.
LW 1	1	115	115
LW 2	1	225	225
LW 3	2	4	8
LW 4	2	19	38
LW 5	3	470	1,410
LW 6	1	394	394
LW 7	1	253	253
LW 8	1	197	197
LW 9	1	87	87
LW 10	2	522	1,044
LW 11	3	50	150
LW 12	1	130	130

Isolated Wetland #	Sq. Ft.
IW 1	62
IW 2	97
IW 3	229
IW 4	3,117
IW 5	17,019
IW 6	935
IW 7	853
IW 8	481
IW 9	1,159
IW 10	12,725

0 100 200 400 600 800 1,000 Feet

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Sheet 1. Confirmed Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Scale: 1 inch = 200 feet
Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Confirmation Date: September 26, 2016
Map Confirmed by Daniel Breen, Corps
Map Preparation Date: October 25, 2016

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C.4 - LSA 2016 Dry Season Branchiopods Report

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BERKELEY
CARLSBAD
FRESNO
IRVINE
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

November 23, 2016

Sarah Markegard
Recovery Permit Coordinator
U. S. Fish and Wildlife Service
2800 Cottage Way, Room W2605
Sacramento, CA 95825

Subject: Results of 2016 Dry Season Listed Branchiopod Surveys for the Giovonnoni Property and Devlin Road/Vine Trail Extension,
Napa County, California,
(USFWS Reference No. 2012-TA-0388)

Dear Ms. Markegard:

This letter provides the results of a dry season presence/absence survey for listed branchiopods. The survey was performed by LSA Inc. (LSA) for Monk and Associates, Inc. (Monk Asso.) during the summer of 2016 to document the presence or absence of the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (VPFS) within Devlin Road/Vine Trail Extension and the 210–acre Giovonnoni Property (Study Site). The Study Site is located just south of the Napa Municipal Airport, just north of the City of American Canyon in Napa County, California. (See Figure 1). The dry season survey was conducted according to federal standards and serves as one part of the full protocol necessary to determine the presence or absence of listed branchiopods on the Study Site.

The Study Site, near the southern end of the Napa Valley, is located west of California State Highway 29 and just east of the Napa River in Central Napa County, California. The property can be found within the NW ¼ of Section 13 and the NE ¼ of Section 14, with smaller portions in the SE1/4 of Section 11 and the SW corner of the SW ¼ of Section 12, Township 4 North, Range 4 West on the Cuttings Wharf, California 7.5-minute USGS quadrangle and is roughly centered at UTM 4,228,200N/564,250E. (refer to Figures 1). The Study Site is bounded by Devlin Road and open space to the north, the Biagi Brothers warehouse on the west, railroad tracks owned by Union Pacific on the east and Green Island Road and additional Union Pacific railroad tracks to the south. Several smaller parcels extend into the Study Site from Green Island Road. Open lands used to graze livestock and buffer the Napa Municipal Airport extend to the north. Warehouses and light industrial complexes surround the Study Site on the remaining three sides, with some open lands and vineyards beyond.

The Study Site consists of two separate parcels (See Figure 2). The larger property, the Giovonnoni property, consists of 212 acres of fallow lands currently used for grazing. Historical photos indicate the property may have been used for dry farming occasionally in the past. The second parcel includes location of theDevlin Road/ Vine Train Extension that bisects the Giovonnoni Property from

157 Park Place. Pt. Richmond, California 94801 510.236.6810 www.lsa.net

north to south. The two parcels are located within the one property and were surveyed at the same time.

METHODS

The 2016 dry season surveys of the Study Site were conducted by LSA Senior Biologist David Muth (under Federal 10(a)(1)(A) Permits TE-797345 and TE-839213) in accordance with the United States Fish and Wildlife Service *Survey Guidelines for the Listed Large Branchiopods* date May 31, 2015. The surveys were approved by you (Sarah Markegard) in a letter to Sarah Lynch of Monk Asso. on August 18, 2016.

Mr. Muth collected a series of 10 ml soil aliquots from each of the potential habitat areas in the Study Site on August 23, 2016. The number of aliquots varied depending on the size of the feature, but followed the requirements specified in the USFWS Guidelines. The soil was dry at the time of collection and stored in plastic zip-lock bags marked to indicate the site of collection.

The soil was processed by Mr. Muth on September 9 and 30, and October 10, 2016. Samples were processed individually by placing the collected material into five-gallon buckets filled with 1 to 2 gallons of 5% brine solution to resaturate soils. During the approximately 10 to 15 minutes saturation period, the bucket was occasionally stirred to ensure all biological material was released and floated to the surface. In small aliquots, the biological material was poured through a series of four sieves with mesh sizes of 710, 355, 212 and 150 microns. The sieves were stacked with the largest mesh size at the top to the smallest mesh size on the bottom. Material was washed through the set with water. Particles trapped in the two smallest sieve sizes were saved for analysis by washing them onto blotter paper to dry.

The sieved material was examined by Mr. Muth on October 12, 14 and 30, 2016 using a 10 to 40 power Olympus stereo-optic scope. A reference cyst collection was available and could be used when necessary for comparison of any cysts found in the samples. Soil material will be stored with LSA until final deposition can be arranged.

RESULTS

Soil samples were collected from 22 features within the Study Site (See Figure 2). All of the features sampled for this survey are either highly disturbed, seasonal wetland remnants or the artificial result of historical disking and other land disturbances. The features are fed water from direct rainfall or adjacent runoff. Most of the suitable habitat observed in the Study Site features appeared to be far less than the potential wetland area indicated on a preliminary Army Corps of Engineers jurisdictional delineation. In only five features (W-1, W-16, W-89, W-95 and W-101), were suitable habitat areas equal to the wetland area. Characteristics and delineated area of the features are provided as part of Table A.

No cysts from any listed genera of fairy shrimp or tadpole shrimp were observed in any of the processed soil samples. Most did contain some evidence of aquatic invertebrates (microscopic material such as copepod eggs, cladoceran ephippium, and/or ostracod shells) typically associated with seasonally ponding features that support invertebrate fauna.

Table A – Feature Characteristics and Results of Dry Season Surveys, Giovonnoni Property, Napa County

Feature	Delineated Area	Origin	Fairy or Tadpole Shrimp Eggs Found in Samples
W-1	9,063 sq. ft.	Swale blocked by minor berm, compacted soils	None, no anostroca or notostroca eggs
W-2	44,951	Shallow, low area in drainage Topographic low area associated with constructed drain channel	None, no anostroca or notostroca eggs
W-16	144,468	Swale blocked by railroad berm	None, no anostroca or notostroca eggs
W-24	3,371	Topographic depression	None, no anostroca or notostroca eggs
W-25	3,102	Topographic depression	None, no anostroca or notostroca eggs
W-33	4,647	Low area blocked by road and adjacent parcel, compacted soils	None, no anostroca or notostroca eggs
W-44	1,151	Shallow topographic depression, compacted soils	None, no anostroca or notostroca eggs
W-51	5,161	Low area in drainage	None, no anostroca or notostroca eggs
W-62	1,914	Shallow topographic depression	None, no anostroca or notostroca eggs
W-64	3,903	Shallow seasonal wetland remnant	None, no anostroca or notostroca eggs
W-73	10,123	Shallow seasonal wetland remnant	None, no anostroca or notostroca eggs
W-74	6,448	Shallow seasonal wetland remnant	None, no anostroca or notostroca eggs
W-79	4,858	Seasonal wetland remnant	None, no anostroca or notostroca eggs
W-80	2,320	Shallow seasonal wetland remnant	None, no anostroca or notostroca eggs
W-84	2,655	Seasonal wetland remnant	None, no anostroca or notostroca eggs
W-85	9,569	Seasonal wetland remnant, part of 89	None, no anostroca or notostroca eggs

Feature	Delineated Area	Origin	Fairy or Tadpole Shrimp Eggs Found in Samples
W-87	2,188	Shallow seasonal wetland remnant	None, no anostroca or notostroca eggs
W-89	222,087	Swale blocked by railroad berm	None, no anostroca or notostroca eggs
W-91	3,151	Low area along fence, part of 89	None, no anostroca or notostroca eggs
W-94	3,117	Shallow topographic depression	None, no anostroca or notostroca eggs
W-95	17,019	Swale blocked by abandoned road, compacted soils	None, no anostroca or notostroca eggs
W-101	12,725	Low area blocked by road and adjacent parcel, compacted soils	None, no anostroca or notostroca eggs

CONCLUSIONS

No cysts (eggs) from any genus of listed vernal branchiopod were found within any of the samples collected and processed during this 2016 protocol level dry season survey. Based on this dry season survey, it does not appear that listed large branchiopods occur on the Giovonnoni Property or the Devlin Road and Vine Trail Expansion site. A wet season survey will be required to complete the federal protocol and make a final determination regarding the potential presence or absence of these species.

Please contact me if you require any additional information.

Sincerely,

LSA ASSOCIATES, INC.

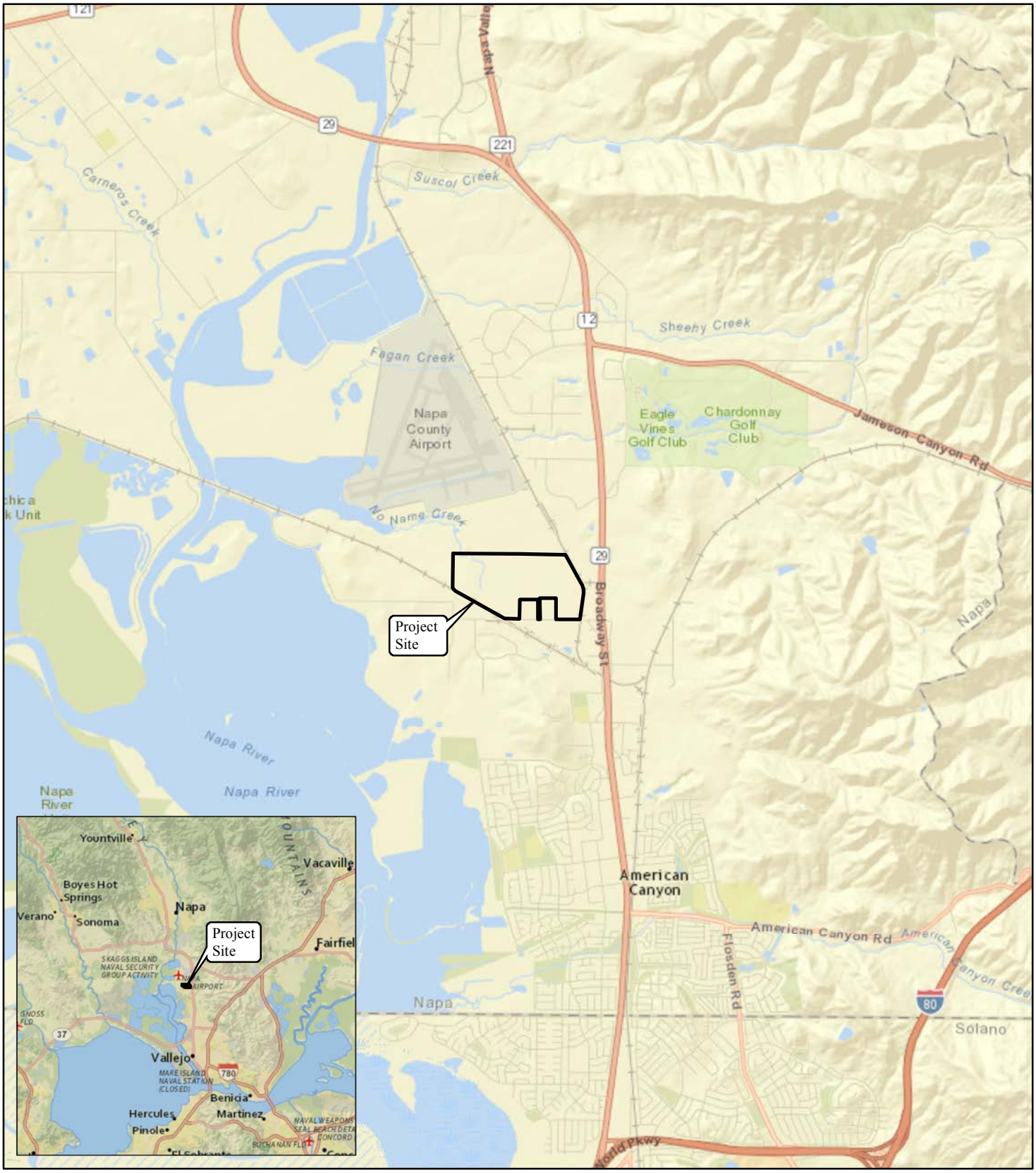
David Muth
Senior Herpetologist

Attachments: Certification
Figure 1: Regional and Project Location
Figure 2: Locations of Vernal Pool Fairy Shrimp on the Study Site
Data Sheets

cc:
Sarah Lynch, Monk and Associates

I CERTIFY THAT THE INFORMATION IN THIS SURVEY REPORT AND ATTACHED EXHIBITS FULLY AND ACCURATELY REPRESENTS MY WORK:

SURVEYOR:	PERMIT NUMBER	DATE:
	TE-797234/TE-839213	November 23, 2016
David Muth		



LSA

FIGURE 1

N

0 2500 5000

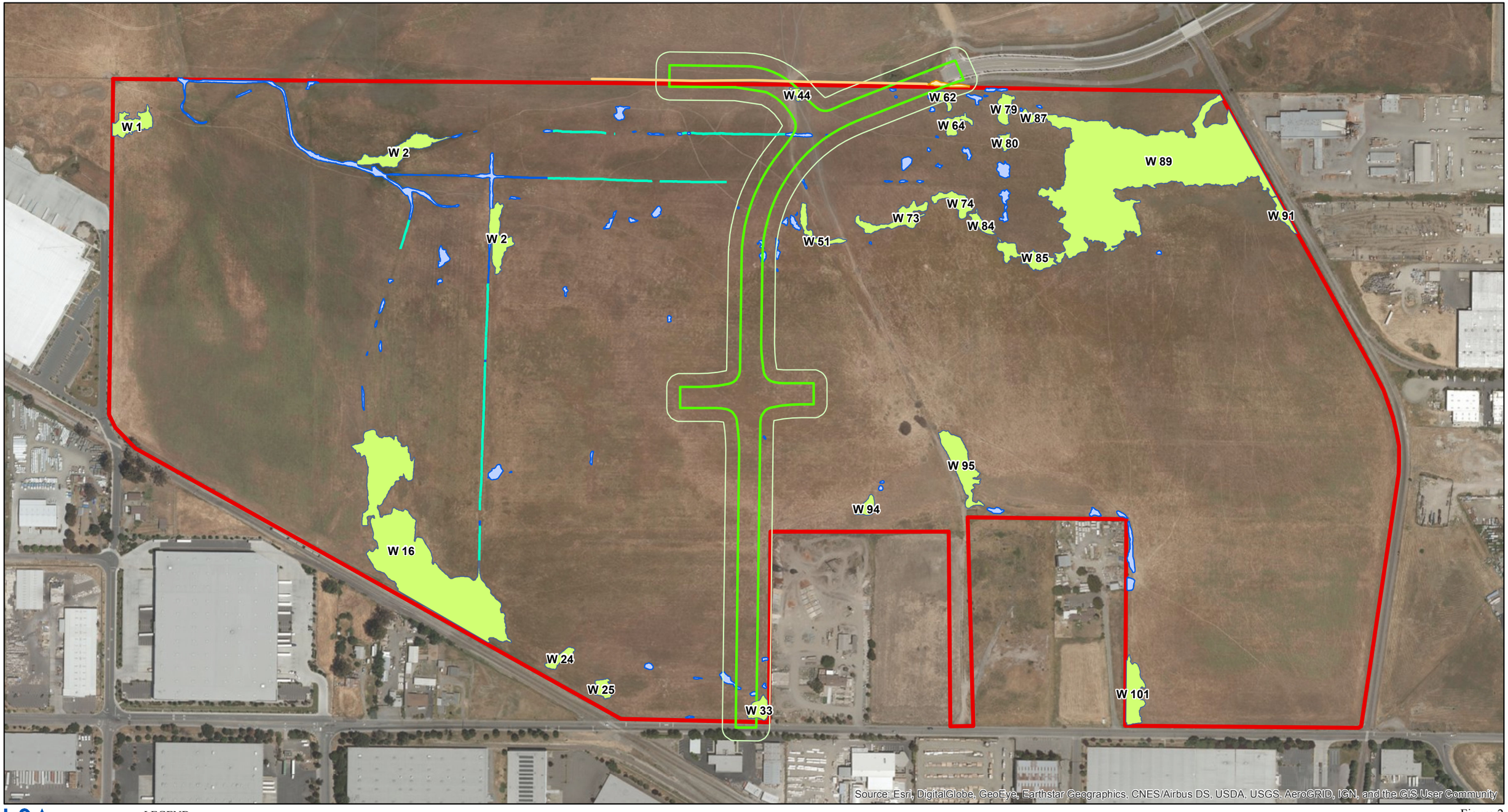
FEET

SOURCE: ESRI World Streetmap, National Geographic World Map

I:\MSA1603\GIS\Maps\Figure 1_Regional Location and Project Site.mxd (11/22/2016)

Giovannoni Property
American Canyon, Napa County, California

Regional Location and Project Site



LSA

LEGEND

- Project Site (~210 Acres)
- Proposed Alignment (4.5 Acres)
- 50 Ft Buffer Proposed Alignment
- Wetlands (554,892 Sq. Ft., 12.74 Acres)
- Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Constructed Wetland (1,762 Sq. Ft., 0.04 Acre)
- Construction Related Linear Wetland (1,263 Lin. Ft., 2,526 Sq. Ft., 0.06 Area)
- Wetland Sampled for 2016 Dry Season Survey

N

0 175 350
FEET

SOURCE: Length/area dimensions and preliminary wetland delineation from Monk & Associates.

I:\MSA1603\GIS\Maps\Bio\Aquatic Monitoring\Figure 2_2016 Dry Season Surveys.mxd (11/23/2016)

Figure 2

Giovannoni Property

Features Sampled for 2016 Dry Season Surveys

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C.5 - M & A 2017 Wet Branchiopods Season Report

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MONK & ASSOCIATES
Environmental Consultants

VERNAL POOL BRANCHIOPOD SURVEYS ON THE GIOVANNONI PROPERTY AND THE DEVLIN ROAD AND VINE TRAIL EXTENSION PROJECT SITE CITY OF AMERICAN CANYON, NAPA COUNTY, CALIFORNIA

Service File No. 2012-TA-0388

March 31, 2017

Prepared for:

U.S. Fish and Wildlife Service
Sacramento Field Office
Recovery Branch
2800 Cottage Way, Room W2605
Sacramento, California 95825-1846

Attention: Ms. Sarah Markegard, Recovery Permit Coordinator
Mr. Ryan Olah, Coast-Bay Division Chief

Prepared by:

Monk & Associates, Inc.
Contact: Ms. Sarah Lynch

SUMMARY

In the winter of 2016-2017, Monk & Associates, Inc. (M&A) conducted wet season protocol surveys for federally-listed large vernal pool Branchiopods on the Giovannoni Property which includes the Devlin Road and Vine Trail Extension project site in the City of American Canyon, Napa County, California (Figures 1 and 2). The Giovannoni Property (herein referred to as the "project site") is located west of Highway 29 and east of the Napa River. During appropriately timed, protocol wet season surveys M&A did not identify any fairy shrimp species or vernal pool tadpole shrimp on the project site. M&A's negative wet season sampling results confirm dry season sampling results obtained by Mr. David Muth of LSA Associates, Inc (LSA) in the summer of 2016. Mr. Muth's dry season sampling results were detailed in LSA's report that was submitted separately to the U.S. Fish and Wildlife Service on November 23, 2016.

TABLE OF CONTENTS

FIGURES

SHEET

ATTACHMENTS

1. INTRODUCTION

In the winter of 2016-2017, Monk & Associates, Inc. (M&A) completed wet season sampling (protocol surveys) for large vernal pool Branchiopods on the Giovannoni Property Project Site (herein referred to as the "project site"). This project site is located west of Highway 29 and east of the Napa River in the City of American Canyon, Napa County, California (Figures 1 and 2).

Protocol surveys for federally listed vernal pool Branchiopods were conducted in accordance with: (1) U.S. Fish and Wildlife Service's (USFWS) *Guidelines for the Listed Large Branchiopods* (USFWS 2015); (2) the conditions stipulated in M&A's Federal 10(a)(1)(A) permit (number PRT-776608); and (3) M&A's California Department of Fish and Wildlife (CDFW) scientific collector permits. M&A received written authorization to conduct wet season protocol surveys on the project site from USFWS' Sacramento Field Office on August 19, 2016 (email communication between S. Lynch of M&A and Sarah Markegard of the USFWS' Sacramento Field Office).

This report has been prepared in accordance with USFWS' *Guidelines for the Listed Large Branchiopods* (2015) distributed to Federal 10(a)(1)(A) permittees. Below we provide a description of the project site, the purpose for conducting vernal pool Branchiopod surveys on the project site, and our survey methods and results.

2. PROJECT SITE LOCATION AND DESCRIPTION

The approximately 210-acre project site is in northwestern American Canyon, Napa County, California (Figures 1 and 2). The project site is located west of Highway 29 and east of the Napa River. Southern Pacific Railroad and Green Island Road occur along the southern project site boundary, and a freight-only railroad borders the project site to the west. Northeast of the project site there is a recently constructed industrial warehouse (the Napa Logistics Phase I project) and northwest of the project site is an open field with non-native annual grassland and seasonal wetlands that is approved by the City of American Canyon and the resource agencies for development as a commercial warehouse project (the Napa Logistics Phase II project). Industrial businesses occur to the west, east and south of the project site. Figure 2 provides an aerial photograph of the project site that illustrates the project site and the surrounding land use. Figure 3 is a close up aerial photograph of the project site.

The project site is relatively flat and generally slopes to the northwestern corner of the project site where No Name Creek, an ephemeral channel, flows off the site. A small hillock characterizes the southwestern portion of the site. Although the remaining portions of the project site are relatively flat, there are portions with depressional microrelief that have been exacerbated by cattle grazing and long-term inundation resulting in a hummocky landscape. As a result, there are small seasonal wetlands and swales scattered throughout the site, and larger, deeper wetlands on the eastern and southern portions of the site (see Sheet 1).

3. PURPOSE FOR CONDUCTING VERNAL POOL CRUSTACEAN SURVEYS

The purpose for conducting the dry and wet-season Branchiopod surveys was to determine if wetlands onsite support federally-listed branchiopods such as the vernal pool fairy shrimp (*Branchinecta lynchi*) which is known to occur 0.5-mile northwest of the project site along the south end of the Napa Airport and west of Highway 29 (CNDDB Occurrence No. 232) (Figure 3).

4. SURVEY METHODS

Survey methods were conducted in accordance with USFWS' May 2015 revised *Survey Guidelines for the Listed Large Branchiopods.* These survey guidelines require adequate sampling of all pools/swales on a property at least once every two weeks beginning when they hold greater than 3 cm of standing water twenty-four hours after a rain event. In accordance with the *Survey Guidelines for the Listed Large Branchiopods*, surveys were conducted starting in December 2016 and continued until pools were no longer inundated (or held less than 3 centimeters of water), or until they experienced at least 90 days of continuous inundation.

Sampling procedures entailed dip-netting each inundated pool/swale with a fine mesh standard aquatic net (12-inch diameter triangular net bag). The net was dragged through the pool's water column for approximately 12 to 24 inches (depending on the size of the pool), and then passed back over the same area to catch any invertebrates that may have been stirred up by the current. The edges as well as the centers of pools and swales were sampled. Depending on the size of the pool, one to several dips with the net was made before it was determined that fairy shrimp/vernal pool tadpole shrimp were not present in the pool on that particular day. For longer swales or pools (i.e., greater than 25 feet in length), several sampling points were established along the swale and these same points were sampled during each survey.

After each pass with the net, the net was checked for fairy shrimp and/or vernal pool tadpole shrimp, and other invertebrates. During each sampling event, overall site conditions and weather, including the date of the last rain event, were recorded on a standardized datasheet or in field notes. Additionally, during each sampling event measurements were made of each pool's size, water depth, and vegetation composition. All invertebrates present in each pool were identified to order (e.g., Copepoda, Ostracoda) and recorded on the datasheet. Similarly, any amphibians present were identified to species, and their life cycle stage was noted (e.g., egg mass, larvae, adult). Copies of the datasheets are included as Attachment B.

5. SURVEY RESULTS

No fairy shrimp or tadpole shrimp were identified in any wetland feature onsite during the course of the wet season surveys. M&A only observed common invertebrates and amphibians such as Cladocera, Hemiptera, Ostracods, clam shrimp (*Cyzicus* sp*)* and Sierran tree frog larvae (*Pseudacris sierra*) (Attachment B). Below we provide the survey dates and a general description of habitats sampled onsite.

5.1 Survey Dates

Starting in November 2016 and continuing through February 2017, M&A conducted seven (7) separate dip-netting surveys on the project site. Survey dates were November 11 and 28, 2016,

December 19, 2016, January 5, 2017, January 18, 2017, February 1, 2017 and February 15, 2017. The February 15, 2017 survey marked 90 days of continuous inundation (a complete survey period as specified in the survey protocol).

5.2 Characteristics of Pools and Swales Sampled

Sheet 1 (attached) indicates the locations of the potential vernal pool Branchiopod habitats identified by M&A during our initial site assessment and our subsequent wetland assessment field studies conducted in 2016. Since seasonal wetlands are scattered throughout the project site and all experience varying degrees of inundation, M&A determined that those pools that provide the most suitable Branchiopod habitat are those that are not flowing, only inundate seasonally (as opposed to perennially) and those that support Obligate (OBL) and Facultative-Wet (FACW) hydrophytic vegetation (and not just Facultative (FAC) vegetation, for example, Italian rye grass (*Festuca perennis*) and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) which can be found in upland or wetland habitats).

Suitable vernal pool Branchiopod habitats are found in topographic depressions scattered throughout the project site. These wetlands range from shallow depressions of 2 inches to 12 inches deep which are dominated primarily by native wetland species including annual semaphore grass (*Pleuropogon californicus* var. *californicus*), California coyote thistle (*Eryngium aristulatum* var. *aristulatum*), smooth goldfields (*Lasthenia glaberrima*), Great Valley popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*) and wavy stemmed popcorn flower (*P. undulatus*). Non-native wetland species include rabbit's foot grass *(Polypogon monspilensis*) and brass buttons (*Cotula coronopifolia*) also occur in some of the sampled wetlands. Water in these wetlands was primarily tea-colored but due to the number of storm events that occurred during the winter of 2016-2017 and the amount of runoff that ensued, some pools experienced turbid conditions.

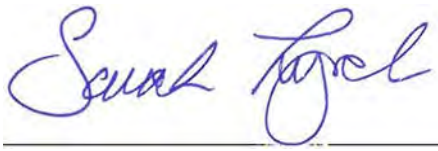
5.3 Organisms Identified in Sampled Pools

No vernal pool Branchiopods were identified in any aquatic feature sampled onsite. While the OBL and FACW vegetation dominated pools (Sheet 1) were initially thought to provide "suitable" habitat for vernal pool branchiopods, we determined the wetlands do not support federally-listed branchiopods. This conclusion was drawn based on the results of LSA's dry season surveys and M&A's wet season surveys. The sampled wetlands were found to support: Copepods, Ostracods, Cladocera, Hemiptera, clam shrimp, and Sierran tree frog larvae.

6. CONCLUSIONS

No federally-listed fairy shrimp or vernal pool tadpole shrimp were identified on the project site during wet season surveys conducted in the winter of 2016-2017. No common species of fairy shrimp were identified either (for example, *Linderiella occidentalis*). Only common invertebrate species such as Copepods, Ostracods, Cladocera, Hemiptera, and clam shrimp were identified. These survey findings corroborate the dry season sampling results obtained by LSA Associates for the project site. M&A also identified Sierran tree frog eggs and larvae in pools. No other amphibians were observed.

I CERTIFY THAT THE INFORMATION IN THIS SURVEY REPORT AND ATTACHED EXHIBITS FULLY AND ACCURATELY REPRESENTS MY WORK:



Surveyor	TE-776608-10 Permit Number	March 20, 2017 Date

7. SURVEY AND REPORT PREPARATION PARTICIPANTS

Sarah Lynch, Certified Wildlife Biologist, Protocol Surveys and Report Preparation
Geoff Monk, Certified Wildlife Biologist, Report Oversight

8. LITERATURE CITED

California Natural Diversity Data Base (BIOS 5). 2016. RareFind 3.2. California Natural Heritage Division, California Department of Fish and Game, Sacramento, CA.

USFWS (U.S. Fish &Wildlife Service). 2015. Survey Guidelines for the Listed Large Branchiopods. 24 pps. May 31, 2015.

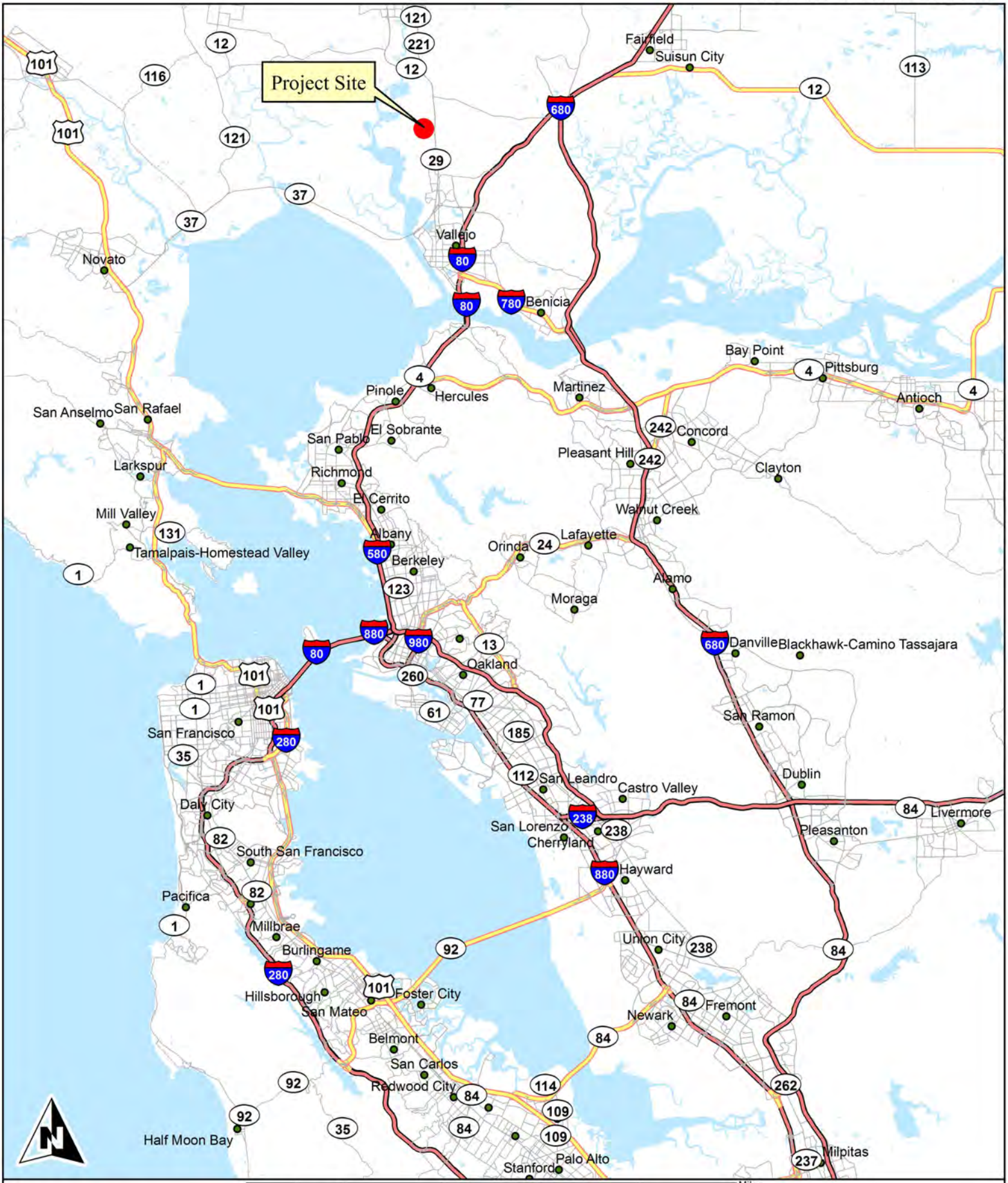


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Figure 1. Giovannoni Property Project Site
Regional Map
City of American Canyon, California

County: Napa
Map Preparation Date: January 21, 2015

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Figure 2. Giovannoni Property Project Site Location Map
City of American Canyon, California

Sections: 11, 12, 13, 14 ; T4N R4W
7.5-Minute Cuttings Wharf quadrangle
Aerial Photograph Source: ESRI
Map Preparation Date: September 16, 2016

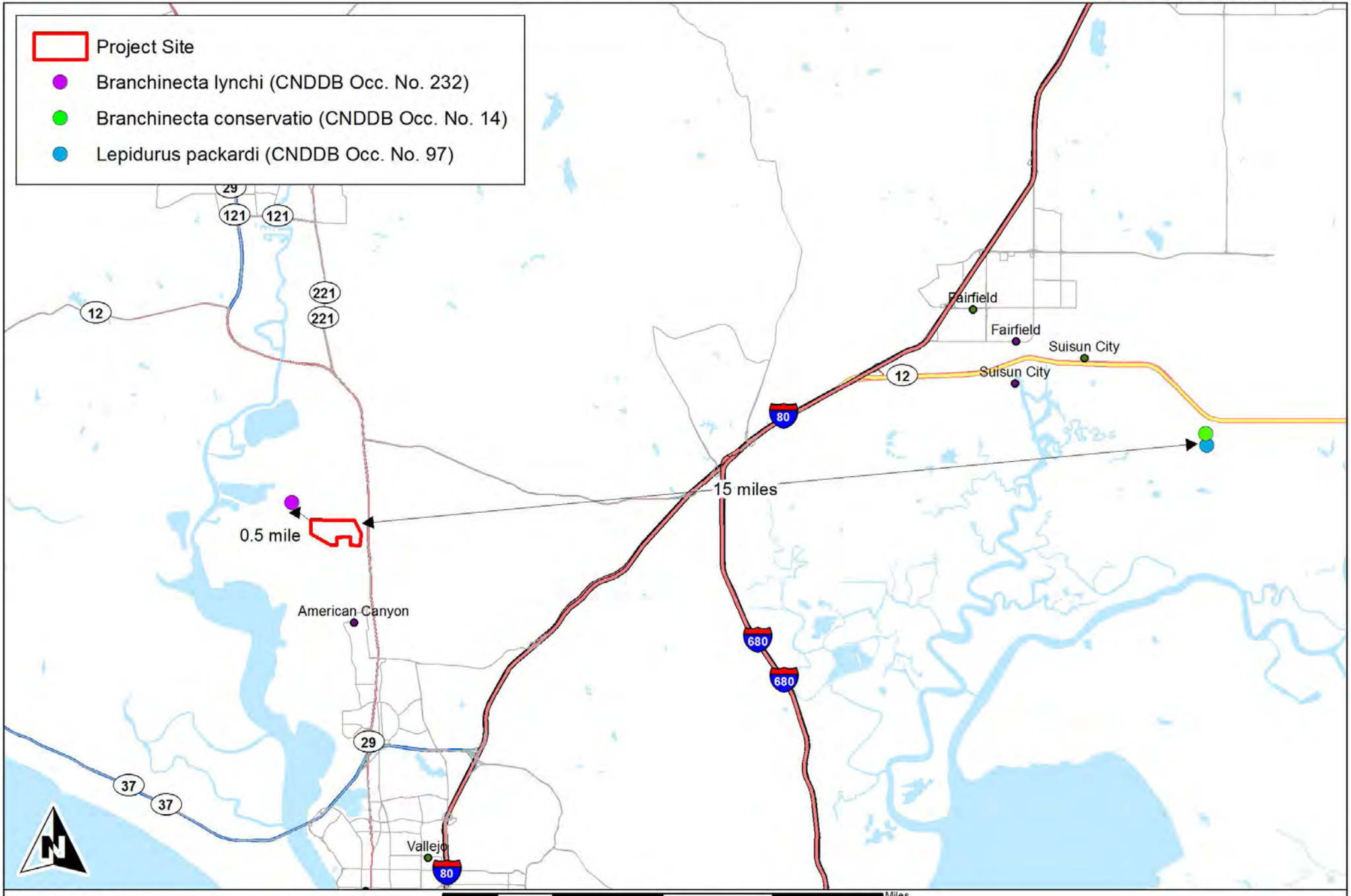

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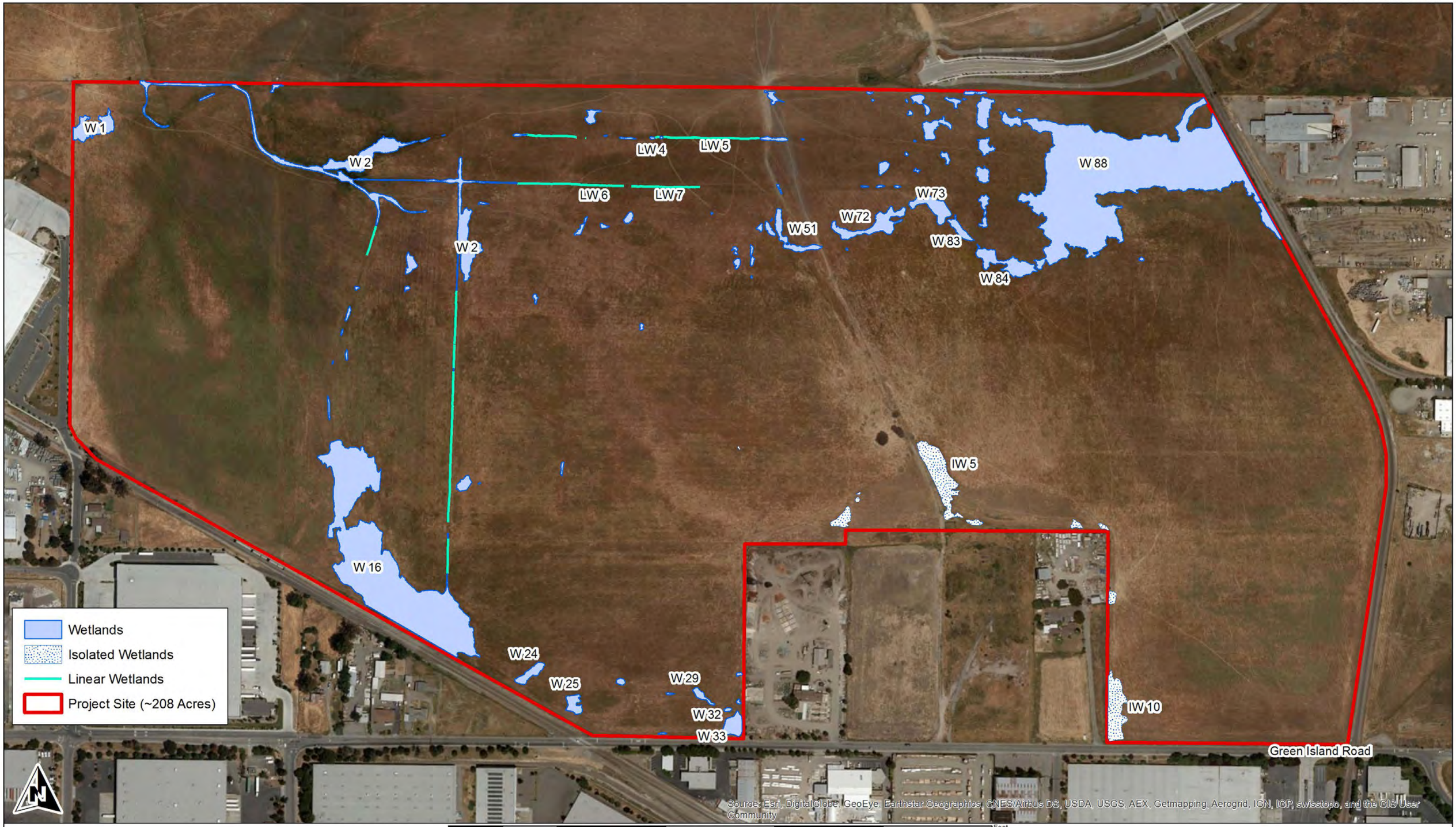
Figure 3. Closest Known Branchiopod Records to the
Giovannoni Property Project Site
City of American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: February 23, 2017



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Sheet 1. Features Sampled for Large Branchiopods 2016 - 2017 Wet Season
Giovannoni Project Site
City of American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: March 21, 2017

Giovannoni Project Site Representative Photographs

Photograph #1: View of ditch portion of Wetland 88, looking northeast (November 1, 2016)

Photograph #2: View of Wetland 88 looking south (November 1, 2016)

Giovannoni Project Site
Wet-Season Survey Representative Photographs
City of American Canyon, California

Photograph #3: View of Isolated Wetland 5, looking south (November 28, 2016)

Photograph #4: View of Wetland 16, looking south (December 12, 2016)

Giovannoni Project Site
Wet-Season Survey Representative Photographs
City of American Canyon, California

Photograph #5: View of Wetland 16, looking west (December 12, 2016)

Photograph #6 View of No-Name Creek, looking North (January 5, 2017)

Giovannoni Project Site
Wet-Season Survey Representative Photographs
City of American Canyon, California

Photograph #7: View of Isolated Wetland 5, looking northwest (February 1, 2017)

Photograph #8: View of Wetland 88, looking south-southwest (February 1, 2017)

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni | **County:** NAPA | **Quad:** Cuttings Wharf | **Township:** T4N | **Range:** R4W | **Section:** 14 + 13

SURVEYOR / Permit Number: S. LYNCH, TE-776608

Date: 11/1/16 | Time: 9:00 am | Weather Conditions: 64°F, sunny; heavy rain 2 days ago and some showers last night

Feature ID #	UTM (Northing, Easting, Datum)	Temp ~~(°C)~~ °F		Depth ~~(cm)~~ in		Surface Area ~~(m x m)~~ Ft		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W88		64°		4"	6"			222,087						X				NP, G	- clear water - amphipods
Ditch in NE corner of W88		64°		10"	12"									X				NP, G	- amphipods - orthoptera
W29		64°			4"			1510										NP, G	turbid water
W16		64°			4"			144,468										NP, G	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: | **County:** Napa | **Quad:** Cuttings Wharf | **Township:** T4N | **Range:** R4W | **Section:** 14 + 13

SURVEYOR / Permit Number: S. Lynch, TE-776608

Date: 11/28/16 | Time: 9:30 AM | Weather Conditions: Sunny, clear. Rained all weekend.

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C) F°		Depth (cm) in		Surface Area ft (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W33		60°		~3"	6"		4647							X				NP, G, C	Just filled
IW5		60°		4"	10"	750	17,019					X		X				NP, G, C	
W88		60°		6"	6"		222,087				X	X							
W51		60°		1"	4"	25	5,161											NP, G, C	Just filled
IW10		60		5"	12"		12,725											NP, G, C	Not habitat almost permanent

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni	County: Napa	Quad: Cuttings Wharf	Township: T4N	Range: R4W	Section: 14+13
SURVEYOR / Permit Number: S. Lynch, TE - 776608					
Date: 12/19/16	Time: 1:30 pm	Weather Conditions: 56°F, windy, the night before was below freezing			

Feature ID #	UTM (Northing, Easting, Datum)	Temp ~~(°C)~~ F°		Depth ~~(cm)~~ in		Surface Area Ft ~~(m x m)~~		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W88		56°			4"		222,087				X			X				NP, G	Turbid water
W84		56°			2"		9569											NP, G	clear water
IW5		56°		5"	6"		17,919				X	X	X	X				NP, G	Filamentous algae Pseudacris larvae
W16		56°		3"	4"		144,468											NP, G	Newly filled, turbid
IW10		56°		5"	12"		12,925											NP, G	Not habitat Eleocharis dom

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni	County: Napa	Quad: Cuttings Wharf	Township: T4N	Range: R4W	Section: 14+13
SURVEYOR / Permit Number: S. Lynch, TE-776608					
Date: 1/5/17	Time: 12:00pm	Weather Conditions: Sunny and clear after several days of storms			

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W16		54°		7"	10"		144,468				X							NP, G	Gastropod
W1		54°			4"		9,063											NP, G	Clear water
W2, W5, W6		54°			4"		2: 44851 5: 208 6: 23											NP, G	W2, W5, W6 all connected, Gastropod
W48-W57		54°			4"		Total: 8282											NP, G	Clear, all merged
W72-W84		54°			4"		Total: 42,500											NP, G	clear, all connected
W88		54°			6"		222,087			X	X	X						NP, G	clear to turbid amphipods
IW5		54°			4"		208											NP, G	Much filamentous algae
IW6		54°			4"		23						X	X				NP, G	Pseudacris larvae
W33		54°			3"		4647									X		NP, G	Much aquatic grass
W29		54°			1"		1510											NP, G	
No Name Creek		54°			6"													Stream	Flowing

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni **County:** Napa **Quad:** Cuttings Wharf **Township:** T4N **Range:** R4W **Section:** 14 +13

SURVEYOR / Permit Number: S. Lynch, TE- 776608

Date: 1/18/17 Time: 9:00 am Weather Conditions: Raining, calm.

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°F ~~°C~~)		Depth (in ~~cm~~)		Surface Area ft ~~(m x m)~~		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W1		48°		4"	10"		9063			X	X	X						NP, G	
W16		48°			12"		144,468			X	X	X		X				NP, G	
W32		48°			6"		302				X	X		X				NP, G	Psuedacris Gastropoda
W29		48°			6"		1510				X	X		X				NP, G	connected to W32
W33		48°			6"		4647				X	X		X				NP, G	Psuedacris Gastropoda
W24		48°			~4"		3371				X	X						NP, G	
IW5		48°			10"		17,019				X	X	X	X				NP, G	Psuedacris thick algae
W88		48°			4"		222,087				X	X						NP, G	Amphipods Partially vegetated

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli)*.
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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni	**County:** Napa	**Quad:** Cuttings Wharf	**Township:** T4N	**Range:** R4W	**Section:** 14+13
SURVEYOR / Permit Number: S. Lynch, TE-776608					
Date: 2/1/17	**Time:** 9:00 Am	**Weather Conditions:** 55°F, overcast, windy; ~10" rain in January			

Feature ID #	UTM (Northing, Easting, Datum)	Temp ~~(°C)~~ °F		Depth ~~(cm)~~ in		Surface Area ~~ft²~~ ~~(m x m)~~		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
W16		55		8"	10"		144,468			X	X	X							
W1		55			4"		9,063			X		X						NP,G	Pseudacris larvae
W88		55			4"		~~22,087~~				X			X				NP,G	Vegetated with new seedlings
W29		55			6"		1510			X	X			X				NP,G	-large crayfish -middle only saturated
W32		55			6"		302			X	X			X				NP,G	Algae covered
IW10		55			12"		12,725											NP,G	Algae covered
W17		55			4"		1972			X	X			X				NP,G	-Not habitat -Eleocharis dominated
W2		55			6"		44,851				X							NP,G	-heavy vegetation & new seedlings
W4		55			4"		472											NP,G	clear water flows into NoName Creek
IW5		55			4"		17,019			X	X			X				NP,G	Not habitat; merge with Creek
W73		55			6"		6448			X	X	X						NP,G	Advanced stage Pseudacris
W84		55			6"		9569			X	X	X						NP,G	Wetlands merged
																		NPG	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Giovannoni	County: Napa	Quad: Cuttings Wharf	Township: T4N	Range: R4W	Section: 14+13

SURVEYOR / Permit Number: S. Lynch, TE-77 6608

Date: 2/15/17 | Time: 9:00 Am | Weather Conditions: Overcast, rain predicted tonight

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C) ~~°F~~ Air	Temp (°C) ~~°F~~ Water	Depth (~~cm~~ in) Average	Depth (~~cm~~ in) Est. Max.	Surface Area ~~ft (m x m)~~ Present	Surface Area ~~ft (m x m)~~ Est. Max.	Crustaceans: Anostracans	Crustaceans: Notostracans	Crustaceans: Copepods	Crustaceans: Ostracods	Crustaceans: Cladocera	Insects: Coleoptera	Insects: Hemiptera	Insects: Diptera Culicidae	Insects: Diptera Chironomidae	Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
LW4 + LW5		54°			4"						X							NP, G	Amphipods: scuds
LW6 + LW7		54°			4"						X							NP, G	Scuds flowing into W2
W2		54°		6"	10"					X	X		X					NP, G	Scuds, Gastropods
W16		54°		6"	12"					X	X			X				NP, G	Clam shrimp (Cyzicus)
W29, 32, 33		54°		4"	7"					X	X	X		X				NP, G	100% vegetated
IW5		54°		4"	7"						X		X	X				NP, G	Heavily vegetated
IW10		54°			6"					X	X							NP, G	Psuedacris larvae
W88		54°			4"					X								NP, G	Amphipods, clear water

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

C.6 - M & A 2018 Devlin Road Biological Resources Assessment

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Appendix C

Biological Resource Analysis

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MONK & ASSOCIATES
Environmental Consultants

BIOLOGICAL RESOURCE ANALYSIS
DEVLIN ROAD /VINE TRAIL EXTENSION PROJECT
CITY OF AMERICAN CANYON, CALIFORNIA

October 15, 2018

Prepared for

GHD, Inc.
2235 Mercury Way, Suite 150
Santa Rosa, California 95407
Attention: Mr. Matt Wargula

Prepared by

Monk & Associates, Inc.
1136 Saranap Avenue, Suite Q
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TABLE OF CONTENTS

FIGURES
(At Back of Report)

TABLES
(At Back of Report)

SHEETS
(At Back of Report)

EXHIBITS

1. INTRODUCTION

Monk & Associates, Inc. (M&A) has prepared this biological resource analysis for the proposed Devlin Road/Vine Trail Extension project site (herein referred to as the project site) located in the City of American Canyon, California (Figures 1 and 2). The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts that could occur to sensitive biological resources from the proposed extension of Devlin Road and the Vine Trail (the project) through the project site.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society. Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and CDFW. Our analysis includes a formal delineation of "waters of the U.S." that has been confirmed by the Corps, the regulatory agency that defines waters of the U.S. This aquatic resources delineation, Sheet 1, shows the extent of the Corps' jurisdiction on the project site.

This biological resources analysis provides a regulatory review of environmental regulations that have applicability to the proposed project. Finally, this analysis also provides mitigation measures for "potentially significant" and "significant" impacts that could occur to biological resources from the implementation of the project. Whenever possible, upon implementation, the prescribed mitigation measures would reduce impacts to levels considered less than significant pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code §§ 21000 et seq.; 14 Cal. Code Regs. §§ 15000 et seq). Accordingly, this report is suitable for review and inclusion in any review being conducted by the City of American Canyon for the proposed project pursuant to the CEQA.

2. PROPERTY LOCATION AND SETTING

The approximately 12.1-acre project site is located in northwestern American Canyon, Napa County (Figure 1). The project site is relatively flat. It is characterized by a mosaic of non-native annual grassland and seasonal wetlands; it is currently grazed by cattle.

This linear project site travels through the approximate middle of privately owned grazing land (the Giovannoni Property) (Figure 2). Highway 29 is located east of the project site and the Napa River is to the west. Southern Pacific Railroad and Green Island Road occur along the southern project site boundary. Northeast of the project site there is a recently constructed industrial warehouse (the Napa Logistics Phase I project) and northwest of the project site is an open field with non-native annual grassland and seasonal wetlands that is approved by the City of American Canyon and the resource agencies for development as a commercial warehouse project (the Napa Logistics Phase II project). Industrial businesses occur to the west and east of the Giovannoni Property, and to the south of the project site. Figure 2 provides an aerial photograph of the project site that illustrates the project site and the surrounding land use. Figure 3 is a close up aerial photograph of the project site.

3. PROPOSED PROJECT

The City of American Canyon is proposing to extend the existing Devlin Road and Vine Trail through the project site as shown in Figures 2 and 3. This road extension will join the City of American Canyon's Green Island Road industrial area with an existing segment of Devlin Road that currently terminates at the north end of the project site. Further to the north of this termination, on the northern City of American Canyon limits, another segment of Devlin Road is currently approved to be constructed by Napa County. When both the project and the Napa County segments of Devlin Road are completed, the City of American Canyon's Green Island Road industrial area will have direct connectivity with the Napa Airport business and industrial area and will facilitate trucking commerce between these two vital areas that keeps truck traffic off the already congested Highway 29, the only current route between these vital industrial/commerce areas.

4. ANALYSIS METHODS

Prior to preparing this biological resource analysis, M&A researched the most recent version of CDFW's Natural Diversity Database, RareFind 3.2 application (CNDDB 2016) for historic and recent records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site. M&A also searched the 2016 electronic version of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site. All special-status species records were compiled in tables. M&A examined all known record locations for special-status species to determine if special-status species could occur on the project site or within an area of affect.

In the spring and summer of 2016, M&A biologists conducted special-status plant surveys and a wetland delineation on the project site. The wetland delineation was conducted on April 15, 2016 by M&A Biologists Mr. Geoff Monk and Ms. Hope Kingma. Special-status plant surveys were conducted between March and July 2016 on the project site. The first survey was conducted on March 25 by Ms. Sarah Lynch and Mr. Jesse Reebs, the next survey on April 19 by Ms. Lynch and Mr. Devin Jokerst, the third survey on May 26 by Ms. Kingma and Mr. Jokerst, and the fourth and final survey on July 18, 2016 by Mr. Jokerst and Ms. Caitlyn Bishop. These surveys were appropriately timed to cover the blooming period of special-status plants known from the region. Finally, formal protocol level surveys for large vernal pool Branchiopods (fairy shrimp) were conducted on the project site. Following the USFWS' survey protocol (USFWS 2015), and as approved by the USFWS on August 18, 2016, one season of dry season sampling was conducted in the summer of 2016 by M&A's subconsultant, Mr. David Muth of LSA Associates. One season of wet season surveys was conducted in the winter of 2016-2017 by M&A biologist Ms. Lynch. Wet season surveys commenced in November 2016 and were completed by the end of February 2017. The results of our literature research and field surveys are provided in the sections below.

5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES

5.1 Topography

The project site is relatively flat. There are portions with depressional microrelief that have been exacerbated by cattle grazing and long-term inundation resulting in a hummocky landscape. As a result there are small seasonal wetlands and swales scattered throughout this linear site.

5.2 Soils

The Soils Conservation Service (SCS), now called the Natural Resource Conservation Service (NRCS), mapped two soil types for the project site (NRCS Soils data mart website http://websoilsurvey.sc.egov.usda.gov/app/). The mapped soil units are Clear Lake clay drained, 0 to 2 percent slopes and Haire loam, 2 to 9 percent slopes. During M&A's wetland delineation, test pits were dug to examine project site soils and confirmed that much of the project site's soils are consistent with the soil descriptions provided by the NRCS.

5.2.1 CLEAR LAKE CLAY, DRAINED

The Clear Lake series consists of poorly drained soils on old alluvial fans and basins. Elevation is 22 to 2000 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 35 inches, and the mean annual temperature is 59 to 63 degrees. Available water capacity is 10.3 inches.

5.2.2 HAIRE LOAM

The Haire Loam series consists of moderately well-drained soils, slow to rapid runoff, and very slow permeability on alluvial fans and terraces. Elevation is 20 to 2402 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual temperature is 57 to 61 degrees Farenheit. Available water capacity is 6.5 inches.

5.3 Hydrology

There are no streams or drainages on the project site. The headwater of "No Name Creek" occurs approximately 1,000 feet plus to the west of the project site within the Giovannoni property. While this ephemeral headwater does not influence the project site's hydrology, ultimately stormwater that falls on the project site or emanates from sheet flows to the northeast of the project site, continues westward entering No Name Creek. On the project site depressional micro-topography in areas of Clear Lake clay soils has allowed water to sit perched at the soil surface above the water table resulting in the formation of seasonal wetlands. The presence of slowly permeable, saturated soils in combination with heavy cattle grazing during the winter months has created an overall hummocky landscape. As a result, the Corps has confirmed that there are approximately 0.21-acre of small seasonal wetlands scattered within the project site or that would be affected/filled by the project.

5.4 Plant Communities and Associated Wildlife Habitats

A complete list of plant species observed on the project site is presented in Table 1. Nomenclature used for plant names follows *The Jepson Manual* Second Edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (http://ucjeps.berkeley.edu/interchange/index.html). Table 2 is a list of wildlife species observed on the project site. Nomenclature for wildlife follows CDFW's *Complete list of amphibian, reptile, bird, and mammal species in California* (2014) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW's list.

5.4.1 Non-native Annual grasslands

Non-native annual grasslands are dominated by introduced annual grasses and forbs that are highly adapted to disturbance and colonize sites with a history of high intensity, continual disturbance. Dominant non-native grasses on the project site, in order of dominance, include Italian ryegrass (*Festuca perennis*), medusa head (*Elymus caput-medusae*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), soft chess (*Bromus hordeaceus*), and Harding grass (*Phalaris aquatica)*. Common non-native forbs found on the project site, in order of dominance, include bird's foot trefoil (*Lotus corniculatus*), subterranean clover (*Trifolium subterranean),* broad-leaf filaree (*Erodium botrys),* English plantain (*Plantago lanceolata*), yellow glandweed (*Parentucellia viscosa),* Mediterranean linseed (*Bellardia trixago)* and bristly ox-tongue (*Helminthotheca echioides*).

Due to continual grazing on the project site, very few native taxa remain. The few significant, natives are butter and eggs (*Triphysaria versicolor* subsp. *faucibarbata*), purple owl's clover (*Castilleja exserta*), and hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*). Though not dominant, other native species found on the project site include Ithuriel's spear (*Triteleia laxa),* blue dicks (*Dichelostemma capitatum),* and white brodiaea (*Triteleia hyacinthina).*

The project site is a linear feature in the middle of a much larger, contiguous area of non-native grassland habitat that comprises the Giovannoni parcel. The project site's grassland, taken together with the adjacent Giovannoni grassland community provides habitat for a wide variety of species. Graniverous (seed-eating) birds such as mourning dove (*Zenaida macroura*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Carduelis psaltria*), and insectivorous birds such as Say's phoebe (*Sayornis saya*), American pipit (*Anthus rubescens*), and western meadow lark (*Sturnella neglecta*), all of which were observed during the March through July 2016 surveys. Two other insectivorous birds observed during site surveys were large flocks of migrating and over-stopping marbled godwits (*Limosa fedoa)* and long-billed curlews (*Numenius americanus*), which were observed probing the ground and cow "patties" with their long bills, looking for insects. Other animals observed in the grassland included black-tailed jackrabbit (*Lepus californicus*) and California ground squirrel (*Otospermophilus beechyi*), and raptors such as American kestrel (*Falco sparverius*) and red-tailed hawk (*Buteo jamaicensis*), which prey on the smaller birds and mammals. Fox scat, likely red fox (*Vulpes vulpes*), was also observed in the grassland.

5.4.2 SEASONAL WETLANDS AND SWALES

Seasonal wetlands and swales occur in the project site's topographic low areas (Exhibit A). Cattle seasonally roam the project site and their hooves leave deep pock marks and create hummocky topography in and around the wetlands. The exterior of the seasonal wetlands are primarily dominated by a combination of non-native wetland and facultative plant species including Italian ryegrass, Mediterranean barley, bristly ox-tongue, annual beard grass *(Polypogon monspilensis),* birdfoot trefoil, and English plantain, along with upland species, such as Harding grass and soft chess. Moving interior along the wetland where there are longer periods of inundation, species observed encompass native wetland species including meadow barley (*Hordeum brachyantherum*), annual semaphore grass (*Pleuropogon californicus* var. *californicus),* creeping spikerush (*Eleocharis macrostachya*), various rush species (*Juncus balticus* ssp. *ater, J. bufonius, J. phaeocephalus,* and *J. xiphioides),* California coyote thistle (*Eryngium aristulatum* var. *aristulatum*), smooth goldfields (*Lasthenia glaberrima)* and Great Valley popcorn flower (*Plagiobothrys stipitatus* var. *micranthus).*

Seasonal wetlands provide wildlife with a seasonal water source that allows animals to drink and forage in the water during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. Invertebrates such as mayflies (Ephemeroptera), damselflies (Odonata), and predaceous diving beetles (Dytiscidae) are commonly associated with inundated seasonal wetland habitats and complete their life cycle in the wetlands. Wildlife observed using these wetlands during the 2016 surveys included black phoebe (*Sayornis nigricans*), Sierran tree frog, long-billed curlew and marbled godwit.

5.5 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors provide access routes to food, cover, and water resources typically within restricted habitats available for use by resident wildlife species with restricted home ranges. Migrant birds that usually are adapted to higher levels of disturbance may also temporarily perch or feed in these restricted habitats.

The project site is a linear feature that encompasses approximately 12.1 acres of a 210-acre parcel. Running north-south through the 210-acre parcel, the narrow project site if developed could disrupt a local east-west movement corridor through the 210-acre parcel. No regionally significant wildlife population is known to have any migration corridor in the City of American Canyon, and thus, no regionally significant wildlife corridor would be disrupted by construction of the project. A local wildlife use area occurs within the 210-acre Giovannoni property. Thus,

common local species could be affected by the construction of the project. The terrestrial animals that use the Giovannoni property, and thus that could be disrupted by the project include common rodents, rabbits, small canids, raccoons, skunks and opossums. These animals use the surrounding Giovannoni property for local foraging, hunting, water, and possibly for finding mates. While development of the project site for a road and trail would impact a minor local wildlife corridor it would not, however, disrupt a regional wildlife corridor or a significant wildlife corridor since the Giovannoni property is otherwise surrounded by developed areas and thus provides no connection with any regionally significant open space. All surrounding parcels have been developed or are approved for development (e.g., the Napa Logistics Phase II project site). Migratory birds that temporarily stop on the Giovannoni parcel would not be affected by the project. They would simply avoid the road area for stop overs simply using other available areas for resting/perching/foraging. There would be no significant effect on migratory birds from the construction of the project.

6. SPECIAL-STATUS SPECIES DEFINITION

6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq*.; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;

- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The California Department of Fish and Wildlife (CDFW) recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);

- migratory nongame birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- animals that are designated as "species of special concern" by CDFW (2016);

- Animal species that are “fully protected” in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

- Bat Species that are designated on the Western Bat Working Group’s (WBWG) Regional Bat Species Priority Matrix as: “RED OR HIGH.” This priority is justified by the WBWG as follows: “Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment.”

In the paragraphs below we provide further definitions of legal status as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as Endangered or Threatened under the FESA is protected from unauthorized “take” (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federal listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species. A species listed as Threatened under the state Endangered Species Act (§2050 of California Fish and Game Code) is protected from unauthorized “take” (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to “take” a state listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from CDFW prior to initiating the “take.”

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered “rare.” Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a “significant effect on the environment” (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an “Inventory” of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state

or federal listed species), CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A: Presumed extinct in California;
- Rank 1B: Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the Fish and Game Code, and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are reviewed by CDFW and maintained on "watch lists."

Additionally, in 2006 CNPS updated their lists to include "threat code extensions" for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)";
- .2 is "fairly endangered in California (20-80% of occurrences threatened)";
- .3 is "not very endangered in California (less than 20% of occurrences threatened or no current threats known)."

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

6.2 Potential Special-Status Plants on the Project Site

Figure 4 provides a graphical illustration of the closest known records for special-status species within 3 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status plants have been mapped on or adjacent the project site. However, according to the CNPS' *Inventory* and CDFW's CNDDB, a total of 18 special-status plant species are known to occur in the project site region (Table 3). In order to address the presence of those special-status plant species in which the project site provides suitable habitat conditions, M&A conducted monthly surveys between March and July. These surveys covered the known blooming periods of the potentially occurring plant species. During these surveys, M&A botanists walked meandering transects throughout the project site identifying every plant observed to the level necessary to determine its rarity status (that is, species, subspecies or variety). Those plants that could not be readily identified in the field were collected and brought back to the lab for "keying" (that is, identification under a microscope using a dichotomous key). *No special-status plants were identified on the project site*

during March through July 2016 surveys. Thus, no impacts to special-status plants would be expected from project implementation.

6.3 Potential Special-Status Animals in the Project Site

Figure 4 provides a graphical illustration of the closest known records for special-status species within 3 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status animal records have ever been mapped on or adjacent to the project site. However, a total of 25 special-status animal species are known to occur in the region of the project site (Table 4). Because of the sensitivity of five (5) of the special-status animal species known to occur in the area we further discuss these species below. These include vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (*Rana draytonii*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsonii*), and golden eagle (*Aquila chrysaetos*).

6.3.1 VERNAL POOL FAIRY SHRIMP

Vernal pool fairy shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was originally designated on August 6, 2003 (Federal Register 68: 46683-46867), and the designation was revised on August 11, 2005. Critical habitat unit designations by individual fairy shrimp species were published on February 10, 2006 (Federal Register 71:7117). The project site is 0.40-mile southeast of designated critical habitat.

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½-inch to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g., 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 1994).

The female drops eggs to the pool bottom or the eggs remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs (known as cysts when dry). They remain in the dry pool bed until rains and other environmental stimuli hatch them. Cysts can withstand heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen (Eriksen and Belk 1999).

The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley to Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist in Southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses.

The project site provides potentially suitable habitat for the vernal pool fairy shrimp. Following USFWS' survey protocol (2015), as approved by the USFWS, M&A conducted dry season sampling for vernal fairy pool cysts in August 2016. Also, as approved by USFWS, wet season sampling was initiated in November 2016 when wetland features present on the project site held greater than 1 inch of standing water; wet season sampling continued through February 2017 for a total wet season sampling period of 90 days. No fairy shrimp of any genus or species (for example, *Linderiella* or *Branchinecta*, or their cysts were identified on the project site during dry season and wet season sampling. Based on these dry and wet season sampling results with negative findings, M&A concludes that the project would not result in impacts to the vernal pool fairy shrimp or any other federally listed fairy shrimp species. Since these two seasons of fairy shrimp surveys followed all methods prescribed in the USFWS' 2015 survey protocol M&A can state with confidence that there will be no significant impacts to vernal pool fairy shrimp. No mitigation is warranted for this species.

6.3.2 CALIFORNIA RED-LEGGED FROG

The California red-legged frog was federally listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the Federal Endangered Species Act. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The 2010 Critical Habitat maps (Federal Register dated March 17, 2010 (Volume 75, Number 51:12815-12864) show that the project site is located approximately 2.1 miles west of Critical Habitat Unit SOL-3 (Figure 5). The California red-legged frog is also a state "species of special concern."

This frog is also a California "species of special concern." California "species of special concern" are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This title affords no legally mandated protection for this species; however, pursuant to CEQA (14 CCR §15380), any project related impacts to this species would be regarded as significant.

California red-legged frogs are typically found in slow-flowing portions of perennial streams, and in intermittent streams, and hillside seeps that maintain pool environments or saturated soils throughout the summer months. Riparian vegetation such as willows (*Salix* sp.) and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. This frog is also found in human-made ponds. Populations of the California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrogs (*Rana catesbeiana*), Centrarchid fish species (such as sunfish, blue gill, or largemouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all known California red-legged frog predators.

The closest known record for the California red-legged frog is a 2008 sighting approximately 1.6 miles east of the project site in North Slough (CNDDB Occurrence No. 1062). This location is on the east side of Highway 29 and is not hydrologically connected to the project site. There are no California red-legged frog records on the west side of Highway 29. There is no perennial water or long-term inundation that occurs on or adjacent to the project site. The seasonal wetlands onsite are too shallow and seasonally inundated to provide habitat for this large native

frog species which requires water most months of the year. Thus, it is improbable that the California red-legged frog would occur on the project site. Pursuant to CEQA, the proposed project would have no significant impacts on California red-legged frogs. No mitigation is warranted for this species.

6.3.3 NORTHERN HARRIER

The northern harrier is a state species of special concern. This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. The northern harrier is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices. Northern harriers likely forage over the project site and may nest in the open grasslands that provide suitable nesting habitat for this species. Hence, development of the proposed project could result in impacts to nesting northern harriers. See the Impacts and Mitigations section for details.

6.3.4 SWAINSON'S HAWK

The Swainson's hawk **is** a state listed threatened species afforded protection pursuant to the California Endangered Species Act. While it has no special federal status, it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). Finally, pursuant to CEQA, this hawk would be considered "rare" and impacts to its nest sites would be regarded as significant.

The Swainson's hawk is generally a summer visitor to California. In the fall months, most Swainson's hawks migrate to South America before returning to the United States to breed once again in the late spring. There is a small population of Swainson's hawks that remain resident in California year-round. The nesting population of Swainson's hawks in California was reduced considerably over historical nesting populations by the time it was afforded protections pursuant to the California Endangered Species Act in 1984. Since that time, the nesting population of Swainson's hawk has significantly recovered in California, as have other raptor species that were previously protected both as State and Federal listed species. Both the peregrine falcon (*Falco peregrinus* ssp. *anatum*) and the bald eagle (*Haliaeetus leucocephalus*) were similarly listed species under both the State and Federal Endangered Species Acts, but have both been delisted owing to population recovery. The Swainson's hawk nesting population also likely has greatly recovered, but owing to the absence of a thorough population census in California since the species was listed by the CDFW, it remains protected pursuant to the California Endangered Species Act.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands (Kochert 1986). It nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall (Schmutz et. al. 1984). Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads (Palmer 1988). Swainson's hawks occasionally nest

in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks (Schlorff et. al. 1984). They have also been documented nesting in eucalyptus (*Eucalyptus* spp.), black walnut (*Juglans hindsii*), black locust (*Robinia pseudoacacia*), almond (*Prunus dulcis*), Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*) and pine (*Pinus* spp.) (CNDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Its primary prey in the Central Valley is California meadow vole (*Microtus californicus*). Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and very likely increases foraging success of Swainson's hawks when farm equipment flushes prey during harvesting (observed many times by G. Monk). During the nesting season, Swainson's hawks usually forage within two miles of their nests. Swainson's hawk does not require habitats that contain many perches because it most often searches for prey aerially; therefore it can occupy habitats with few or no perches except the nest tree (James 1992).

The closest known Swainson's hawk record to the project site is approximately 2.1 miles north (CNDDB Occurrence No. 1718). There is no nesting habitat on or near this linear project site; however, eucalyptus trees that are located approximately 0.5-mile west of the project site and other large trees 0.5 mile south of the project site provide potential nesting habitat. Using California Department of Fish and Wildlife's Swainson's hawk survey guidelines (CDFG 2000), M&A biologist, Mr. Jesse Reebs, conducted a formal nesting survey for Swainson's hawks including all potential habitats within a mile of the project site for the Napa Logistics Phase II project immediately adjacent to the project site. Swainson's hawk nesting surveys were conducted April 5 and June 10, 2016 and February 27, 2017; no Swainson's hawks or evidence of any raptor nesting was observed within a zone of influence of the project site. However, because the Swainson's hawk is a mobile species and could nest within a zone of influence of the proposed project, preconstruction surveys are necessary to ensure that the project will not impact this hawk. See the Impacts and Mitigations section for details.

6.3.5 GOLDEN EAGLE

The golden eagle is fully protected under the Bald Eagle Protection Act (16 U.S.C. 668-668c). Additionally, its nest, eggs, and young are protected from direct "take" under the California Fish and Game Code (Sections 3503, 3503.5, and 3800). Finally, it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711).

Golden eagles are found breeding throughout western North America in remote open habitats. Typical habitats in North America include savannah woodland habitats, grasslands, aspen parkland, high and low deserts, and in taiga and zone habitats. Golden eagles feed on fresh carrion or take live prey ranging in size from small rodents to as large as new born fawns. More typical prey includes rabbits, hares, and waterfowl. Golden eagles build nests in large trees, often eucalyptus, oaks, or conifers, or on large vertical cliffs. On rare occasions nests are found on the

ground, especially in expansive prairie habitats where cliffs and/or trees are scarce. Often this species will return each year to the same nest stacking new sticks on the existing nest structure. These birds are very sensitive to disturbance near the nest site, particularly in remote regions where human activities are minimal.

There are two nesting records for golden eagles within 2.1 miles of the project site. One was a former nesting location in a eucalyptus tree surrounded by vineyard (CNDDB Occurrence No. 82); this tree was located northwest of the project site. In approximately 2008 this tree was cut down and no nesting habitat remains. The only other golden eagle nesting record that M&A is aware of is a nest site within the Newell Open Space within the City of American Canyon. This nest, also in a eucalyptus tree, was active in 2016 and 2017. It is also approximately 2.1 miles east of the project site (Mr. Reebs found this nest site and submitted a CNDDB record in 2016). The proposed project would not affect this golden eagle nest site. There is no nesting habitat for golden eagles on the project site; however, the eucalyptus trees located approximately 0.5-mile west of the project site may provide suitable habitat for golden eagles. M&A biologist, Jesse Reebs, has conducted several nesting surveys for Swainson's hawks in these eucalyptus trees as part of the survey requirements for the Napa Logistics Phase II project. Swainson's hawk nesting surveys were conducted April 5 and June 10, 2016 and February 27, 2017; no Swainson's hawks, golden eagles, or evidence of any raptor nesting was observed in these trees during the surveys. Yet, since the golden eagle is a mobile species, preconstruction nesting surveys would be necessary. See the Impacts and Mitigations section for details.

7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

7.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is actually present.

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal "nexus").

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the "federal nexus agency," for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation *at the discretion of the federal agencies conducting the Section 7 consultation*. The Section 7 consultation process is triggered by a determination of the "action agency" – that is, the federal

agency that is carrying out, funding, or approving a project - that the project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federal listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows applicants to “take” federally listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities, for example private parties, cities, counties that are considering a discretionary permit, Section 10 provides the mechanism for obtaining take authorization. Under Section 10 of FESA, the applicant for an "incidental take permit" is required to submit a "conservation plan" to the USFWS or NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

7.1.1 Responsible Agency

FESA gives regulatory authority to the USFWS for federally listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally listed marine mammals and anadromous fish.

7.1.2 Applicability to the proposed project

The project site does not have stream channels or drainages to support fish; hence there would be no impacts to federally listed fish. Focused surveys for special-status plants have been conducted on the project site and no federally listed plant species have been identified; thus, there would be no project-related impacts to federally listed plants (or any other special-status plant). USFWS approved wet and dry season protocol surveys for vernal pool fairy shrimp have been conducted on the project site and none were identified. There are no other federally listed species issues relating to the project site. No impacts to federally listed species are expected from implementation of the proposed project. The project will have no significant effects on FESA listed species.

7.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the MBTA and does not constitute any legal authorization to take migratory birds. The order also requires federal agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

7.2.1 Applicability to The Proposed Project

All raptors (birds of prey) and native song birds and wading birds are protected pursuant to the Migratory Bird Treaty Act. The golden eagle, Swainson's hawk and various other tree nesting raptors (birds of prey) could nest in trees immediately adjacent to the project site and may be disturbed by grading activities or other earth work associated with the road construction project. The northern harrier is a ground-nesting raptor that could nest on the project site, though during past site surveys conducted during the nesting season this ground-nesting raptor was not observed nesting onsite; thus, the likelihood is low, especially due to the number of cattle grazing the site. In accordance with the Migratory Bird Treaty Act, as long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to site development. To comply with the Migratory Bird Treaty Act, all active nest sites would have to be avoided while such birds were nesting. Upon completion of nesting, the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites for potentially occurring species in the Impacts and Mitigations section below.

7.3 California Endangered Species Act

7.3.1 Section 2081 of the California Endangered Species Act

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a provision for "harm" (see discussion of FESA, above),

CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFW determines that a proposed project could impact a State listed threatened or endangered species, CDFW will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from CDFW and/or USFWS (if it is a Federal listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a State listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for Federal listed species). CDFW will issue an incidental take permit only if:

1) The authorized take is incidental to an otherwise lawful activity;
2) the impacts of the authorized take are minimized and fully mitigated;
3) measures required to minimize and fully mitigate the impacts of the authorized take:
    a) are roughly proportional in extent to the impact of the taking on the species;
    b) maintain the project applicant’s objectives to the greatest extent possible; and,
    c) capable of successful implementation; and,
4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing a habitat conservation plan (HCP) as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the federal Endangered Species Act, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of “take.” These species are listed in several statutes that identify “fully protected” species and “specified birds.” *See* Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a “fully protected” species or a “specified bird” occurs, an applicant must design the project to avoid all take.

Fish and Game Code §2080.1 allows an applicant who has obtained a “non-jeopardy” federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a federal 10(a) permit (federal incidental take permit) pursuant to the FESA, to submit the federal opinion or permit to CDFW for a determination as to whether the federal document is “consistent” with CESA. If after 30 days CDFW determines that the federal incidental take permit is consistent

with state law, and that all state listed species under consideration have been considered in the federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are state listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state CESA permit under Section 2081(b). Section 2081(b) is of no use if an affected species is state-listed, but not federally listed.

State and federal incidental take permits are issued on a discretionary basis, and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

7.3.2 Applicability to The Proposed Project

M&A biologists have conducted numerous surveys on the project site including special-status plant surveys and a wetland delineation. During these multiple surveys, which spanned many months, no state listed plant or animal species were identified onsite. Thus, no impacts to state listed species protected pursuant to the CESA will occur from the proposed project (Tables 1 and 2, respectively).

7.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered "take." Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). "Fully protected" birds may not be taken or possessed (that is, kept in captivity) at any time.

7.4.1 Applicability to the Proposed Project

Raptors that could be impacted by the project include golden eagle, northern harrier, and Swainson's hawk, among others. Preconstruction surveys would have to be conducted for these species to ensure that there is no direct take of these birds or any other birds (song birds, wading birds) including their eggs, or young. Any active nests that were found during preconstruction surveys would have to be avoided by the project. Suitable non-disturbance buffers would have to be established around nest sites until the nesting cycle is complete. More specifics on the size of buffers are provided below in the Impacts and Mitigations section.

7.5 City of American Canyon General Plan

The City of American Canyon General Plan was adopted on November 3, 1994. It sets forth the following goals, objectives, and policies relevant to biological resources on the project site:

Goal 8: Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area.

Objective 8.1: Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.
Policy 8.1.1: Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.

Policy 8.1.4: Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend appropriate mitigation measures that the developer and/or government agency can implement.

Objective 8.2: Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savannah, and wetland and riparian habitats, with new development in the City.

Policy 8.2.1: Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savannah, and riparian habitats (see Figure 8-1 in the General Plan), or with areas potentially occupied by vernal pools (see Figure 8-2 in the General Plan) shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining Figure 8-1 in the General Plan for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified biologist to determine if sensitive habitats exist on-site. In instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.

Objective 8.3: Protect natural drainages and riparian corridors within the American Canyon Planning Area.

Policy 8.3.1: Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards:

a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.
b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g" (below).

c. Where riparian corridors are retained, they shall be protected by an adequate buffer with a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy (see policy 8.3.2).
d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible.
e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages or corridors from built environment.
f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible.
g. Future development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.
h. Future development shall mitigate unavoidable adverse impacts to waters of the United States, wetlands and riparian habitats (pursuant to the Federal Clean Water Act and the California Fish and Game Code, Section 1600 et seq.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Game and/or Army Corps of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be effected, subject to state and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (offsite but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.

Policy 8.3.6: Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths and greenbelts along their lengths throughout the City.

Objective 8.4: Protect local vernal pools as well as the habitats of endangered species living within American Canyon's Planning Area.

Policy 8.4.1: Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within American Canyon's Planning Area.

Policy 8.4.3: Encourage activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering.

7.5.1 Applicability to the Proposed Project

Consistent with General Plan Policies 8.1.1 and 8.1.4, this report represents a detailed assessment of the biological resources present on the project site and proposed impacts to these resources associated with development of the site. Proposed mitigation measures are detailed below in the project Impacts and Mitigation Measures section.

Consistent with General Plan Policy 8.2.1, the project site has been extensively evaluated for presence of sensitive biological resources including protocol level surveys for fairy shrimp and special-status plants. This report represents the Biological Assessment Report documenting findings from M&A's biological studies, and presents the current habitats and species present on the project site.

Consistent with Policies 8.3.1.a, 8.3.1.h, and 8.4.3, the applicant is proposing to mitigate the project's proposed impacts to seasonal wetlands by creating wetlands and preserving these wetlands offsite at a nearby wetlands preserve. Mitigation would be at a 2:1 replacement to impacts ratio, or two times as much wetland would be created as impacted to compensate for wetland impacts. If offsite mitigation turns out to be infeasible, mitigation at the 2:1 replacement to impacts ratio may be met by purchasing wetland mitigation credits from a Corps and RWQCB approved conservation bank. Any imposed conditions from regulatory permits issued that allow impacts to wetlands from the RWQCB or the Corps would also become conditions that must be met by the project to comply with the CEQA. If these regulatory agencies allow lower mitigation ratios through purchase of mitigation credits, the Corps/RWQCB approved ratios shall become the CEQA required mitigation ratios.

7.6 City of American Canyon Municipal Code Pertaining to Trees

Section 18.40.110 of the City of American Canyon's Municipal Code pertains to trees and is reiterated below.

Trees:

A. Existing trees shall be preserved on the site unless otherwise approved by the city council as a part of the site development plans.

B. Unless specifically approved by the city council, any tree removed shall be replaced on the site. Replacement trees shall be a minimum size of a twenty-four-inch box of the same species unless specifically approved by the city council. (Ord. 98-10 § 1 (part), 1998)

7.6.1 Applicability to the Proposed Project

There are no trees on the project site. Thus, no impacts to protected trees are anticipated.

8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, the State Water Resources Control Board, and CDFW to determine those areas within a project area that would be subject to their regulation.

8.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting

8.1.1 SECTION 404 OF THE CLEAN WATER ACT

Congress enacted the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Limits of Corps' jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

(1) Extends to the mean high tide line, or
(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
(3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

8.1.1.1 Significant Nexus of Tributaries

On December 2, 2008, the Corps and the Environmental Protection Agency (EPA) issued joint guidance on implementing the U.S. Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as "Rapanos") which address the jurisdiction over waters of the United States under the Clean Water Act. In this joint guidance these agencies provide guidance on where they will assert jurisdiction over waters of the U.S.

The EPA and Corps will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (for example, typically three months).
- Wetlands that directly abut such tributaries.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and

- Significant nexus includes consideration of hydrologic and ecologic factors.

8.1.1.2 Isolated Areas Excluded from Section 404 Jurisdiction

In addition to areas that may be exempt from Section 404 jurisdiction, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers (531 U.S. 159 [2001]). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable "Waters of the U.S.," and do not otherwise exhibit an interstate commerce connection.

8.1.1.3 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the United States. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of "waters of the United States" found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an "alternatives analysis" that is prepared pursuant to Section 404(b) of the Clean Water Act (33 U.S.C. 1344(b)). The alternatives analysis is also typically reviewed by the federal EPA and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g. a pier or a dredging project). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions of NWP(s).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.*, must receive "verification" from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of "no net loss" of wetlands (waters of the United States) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (*i.e.*, impacts would be mitigated). Typically, the Corps requires mitigation to be "in-kind" (i.e., if a stream channel would be filled, mitigation would include replacing it with a new stream channel), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction there of recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required. Usually the 2:1 ratio is met by recreation or enhancement of an equivalent amount of wetland as is impacted, in addition to a requirement to preserve an equivalent amount of wetland as is impacted by the project. In some cases, the Corps allows "out-of-kind" mitigation if the compensation site has greater value than the impacted site. For example, if project designs call for filling an intermittent drainage, mitigation should include recreating the same approximate jurisdictional area (same drainage widths) at an offsite location or on a set-aside portion of the project area. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

8.1.2 Applicability to the Proposed Project

M&A completed an Aquatic Resources Delineation for the entire Giovannoni Property through which the Devlin Road/Vine Trail Extension extends. On October 25, 2016, the Corps confirmed their jurisdiction over 11.93 acres of waters of the United States (wetlands and other waters onsite) on the Giovannoni Property. The Devlin Road/Vine Trail Extension project is routed through the Giovannoni property. As proposed, the project site supports 0.21-acre of wetlands that would be impacted by the project. Prior to impacting Corps jurisdictional waters of the U.S. on the project site, the application must apply for authorization from the Corps. Impacts to waters of the U.S. must be mitigated at a minimum 1:1 ratio or as otherwise determined by the Corps at the time a permit issued for the proposed project.

8.2 State Water Resources Control Board (SWRCB) / California Regional Water Quality Control Board (RWQCB)

8.2.1 Section 401 of the Clean Water Act

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the United States, including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

8.2.2 APPLICABILITY TO THE PROPOSED PROJECT

Any Section 404 permit authorized by the Corps for the project would be inoperative without also obtaining authorization from the RWQCB pursuant to Section 401 of the Clean Water Act (i.e., without obtaining a certification of water quality). Since the RWQCB does not have a formal method for technically defining what constitutes waters of the state, M&A expect that the RWQCB should remain consistent with the Corps' determination.

Any impacts to waters of the State would have to be mitigated to the satisfaction of the RWQCB prior to the time this resource agency would issue a permit for impacts to such features. The RWQCB requirements for issuance of a "401 Permit" typically parallel the Corps requirements for permitting impacts to Corps regulated areas pursuant to Section 404 of the Clean Water Act. Please refer to the Corps Applicability Section above for likely mitigation requirements for impacts to RWQCB regulated wetlands. Also, please refer to the applicability section of the Porter-Cologne Water Quality Control Act below for other applicable actions that may be imposed on the project by the RWQCB prior to the time any certification of water quality is authorized for the project. Please note that any isolated wetlands or other waters that are determined to be on the project site that are not regulated by the Corps pursuant to the SWANCC decision, would still be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act and impacts to such features would also be required to be mitigated per RWQCB policies (see below). Impacts to waters of the State must be mitigated at a minimum 1:1 ratio or as otherwise determined by the RWQCB at the time a permit issued for the proposed project.

8.2.3 PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the Corps' jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Stormwater Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post construction BMPs plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

8.2.4 APPLICABILITY TO THE PROPOSED PROJECT

There is 0.84-acre of "isolated wetlands" shown on the Corps confirmed map for the Giovannoni Property, but no isolated wetlands occur within the project site. The RWQCB would have jurisdiction over isolated wetlands pursuant to the Porter-Cologne Water Quality Control Act. Since any "threat" to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will be required when constructing the proposed project to be sure that adequate pre-and post-construction Best Management Practices Plan (BMPs) are incorporated into the project implementation plans. Please note that any isolated wetlands defined by the Corps but that are not regulated by the Corps pursuant to the SWANCC decision would still be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act. Again, these isolated areas are all outside of the project site boundaries.

It should also be noted that prior to issuance of any permit from the RWQCB this agency will require submittal of a Notice of Determination from the City of American Canyon indicating that the proposed project has completed a review conducted pursuant to CEQA. The pertinent sections of the CEQA document (typically the biology section) are often submitted to the RWQCB for review prior to the time this agency will issue a permit for a proposed project.

8.2.5 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

In 1972 the Clean Water Act was amended to state that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act added Section 402(p) which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program.

While federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide Construction General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans).

The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.

2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation. Achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project's projected risk level.

3. Perform inspections of all BMPs.

This Construction General Permit is implemented and enforced by the nine California Regional Water Quality Control Boards (RWQCBs). It is also enforceable through citizens' suits and represents a dramatic shift in the State Water Board's approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers.

Types of Construction Activity Covered by the Construction General Permit

- clearing,
- grading,
- disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area.

Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity.

Construction activity does not include:

- routine maintenance to maintain original line and grade,
- hydraulic capacity, or original purpose of the facility,
- nor does it include emergency construction activities required to protect public health and safety.

Project proponents (landowners) should confirm with the local RWQCB whether or not a particular routine maintenance activity is subject to this General Permit.

The State Water Board's new quantitative standards (Order 2009-0009-DWQ) take a two-tiered approach, depending on the risk level associated with the site in question. Exceedance of a benchmark Numeric Action Level ("NAL") measured in terms of pH and turbidity (a measure related to both the amount of sediment in and the velocity of site runoff) triggers an additional obligation to implement additional BMPs and corrective action to improve SWPPP performance. New minimum BMPs include Active Treatment Systems, which may be necessary where traditional erosion and sediment controls do not effectively control accelerated erosion; where site constraints inhibit the ability to construct a correctly-sized sediment basin; where clay and/or highly erosive soils are present; or where the site has very steep or long slope lengths.

In addition, the Construction General Permit includes several "post-construction" requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This "runoff reduction" approach is essentially a State Water Board-imposed

regulatory requirement to implement Low Impact Development ("LID") design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Improving the quality of site runoff is necessary to improve water quality in impaired and threatened streams, rivers, and lakes (that is, water bodies on the EPA's 303(d) list). The RWQCB prioritizes the water bodies on the 303(d) list according to potential impacts to beneficial uses. Beneficial uses can include a wide range of uses, such as nautical navigation; wildlife habitat; fish spawning and migration; commercial fishing, including shellfish harvesting; recreation, including swimming, surfing, fishing, boating, beachcombing, and more; water supply for domestic consumption or industrial processes; and groundwater recharge, among other uses. The State is required to develop action plans and establish Total Maximum Daily Loads (TMDLs) to improve water quality within these impaired water bodies. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating the applicable water quality standards.

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the U.S. Environmental Protection Agency (EPA), **sediment is one of the most widespread pollutants contaminating U.S. rivers and streams**. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of stormwater from large construction sites is regulated by the RWQCB under the federal CWA and California's Porter-Cologne Water Quality Control Act. Pursuant to the CWA, the RWQCB regulates construction discharges under the National Pollutant Discharge Elimination System (NPDES). The project sponsor of construction or other activities that disturb more than 1 acre of land must obtain coverage under NPDES Construction General Permit Order 2009-0009-DWQ, administered by the RWQCB[1].

8.2.6 APPLICABILITY TO THE PROPOSED PROJECT

The City of American Canyon (the applicant) is an MS-4 permittee under the NPDES (see next section of this report). Accordingly, water quality compliance typically would fall to the City for implementation and compliance. However, as this project will likely require a Clean Water Act Section 401 permit, the RWQCB when considering issuance of the 401 permit, will require submittal of a Storm Water Management Plan that demonstrates that the constructed project will treat and hydromodify stormwater falling on impervious surfaces.

The project will impact greater than one acre and thus, it must obtain coverage under the General Storm Water Permit. To obtain coverage, the applicant must electronically file a number of permit-related compliance documents (Permit Registration Documents (PRDs)), including a Notice of Intent (NOI), a risk assessment, site map, signed certification, Stormwater Pollution

[1] CGP Order 2009-0009-DWQ remains in effect, but has been amended by CGP Order 2009-0014-DWQ, effective February 14, 2011, and CGP Order 2009-0016-DWQ, effective July 17, 2012. The first amendment merely provided additional clarification to Order 2009-0009-DWQ, while Order 2009-0016-DWQ eliminated numeric effluent limits on pH and turbidity (except in the case of active treatment systems), in response to a legal challenge to the original order.

Prevention Plan (SWPPP), Notice of Termination (NOT), NAL exceedance reports, and other site-specific PRDs that may be required. The PRDs must be prepared by a Qualified SWPPP Practitioner (QSP) or Qualified SWPPP Developer (QSD) and filed by a Legally Responsible Person (LRP) on the RWQCB's Stormwater Multi-Application Report Tracking System (SMARTS). (QSDs are typically civil engineers, professional hydrologists, engineering geologists, or landscape architects.) Once filed, these documents become immediately available to the public for review and comment. At a minimum the SWPPP shall identify Best Management Practices (BMPs) for implementation during project construction that are in accordance with the applicable guidance and procedures contained in the California Stormwater Quality Association's *California Stormwater Best Management Practices Handbook* (2015).

Construction stormwater BMPs are intended to minimize the migration of sediments offsite. They can include:

- covering soil stockpiles,
- sweeping soil from streets or other paved areas,
- performing site-disturbing activities in dry periods,
- planting vegetation or landscaping quickly after disturbance to stabilize soils.

Other typical stormwater BMPs include erosion reduction controls such as:

- hay bales, water bars, covers, sediment fences, sensitive area access restrictions, vehicle mats in wet areas, geotextile blankets, fiber rolls, temporary slope drains, mulching of exposed areas, vehicle mats in wet areas, and other erosion-reducing features, and retention/settlement ponds.

Excavation and other soil-disturbing activities associated with the project could potentially affect water quality as a result of erosion of sediment. In addition, leaks from construction equipment; accidental spills of fuel, oil, or hazardous liquids used for equipment maintenance; and accidental spills of construction materials are all potential sources of pollutants that could degrade water quality.

8.3 RWQCB Municipal Storm Water Permitting Program

The Municipal Storm Water Permitting Program regulates storm water discharges from municipal separate storm sewer systems (MS4s). MS4 permits were issued in two phases. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES storm water permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. These permits are reissued as the permits expire.

As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program (SWMP) with the goal of reducing the discharge of pollutants to the maximum

extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

8.3.1 RWQCB PHASE II PROGRAM REQUIREMENTS

The Federal Clean Water Act (CWA) provides that National Pollutant Discharge Elimination System (NPDES) permits for MS4 must require municipalities to reduce pollutants in their storm water discharges to the “maximum extent practicable” (CWA §402(p)(3)(B).) MS4 permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.” Under the Phase II Requirements implemented by the RWQCB, permittees that operate an MS4 that serves 50,000 people or more, or that serve an area of high growth (which is defined as more than 25% over 10 years), must comply with the Supplemental Provisions contained in Attachment 4 of the Small MS4 General Permit.

The General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems WQO No. 2003-0005-DWQ (Small MS4 General Permit) requires that dischargers develop and implement a Storm Water Management Program (SWMP) that describes the best management practices (BMPs), measurable goals, and time schedules of implementation as well as assigns responsibility of each task. Also, as required by the Small MS4 General Permit, the SWMP must be available for public review and must be approved by the appropriate RWQCB, or its Executive Officer (EO), prior to permit coverage commencing. This information is provided to facilitate the process of an MS4 obtaining Small MS4 General Permit coverage.

The Small MS4 General Permit requires all Permittees to develop and implement a SWMP designed to reduce the discharge of pollutants through their MS4s to the maximum extent practicable. This General Permit requires the SWMP to be fully implemented by the end of the permit term (or five years after designation for those designated subsequent to General Permit adoption).

Permittees must have a Post Construction SWMP for new developments and redevelopment projects. The maximum extent practicable standard involves applying BMPs that are effective in reducing the discharge of pollutants in storm water runoff. In discussing the maximum extent practicable standard, the State Board has said the following: "There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that the maximum extent practicable has not been met. On the other hand, if a permittee employs all applicable BMPs, except those that are demonstrated to be not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard.

The MS4 municipality is required to develop and implement a program that provides local oversight of construction projects within the municipality to ensure that pollutants being

discharged from construction sites into the MS4 are reduced. The program must include adopting an ordinance requiring storm water quality controls at construction sites, reviewing site plans, receiving comments from the public regarding the discharge of pollutants from construction sites, inspecting construction sites to ensure that pollutants are not being discharged in storm water runoff, and taking enforcement when necessary. In contrast, the General Construction Permit requires projects to have a site specific SWPPP and to implement BMPs specific to activities at the construction site. The General Construction Permit directly regulates landowners engaged in construction involving land disturbance of 10,000 square feet or more.

8.3.2 Applicability to the Proposed Project

The City of American Canyon is an MS4 permittee and thus is required to enforce development of a project-specific SWMP that incorporates pre- and post-construction BMPs. Regardless, since this project will likely be regulated by the RWQCB pursuant to the Clean Water Act (401 permit) and/or the Porter-Cologne Water Quality Control Act (WDRs), the RWQCB is likely to directly enforce pre- and post-construction BMPs. As a Phase II implementing City, the City of American Canyon should prepared a SWMP containing pre- and post-construction BMPs.

8.4 California Department of Fish and Wildlife Protections

8.4.1 Section 1602 of California Fish and Game Code

Pursuant to Section 1602 of the California Fish and Game Code: "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

(1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification shall include, but is not limited to, all of the following:
   (A) A detailed description of the project's location and a map.
   (B) The name, if any, of the river, stream, or lake affected.
   (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.
   (D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
   (E) A copy of any other applicable local, state, or federal permit or agreement already issued.
   (F) Any other information required by CDFW" (Fish & Game Code 2014).

Please see Section 1602 of the current California Fish and Game Code for further details.

Please also note that while not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream). Thus, any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, including its riparian vegetation, would require entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the

stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

8.4.2 APPLICABILITY TO THE PROPOSED PROJECT

There are no drainages, tributaries or any other areas within the project site that support a bed, bank, or channel and that would be regulated by the CDFW pursuant to Section 1602 of the California Fish and Game Code.

9. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REGULATIONS

A CEQA lead agency must determine if a proposed activity constitutes a project requiring further review pursuant to the CEQA. Pursuant to CEQA, a lead agency would have to determine if there could be significant adverse impacts to the environment from a proposed project. Typically, if within the city limits, the city would be the CEQA lead agency. If a discretionary permit (i.e., conditional use permit) would be required for a project (e.g. an occupancy permit must be issued), the lead agency typically must determine if there could be significant environmental impacts. This is usually accomplished by an "Initial Study." If there could be significant environmental impacts, the lead agency must determine an appropriate level of environmental review prior to approving and/or otherwise permitting the impacts. In some cases, there are "Categorical Exemptions" that apply to the proposed activity; thus the activity is exempt from CEQA. The Categorical Exemptions are provided in CEQA. There are also Statutory Exemptions in CEQA that must be investigated for any proposed project. If the project is not exempt from CEQA, the lowest level of review typically reserved for projects with no significant effects on the environment would be for the lead agency to prepare a "Negative Declaration." If a proposed project would have only minimal impacts that can be mitigated to a level of no significance pursuant to the CEQA, then a "Mitigated Negative Declaration" is typically prepared by the lead agency. Finally those projects that may have significant effects on the environment, or that have impacts that can't be mitigated to a level considered less than significant pursuant to the CEQA, typically must be reviewed via an Environmental Impact Report (EIR). All CEQA review documents are subject to public circulation, and comment periods.

Section 15380 of CEQA defines "endangered" species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. "Rare" species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will "substantially affect a rare or endangered species of animal or plant or the habitat of the species." The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

9.1.1 APPLICABILITY TO THE PROPOSED PROJECT

This report has been prepared as a Biology Section that is suitable for incorporation into the biology section of a CEQA review document such as a Mitigated Negative Declaration. This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA. This report has been prepared as a Biology Section that is suitable for incorporation by the CEQA lead agency (in this case City of American Canyon) into an Initial Study or higher levels of CEQA review including incorporation into the biology section of an Environmental Impact Report.

10. IMPACTS ANALYSIS

Below the criteria used in assessing impacts to Biological Resources is presented.

10.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies' considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as "significant," "potentially significant," or "less than significant." Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated "waters of the United States" and/or stream channels.

10.1.1 THRESHOLDS OF SIGNIFICANCE

10.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

- Have a substantial adverse effect on federally protected "wetlands" as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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

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

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

10.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands, as discussed in the bulleted item above, and also includes "other waters" (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the Clean Water Act, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

10.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which CDFW typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

11. IMPACT ASSESSMENT AND PROPOSED MITIGATION

In this section, we discuss potential impacts to sensitive biological resources including waters of the United States and/or State and nesting birds, including raptors such as the golden eagle. We follow each impact with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible. This impact analysis is based on engineering exhibits received from GHD, Inc. on April 18, 2017.

11.1 Ground Nesting Raptors

11.1.1 IMPACT BIO-1: THE PROJECT MAY HAVE AN ADVERSE IMPACT ON GROUND NESTING RAPTORS.

Raptor (birds of prey) nests are protected pursuant to California Fish and Game Code (Sections 3503, 3503.5, 3513) and the Federal Migratory Bird Treaty Act. Suitable nesting habitat for the northern harrier occurs on the project site. In addition to being protected pursuant to the above regulations, the northern harrier is also classified by the CDFW as a "species of special concern." Species of special concern meet the definition of "rare" under the CEQA Guidelines. Potential impacts to this species from the proposed project include disturbance to nesting birds, and

possibly death of adults and/or young. The project would take place in a non-native grassland community which provides suitable nesting habitat for northern harriers. No nesting raptors have been identified on the project site; however, no specific surveys for nesting raptors have been conducted. Additionally, raptors are highly mobile species and their nest locations may change from year to year. In the absence of preconstruction nesting surveys, *the proposed project may have a potentially significant impact on the northern harrier or other ground nesting raptors.* This impact could be mitigated to a less than significant level.

11.1.2 MITIGATION MEASURE BIO-1: GROUND-NESTING RAPTORS

Prior to ground disturbance a nesting survey shall be conducted for ground nesting raptors (i.e., the northern harrier) during the nesting season, February 1 through September 1. Typically, the northern harrier builds a grass-lined nest on the ground in grassland habitat. In order to determine if this raptor nests onsite, qualified raptor biologists would have to conduct walking transects through the project site's grassland habitat searching for nests. If a northern harrier nest was identified during the walking transect surveys, a nesting buffer would have to be established to protect the nest. To form a protective buffer a 300-foot radius around the nest should be fenced with orange construction fencing. If the nest is located outside of the project site, then the buffer should be demarcated as per above where the buffer intersects the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. If this occurs, the raptor biologist should prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones, or the nesting cycle is otherwise determined to be complete. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to monitor the nesting raptors, then the buffers should be maintained in place through the end of August. The buffer can be removed on September 1st and project construction may otherwise commence without further regard for the nest site.

This mitigation measure would reduce the project's impact to ground nesting raptors to a less than significant level pursuant to CEQA.

11.2 Nesting Passerine Birds

11.2.1 IMPACT BIO-2: THE PROJECT MAY HAVE AN ADVERSE IMPACT ON NESTING PASSERINE BIRDS.

Nesting passerine birds (that is, perching birds) could be impacted by the proposed project. Birds and their nests are protected under California Fish and Game Code (Sections 3503, 3503.5, 3513), and the Migratory Bird Treaty Act. The non-native grassland vegetation present on the project site provides suitable nesting habitat for ground nesting passerine birds. Passerine birds are highly mobile species and their nest locations may change from year to year. In the absence of preconstruction nesting surveys, *the proposed project may have a potentially significant impact on ground nesting passerine birds.* This impact could be mitigated to a less than significant level.

11.2.2 MITIGATION MEASURE BIO-2: NESTING PASSERINE BIRDS

A nesting survey shall be conducted 15 days prior to earth moving or the commencement of construction work if this work would occur between February 1 and September 1. If any birds are found nesting on the project site or within a zone of influence of the project site a 75-foot nest protection buffer shall be established around the nest(s). The buffer shall be staked with orange construction fencing. If special-status birds, such as tricolored blackbird are found nesting or within a zone of influence of the project site a 300-foot protection buffer shall be established around the nesting site(s). In addition, if this buffer cannot be maintained until the nesting birds complete their nesting cycle, consultation with the CDFW shall be required to determine if the project would require acquisition of a 2081 Management Authorization from the CDFW. Any conditions set forth in any issued 2081 Management Authorization from the CDFW shall become conditions of the project enforceable by the City. No construction or earth-moving activity shall occur within any nest protection buffer until it is determined by a qualified biologist that the nesting cycle is complete and any young that fledge have attained sufficient flight skills to avoid being impacted by the proposed project. For passerines this typically occurs by July 31st. This date may be earlier or later and would have to be determined by a qualified ornithologist.

Implementation of these mitigation measures would reduce the project's impact to ground nesting raptors to a level regarded as less than significant pursuant to CEQA.

11.3 Waters of the United States/ State

11.3.1 IMPACT BIO-3: THE PROJECT MAY HAVE AN ADVERSE IMPACT ON WATERS OF THE UNITED STATES/ STATE.

The proposed project has been designed to reduce the total impacts to Corps and RWQCB jurisdictional waters to the maximum extent practicable. For example, the construction staging area has been relocated to the road rights-of-way to avoid impacting, even temporarily, another natural area that may support waters of the United States/State. Yet under the proposed design there would still be minor impacts to waters of the United States/State. Construction of the proposed project would result in impacts to approximately 0.21-acre of waters of the U.S./State on the project site. This impact or any minor impacts to waters of the U.S./State could be mitigated to a less than significant level pursuant to CEQA.

11.3.2 MITIGATION MEASURE BIO-3: WATERS OF THE UNITED STATES/STATE

The applicant must obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers in advance of impacts to waters of the United States. Similarly, the applicant must obtain a Clean Water Act Section 401 permit from the Regional Water Quality Control Board in advance of any impacts to waters of the State. The applicant is proposing to mitigate impacts to 0.21-acre of Corps and RWQCB jurisdictional seasonal wetlands via creation and preservation of 0.42-acre of seasonal wetlands within a suitable offsite habitat preserve. Typically, the Corps and RWQCB require that impacted seasonal wetlands be replaced at a 2:1 replacement to impacts ratio, but this ratio can be dependent upon Mitigation Ratio Guidance provided by the Corps or RWQCB at the time of permit issuance. If there are no suitable offsite areas to create and preserve waters of the United State/States, the purchase of mitigation credits from a

Corps/RWQCB approved mitigation bank would also fully compensate for the project's impacts to waters of the U.S./State. Any wetland compensation mitigation that is different than prescribed herein that is required by the Corps and/or RWQCB shall also become conditions of project approval enforceable by the City.

Implementation of these mitigation measures would reduce impacts to waters of the U.S./State to a level regarded as less than significant pursuant to CEQA.

11.4 Nesting Swainson's Hawk

11.4.1 IMPACT BIO-4: THE PROJECT MAY HAVE AN ADVERSE IMPACT ON NESTING SWAINSON'S HAWKS

The Swainson's hawk is a state listed threatened species. While the Swainson's hawk has no special federal status it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). The closest known Swainson's hawk record to the project site is approximately 2.1 miles north (CNDDB Occurrence No. 1718). There is no nesting habitat on or near this linear project site, however, the eucalyptus trees that are located approximately 0.5-mile west of the project site provide potential nesting habitat and preconstruction surveys would be necessary. If Swainson's hawks were nesting near the project site, implementation of the proposed project could be viewed by the CDFW as a project that could impact nesting Swainson's hawks. Nest site disturbance which results in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates); and (4) may ultimately result in the take (killing) of nestling or fledgling Swainson's hawks incidental to otherwise lawful activities, would be considered a "take" by the CDFW. The taking of Swainson's hawks in this manner can be viewed by the CDFW as a violation of the Section 2080 of the Fish and Game Code. This interpretation of take has been judicially affirmed by the landmark appellate court decision pertaining to CESA (Department v. ACID, 8 CA App. 4, 41554) (CDFW 1994).

Typically, the CDFW requires that any impact to a Swainson's hawk nest be permitted through a Fish and Game Section 2081 management authorization. If an active nest is found on or adjacent to the project site within the area of influence of the project site (which is generally considered to be within 1,000 feet of the project site) "to avoid potential violation of Fish and Game Code 2080 (i.e., killing of listed species), project-related disturbance at active Swainson's hawk nesting sites should be reduced or eliminated during critical phases of the nesting cycle (March 1- September 15 annually)" (CDFW 2000). If disturbance would occur, a Fish and Game Section 2081 management authorization would be required. Thus, preconstruction nesting surveys are warranted to ensure that the proposed project will not impact this hawk species. This impact could be mitigated to a less than significant level pursuant to CEQA.

11.4.2 MITIGATION MEASURE BIO-4: SWAINSON'S HAWK

The CDFW has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFW 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating

nesting Swainson's hawks, and thus reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the CDFW's recommendations for mitigation and protection of Swainson's hawks, surveys shall be conducted for a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to a project's initiation. The guidelines provide specific recommendations regarding the number of surveys based on when the project is scheduled to begin and the time of year the surveys are conducted.

If Swainson's hawks are found to be nesting within 1,000 feet of the project site, the necessity of acquiring a Fish and Game Section 2081 management authorization shall be determined via consultation with the CDFW. Impacts to the nesting Swainson's hawks shall not be allowed. Accordingly, nest protection buffers shall be established that are a minimum of 300 feet from the nest site. The nest site buffer shall be established in consultation with the CDFW or as required in any Fish and Game Section 2081 management authorization issued to the project by the CDFW. The nest protection buffer shall be maintained until the Swainson's hawk nesting attempt is completed as determined by a qualified raptor biologist. Once the nesting cycle is complete no further action is warranted for this raptor species unless CDFW issues a Fish and Game Section 2081 management authorization that requires additional mitigation. Any mitigation required by a 2081 management authorization shall also become a condition of project approval.

Implementation of these mitigation measures would reduce impacts to nesting Swainson's hawks to a level regarded as less than significant pursuant to the CEQA.

11.5 Nesting Golden Eagle

11.5.1 Impact BIO-5: The project may have an adverse impact on nesting golden eagles

The golden eagle is "fully protected" under the Bald Eagle Protection Act (16 U.S.C. 668-668c). It is also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and its nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3503.5, 3800, and 3513. There is no nesting habitat on the project site; however, suitable nesting habitat for the golden eagle occurs in the eucalyptus trees located approximately 0.5-mile west of the project site. While the distance of 0.5-mile between the project site and suitable nesting habitat would be a large enough buffer to protect most nesting raptors, the golden eagle is highly susceptible to noise and disturbance during its nesting period. Thus, surveys would need to be conducted to ensure that if these birds are nesting nearby that suitable nesting buffers are in place prior to earth-work or construction. Any substantial project-related impacts to nesting golden eagles would be considered a significant adverse impact. Potential impacts to these species from the proposed project include disturbance to nesting birds, and possibly death of adults and/or young. *As such, impacts to nesting golden eagles are regarded as potentially significant.* This impact could be mitigated to a level considered less than significant.

11.5.2 Mitigation Measure 5. For Impacts to Nesting Golden Eagles

Golden eagle nesting surveys shall be conducted 30 days prior to commencing with any earth-moving activity if this work would commence between February 1st and September 1st. The

nesting surveys shall include examination of the eucalyptus trees located within 0.50-mile and any other trees in the same vicinity, if possible.

If during the surveys golden eagles are identified nesting in the eucalyptus trees or any other trees within a 0.5-mile radius of the project site, a qualified raptor biologist shall determine if the nesting attempt could be affected by the proposed project. The qualified raptor biologist will also establish a protection buffer that is adequate to ensure that noise or activity from the project would not bring harm to the nest including adult abandonment or inattentiveness that results in nesting failure. Buffers may be variable in size as some golden eagles are more acclimated to disturbance. The size of any established nesting buffer may be altered if a qualified raptor biologist determines the nesting eagles are well acclimated to disturbance or conversely are more sensitive to disturbance. Any modified buffer shall allow sufficient room to prevent undue disturbance/harassment to the nesting eagles. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones, or the nesting cycle is otherwise complete. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified raptor biologist. Once the nesting cycle is complete no further action is warranted for this raptor species.

Implementation of these mitigation measures would reduce impacts to nesting golden eagles to a level regarded as less than significant pursuant to the CEQA.

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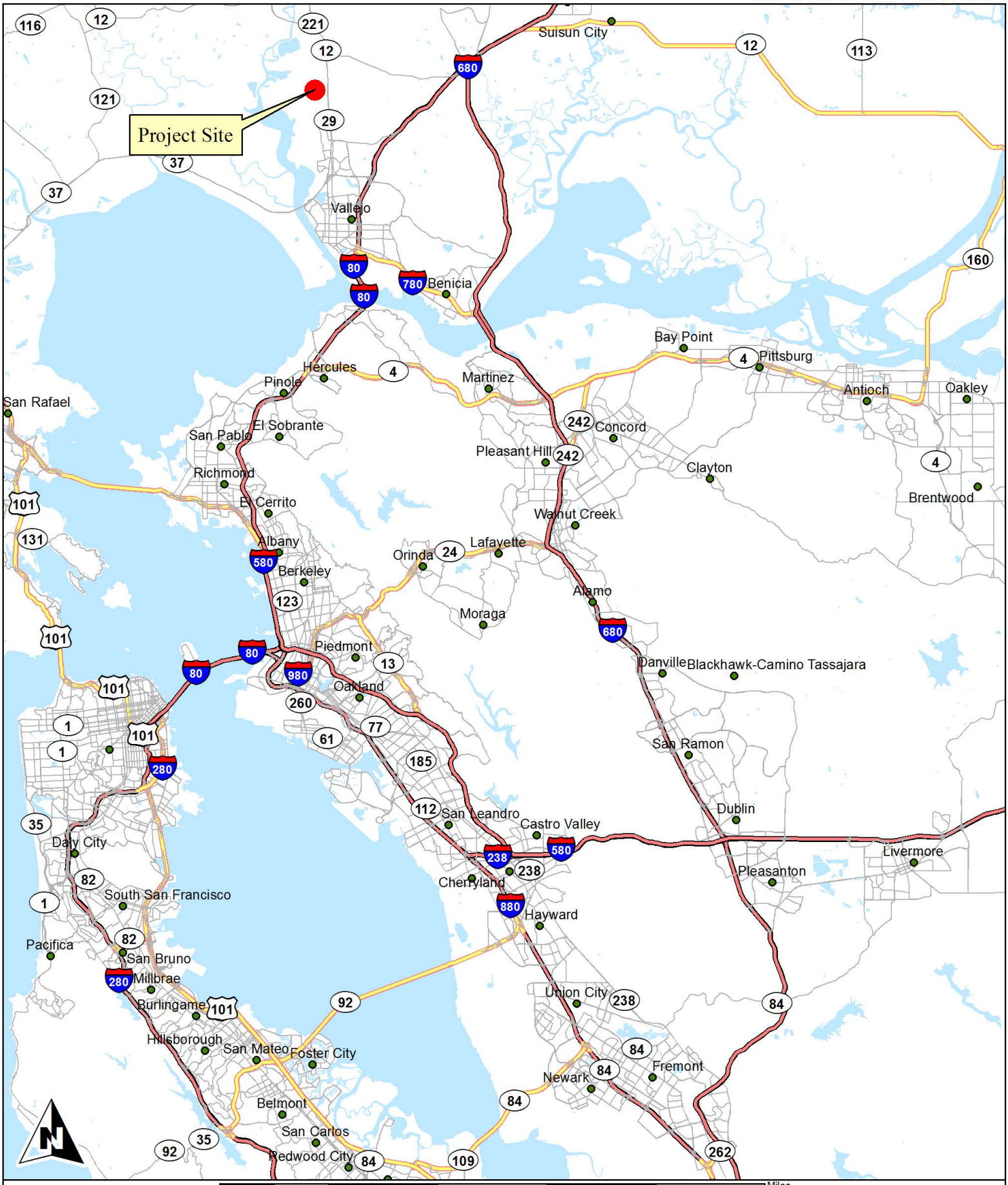

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Figure 1. Devlin Road Vine Trail Extension Project
Regional Map
City of American Canyon, California

County: Napa
Map Preparation Date: October 15, 2018

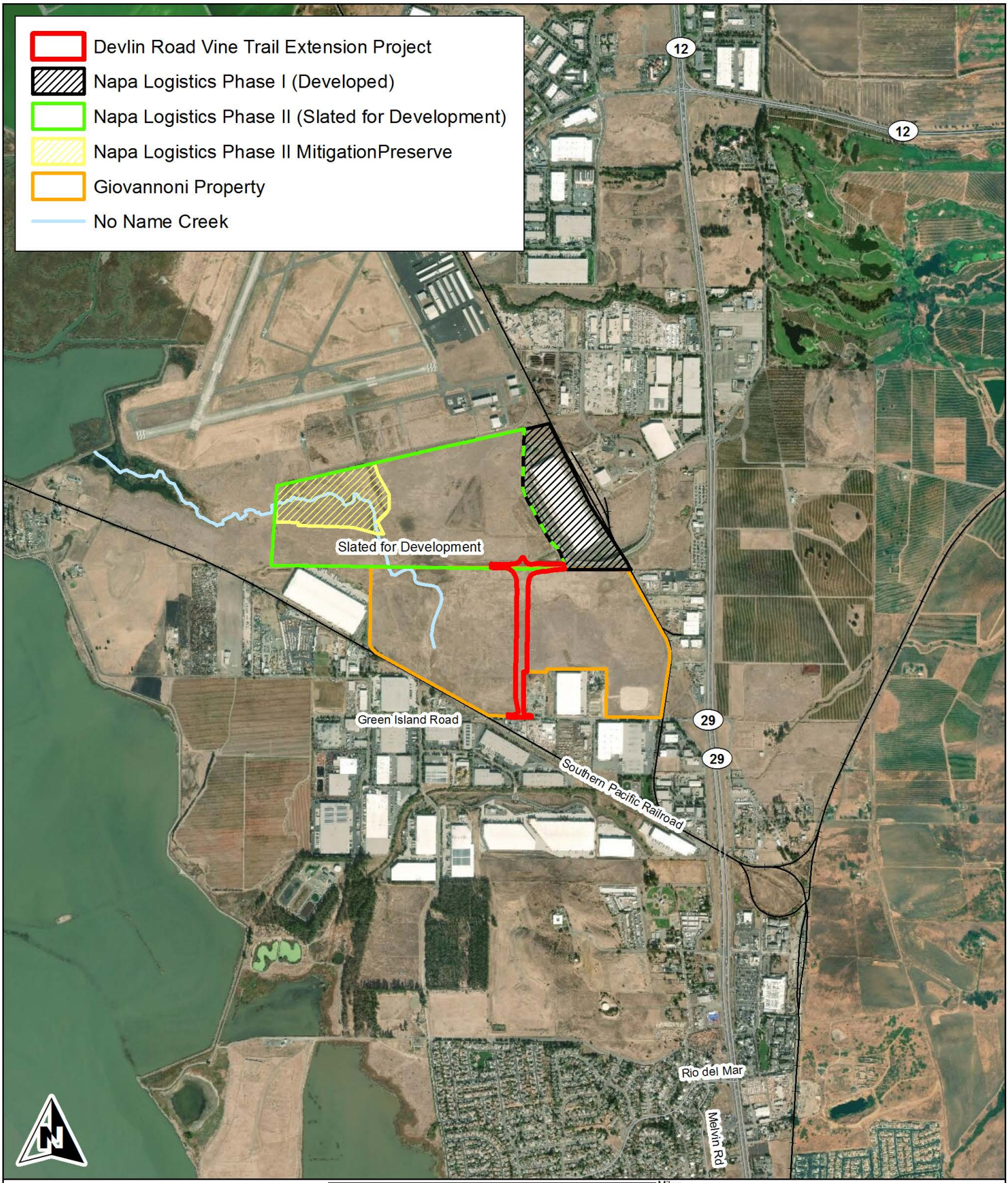

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Figure 2. Devlin Road Vine Trail Extension Project
Location Map
City of American Canyon, California

Section: 11 & 14 ; T4N R4W
38°11'56.61"N 122°16'0.82"W
7.5-Minute Cuttings Wharf quadrangle
Aerial Photograph Source: ESRI
Map Preparation Date: October 15, 2018

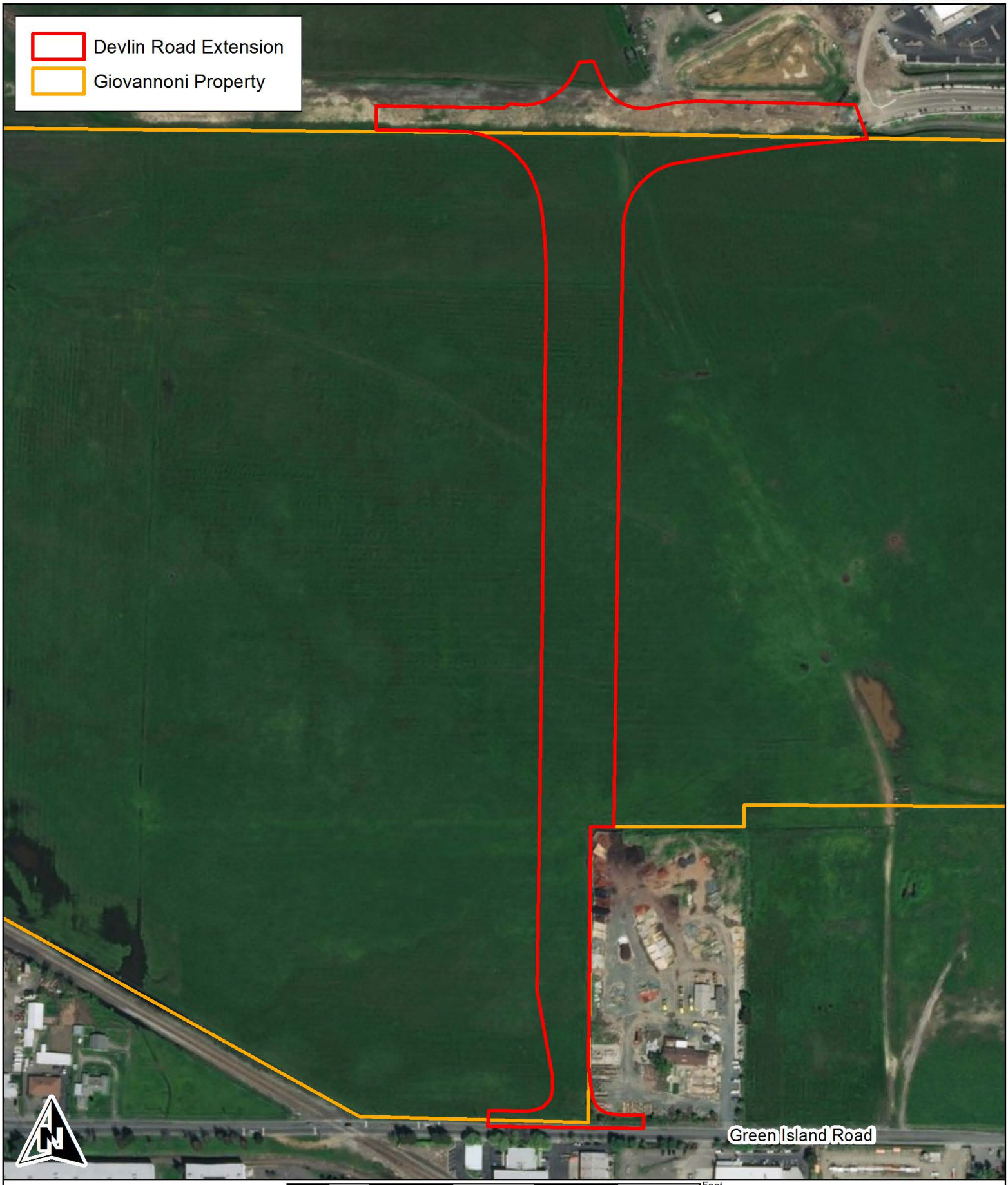

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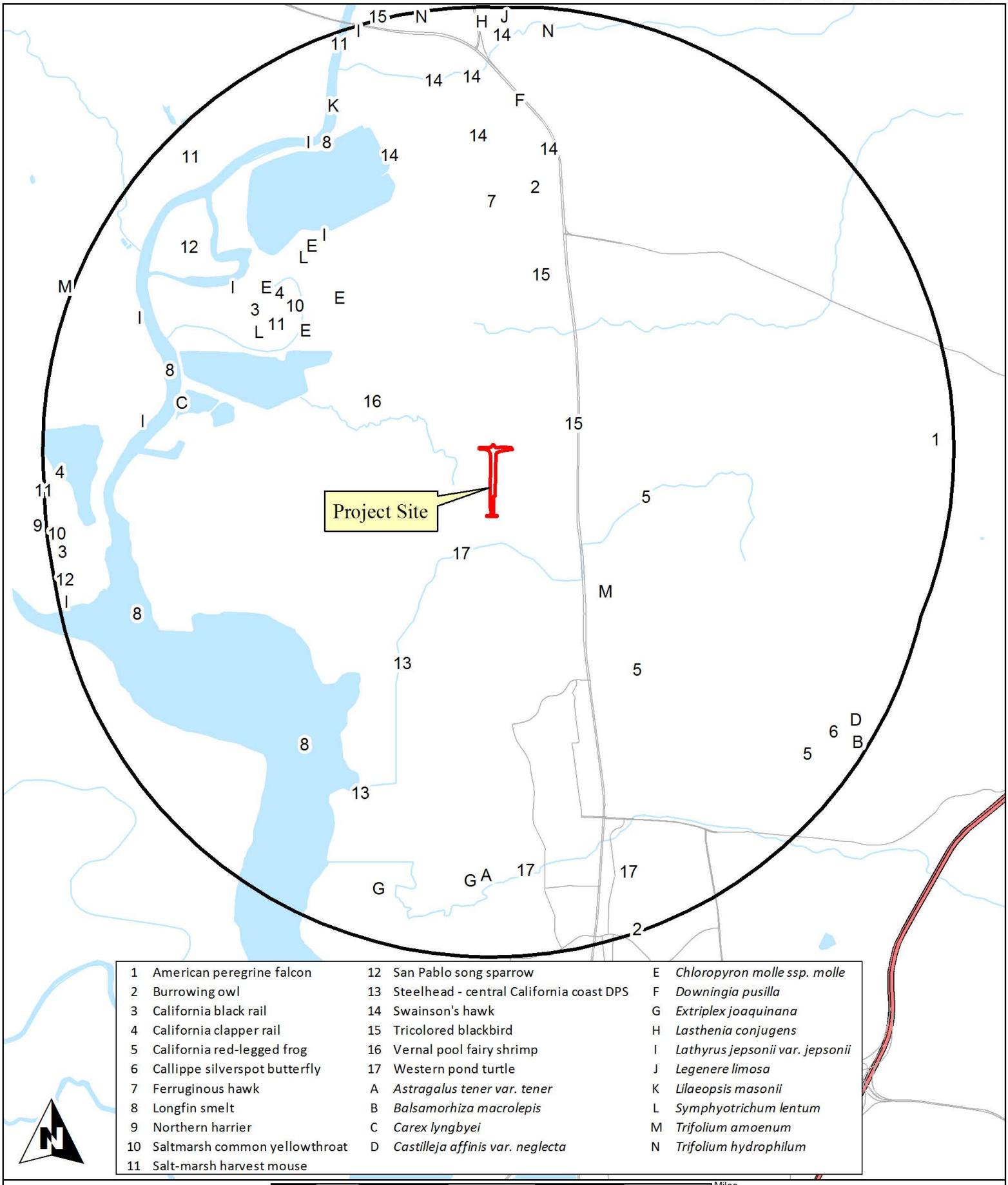
Figure 3. Aerial Photograph of the
Devlin Road Vine Trail Extension Project
City of American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: October 15, 2018



1	American peregrine falcon	12	San Pablo song sparrow	E	*Chloropyron molle ssp. molle*
2	Burrowing owl	13	Steelhead - central California coast DPS	F	*Downingia pusilla*
3	California black rail	14	Swainson's hawk	G	*Extriplex joaquinana*
4	California clapper rail	15	Tricolored blackbird	H	*Lasthenia conjugens*
5	California red-legged frog	16	Vernal pool fairy shrimp	I	*Lathyrus jepsonii var. jepsonii*
6	Callippe silverspot butterfly	17	Western pond turtle	J	*Legenere limosa*
7	Ferruginous hawk	A	*Astragalus tener var. tener*	K	*Lilaeopsis masonii*
8	Longfin smelt	B	*Balsamorhiza macrolepis*	L	*Symphyotrichum lentum*
9	Northern harrier	C	*Carex lyngbyei*	M	*Trifolium amoenum*
10	Saltmarsh common yellowthroat	D	*Castilleja affinis var. neglecta*	N	*Trifolium hydrophilum*
11	Salt-marsh harvest mouse				

Miles
0 0.3 0.6 1.2 1.8 2.4 3

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Figure 4. Closest Known Special-Status CNDDB Species within 3 Miles of the Devlin Road Vine Trail Extension Project

Map Preparation Date: October 15, 2018
3-Mile Radius
Source: CDFW, California Natural Diversity Data Base, 2018

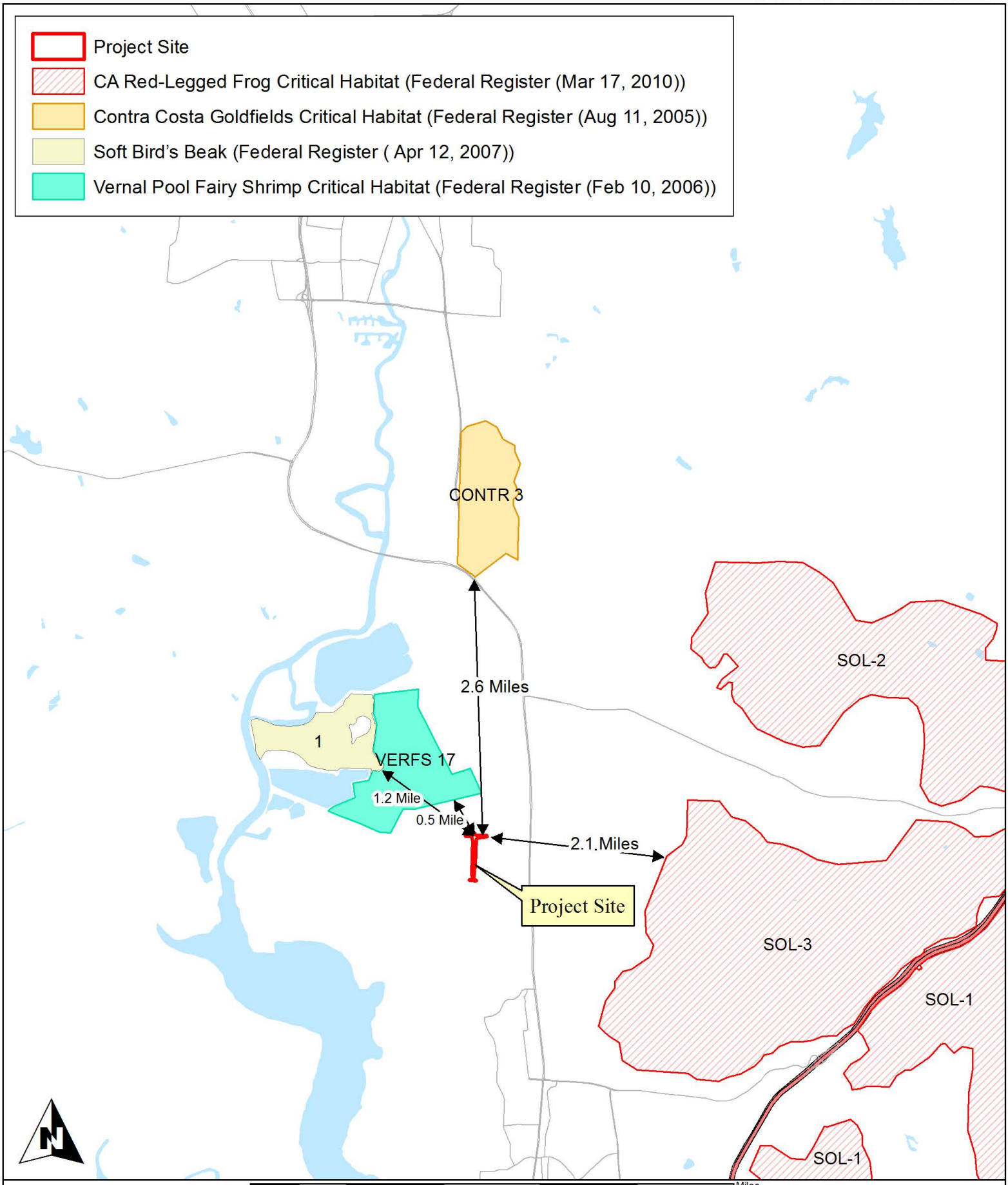

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Figure 5. USFWS Critical Habitat in the Vicinity of the Devlin Road Vine Trail Extension Project City of American Canyon, California

Source: USFWS
Map Preparation Date: October 15, 2018

Table 1

Plant Species Observed on the Devlin Road/Vine Trail Extension Project Site

Angiosperms - Dicots

Apiaceae

Eryngium aristulatum var. aristulatum	California coyote-thistle
**Foeniculum vulgare*	Sweet fennel
Perideridia kelloggii	Kellogg's yampah

Asteraceae

Agoseris grandiflora	giant mountain dandelion
**Anthemis cotula*	Mayweed
**Calendula arvensis*	Field-marigold
**Carduus pycnocephalus subsp. pycnocephalus*	Italian thistle
**Centaurea calcitrapa*	Purple starthistle
**Centaurea solstitialis*	Yellow starthistle
**Cichorium intybus*	Chicory
**Cirsium vulgare*	Bull thistle
**Cotula coronopifolia*	Brass-buttons
Deinandra corymbosa	Coast tarweed
**Helminthotheca echioides*	Bristly ox-tongue
Hemizonia congesta subsp. luzulifolia	White hayfield tarweed
**Lactuca serriola*	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
**Leontodon saxatilis subsp. longirostris*	Long-beaked hawkbit
Microseris douglasii subsp. douglasii	Douglas' silverpuffs
**Pseudognaphalium luteoalbum*	Everlasting cudweed
Psilocarphus brevissimus var. brevissimus	Dwarf woolly-heads
**Senecio vulgaris*	Common groundsel
**Sonchus asper subsp. asper*	Prickly sow-thistle
**Sonchus oleraceus*	Common sow-thistle
**Taraxacum officinale*	Common dandelion

Boraginaceae

Plagiobothrys stipitatus var. micranthus	Great Valley popcornflower
Plagiobothrys undulatus	Wavy-stemmed popcornflower

Brassicaceae

**Brassica rapa*	Field mustard
Cardamine californica	Milk maids
**Lepidium latifolium*	Broadleaf pepperweed
**Nasturtium officinale*	Water cress
**Raphanus raphanistrum*	Jointed charlock
**Raphanus sativus*	Wild radish
**Sisymbrium altissimum*	Tumble mustard

Campanulaceae

Downingia concolor var. concolor	Downingia

Caryophyllaceae

Cerastium arvense subsp. strictum	Meadow chickweed
**Silene gallica*	Windmill-pink

Table 1

Plant Species Observed on the Devlin Road/Vine Trail Extension Project Site

Convolvulaceae	
**Convolvulus arvensis*	Bindweed
Cuscuta sp.	Dodder
Crassulaceae	
Crassula aquatica	Water pygmy-weed
Fabaceae	
**Lotus corniculatus*	Birdfoot trefoil
Lupinus bicolor	Bicolored lupine
**Medicago polymorpha*	California burclover
Trifolium ciliolatum	Foothill clover
**Trifolium dubium*	Little hop clover
**Trifolium fragiferum*	Strawberry clover
**Trifolium hirtum*	Rose clover
**Trifolium incarnatum*	Crimson clover
**Trifolium repens*	White clover
**Trifolium subterraneum*	Subterranean clover
Trifolium variegatum	White-tip clover
**Vicia sativa*	Common vetch
Gentianaceae	
Zeltnera muehlenbergii	June centaury
Geraniaceae	
**Erodium botrys*	Broad-leaf filaree
**Erodium cicutarium*	Red-stem filaree
**Erodium moschatum*	White-stem filaree
**Geranium dissectum*	Cut-leaf geranium
Lamiaceae	
Stachys albens	White-stem hedge-nettle
Linaceae	
**Linum bienne*	Flax
Lythraceae	
**Lythrum hyssopifolia*	Hyssop loosestrife
Malvaceae	
**Malva parviflora*	Cheeseweed
Montiaceae	
Claytonia perfoliata	Miner's lettuce
Myrsinaceae	
**Lysimachia arvensis*	Scarlet pimpernel
Onagraceae	
Epilobium ciliatum	Hairy willow-herb
Taraxia ovata	Sun cup
Orobanchaceae	
**Bellardia trixago*	Mediterranean linseed

* Indicates a non-native species

Table 1

Plant Species Observed on the Devlin Road/Vine Trail Extension Project Site

Castilleja attenuata	Valley tassels
Castilleja exserta subsp. exserta	Purple owl's-clover
**Parentucellia viscosa*	Yellow glandweed
Triphysaria versicolor subsp. faucibarbata	Yellow owl's-clover
Plantaginaceae	
Callitriche marginata	Winged water-starwort
**Plantago lanceolata*	English plantain
**Veronica anagallis-aquatica*	Water speedwell
Veronica peregrina subsp. xalapensis	Purslane speedwell
Polygonaceae	
**Polygonum aviculare*	Common knotweed
**Rumex acetosella*	Sheep sorrel
**Rumex crispus*	Curly dock
**Rumex pulcher*	Fiddle dock
Ranunculaceae	
**Ranunculus muricatus*	Spiny-fruit buttercup
Ranunculus pusillus	Low buttercup
Rosaceae	
**Rubus armeniacus*	Himalayan blackberry
Rubiaceae	
Galium aparine	Goose grass
Angiosperms -Monocots	
Alismataceae	
**Alisma lanceolatum*	Lance-leaf water-plantain
Cyperaceae	
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. occidentalis	Common tule
Iridaceae	
Sisyrinchium bellum	Western blue-eyed grass
Juncaceae	
Juncus balticus subsp. ater	Baltic rush
Juncus bufonius var. bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus phaeocephalus	Brown-headed rush
Juncus xiphioides	Iris-leaved rush
Juncaginaceae	
Triglochin scilloides	Flowering quillwort
Poaceae	
**Avena barbata*	Slender wild oat
**Briza minor*	Small quaking grass
**Bromus diandrus*	Ripgut grass

* Indicates a non-native species

Table 1

Plant Species Observed on the Devlin Road/Vine Trail Extension Project Site

**Bromus hordeaceus*	Soft chess
**Elymus caput-medusae*	Medusahead
Elymus multisetus	Big squirreltail
**Festuca bromoides*	Brome fescue
**Festuca perennis*	Italian ryegrass
Hordeum brachyantherum	Meadow barley
**Hordeum marinum subsp. gussoneanum*	Mediterranean barley
**Hordeum murinum subsp. leporinum*	Hare barley
**Phalaris aquatica*	Harding grass
**Phalaris paradoxa*	Paradox canary-grass
Pleuropogon californicus var. californicus	Annual semaphore grass
**Poa annua*	Annual bluegrass
**Polypogon interruptus*	Ditch beard grass
Themidaceae	
Dichelostemma capitatum subsp. capitatum	Blue dicks
Triteleia laxa	Ithuriel's spear
Typhaceae	
Typha latifolia	Broad-leaved cattail

* Indicates a non-native species

Table 2
Wildlife Species Observed on the Devlin Road/Vine Trail Extension Project Site

Reptiles	
Western fence lizard	*Sceloporus occidentalis*
Birds	
Turkey vulture	*Cathartes aura*
Canada goose	*Branta canadensis*
American wigeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Red-tailed hawk	*Buteo jamaicensis*
Killdeer	*Charadrius vociferus*
Greater yellowlegs	*Tringa melanoleuca*
Long-billed curlew	*Numenius americanus*
Marbled godwit	*Limosa fedoa*
Western sandpiper	*Calidris mauri*
Wilson's snipe	*Gallinago delicata*
Rock pigeon	*Columba livia*
Western scrub jay	*Aphelocoma californica*
Common raven	*Corvus corax*
Cliff swallow	*Petrochelidon pyrrhonota*
Savannah sparrow	*Passerculus sandwichensis*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Mammals	
California meadow vole	*Microtus californicus*

Table 3

Special-Status Plants Known to Occur in the Vicinity of the Devlin Road Extension Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Adoxaceae					
Viburnum ellipticum Western viburnum	Fed: - State: - CNPS: Rank 2B.3	May-July	Chaparral; cismontane woodland; lower montane coniferous forest.	Record for this species located 4.7 miles north of the project site (Occurrence No. 7).	None. Not observed during appropriately timed surveys. No impact.
Apiaceae					
Lilaeopsis masonii Mason's lilaeopsis	Fed: - State: CR CNPS: Rank 1B.1	April-October	Marshes and swamps (brackish or freshwater); riparian scrub.	Record for this species located 2.6 miles northwest of the project site (Occurrence No. 10).	None. Not observed during appropriately timed surveys. No impact.
Asteraceae					
Balsamorhiza macrolepis Big-scale balsam-root	Fed: - State: - CNPS: Rank 1B.2	March-June	Cismontane woodland; chaparral; valley and foothill grassland; [sometimes serpentinite]. 90 - 1555 meters	Record for this species located 2.9 miles southeast of the project site (Occurrence No. 7).	None. Not observed during appropriately timed surveys. No impact.
Erigeron greenei Narrow-leaved daisy	Fed: - State: - CNPS: Rank 1B.2	May-September	Chaparral (serpentinite).	Record for this species located 4.2 miles north of the project site (Occurrence No. 16).	None. No suitable habitat onsite. No impact expected.
Lasthenia conjugens Contra Costa goldfields	Fed: FE State: - CNPS: Rank 1B.1	March-June	Valley and foothill grassland (mesic); vernal pools.	Record for this species located 2.8 miles north of the project site (Occurrence No. 1).	None. Not observed during appropriately timed surveys. No impact expected.
Symphyotrichum lentum Suisun Marsh aster	Fed: - State: - CNPS: Rank 1B.2	August-November	Marshes and swamps (brackish and fresh water)	Record for this species located 1.8 miles northwest of the project site (Occurrence No. 128).	None. Not observed during appropriately timed surveys. No impact.

Table 3

Special-Status Plants Known to Occur in the Vicinity of the Devlin Road Extension Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Campanulaceae					
Downingia pusilla Dwarf downingia	Fed: - State: - CNPS: Rank 2.2	March-May	Valley and foothill grassland (mesic); vernal pools.	Record for this species located 2.4 miles north of the project site (Occurrence No. 108).	None. Not observed during appropriately timed surveys. No impact expected.
Legenere limosa Legenere	Fed: - State: - CNPS: Rank 1B.1	April-June	Vernal pools.	Record for this species located 2.8 miles north of the project site (Occurrence No. 7).	None. Not observed during appropriately timed surveys. No impact expected.
Chenopodiaceae					
Extriplex joaquinana San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	Record for this species located 2.9 miles south of the project site (Occurrence No. 58).	None. No alkaline habitats onsite. Not observed during appropriately timed surveys. No impact expected.
Cyperaceae					
Carex lyngbyei Lyngbye's sedge	Fed: - State: - CNPS: Rank 2	May-August	Marshes or swamps (brackish or freshwater)	Record for this species located 2.2 miles west of the project site (Occurrence No. 28).	None. No marsh habitat onsite. Not observed during May or July surveys. No impact.
Fabaceae					
Astragalus tener tener Alkali milkvetch	Fed: - State: - CNPS: Rank 1B.2	March-June	Playas; mesic grasslands (adobe clay), vernal pools (alkaline).	Record for this species located 2.8 miles south of the project site (Occurrence No. 50).	None. No suitable habitat onsite. Not observed in March-May surveys. No impact.

Table 3

Special-Status Plants Known to Occur in the Vicinity of the Devlin Road Extension Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Lathyrus jepsonii jepsonii Delta tule pea	Fed: - State: - CNPS: Rank 1B.2	May-September	Marshes and swamps (freshwater and brackish).	Record for this species located 1.8 miles north of the project site (Occurrence No. 4).	None. No suitable habitat onsite. No impact expected.
Trifolium amoenum Showy Indian clover	Fed: FE State: - CNPS: Rank 1B.1	April-June	Valley and foothill grassland (sometimes serpentinite)	Record for this species located 2.0 miles southeast of the project site (Occurrence No. 23).	None. Not observed during appropriately timed surveys. No impact expected.
Trifolium hydrophilum Saline clover	Fed: - State: - CNPS: Rank 1B.2	April-June	Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools. 0-300 m.	Record for this species located 2.8 miles north of the project site (Occurrence No. 35).	None. Not observed during appropriately timed surveys. No impact expected.
Orobanchaceae					
Castilleja affinis neglecta Tiburon paintbrush	Fed: FE State: CT CNPS: Rank 1B.2	April-June	Valley and foothill grassland [serpentinite]	Record for this species located 2.9 miles southeast of the project site (Occurrence No. 5).	None. No serpentinite onsite. No impact expected.
Chloropyron molle molle Soft salty bird's-beak	Fed: FE State: CR CNPS: Rank 1B.2	July-September	Marshes and swamps (coastal salt).	Record for this species located 1.5 miles northwest of the project site (Occurrence No. 3).	None. No salt marsh onsite. No impact expected.
Rhamnaceae					
Ceanothus purpureus Holly-leaf ceanothus	Fed: - State: - CNPS: Rank 1B.2	February-April	Chaparral (volcanic).	Record for this species located 4.7 miles north of the project site (Occurrence No. 47).	None. No ceanothus observed onsite. No impact expected.

Table 3

Special-Status Plants Known to Occur in the Vicinity of the Devlin Road Extension Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Themidaceae					
Brodiaea leptandra Narrow-anthered California brodiaea	Fed: - State: - CNPS: Rank 1B.2	May-July	Broadleafed upland forest; chaparral; cismontane woodland; lower montane coniferous forest; valley and foothill grassland. Elevation 110 - 915 meters.	Record for this species located 4.3 miles north of the project site (Occurrence No. 30).	None. Not observed during appropriately timed surveys. Marginal habitat onsite. No impact expected.

***Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern

CNPS:
Rank 1A - Presumed extinct in California
Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

CNPS Continued:
Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 2A - Extirpated in California, common elsewhere
Rank 2B.1 - Seriously endangered in California, but more common elsewhere
Rank 2B.2 - Fairly endangered in California, but more common elsewhere
Rank 2B.3 - Not very endangered in California, but more common elsewhere
Rank 3 - Plants about which we need more information (Review List)
Rank 3.1 - Plants about which we need more information (Review List) Seriously endangered in California
Rank 3.2 - Plants about which we need more information (Review List) Fairly endangered in California
Rank 4 - Plants of limited distribution - a watch list

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Devlin Road/Vine Trail Extension Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Invertebrates				
Vernal pool fairy shrimp *Branchinecta lynchi*	Fed: FT State: - Other:	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains. Inhabit static rain-filled/vernal pools, small, clear water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression	Record for this species located 0.9 miles west of the project site (Occurrence No. 232).	None. Protocol level surveys conducted onsite; none found. See text.
Insects				
Callippe silverspot butterfly *Speyeria callippe callippe*	Fed: FE State: - Other:	Occurs in grassland habitats and shrubby woodlands around San Francisco Bay. Viola pedunculata is the host plant. Males congregate on hilltops.	Record for this species located 2.0 miles east of the project site (Occurrence No. 14).	None. No suitable habitat and no Viola (host plant) onsite. No impact expected.
Fish				
Steelhead - Central California Coast DPS *Oncorhynchus mykiss irideus*	Fed: FT State: - Other:	From Russian River south to Soquel Creek, and to Pajaro River. Also found in San Francisco & San Pablo Bay Basins. Spawn in clear, cool, well oxygenated streams greater than 18 cm deep.	Record for this species located 1.5 miles south of the project site (Occurrence No. 4).	None. No creeks or perennial drainages onsite. No impact expected.
Delta smelt *Hypomesus transpacificus*	Fed: FT State: CT Other:	Endemic to the Sacramento-San Joaquin Delta. Occurs seasonally in Suisun and San Pablo bays. Spawning usually occurs in dead-end sloughs and shallow channels.	Record for this species located 4.5 miles southwest of the project site (Occurrence No. 5).	None. No creeks or perennial drainages on the project site. No impact expected.
Longfin smelt *Spirinichus thaleichthys*	Fed: -- State: CT Other:	Endemic to the Sacramento-San Joaquin River system. Inhabits open waters in the Delta and Suisun Bay. After spawning, larvae are carried downstream to brackish nursery areas.	Record for this species located 2.5 miles west of the project site (Occurrence No. 26).	None. No creeks or perennial drainages onsite. No impact expected.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Devlin Road/Vine Trail Extension Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Sacramento splittail *Pogonichthys macrolepidotus*	Fed: State: CSC Other:	Endemic to the lakes and rivers of the Central Valley; now confined to the delta, Suisun Bay, and associated marshes. Inhabits slow moving river sections and dead-end sloughs. Needs flooded vegetation for spawning.	Record for this species located 3.9 miles south of the project site (Occurrence No. 12).	None. No creeks or perennial drainages onsite. No impact expected.
Amphibians				
California red-legged frog *Rana draytonii*	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Record for this species located 1.6 miles east of the project site (Occurrence No. 1062).	None. No perennial water or long-term inundation onsite or adjacent to project site. See text.
Reptiles				
Western pond turtle *Actinemys marmorata marmorata*	Fed: - State: CSC Other:	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.	Record for this species located 0.7 miles south of the project site (Occurrence No. 552).	None. No perennial water or long-term inundation onsite or adjacent to the site to support this turtle. No impact expected.
Birds				
Northern harrier *Circus cyaneus*	Fed: - State: CSC Other:	Nests on the ground or in shrubby vegetation typically in grasslands, fallow farm lands, near freshwater and salt water marshes.	Record for this species located 3.0 miles west of the project site (Occurrence No. 29).	Moderate. Could nest in the upland grassland community. Preconstruction surveys necessary. See text.
Swainson's hawk *Buteo swainsoni*	Fed: - State: CT Other:	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	Record for this species located 2.0 miles north of the project site (Occurrence No. 1718).	Low to none. No suitable habitat onsite, but nearby eucalyptus trees provide nesting habitat. Preconstruction surveys would need to be conducted. See text.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Devlin Road/Vine Trail Extension Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Ferruginous hawk *Buteo regalis*	Fed: -- State: WL Other:	Winter migrant to California where they prefer grasslands, cultivated fields and arid areas with an abundance of prey species, such as pocket gophers, black-tailed hares, and cottontails.	Record for this species located 0.8 miles north of the project site (Occurrence No. 28).	None. Does not nest in California. May forage onsite on occasion. Foraging habitat not protected pursuant to CEQA. No impact.
Golden eagle *Aquila chrysaetos*	Fed: - State: WL Other: FP	Found in rolling foothill grassland with scattered trees. Nests on cliffs and in large trees in open areas.	Record for this species located 3.3 miles northwest of the project site (Occurrence No. 82).	Low. No trees onsite but may nest in Eucalyptus trees adjacent to the site. Preconstruction survery necessary. See text.
American peregrine falcon *Falco peregrinus anatum*	Fed: - State: CE Other:	Nests on high cliffs. Also nests on human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	Record for this species located 4.8 miles southeast of the project site (Occurrence No. 42).	None. No nesting habitat onsite. May forage over the site on occasion but impacts to foraging habitat not significant pursuant to CEQA. No impact to individuals or nesting habitat expected.
California black rail *Laterallus jamaicensis coturniculus*	Fed: -- State: CT Other:	Inhabits salt marshes bordering larger bays. Prefers tidal salt marshes of pickleweed.	Record for this species located 1.4 miles northwest of the project site (Occurrence No. 31).	None. No salt marsh habitat onsite or near the site. No nesting habitat onsite. No impact expected.
California Ridgway's rail *Rallus obsoletus obsoletus*	Fed: FE State: CE Other:	Inhabits salt water and brackish marshes with tidal sloughs in San Francisco Bay. Prefers dense pickleweed for cover, but forages for invertebrates along mud-bottomed sloughs.	Record for this species located 1.4 miles northwest of the project site (Occurrence No. 16).	None. No habitat onsite or near the site. No impact expected.
Western snowy plover *Charadrius alexandrinus nivosus*	Fed: FT State: CSC Other:	Prefers sandy beaches, salt pond levees, and shores of large alkali lakes. Requires sandy, gravelly, or friable soil for nesting.	Record for this species located 3.5 miles west of the project site (Occurrence No. 121).	None. No suitable habitat onsite or near the site. No impact expected.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Devlin Road/Vine Trail Extension Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Caspian tern *Hydroprogne caspia*	Fed: - State: - Other:	Common along the coast and at scattered locations inland. Breeds in small colonies mostly along the coast; may breed in lakes and fresh or brackish water bays.	Record for this species located 4.9 miles south of the project site (Occurrence No. 2).	None. No suitable habitat on project site. No impact expected.
Western burrowing owl *Athene cunicularia hypugaea*	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Record for this species located 1.8 miles north of the project site (Occurrence No. 935).	None. No burrows onsite for nesting. No impact expected.
Salt marsh common yellowthroat *Geothlypis trichas sinuosa*	Fed: - State: CSC Other:	Resident of freshwater and salt water marshes in the San Francisco Bay region. Requires thick, continuous cover for foraging and tall grasses, tules, or willows for nesting.	Record for this species located 1.2 miles northwest of the project site (Occurrence No. 37).	None. No sutiable habitat onsite. No impact expected.
San Pablo song sparrow *Melospiza melodia samuelis*	Fed: -- State: CSC Other:	More properly known as Samuels Song Sparrow. Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the California marshes; nests in grindelia bordering slough channels.	Record for this species located 2.2 miles northwest of the project site (Occurrence No. 16).	None. No suitable habitat onsite. No impact expected.
Tricolored blackbird *Agelaius tricolor*	Fed: - State: CC Other: CSC	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	Record for this species located 0.3 miles north of the project site (Occurrence No. 243).	None. No suitable habitat onsite. No impact expected.
Mammals				
Suisun shrew *Sorex ornatus sinuosus*	Fed: -- State: CSC Other:	Inhabits tidal marshes in the northern end of San Pablo and Suisun Bays. Requires dense, low cover of plants, driftwood, and other litter above the mean high tide line.	Record for this species located 4.3 miles south of the proejct site (Occurrence No. 2).	None. No suitable habitat onsite. No impact expected.

Table 4

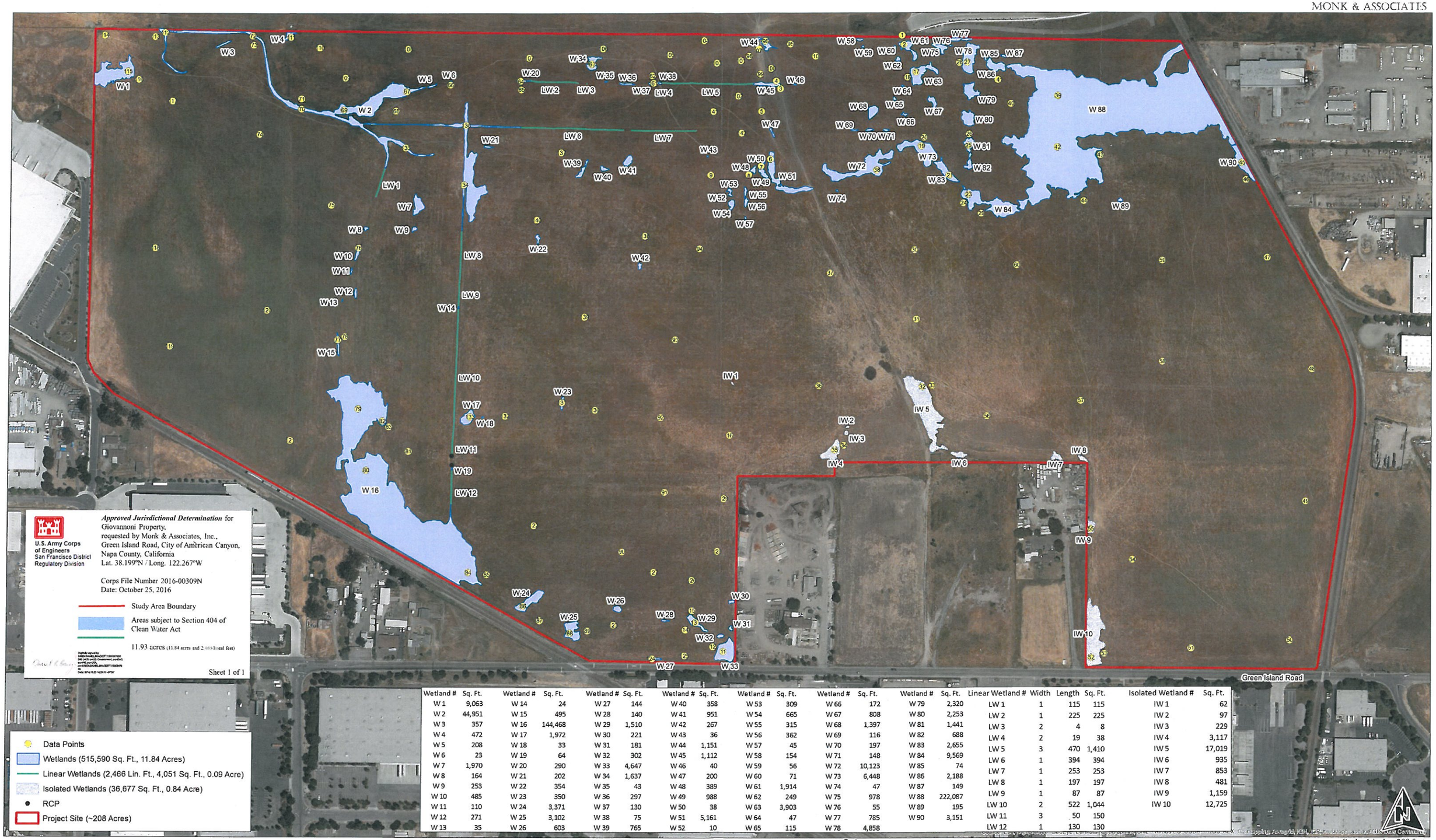
Special-Status Animal Species Known to Occur in the Vicinity of the Devlin Road/Vine Trail Extension Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Pallid bat *Antrozous pallidus*	Fed: - State: CSC Other:	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, and occasionally hollow trees. Night roosts in open areas such as porches and open buildings.	Record for this species located 4.2 miles northwest of the project site (Occurrence No. 57).	None. No suitable habitat onsite. No impact expected.
Salt marsh harvest mouse *Reithrodontomys raviventris*	Fed: FE State: CE Other:	Inhabits saline marshes in the San Francisco Estuary. Prefers pickleweed marshes. Requires higher areas for escaping high water.	Record for this species located 1.2 miles northwest of the project site (Occurrence No. 48).	None. No suitable habitat onsite. No impact expected.
American badger *Taxidea taxus*	Fed: - State: CSC Other:	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils & open, uncultivated ground. Prey on burrowing rodents. Dig burrows.	Record for this species located 4.6 miles northwest of the project site (Occurrence No. 203).	None. No suitable habitat onsite. No impact expected.

***Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate
FPD - Federally Proposed for delisting

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern
FP - Fully Protected
WL - Watch List. Not protected pursuant to CEQA



U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination for
Giovannoni Property,
requested by Monk & Associates, Inc.,
Green Island Road, City of American Canyon,
Napa County, California
Lat. 38.199°N / Long. 122.267°W

Corps File Number 2016-00309N
Date: October 25, 2016

Study Area Boundary

Areas subject to Section 404 of Clean Water Act

11.93 acres (11.84 acres and 2,466 lineal feet)

Sheet 1 of 1

- Data Points
- Wetlands (515,590 Sq. Ft., 11.84 Acres)
- Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Isolated Wetlands (36,677 Sq. Ft., 0.84 Acre)
- RCP
- Project Site (~208 Acres)

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Linear Wetland #	Width	Length	Sq. Ft.
LW 1	1	115	115
LW 2	1	225	225
LW 3	2	4	8
LW 4	2	19	38
LW 5	3	470	1,410
LW 6	1	394	394
LW 7	1	253	253
LW 8	1	197	197
LW 9	1	87	87
LW 10	2	522	1,044
LW 11	3	50	150
LW 12	1	130	130

Isolated Wetland #	Sq. Ft.
IW 1	62
IW 2	97
IW 3	229
IW 4	3,117
IW 5	17,019
IW 6	935
IW 7	853
IW 8	481
IW 9	1,159
IW 10	12,725

0 100 200 400 600 800 1,000 Feet

Scale: 1 inch = 200 feet

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Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Sheet 1. Confirmed Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Confirmation Date: September 26, 2016
Map Confirmed by Daniel Breen, Corps
Map Preparation Date: October 25, 2016

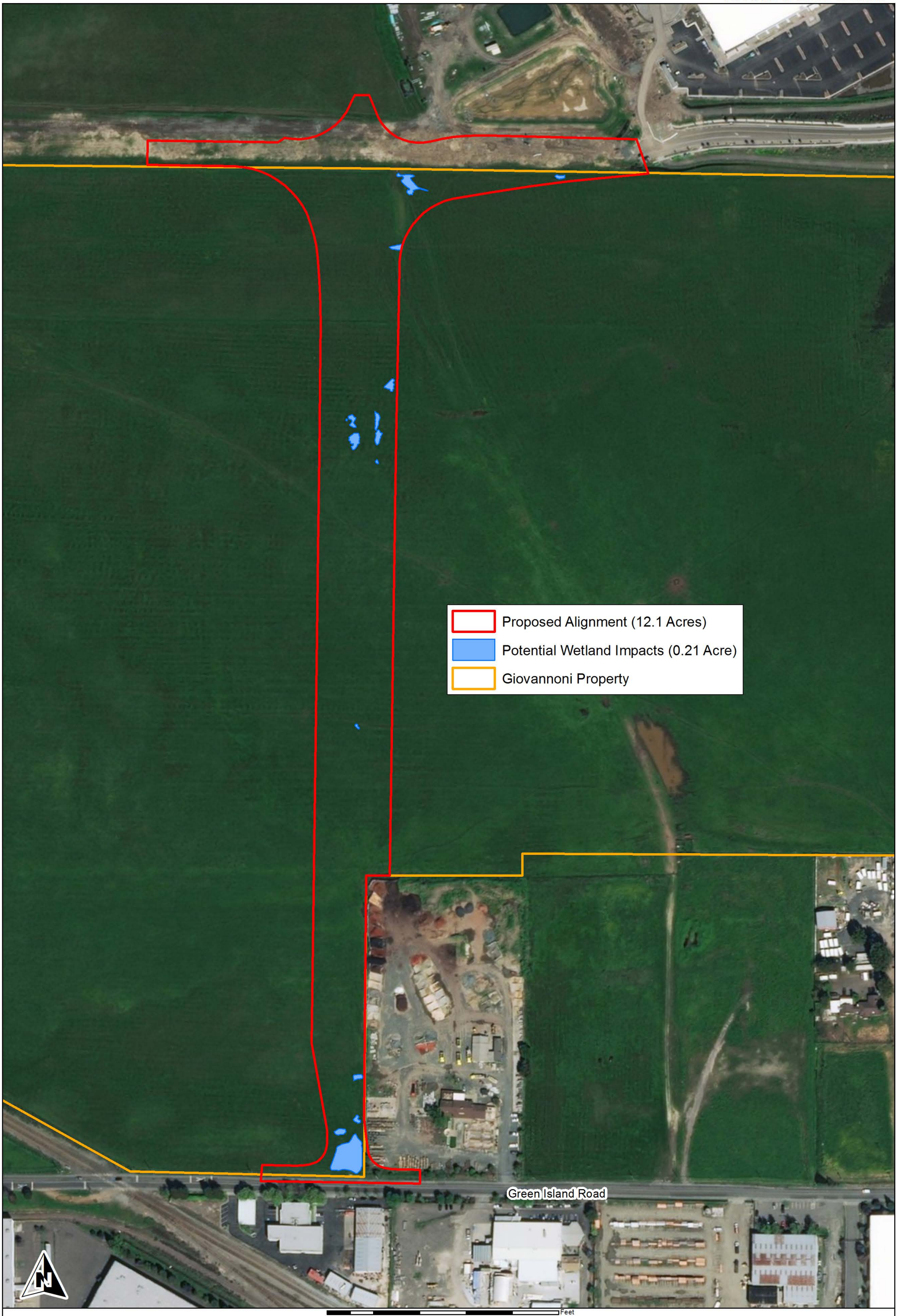

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Exhibit A. Potential Wetland Impacts Along the
Devlin Road Vine Trail Extension Project
City of American Canyon, California

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Map Preparation Date: October 15, 2018

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C.7 - M& A 2019 Green Island Road Widening Biological Resources Assessment

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BIOLOGICAL RESOURCES ANALYSIS
GREEN ISLAND ROAD RECONSTRUCTION AND WIDENING PROJECT
CITY OF AMERICAN CANYON, CALIFORNIA

July 1, 2019

Prepared for

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TABLE OF CONTENTS

FIGURES
(At Back of Report)

TABLES
(At Back of Report)

SHEETS

(At Back of Report)

Sheet A. Property Owners affected by the Green Island Road Reconstruction and Widening Project Site, City of American Canyon, California.

Sheet B. Assessor's Parcel Numbers for Green Island Road Reconstruction and Widening Project Site, City of American Canyon, California.

Sheets 1-5. Preliminary Aquatic Resources Delineation Maps for the Green Island Road Reconstruction and Widening Project Site, City of American Canyon, California.

EXHIBITS

(At Back of Report)

Exhibits A-C. Tree Survey, Green Island Road Reconstruction and Widening Project Site, City of American Canyon, California.

1. INTRODUCTION

Monk & Associates, Inc. (M&A) has prepared this *Biological Resources Analysis* for the proposed road widening improvements to existing Green Island Road and rehabilitation of the existing pavement structure of Green Island Road, Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive all located within the City of American Canyon, California (Figures 1 and 2). The portion of Green Island Road that will be widened and existing pavement areas on Green Island Road, Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive that are to be rehabilitated are hereinafter referred to as the Project Site. The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts that could occur to sensitive biological resources from the proposed Green Island Road Widening Project (the project).

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society. Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and CDFW. It is important to note that our analysis includes an assessment of the potential for impacts to regulated waters and includes a formal delineation of "waters of the U.S." that is pending submittal to the Corps, the regulatory agency that defines waters of the U.S.

This *Biological Resources Analysis* provides a regulatory review of environmental regulations that have applicability to the proposed project. Finally, this analysis also provides mitigation measures for "potentially significant" and "significant" impacts that could occur to biological resources from the implementation of the project. Whenever possible, upon implementation, the prescribed mitigation measures would reduce impacts to levels considered less than significant pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code §§ 21000 et seq.; 14 Cal. Code Regs. §§ 15000 et seq). Accordingly, this report is suitable for review and inclusion in any review being conducted by the City of American Canyon for the proposed project pursuant to the CEQA.

2. PROPERTY LOCATION AND SETTING

The project site is located in the City of American Canyon, west of Highway 29. The road widening portion of the project along Green Island Road is approximately 0.8 miles in length. Most of the properties along Green Island Road have been recently developed into shipping and storage warehouses, and other commercial properties; however, there are a few remaining ranchettes along this road. Figure 3 provides an aerial photograph of the limits of the project site.

3. PROPOSED PROJECT

The City of American Canyon is proposing to widen Green Island Road, including rehabilitation of the existing pavement area, to facilitate trucking commerce to and from Highway 29 which has increased over the years due to the addition of commercial warehouses along this formerly

rural road. The limits of the Green Island Road widening portion of the project extend approximately 35 feet north of the existing unimproved edge of Green Island Road into privately owned properties. In order to accommodate the road widening the City will relocate underground all overhead utility lines currently present along the road or on the adjacent private property lands that become incorporated into the new road. A bike path is also proposed to be added along the northern side of Green Island Road as part of this project. In addition to improvements to Green Island Road, the City of American Canyon proposes to rehabilitate the existing pavement areas of Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive.

4. ANALYSIS METHODS

Prior to preparing this *Biological Resources Analysis*, M&A researched the most recent version of CDFW's Natural Diversity Database, RareFind 5 application (CNDDB 2019) for records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site. M&A also searched the 2019 electronic version of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site. All special-status species records were compiled into tables. M&A examined all known record locations for special-status species to determine if special-status species could occur on the project site or within an area of affect.

On May 11, 2017, M&A biologists, Ms. Hope Kingma and Mr. Devin Jokerst, visited the project site to examine potential Corps regulated areas along the north side of Green Island Road. M&A used the Corps' 1987 *Wetlands Delineation Manual* (Corps 1987) in conjunction with the regional supplement for the Arid West Region (Corps 2008) to conduct this wetland delineation. On August 3, 2017, M&A conducted an additional delineation along the south side of Green Island Road to examine all areas within the limits of the project site. A jurisdictional determination request and Draft Aquatic Resources Delineation Maps (Sheets 1-5) were prepared and is pending submittal to the Corps.

M&A conducted a tree survey within the limits of the project site on August 3, 2017. M&A assessed the health and vigor of each tree, installed a tree tag on each tree, and measured the diameter at breast height (DBH) of each tree. DBH is measured using a diameter tape wrapped around the tree at 1.3 meters above the ground. All trees along the project site are shown on Exhibits A-C. The information collected via the tree survey is being utilized to support the project design and construction plans, to identify necessary tree removals and, as necessary, will be used to inform mitigation measures to address potential impacts associated with the removal of trees (e.g. potential impacts to nesting birds, etc.).

The results of our literature research and field surveys are provided in the sections below.

5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES

5.1 Soils

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS 2017), Web Soil Survey Map of Napa County, California mapped two soil series on the project site: Clear Lake Clay, drained and Haire Loam, 2 to 9 percent slopes (Figure 4).

5.1.1 CLEAR LAKE CLAY, DRAINED (116)

Clear Lake soils are nearly level, poorly-drained soils, existing on old alluvial fans, in basins, and in swales of level drainageways. These soils formed in alluvium derived from sandstone and shale or other mixed rock sources. The plant cover consists of annual grasses and forbs and scattered oaks. Runoff is slow or very slow, with little hazard of erosion. The upper few inches of this soil commonly becomes strongly granular upon drying. This soil is mainly used for pasture. Some areas in the northern part of Napa Valley are used for vineyards. *Clear Lake Clay, drained, is classified as a hydric soil* by the NRCS (2017). The majority of the project site is mapped as Clear Lake Clay soils.

5.1.2 HAIRE LOAM, 2 TO 9 PERCENT SLOPES (146)

The Haire Soil series consists of moderately well-drained soils that occur on nearly level to moderately steep hills, on old terraces, and alluvial fans. Slope ranges from 0 to 30 percent, and elevation ranges from 20 to 300 feet. These soils formed from alluvium derived from sedimentary rock. The vegetation in uncultivated areas consists of annual grasses and forbs. Permeability is very slow, and the hazard of erosion is slight. Haire soils are mainly used for dryland and irrigated pasture, but some areas are used for vineyards and rangeland. *Haire loam, 2 to 9 percent slopes is classified as a hydric soil* by the NRCS (2017).

5.2 Project Site Topography and Hydrology

The Project Site is located between the hills of the Newell Preserve and the tidal marshlands along the Napa River. While the project site is relatively flat, there is a gradual slope from the project site's eastern boundary (approximately 58 feet above sea-level) to the project site's western boundary (22 feet above sea-level). The roadside ditches along the northern shoulder of Green Island Road convey surface sheet flows draining from the impervious surfaces along Green Island Road. These potential Corps jurisdictional "other waters" drain into the existing stormdrain system along Green Island Road. Proposed rehabilitation of Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive will not modify existing stormwater drainage that enters the City's storm drain system.

5.3 Plant Communities and Associated Wildlife Habitats

Green Island Road widening will affect heretofore undeveloped surfaces that support ruderal and in some areas wetland habitats. Trees would likely be impacted by proposed widening. These affected habitats are analyzed in detail below. In contrast, Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive are fully developed areas. Rehabilitating these existing heavily used streets will not result in biological impacts, or in impacts to trees, and thus the

effects of rehabilitating these streets is not analyzed at the same level of detail as the widening of Green Island Road.

A complete list of plant species observed on the project site is presented in Table 1. Nomenclature used for plant names follows *The Jepson Manual* Second Edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (http://ucjeps.berkeley.edu/interchange/index.html). Table 2 is a list of wildlife species observed on the project site. Nomenclature for wildlife follows CDFW's *Complete List of Amphibian, Reptile, Bird, and Mammal Species in California* (2016) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW's list.

5.3.1 RUDERAL HERBACEOUS HABITAT

The vegetation along Green Island Road can be described as ruderal herbaceous. Ruderal (weedy) communities are assemblages of non-native plants that thrive in waste areas, roadsides and other sites that have been disturbed by human activity. Ruderal communities are typically found in hardpacked soils of roadsides, parking lots, industrial areas and construction sites. Ruderal vegetation is adapted to high levels of disturbance and persists almost indefinitely in areas with continuous disturbance.

The ruderal herbaceous vegetation along Green Island Road is dominated by non-native grass species which include slender wild oat (*Avena barbata*), Italian ryegrass (*Festuca perennis*), foxtail chess (*Bromus madritensis* ssp. *madritensis*), and hare barley (*Hordeum murinum* ssp. *leporinum*). Dominant non-native forbs (broad-leaved plants) found in the project site include cut-leaf geranium (*Geranium dissectum*), bristly ox-tongue (*Helminthotheca echioides*), bind weed (*Convolvulus arvensis*), and curly dock (*Rumex crispus*).

Ruderal habitats typically provide suitable environments for common animals that are adapted to living in association with humans. Common wildlife species observed using this ruderal community included raccoon (*Procyon lotor*), Botta's pocket gopher (*Thomomys bottae*), Eurasian collared-dove (*Streptopelia decaocto*), mourning dove (*Zenaida macroura*), western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Haemorhous mexicanus*), and house sparrow (*Passer domesticus*).

5.3.2 POTENTIAL SEASONAL WETLANDS

Potential seasonal wetlands are mapped alongside Green Island Road. These wetlands typically support wetland plant species including spiny buttercup (*Ranunculus muricatus*), rabbit's foot grass (*Polypogon monspilensis*), bristly ox-tongue, hyssop loosestrife (*Lythrum hyssopifolia*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Sub-dominant native hydrophytic species included California coyote-thistle (*Eryngium aristulatum* var. *aristulatum*), wavy-stemmed popcorn flower (*Plagiobothrys undulatus*), water plantain (*Alisma triviale*), and creeping spikerush (*Eleocharis macrostachya*).

Seasonal wetlands provide wildlife with a seasonal water source that allows animals to drink and forage in the water during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. Invertebrates such as mayflies (Ephemeroptera), damselflies (Odonata), and predaceous diving beetles (Dytiscidae) are commonly associated with inundated seasonal wetland habitats and complete their life cycle in the wetlands. Wildlife species associated with these wetlands include Sierran tree frog (*Pseudacris sierra*), raccoon, black phoebe (*Sayornis nigricans*), cliff swallow (*Petrochelidon pyrrhonota*), and western meadowlark (*Sturnella neglecta*).

5.4 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors provide access routes to food, cover, and water resources typically within restricted habitats available for use by resident wildlife species with restricted home ranges. Migrant birds that usually are adapted to higher levels of disturbance may also temporarily perch or feed in these restricted habitats.

The Green Island Road widening portion of the project site is approximately 0.8 miles in length and the limits of the road widening project extend approximately 35 feet north of the existing edge of Green Island Road. This existing road is a heavily trafficked route that does not provide a movement corridor for wildlife. Similarly, Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive that would be rehabilitated, are fully developed areas with adjacent commercial businesses. No potential wildlife movement corridors would be affected by rehabilitating these streets. Consequently, there would be no impacts to regional or local wildlife corridors from implementation of the proposed project.

6. SPECIAL-STATUS SPECIES DEFINITION

6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq*.; 14 CCR §670.1 *et seq.*) or the

FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- plants and animals that meet the definition of endangered, rare, or threatened under the CEQA (14 CCR §15380) that may include species not found on either CESA or FESA lists;

- Plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The CDFW recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFW requests their inclusion in Environmental Impact Reports (EIRs). Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);

- migratory nongame birds of management concern listed by USFWS (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- animals that are designated as "species of special concern" by CDFW (2016);

- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

- Bat Species that are designated on the Western Bat Working Group's (WBWG) Regional Bat Species Priority Matrix as: "RED OR HIGH." This priority is justified by the WBWG as follows: "Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment."

In the paragraphs below, we provide further definitions of legal status as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as Endangered or Threatened under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a federally-listed Endangered or Threatened species as

part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species. A species listed as Threatened under the CESA (§2050 of California Fish and Game Code) is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a state-listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from CDFW prior to initiating the "take."

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered "rare." Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a "significant effect on the environment" (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an "Inventory" of special-status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federally-listed species), CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A: Presumed extinct in California;
- Rank 1B: Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern and are reviewed by CDFW and maintained on "watch lists."

Additionally, in 2006 CNPS updated their lists to include "threat code extensions" for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered "seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)";
- .2 is "fairly endangered in California (20-80% of occurrences threatened)";
- .3 is "not very endangered in California (less than 20% of occurrences threatened or no current threats known)."

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA's definition of "rare" or "endangered." Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be "taken" or possessed (i.e., kept in captivity) at any time.

6.2 Potential Special-Status Plants on the Project Site

Figure 5 provides a graphical illustration of the known records for special-status species within 3 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status plants have been mapped on or adjacent the project site. However, according to the CNPS' *Inventory* and CDFW's CNDDB, a total of 14 special-status plant species are known to occur in the project site region (Table 3). No rare or listed plant species are expected to occur within the road widening project site. The limits of the project extend 35 feet north of the existing road shoulder into adjacent properties. This narrow strip of land is excessively disturbed and is dominated by ruderal vegetation. Furthermore, M&A conducted monthly surveys in 2016 on the Giovannoni property that is located immediately to the north of the project site and is the largest area of undeveloped land north of the existing road; no special-status plants were identified on the Giovannoni property during the March through July 2016 surveys. Since the Giovannoni property is the only remaining natural, undisturbed habitat located in the vicinity of the project site, based on these survey results it can be concluded that ***there is no expectation that special-status plant species are present or would be impacted by the proposed project.***

6.3 Potential Special-Status Animals in the Project Site

Figure 5 provides a graphical illustration of the known records for special-status species within 3 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. No special-status animal records have ever been mapped on or adjacent to the project site. However, a total of 16 special-status animal species are known to occur in the region of the project site (Table 4). *None of these 16 species are expected to occur on the project site*. However, because of the sensitivity of four (4) of the special-status animal species known to occur in the area we further discuss these species below. These species are vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (*Rana draytonii*), northern harrier (*Circus cyaneus*), and Swainson's hawk (*Buteo swainsonii*).

6.3.1 VERNAL POOL FAIRY SHRIMP

Vernal pool fairy shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003. The closest CNDDB record for vernal pool fairy shrimp and the closest designated critical habitat of this vernal pool species is approximately 0.70 miles to the northwest of the project site (Figures 5 and 6).

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½-inch to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. The vernal

pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g., 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 1994).

The female drops eggs to the pool bottom or the eggs remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs (known as cysts when dry). They remain in the dry pool bed until rains and other environmental stimuli hatch them. Cysts can withstand heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen (Eriksen and Belk 1999).

The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley to Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist in Southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses.

The project site does not provide potentially suitable habitat for the vernal pool fairy shrimp. Furthermore, M&A conducted USFWS-approved wet and dry season surveys for vernal pool fairy shrimp on the adjacent Giovannoni property with negative findings. As such, M&A concludes that the project would not result in impacts to the vernal pool fairy shrimp or any other federally-listed fairy shrimp species. **Consequently, there is no expectation that vernal pool fairy shrimp would be impacted by the proposed project.** No mitigation is warranted for this species.

6.3.2 California red-legged frog

The California red-legged frog was federally-listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the FESA. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The 2010 Critical Habitat maps (Federal Register dated March 17, 2010 (Volume 75, Number 51:12815-12864) show that the project site is located approximately 1.3 miles west of Critical Habitat Unit SOL-3 (Figure 6). The California red-legged frog is also a state “species of special concern.”

California “species of special concern” are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This title affords no legally mandated protection for this species; however, pursuant to CEQA (14 CCR §15380), any project related impacts to this species would be regarded as significant.

California red-legged frogs are typically found in slow-flowing portions of perennial streams, and in intermittent streams, and hillside seeps that maintain pool environments or saturated soils

throughout the summer months. Riparian vegetation such as willows (*Salix* sp.) and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. This frog is also found in human-made ponds. Populations of the California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrogs (*Lithobates catesbeiana*), Centrarchid fish species (such as sunfish, blue gill, or largemouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all known California red-legged frog predators.

The closest known record for the California red-legged frog is a 2008 sighting approximately 0.5-mile east of the project site in North Slough (CNDDB Occurrence No. 1062). This location is on the east side of Highway 29 and is not hydrologically connected to the project site. There are no California red-legged frog records on the west side of Highway 29. There is no perennial water or long-term inundation that occurs on or adjacent to the project site. The seasonal wetlands onsite are too shallow and seasonally inundated to provide habitat for this large native frog species which requires water most months of the year. Thus, it is improbable that the California red-legged frog would occur on the project site. **Pursuant to CEQA, the proposed project would have no significant impacts on California red-legged frogs**. No mitigation is warranted for this species.

6.3.3 NORTHERN HARRIER

The northern harrier is a state species of special concern. This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. The northern harrier is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices. Northern harriers likely forage over the project site; however, it would not likely nest in the narrow strips of land along Green Island Road. **Pursuant to CEQA, the proposed project would have no significant impacts on northern harriers.** No mitigation is warranted for this species.

6.3.4 SWAINSON'S HAWK

The Swainson's hawk is a state-listed threatened species afforded protection pursuant to the CESA. While it has no special federal status, it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). Finally, pursuant to CEQA, this hawk would be considered "rare" and impacts to its nest sites would be regarded as significant.

The Swainson's hawk is generally a summer visitor to California. In the fall months, most Swainson's hawks migrate to South America before returning to the United States to breed once again in the late spring. There is a small population of Swainson's hawks that remain resident in California year-round. The nesting population of Swainson's hawks in California was reduced considerably over historical nesting populations by the time it was afforded protections pursuant

to the CESA in 1984. Since that time, the nesting population of Swainson's hawk has significantly recovered in California, as have other raptor species that were previously protected both as state and federally-listed species. Both the peregrine falcon (*Falco peregrinus* ssp. *anatum*) and the bald eagle (*Haliaeetus leucocephalus*) were similarly listed species under both the CESA and FESA but have both been delisted owing to population recovery. The Swainson's hawk nesting population also likely has greatly recovered; however, owing to the absence of a thorough population census in California since the species was listed by the CDFW, it remains protected pursuant to the CESA.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands (Kochert 1986). It nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall (Schmutz et. al. 1984). Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads (Palmer 1988). Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks (Schlorff et. al. 1984). They have also been documented nesting in eucalyptus (*Eucalyptus* spp.), black walnut (*Juglans hindsii*), black locust (*Robinia pseudoacacia*), almond (*Prunus dulcis*), Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*), and pine (*Pinus* spp.) (CNDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Its primary prey in the Central Valley is California meadow vole (*Microtus californicus*). Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and very likely increases foraging success of Swainson's hawks when farm equipment flushes prey during harvesting (observed many times by G. Monk). During the nesting season, Swainson's hawks usually forage within two miles of their nests. Swainson's hawk does not require habitats that contain many perches because it most often searches for prey aerially; therefore, it can occupy habitats with few or no perches except the nest tree (James 1992).

The closest known Swainson's hawk record to the project site is approximately 2.4 miles north (CNDDB Occurrence No. 1717). There is no nesting habitat within the linear project site; however, eucalyptus trees that are located approximately 150 feet north of the project site provide potential nesting habitat. Using CDFW's Swainson's hawk survey guidelines (CDFG 2000), M&A biologist, Mr. Jesse Reebs, conducted a formal nesting survey for Swainson's hawks in all potential habitats within one mile of the project site. No Swainson's hawks or evidence of any raptor nesting was observed within a zone of influence of the project site during the Swainson's hawk nesting surveys conducted in 2016 and 2017. **However, because the Swainson's hawk is a mobile species and could nest within a zone of influence of the proposed project, preconstruction surveys are necessary to ensure that the project will not impact this hawk.** See the Impacts and Mitigations section for details.

7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss its relevance to the proposed project.

7.1 Federal Endangered Species Act

The FESA forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan (HCP).

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by NMFS. The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather they must show that it is "reasonably certain to occur."

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species (other than a plant species) is necessary to complete an otherwise lawful activity, this triggers the need to obtain an "incidental take permit" either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted

or funded by a federal agency such as the Corps), or through Section 10 of FESA which requires preparation of an HCP (for state and local agencies, or individuals, and projects without a federal "nexus"; for example, projects that do not need a Corps permit).

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the federal "action agency," for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation *at the discretion of the federal agencies conducting the Section 7 consultation*. The Section 7 consultation process is triggered by a determination of the "action agency" – that is, the federal agency that is carrying out, funding, or approving a project - that the project "may affect" a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in "jeopardy" to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion, it will contain either a "jeopardy" or "non-jeopardy" decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federally-listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a "non-jeopardy" Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an "incidental take" permit that allows applicants to "take" federally-listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities, for example private parties, cities, and counties that are proposing a project that might result in incidental take, Section 10 provides the mechanism for obtaining that take authorization. Under Section 10 of FESA, for the applicant to obtain an "incidental take permit," the applicant is required to submit a "conservation plan" to the USFWS or NMFS that specifies the impacts that are likely to result to federally-listed species, and the measures the applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as HCPs for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B)

permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

7.1.1 Responsible Agency

FESA gives regulatory authority to the USFWS for federally-listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally-listed marine mammals and anadromous fish.

7.1.2 Applicability to the proposed project

The project site does not have stream channels or drainages to support fish; hence, there would be no impacts to federally-listed fish. There is no expectation that federally-listed plants would occur within the project site boundaries. Furthermore, focused surveys for special-status plants have been conducted on the adjacent Giovannoni project site (which extends onto this project site) and no federally-listed plant species were identified; thus, there would be no project-related impacts to federally-listed plants (or any other special-status plant).

USFWS approved wet and dry season protocol surveys for federally-listed fairy shrimp species have been conducted on the adjacent Giovannoni project site and none were identified. There are no other federally-listed species issues relating to the project site. No impacts to federally listed species are expected from implementation of the proposed project. The project will have no significant effects on FESA-listed species.

7.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the Migratory Bird TreatyAct and does not constitute any legal authorization to take migratory birds. The order also requires federal agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

7.2.1 Applicability to The Proposed Project

All raptors (birds of prey) and native song birds and wading birds are protected pursuant to the Migratory Bird Treaty Act. The Swainson's hawk and various other tree nesting raptors (birds of prey) could nest in trees immediately adjacent to the project site and may be disturbed by grading activities or other earth work associated with the road construction project. In accordance with the Migratory Bird Treaty Act, as long as there is no direct mortality of species protected pursuant to this Act caused by development of the site, there should be no constraints to site development. To comply with the Migratory Bird Treaty Act, all active nest sites would have to be avoided while such birds were nesting. Upon completion of nesting, the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites for potentially occurring species in the Impacts and Mitigation section below.

7.3 **California Endangered Species Act**

7.3.1 Section 2081 of the California Endangered Species Act

In 1984, the state legislated the CESA (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a provision for "harm" (see discussion of FESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFW determines that a proposed project could impact a state-listed threatened or endangered species, CDFW will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from CDFW and/or USFWS (if it is a federally-listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a state-listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a Federal incidental take permit for federally-listed species). CDFW will issue an incidental take permit only if:

1) The authorized take is incidental to an otherwise lawful activity;
2) the impacts of the authorized take are minimized and fully mitigated;
3) measures required to minimize and fully mitigate the impacts of the authorized take:
    a) are roughly proportional in extent to the impact of the taking on the species;
    b) maintain the project applicant's objectives to the greatest extent possible; and,
    c) capable of successful implementation; and,
4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing an HCP as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the FESA, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in several statutes that identify "fully protected" species and "specified birds." *See* Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the project to avoid all take.

Fish and Game Code §2080.1 allows an applicant who has obtained a "non-jeopardy" federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a federal 10(a) permit (federal incidental take permit) pursuant to the FESA, to submit the federal opinion or permit to CDFW for a determination as to whether the federal document is "consistent" with CESA. If after 30 days CDFW determines that the federal incidental take permit is consistent with state law, and that all state-listed species under consideration have been considered in the federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are state-listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state CESA permit under Section 2081(b). Section 2081(b) is of no use if an affected species is state-listed, but not federally-listed.

State and federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

7.3.2 Applicability to The Proposed Project

M&A biologists have conducted numerous surveys on the project site and the adjacent properties. During these multiple surveys, which spanned many months, no state-listed plant species were identified onsite. Thus, no impacts to state-listed plant species protected pursuant to the CESA will occur from the proposed project (Tables 3).

Swainson's hawk is a state-listed threatened species. The closest known Swainson's hawk record to the project site is approximately 2.4 miles north (CNDDB Occurrence No. 1717). There is no nesting habitat within the linear project site; however, eucalyptus trees that are located approximately 150 feet north of the project site provide potential nesting habitat. Using CDFW's

Swainson's hawk survey guidelines (CDFG 2000), M&A biologist, Mr. Reebs, conducted a formal nesting survey for Swainson's hawks including all potential habitats within one mile of the project site. No Swainson's hawks or evidence of any raptor nesting was observed within a zone of influence of the project site during the Swainson's hawk nesting surveys conducted in 2016 and 2017. However, because the Swainson's hawk is a mobile species and could nest within a zone of influence of the proposed project, preconstruction surveys are necessary to ensure that the project will not impact this hawk. See the Impacts and Mitigation section for details. There are no other state-listed animal species of concern on this project site.

7.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered "take." Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under California Fish and Game Code (§3511). "Fully protected" birds may not be taken or possessed (that is, kept in captivity) at any time.

7.4.1 Applicability to the Proposed Project

Raptors that may nest nearby and that could be impacted by the project include Swainson's hawk, red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and various owl species. Preconstruction surveys would have to be conducted for these species to ensure that there is no direct take of these birds or any other birds (song birds, wading birds) including their eggs, or young. Any active nests that were found during preconstruction surveys would have to be avoided by the project. Suitable non-disturbance buffers would have to be established around nest sites until the nesting cycle is complete. More specifics on the size of buffers are provided below in the Impacts and Mitigation section.

7.5 City of American Canyon General Plan

The City of American Canyon General Plan was adopted on November 3, 1994. It sets forth the following goals, objectives, and policies relevant to biological resources on the project site:

Goal 8: Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area.

Objective 8.1: Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.

Policy 8.1.1: Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.

Policy 8.1.4: Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend appropriate mitigation measures that the developer and/or government agency can implement.

Objective 8.2: Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savannah, and wetland and riparian habitats, with new development in the City.

Policy 8.2.1: Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savannah, and riparian habitats (see Figure 8-1 in the General Plan), or with areas potentially occupied by vernal pools (see Figure 8-2 in the General Plan) shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining Figure 8-1 in the General Plan for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified biologist to determine if sensitive habitats exist on-site. In instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.

Objective 8.3: Protect natural drainages and riparian corridors within the American Canyon Planning Area.

Policy 8.3.1: Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards:

a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.
b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g" (below).
c. Where riparian corridors are retained, they shall be protected by an adequate buffer with a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy (see policy 8.3.2).
d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible.
e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages or corridors from built environment.
f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible.
g. Future development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.

h. Future development shall mitigate unavoidable adverse impacts to waters of the United States, wetlands and riparian habitats (pursuant to the Federal Clean Water Act and the California Fish and Game Code, Section 1600 et seq.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Game and/or Army Corps of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be effected, subject to state and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (offsite but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.

Policy 8.3.6: Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths and greenbelts along their lengths throughout the City.

Objective 8.4: Protect local vernal pools as well as the habitats of endangered species living within American Canyon's Planning Area.

Policy 8.4.1: Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within American Canyon's Planning Area.

Policy 8.4.3: Encourage activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering.

7.5.1 Applicability to the Proposed Project

Consistent with General Plan Policies 8.1.1 and 8.1.4, this report represents a detailed assessment of the biological resources present on the project site and proposed impacts to these resources associated with development of the site. Proposed mitigation measures are detailed below in the project Impacts and Mitigation Measures section.

Consistent with General Plan Policy 8.2.1, the project site has been evaluated for presence of sensitive biological resources. This report represents the Biological Assessment Report documenting findings from M&A's biological studies, and presents the current habitats and species present on the project site.

Consistent with Policies 8.3.1.a, 8.3.1.h, and 8.4.3, the applicant is proposing to mitigate the project's proposed impacts to seasonal wetlands by creating wetlands and preserving these wetlands offsite at a nearby wetlands preserve. Mitigation would be at a 2:1 replacement to impacts ratio, or two times as much wetland would be created as impacted to compensate for wetland impacts. If offsite mitigation turns out to be infeasible, mitigation at the 2:1 replacement to impacts ratio may be met by purchasing wetland mitigation credits from a Corps and RWQCB

approved conservation bank. Any imposed conditions from regulatory permits issued that allow impacts to wetlands from the RWQCB or the Corps would also become conditions that must be met by the project to comply with the CEQA. If these regulatory agencies allow lower mitigation ratios through purchase of mitigation credits, the Corps/RWQCB approved ratios shall become the CEQA required mitigation ratios.

8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the Corps, the RWQCB, the State Water Resources Control Board (SWRCB), and the CDFW to determine those areas within a project area that would be subject to their regulation.

8.1 U.S. Army Corps of Engineers Jurisdiction and General Permitting

8.1.1 Section 404 of the Clean Water Act

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. §1251(a)). Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the U.S.

In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Limits of Corps' jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

(1) Extends to the high tide line, or
(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark (OHWM), or
(2) When adjacent wetlands are present, the jurisdiction extends beyond the OHWM to the limit of the adjacent wetlands.
(3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the OHWM or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the CWA.

8.1.1.1 Clean Water Rule 2015

In 2015, the Environmental Protection Agency (EPA) and the Corps published the Clean Water Rule: Definition of ''Waters of the United States''; Final Rule which defines the scope of waters protected under the CWA. This Final Rule was published in light of the statute, science, Supreme Court decisions in *U.S.* v. *Riverside Bayview Homes, Solid Waste Agency of Northern Cook County* v. *U.S. Army Corps of Engineers (SWANCC),* and *Rapanos* v. *United States (Rapanos),* and the agencies' experience and technical expertise. The Clean Water Rule (Rule) reflects consideration of the extensive public comments received on the proposed rule. The Rule was stayed in federal court shortly after it was adopted in 2015. In August 2018, the stay was lifted, and the Rule became effective once again and remains in effect today. The Rule ensures protection for the nation's public health and aquatic resources and increases CWA program predictability and consistency by clarifying the scope of "waters of the United States" protected under the CWA.

The Rule only protects waters that have been historically covered by the CWA. A tributary, or upstream water, must show physical features of flowing water – a bed, bank, and OHWM – to warrant protection. The Rule provides protection for headwaters that have these features and have a significant connection to downstream waters. Adjacent waters are defined by three qualifying circumstances established by the Rule. These can include wetlands, ponds, impoundments, and lakes which can impact the chemical, biological or physical integrity of neighboring waters. All existing exclusions from longstanding agency practices are officially established for the first time. Waters used in normal agricultural, ranching, or silvicultural activities, as well as certain defined ditches, prior converted cropland, and waste treatment systems continue to be excluded from CWA protection.

8.1.1.2 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the CWA, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the U.S. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404, the Corps normally provides two alternatives for permitting impacts to the type of waters of the U.S. found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an "alternatives analysis" that is prepared pursuant to Section 404(b) of the CWA (33 U.S.C. 1344(b)). The alternatives analysis is also typically reviewed by the federal EPA and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g., a pier or a dredging project). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions of NWP(s).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.,* must receive "verification" from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of "no net loss" of wetlands (waters of the U.S.) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (*i.e.,* impacts would be mitigated). Typically, the Corps requires mitigation to be "in-kind" (i.e., seasonal wetlands would be filled, mitigation would include seasonal wetland mitigation), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction there of recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required if the Permittee is responsible for the mitigation.

In some cases, the Corps allows "out-of-kind" mitigation if the compensation site has greater value than the impacted site. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

8.1.2 Applicability to the Proposed Project

On May 11, 2017, M&A biologists, Ms. Kingma and Mr. Jokerst, visited the project site to examine potential Corps regulated areas. M&A used the Corps' 1987 Wetlands Delineation Manual (Corps 1987) in conjunction with the Regional Supplement for the Arid West Region (Corps 2008) to conduct this wetland delineation. A jurisdictional determination request and Draft Aquatic Resources Delineation Maps (Sheets 1-5) were prepared in compliance with the Corps' 2016 Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (Corps 2016).

Based on the draft Aquatic Resources Delineation Maps (Sheets 1-5, Attachment A), most of the potential wetlands and "other waters" within the project site have hydrologic connectivity to the Napa River via the storm drain system in Green Island Road. The Napa River is a traditional navigable water. Consequently, these potential seasonal wetlands and "other waters" identified within the project site would most likely be subject to Corps jurisdiction. In addition, the previously Corps-verified Jurisdictional Seasonal Wetland 1 (SW1) (Corps File No. 2007-400829N) located on the 450 Green Island Road extends into the road widening project site. Similarly, the previously Corps-verified jurisdictional Wetlands 27 and 33 (W27 and W33) (Corps File No. 2016-00309N) on the Giovannoni property also extend into the road widening project site (Sheet 4). The total area of previously verified jurisdictional wetlands within the road widening project site is 3,914 square feet (0.09-acre).

There are also some seasonal wetlands that are regarded as "isolated" since those wetlands do not have hydrologic connectivity to waters of the U.S./State. The potential wetland east/adjacent to 450 Green Island Road is mapped as an "isolated" seasonal wetland because it does not have hydrologic connectivity to any waters of the U.S. (Sheet 4). In addition, on the Giovannoni property, the previously Corps-verified "Isolated" Wetland 10 (IW10) (Corps File No. 2016-00309N) extends into the road widening project site (Sheet 5). The total area of previously verified isolated wetlands within the road widening project site is 962 square feet (0.022-acre). Isolated wetlands do not fall under the Corps' jurisdiction but would be regulated by the RWQCB (see discussion in Section 8.2).

Sheets 2-5 indicate all areas on the project site that may be regulated as "waters of the U.S." by the Corps. The total area of new potential wetlands mapped on the site is 0.018-acre and new potential linear wetlands is 0.002-acre. The total acreage of new potential "other waters" within the project site is 0.013-acre. M&A acknowledges that only the Corps can determine the actual acreage of "waters of the U.S." pursuant to Section 404 of the Clean Water Act. In summary, if the Corps exerts their jurisdiction over all non-isolated water features mapped by M&A on the project site (this includes previously verified and newly delineated features), there is a total of 0.123-acre of waters of the U.S. on the project site.

Green Island Road widening will affect heretofore undeveloped surfaces that support ruderal and in some areas wetland habitats. In contrast Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive are fully developed areas. Rehabilitation of these existing heavily used streets will not result in impacts to waters of the U.S. or State. It is assumed that all the features mapped along the northern shoulder of Green Island Road will be impacted by the proposed project since there is no alternative alignment to this road widening project. Thus, a total of 0.123-acre of waters of the U.S. will likely be impacted by the proposed project alongside Green Island Road. Prior to impacting jurisdictional waters of the U.S., the applicant must apply for authorization from the Corps. The proposed project would appear to qualify to use NWP 14 (Linear Transportation Projects) since the total impacts to waters of the U.S. are well below the 0.5-acre threshold and the project appears to meet all other conditions for use of this NWP. In addition, the project will impact 0.055-acre of "isolated" wetlands not subject to Corps jurisdiction (but subject to the RWQCB's jurisdiction, see below).

The applicant is proposing to mitigate the project's proposed impacts to waters of the U.S. by creating wetlands and preserving those wetlands at a nearby offsite wetlands preserve. Mitigation would be at a 2:1 replacement to impacts ratio, or two times as much wetland would be created as impacted to compensate for wetland impacts. If offsite mitigation turns out to be infeasible, the wetland mitigation requirement may be met by purchasing wetland mitigation credits from a Corps and RWQCB approved conservation bank. See the Impacts and Mitigations section for details.

8.2 California Regional Water Quality Control Board (RWQCB)

8.2.1 Section 401 of the Clean Water Act

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the CWA. While the Corps administers a permitting program that authorizes impacts to waters of the U.S., including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal CWA, the CEQA, the CESA, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality. Where a project will result in dredge or fill of non-federal waters of the State, the RWQCB will authorize those fills through waste discharge requirements issued under the Porter Cologne Water Quality Control Act.

On April 2, 2019, the SWRCB adopted a state-level definition of "wetlands,' which definition is broader than the federal definition in that unvegetated areas may be considered a wetland water of the State. As a part of the same policy, the Water Board adopted permit procedures and standards governing the discharge of dredged or fill material into wetlands and other waters of the State. The policy includes, among other things, requirements for analyses to identify the least environmentally damaging practicable alternative (LEDPA) and compensatory mitigation standards including a

minimum 1:1 ratio for wetlands and streams, and full functional replacement of all waters on top of this minimum where applicable. The policy, which will govern both Section 401 certifications and WDRs, is scheduled to become effective nine months following the completion of review by the California Office of Administrative Law.

8.2.2 Applicability to the Proposed Project

Any Section 404 permit authorized by the Corps for the project would be inoperative without also obtaining authorization from the RWQCB pursuant to Section 401 of the Clean Water Act (i.e., without obtaining a Clean Water Act Certification of Water Quality). Since the RWQCB does not have a formal method for technically defining what constitutes waters of the State, M&A expects that the RWQCB should remain consistent with the Corps' determination.

Any impacts to waters of the State would have to be mitigated to the satisfaction of the RWQCB prior to the time this resource agency would issue a permit for impacts to such features. The RWQCB requirements for issuance of a "401 Permit" typically parallel the Corps requirements for permitting impacts to Corps regulated areas pursuant to Section 404 of the Clean Water Act. Please refer to the Corps Applicability Section above for likely mitigation requirements for impacts to RWQCB regulated wetlands. Also, please refer to the applicability section of the Porter-Cologne Water Quality Control Act below for other applicable actions that may be imposed on the project by the RWQCB prior to the time any certification of water quality is authorized for the project. Please note that any isolated wetlands or other waters that are determined to be on the project site that are not regulated by the Corps pursuant to the SWANCC decision, would still be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act and impacts to such features would also be required to be mitigated per RWQCB policies (see below). Impacts to waters of the State must be mitigated at a minimum 1:1 ratio or as otherwise determined by the RWQCB at the time a permit issued for the proposed project.

8.2.3 Porter-Cologne Water Quality Control Act

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the EPA, sediment is one of the most widespread pollutants contaminating U.S. rivers and streams. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of storm water from large construction sites is regulated by the RWQCB under the federal CWA and California's Porter-Cologne Water Quality Control Act.

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that "any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the Corps' jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the State by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a *Storm Water Pollution Prevention Plan* (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post construction BMPs plan, or a Storm Water Management Plan (SWMP) must be developed and incorporated into any site development plan.

8.2.4 Applicability to The Proposed Project

The RWQCB has jurisdiction over both waters of the U.S./State (those waters with hydrologic connectivity to navigable waters- and thus, that are regulated pursuant to the Clean Water Act) and waters of the State (regulated via the CWA and the Porter-Cologne Water Quality Control Act). There is 0.055-acre of "isolated wetlands" not subject to Clean Water Act regulation shown on the wetland delineation maps (Sheets 1-5) alongside Green Island Road. While the Corps does not regulate impacts to isolated waters, the RWQCB has jurisdiction over isolated waters (waters include wetlands) pursuant to the Porter-Cologne Water Quality Control Act. Accordingly, prior authorization from the RWQCB would be required prior to filling waters of the U.S./State (i.e., those waters subject to Clean Water Act jurisdiction) and waters of the State (which include isolated waters that are outside of the Corps' Clean Water Act jurisdiction). Additionally, since any "threat" to water quality can conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will be required when constructing the proposed project to be sure that adequate pre-and post-construction BMPs are incorporated into the project implementation plans.

It should also be noted that prior to issuance of any permit from the RWQCB this agency will require submittal of a Notice of Determination from the City of American Canyon indicating that the proposed project has completed a review conducted pursuant to CEQA. The pertinent sections of the CEQA document (typically the biology section) are often submitted to the RWQCB for review prior to the time this agency will issue a permit for a proposed project.

9. STATE WATER RESOURCES CONTROL BOARD (SWRCB)/RWQCB – STORM WATER MANAGEMENT

9.1 Construction General Permit

While federal CWA NPDES regulations allow two permitting options for construction related storm water discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide Construction General Permit at this time that will apply to all storm water discharges associated with construction activity, except from those on Tribal Lands, in the

Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans).

The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a SWPPP which specifies BMPs that will prevent all construction pollutants from contacting storm water with the intent of keeping all products of erosion from moving off site into receiving waters.

2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation. Achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project's projected risk level.

3. Perform inspections of all BMPs.

This Construction General Permit is implemented and enforced by the nine RWQCBs. It is also enforceable through citizens' suits and represents a dramatic shift in the State Water Board's approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers.

Types of Construction Activity Covered by the Construction General Permit

- clearing,
- grading,
- disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area.

Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity.

Construction activity does not include:

- routine maintenance to maintain original line and grade,
- hydraulic capacity, or original purpose of the facility,
- nor does it include emergency construction activities required to protect public health and safety.

The Construction General Permit includes several "post-construction" requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased,

developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This "runoff reduction" approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development ("LID") design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Improving the quality of site runoff is necessary to improve water quality in impaired and threatened streams, rivers, and lakes (that is, water bodies on the EPA's 303(d) list). The RWQCB prioritizes the water bodies on the 303(d) list according to potential impacts to beneficial uses. Beneficial uses can include a wide range of uses, such as nautical navigation; wildlife habitat; fish spawning and migration; commercial fishing, including shellfish harvesting; recreation, including swimming, surfing, fishing, boating, beachcombing, and more; water supply for domestic consumption or industrial processes; and groundwater recharge, among other uses. The State is required to develop action plans and establish Total Maximum Daily Loads (TMDLs) to improve water quality within these impaired water bodies. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating the applicable water quality standards.

Pursuant to the CWA, the RWQCB regulates construction discharges under the NPDES. The project sponsor of construction or other activities that disturb more than one acre of land must obtain coverage under NPDES Construction General Permit Order 2009-0009-DWQ, administered by the RWQCB[1].

9.1.1 Applicability to The Proposed Project

To obtain coverage under the SWRCB administered Construction General Permit, the applicant (typically through its civil engineer) must electronically file a number of permit-related compliance documents (Permit Registration Documents (PRDs), including a Notice of Intent (NOI), a risk assessment, site map, signed certification, SWPPP, Notice of Termination (NOT), NAL exceedance reports, and other site-specific PRDs that may be required. The PRDs must be prepared by a Qualified SWPPP Practitioner (QSP) or Qualified SWPPP Developer (QSD) and filed by a Legally Responsible Person (LRP) on the RWQCB's Storm Water Multi-Application Report Tracking System (SMARTS). (QSDs are typically civil engineers, professional hydrologists, engineering geologists, or landscape architects.) Once filed, these documents become immediately available to the public for review and comment. At a minimum, the SWPPP shall identify BMPs for implementation during project construction that are in accordance with the applicable guidance and procedures contained in the California Storm Water Quality Association's *California Stormwater Best Management Practices Handbook* (2015).

[1] CGP Order 2009-0009-DWQ remains in effect, but has been amended by CGP Order 2009-0014-DWQ, effective February 14, 2011, and CGP Order 2009-0016-DWQ, effective July 17, 2012. The first amendment merely provided additional clarification to Order 2009-0009-DWQ, while Order 2009-0016-DWQ eliminated numeric effluent limits on pH and turbidity (except in the case of active treatment systems), in response to a legal challenge to the original order.

9.2 RWQCB Municipal Storm Water Permitting Programs

The federal Clean Water Act (CWA) was amended in 1987 to address urban stormwater runoff pollution of the nation's waters. In 1990, the U.S. Environmental Protection Agency (USEPA) promulgated rules establishing Phase 1 of the National Pollutant Discharge Elimination System (NPDES) stormwater program. The Phase 1 program for Municipal Separate Storm Sewer System (MS4s) requires operators that serve populations of 100,000 or greater to implement a stormwater management program to control polluted discharges from these MS4s. While Phase 1 of the municipal stormwater program has focused on large urban areas, Phase 2 of the municipal stormwater program was promulgated by the USEPA for smaller urban areas including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

MS4 permits require the discharger (or dischargers that are permitted by the MS4 permittees) to develop and implement a Storm Water Management Plan/Program (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

9.2.1 NPDES C.3 Requirements

The NPDES C.3 requirements went into effect for any project (public or private) that is "deemed complete" by the City or County (Lead Agency) on or after February 15, 2005, and which will result in the creation or replacement (other than normal maintenance) of at least 10,000 square feet of impervious surface area (roofs, streets, patios, parking lots, etc. Provision C.3 requires the onsite treatment of stormwater prior to its discharge into downstream receiving waters. Note that these requirements are in addition to the existing NPDES requirements for erosion and sedimentation controls during project construction that are typically addressed through acquisition of coverage under the SWRCB administered Construction General Permit. The C.3 requirements are typically required to be implemented by MS4 permittees (and their constituencies).

Projects subject to Provision C3 must include the capture and onsite treatment of all stormwater from the site prior to its discharge, including rainwater falling on building rooftops. Project applicants are required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures in order to reduce the discharge of stormwater pollutants to the *maximum extent practicable.* While the Clean Water Act does not define "maximum extent practicable," the Stormwater Quality Management Plans required as a condition of the municipal NPDES permits identify control measures (known as Best Management Plans, or BMPs) and, where applicable, performance standards, to establish the level of effort required to satisfy the maximum extent practicable criterion. It is ultimately up to the professional judgment of the reviewing municipal staff in the individual jurisdictions to determine whether a project's proposed stormwater controls will satisfy the maximum extent

practicable criterion. However, there are numeric criteria used to ensure that treatment BMPs have been adequately sized to accommodate and treat a site's stormwater. The C3 requirements are quite extensive, and their complete explanation is not provided here. However, the following are minimums that should be understood and adhered to:

- The applicant must provide a detailed and realistic site design *and impervious surface area calculations*. This site design *and calculations* will be used by the Lead Agency (County or City) to determine/*verify* the amount of impervious surface area that is being created or replaced. It should include all proposed buildings, roads, walkways, parking lots, landscape areas, etc., that are being created or redeveloped. If large (greater than 10,000 square feet) lots are being created an effort will need to be made to determine the total impervious surface area that could be created on that parcel. For example, if only a portion of the lot is shown as a "building envelope" then the lead agency will need to consider that a driveway will have to be constructed to access the envelope and that the envelope will then be developed as shown. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a Stormwater Control Plan (SWCP) (if required by the Lead Agency, or whatever steps for compliance with Provision C3 are required locally) must accompany the application.

- If a SWCP is required by the Lead Agency for the project it must be stamped by a Licensed Civil Engineer, Architect, or Landscape Architect.

9.2.2 Applicability to The Proposed Project

The City of American Canyon (the applicant) is an MS-4 permittee under the NPDES (see next section of this report). Accordingly, water quality compliance typically would fall to the City for implementation and compliance. However, as this project will likely require a Clean Water Act Section 401 permit, the RWQCB when considering issuance of the 401 permit, will require submittal of a SWMP that demonstrates that the constructed project will treat and hydromodify storm water falling on impervious surfaces.

9.3 California Department of Fish and Wildlife Protections

9.3.1 Section 1602 of California Fish and Game Code

Pursuant to Section 1602 of the California Fish and Game Code: "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

(1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification shall include, but is not limited to, all of the following:
   (A) A detailed description of the project's location and a map.
   (B) The name, if any, of the river, stream, or lake affected.
   (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.

(D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
(E) A copy of any other applicable local, state, or federal permit or agreement already issued.
(F) Any other information required by CDFW" (Fish & Game Code 2014).

Please see Section 1602 of the current California Fish and Game Code for further details.

Please also note that while not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream). Thus, any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, including its riparian vegetation, would require entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

9.3.2 APPLICABILITY TO THE PROPOSED PROJECT

There are no drainages, tributaries, or any other areas within the project site that support a bed, bank, or channel and that would be regulated by the CDFW pursuant to Section 1602 of the California Fish and Game Code.

10. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REGULATIONS

A CEQA lead agency must determine if a proposed activity constitutes a project requiring further review pursuant to the CEQA. Pursuant to CEQA, a lead agency would have to determine if there could be significant adverse impacts to the environment from a proposed project. Typically, if within the city limits, the city would be the CEQA lead agency. If a discretionary permit (i.e., conditional use permit) would be required for a project (e.g. an occupancy permit must be issued), the lead agency typically must determine if there could be significant environmental impacts. This is usually accomplished by an "Initial Study." If there could be significant environmental impacts, the lead agency must determine an appropriate level of environmental review prior to approving and/or otherwise permitting the impacts. In some cases, there are "Categorical Exemptions" that apply to the proposed activity; thus, the activity is exempt from CEQA. The Categorical Exemptions are provided in CEQA. There are also Statutory Exemptions in CEQA that must be investigated for any proposed project. If the project is not exempt from CEQA, the lowest level of review typically reserved for projects with no significant effects on the environment would be for the lead agency to prepare a "Mitigated Negative Declaration" (MND). If a proposed project would have only minimal impacts that can be mitigated to a level of no significance pursuant to the CEQA, then an MND is typically prepared by the lead agency. Finally, those projects that may have significant effects on the environment, or that have impacts that can't be mitigated to a level considered less than significant pursuant to the CEQA, typically must be reviewed via an EIR. All CEQA review documents are subject to public circulation, and comment periods.

Section 15380 of CEQA defines "endangered" species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. "Rare" species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will "substantially affect a rare or endangered species of animal or plant or the habitat of the species." The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

10.1.1 Applicability to the Proposed Project

This report has been prepared as a Biology Section that is suitable for incorporation by the CEQA lead agency (the City of American Canyon) into the biology section of a CEQA review document such as an MND or EIR. This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA.

11. IMPACTS ANALYSIS

Below the criteria used in assessing impacts to Biological Resources is presented.

11.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies' considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as "significant," "potentially significant," or "less than significant." Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated "waters of the United States" and/or stream channels.

11.1.1 Thresholds of Significance

11.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

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

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

- Have a substantial adverse effect on federally protected "wetlands" as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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

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

- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

11.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the discharge of dredged or fill material into waters of the U.S., which includes wetlands, as discussed in the bulleted item above, and also includes "other waters" (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the CWA, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the State. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

11.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which CDFW typically considers including riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

12. IMPACT ASSESSMENT AND PROPOSED MITIGATION

The Green Island Road widening will affect heretofore undeveloped surfaces that support ruderal and in some areas wetland habitats. These impacts associated with affected habitats along Green Island Road are addressed in detail below. In contrast, Jim Oswalt Way, Mezzetta Court, Commerce Boulevard, and Hanna Drive are fully developed areas. Rehabilitation of these existing heavily used streets will not result in biological impacts, or in impacts to trees, and thus it is concluded that there will be no biological impacts to sensitive resources from this rehabilitation.

Below we address potential impacts to sensitive biological resources including trees, waters of the United States and/or State and nesting birds, including the state listed threatened Swainson's hawk. Each significant or potentially significant impact statement is followed with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible. This impact analysis is based on engineering exhibits M&A received from the City of American Canyon.

12.1 Impact BIO-1. Proposed project could have a potentially significant impact on nesting Swainson's hawk (Potentially Significant)

The Swainson's hawk is a state listed threatened species. While the Swainson's hawk has no special federal status, it is protected from direct take under the Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson's hawks, their active nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). The closest known Swainson's hawk record to the project site is approximately 2.4 miles north (CNDDB Occurrence No. 1717). There is no nesting habitat within the linear project site, however, the eucalyptus trees that are located approximately 150 feet north of the project site provide potential nesting habitat and preconstruction surveys would be necessary. If Swainson's hawks are found to be nesting near the project site, implementation of the proposed project could be viewed by the CDFW as a project that could impact nesting Swainson's hawks. Nest site disturbance which results in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates); and (4) may ultimately result in the take (killing) of nestling or fledgling Swainson's hawks incidental to otherwise lawful activities, would be considered a "take" by the CDFW. The taking of Swainson's hawks in this manner can be viewed by the CDFW as a violation of Section 2080 of the California Fish and Game Code. This interpretation of take has been judicially affirmed by the landmark appellate court decision pertaining to CESA (Department v. ACID, 8 CA App. 4, 41554) (CDFW 1994).

Typically, the CDFW requires that any impact to a Swainson's hawk nest be permitted through a Fish and Game Section 2081 management authorization. If an active nest is found on or adjacent to the project site within the area of influence of the project site (which is generally considered to be within 1,000 feet of the project site) "to avoid potential violation of Fish and Game Code 2080 (i.e., killing of listed species), project-related disturbance at active Swainson's hawk nesting sites should be reduced or eliminated during critical phases of the nesting cycle (March 1- September 15 annually)" (CDFW 2000). If disturbance would occur, a Fish and Game Section 2081 management authorization would be required. Thus, preconstruction nesting surveys are warranted to ensure that the proposed project will not impact this hawk species. This impact could be mitigated to a less than significant level pursuant to CEQA.

12.2 Mitigation Measure BIO-1: Swainson's Hawk

The CDFW has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFW 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the CDFW's recommendations for mitigation and

protection of Swainson's hawks, surveys shall be conducted for a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to a project's initiation. The guidelines provide specific recommendations regarding the number of surveys based on when the project is scheduled to begin and the time of year the surveys are conducted.

If Swainson's hawks are found to be nesting within 1,000 feet of the project site, the necessity of acquiring a Fish and Game Section 2081 management authorization shall be determined via consultation with the CDFW. Impacts to the nesting Swainson's hawks shall not be allowed. Accordingly, nest protection buffers shall be established that are a minimum of 300 feet from the nest site. If any nest is located within 1,000 feet of the project site, but that is not within the project limits, the 300-foot buffer shall only be established over the portion of the buffer that intersects the project limits. The nest site buffer shall be established in consultation with the CDFW or as required in any Fish and Game Section 2081 management authorization issued to the project by the CDFW. The nest protection buffer shall be maintained until the Swainson's hawk nesting attempt is completed as determined by a qualified raptor biologist. Once the nesting cycle is complete, no further action is warranted for this raptor species unless CDFW has issued a Fish and Game Section 2081 management authorization that requires additional mitigation. Any mitigation required by a 2081 management authorization shall also become a condition of project approval.

Implementation of these mitigation measures would reduce impacts to nesting Swainson's hawks to a level regarded as less than significant pursuant to the CEQA.

12.3 Impact BIO-2. Proposed project could have a potentially significant impact on Tree Nesting Raptors (excluding Swainson's hawk which is discussed separately) (Potentially Significant)

Raptor (birds of prey) nests are protected pursuant to California Fish and Game Code (Sections 3503, 3503.5, 3513) and the Federal Migratory Bird Treaty Act. Suitable nesting habitat for white-tailed kite, red-shouldered hawk, red-tailed hawk and various owl species occurs near the project site. Potential impacts to these species from the proposed project include disturbance to nesting birds, and possibly death of adults and/or young. No nesting raptors have been identified on the project site; however, no specific surveys for nesting raptors have been conducted. Additionally, raptors are highly mobile species and their nest locations may change from year to year. As such, in the absence of survey results, it must be concluded that impacts to nesting raptors from the proposed project would be potentially significant pursuant to CEQA. This impact could be mitigated to a level considered less than significant.

12.4 Mitigation Measure BIO-2: Tree Nesting Raptors

In order to avoid impacts to nesting raptors, nesting surveys should be conducted prior to commencing with construction work if this work would commence between February 1st and August 31st. The raptor nesting surveys should include examination of all trees within 300 feet of the entire project site.

If nesting raptors are identified during the surveys within 300 feet of the project site, a 300-foot radius around the nest tree should be fenced with orange construction fencing. If the nest tree is

located off the project site, then the buffer should be demarcated as per above, where the buffer intersects the project site. *The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance.* If this occurs, the raptor biologist should prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity should occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15th. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors then the buffers should be maintained in place through the month of August and work within the buffer can commence September 1st.

Any established nest protection buffer shall not be disturbed until follow-up nesting surveys are conducted and confirm that the nesting cycle is completed. In lieu of confirmation that the nesting cycle is complete, buffers may be removed on September 1. After buffers are removed, no further consideration is warranted for the inactive nest site(s) through February 1st. At this time, nesting surveys shall be completed once again if the proposed project would extend into the next nesting season.

This mitigation measure would reduce impacts to tree nesting raptors (with the exception of the Swainson's hawk) to a level considered less than significant.

12.5 Impact BIO-3. Proposed project could have a potentially significant impact on Other Nesting Birds (Potentially Significant)

Nesting birds could be impacted by the proposed project. Birds and their nests are protected under California Fish and Game Code (Sections 3503, 3503.5, 3513), and the Migratory Bird Treaty Act. The ruderal herbaceous vegetation along the north side of Green Island Road is adjacent to a large wetland complex on the Giovannoni property that supports wading birds, shorebirds and waterfowl. Hence, the ruderal herbaceous vegetation along the north side of the road provides suitable nesting habitat for ground nesting birds. In addition, the trees along the road provide suitable nesting habitat for other common bird species. Birds are highly mobile species and their nest locations may change from year to year. In the absence of preconstruction nesting surveys, *the proposed project may have a potentially significant impact on ground nesting birds.* This impact could be mitigated to a less than significant level.

12.6 Mitigation Measure BIO-3: Other Nesting Birds

A nesting survey shall be conducted 15 days prior to earth moving or the commencement of construction work if this work would occur between February 1 and September 1 (the nesting season). If any birds are found nesting on the project site or within a zone of influence of the project site a 75-foot nest protection buffer shall be established around the nest(s). The buffer shall be staked with orange construction fencing. If special-status birds, such as tricolored blackbird (*Agelaius tricolor*) are found nesting or within a zone of influence of the project site a 300-foot protection buffer shall be established around the nesting site(s). If nesting birds are located within the zone of influence, but that are not within the project limits, the portions of the buffer(s) that intersect the project limits shall clearly be delineated as protected areas via the

placement of orange construction fencing. No construction or earth-moving activity shall occur within any nest protection buffer until the following conditions are met. The protective fencing shall remain in place until a qualified biologist determines that the nesting birds have completed their nesting cycle(s). If a qualified biologist does not make such a determination, then the buffers shall remain in place until September 1st. After buffers are removed, no further consideration is warranted for the inactive nest site(s) through February 1st. At this time, nesting surveys shall be completed once again if the proposed project would extend into the next nesting season.

Implementation of these mitigation measures would reduce the project's impact to nesting birds to a level regarded as less than significant pursuant to CEQA.

12.7 Impact BIO-4. Proposed project will have a significant impact on Waters of the United States/ State (Significant)

The proposed project has been designed to reduce the total impacts to Corps and RWQCB jurisdictional waters to the maximum extent practicable. For example, the construction staging area has been relocated to the road rights-of-way to avoid impacting, even temporarily, additional natural area that may support waters of the United States/State. Yet under the proposed design there would still be minor impacts to waters of the United States/State. The proposed project will impact approximately 0.123 acre of waters of the U.S. In addition, the project will impact 0.055 acre of "isolated" wetlands subject to RWQCB jurisdiction. This impact or any minor impacts to waters of the U.S./State could be mitigated to a less than significant level pursuant to CEQA.

12.8 Mitigation Measure BIO-4: Waters of the United States/State

The applicant must obtain a Clean Water Act Section 404 permit (i.e., authorization from the Corps to use NWP 14) from the U.S. Army Corps of Engineers in advance of impacts to waters of the United States. The proposed project appears to qualify to use NWP 14 (Linear Transportation Projects) since the total impacts to waters of the U.S. are well below the ½ acre threshold for use of this NWP and the project otherwise appears to meet all other conditions for use of NWP 14. In addition, the applicant must obtain a Clean Water Act Section 401 permit (i.e., "Water Quality Certification") from the RWQCB for impacts to all Clean Water Act regulated waters (i.e., those waters also subject to the Corps' Section 404 jurisdiction). In addition, the RWQCB must permit impacts to isolated waters that are outside of Clean Water Act jurisdiction. The RWQCB regulates impacts to isolated waters pursuant to the Porter- Cologne Water Quality Control Act and authorizes such impacts via issuance of Waste Discharge Requirements (WDRs). Water Quality Certification and issuance of WDRs are typically included in a single permitting loop with the RWQCB. Water Quality Certification and WDRs (as determined necessary by the RWQCB) must be obtained in advance of any impacts to waters of the State.

The Corps and the RWQCB require mitigation compensation as a condition of issuing permits to projects that fill/impact waters of the U.S./State. The applicant is proposing to mitigate impacts to 0.178-acre of jurisdictional waters of the U.S./State via creation and preservation of 0.36-acre of seasonal wetlands within a suitable offsite wetland habitat preserve. Typically, the Corps and

RWQCB require that impacted seasonal wetlands be replaced at a 2:1 replacement to impacts ratio, but this ratio can be dependent upon Mitigation Ratio Guidance provided by the Corps or RWQCB at the time of permit issuance.

If there are no suitable offsite areas to create and preserve waters of the United State/States, the purchase of mitigation credits from a Corps/RWQCB approved mitigation bank would also fully compensate for the project's impacts to waters of the U.S./State. Any wetland compensation mitigation that is different than prescribed herein that is required by the Corps and/or RWQCB shall also become conditions of project approval enforceable by the City.

Implementation of these mitigation measures would reduce impacts to waters of the U.S./State to a level regarded as less than significant pursuant to CEQA.

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Figure 1. Regional Map of the
Green Island Road Reconstruction and Widening Project Site
American Canyon, CA

County: Napa
Map Preparation Date: July 1, 2019

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Figure 2. Local Map of the
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Section: 14, 13; T4N R4W
7.5-Minute Cuttings Wharf South quadrangle
Aerial Photograph Source: ESRI
Map Preparation Date: July 1, 2019

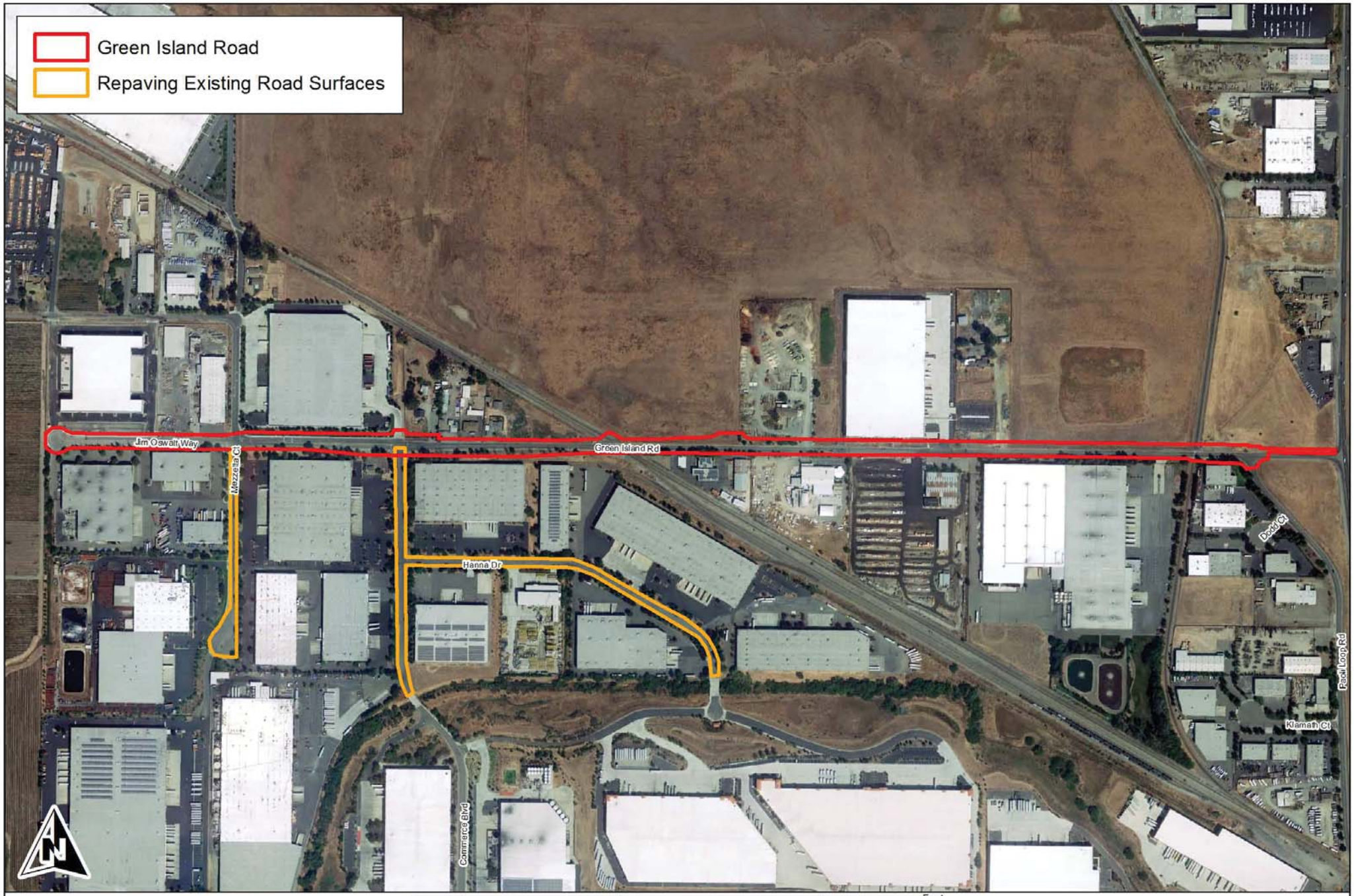

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Figure 3. Aerial Photograph of the
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

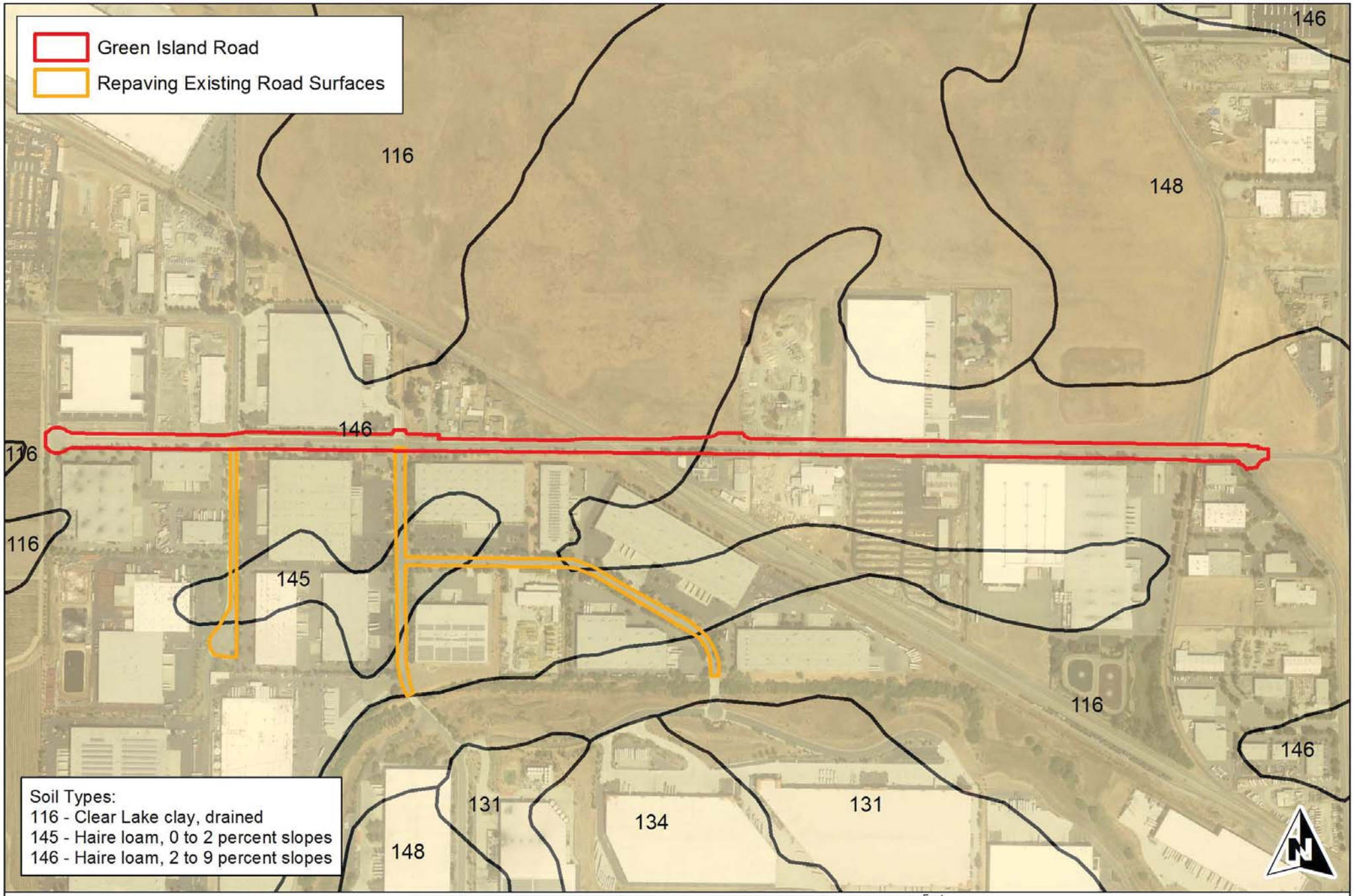

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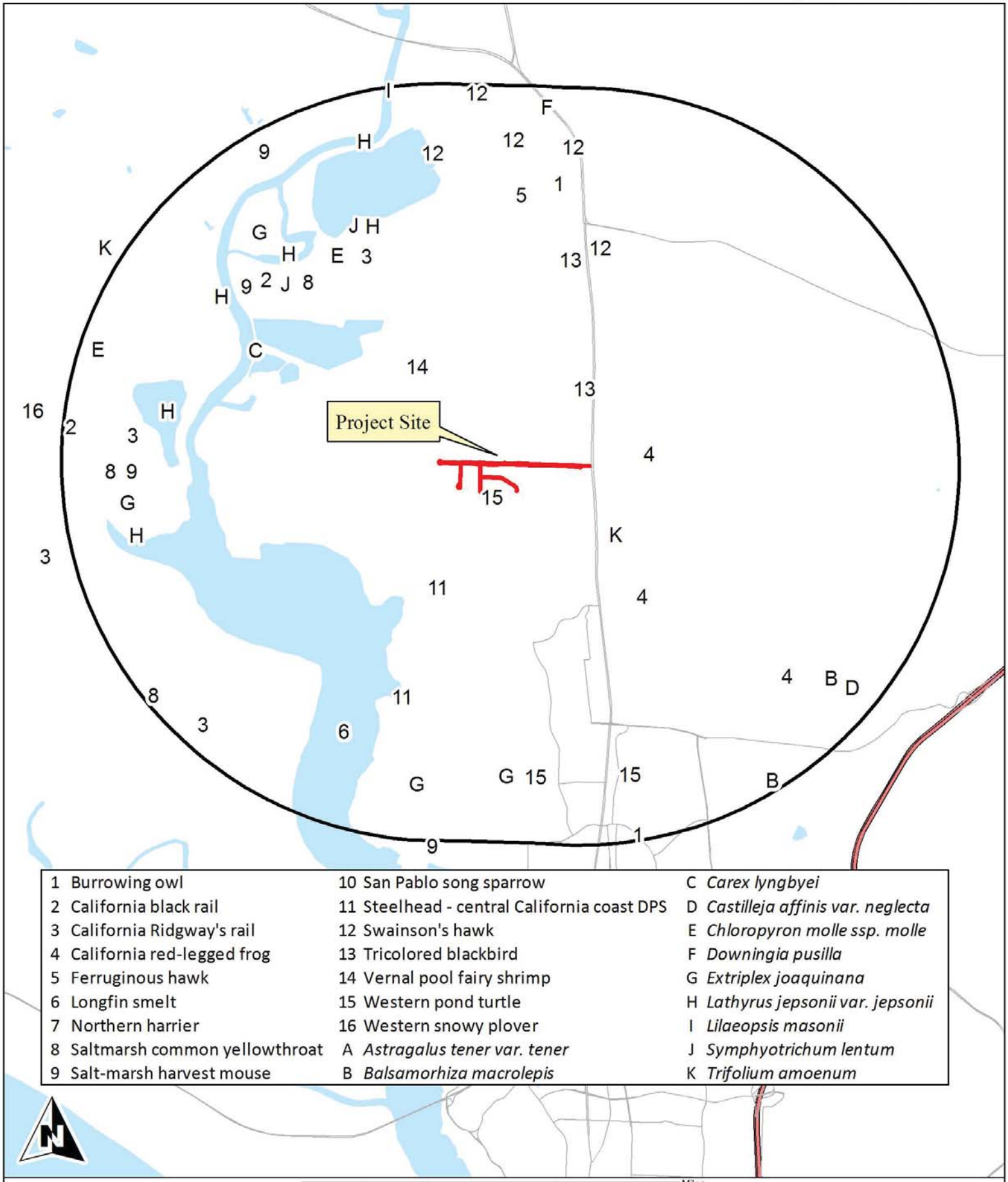
Figure 4. Soil Types of the
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Aerial Photograph Source: Google Earth
Soils Data Source:
http://soildatamart.nrcs.usda.gov
Map Preparation Date: July 1, 2019



1 Burrowing owl	10 San Pablo song sparrow	C *Carex lyngbyei*
2 California black rail	11 Steelhead - central California coast DPS	D *Castilleja affinis var. neglecta*
3 California Ridgway's rail	12 Swainson's hawk	E *Chloropyron molle ssp. molle*
4 California red-legged frog	13 Tricolored blackbird	F *Downingia pusilla*
5 Ferruginous hawk	14 Vernal pool fairy shrimp	G *Extriplex joaquinana*
6 Longfin smelt	15 Western pond turtle	H *Lathyrus jepsonii var. jepsonii*
7 Northern harrier	16 Western snowy plover	I *Lilaeopsis masonii*
8 Saltmarsh common yellowthroat	A *Astragalus tener var. tener*	J *Symphyotrichum lentum*
9 Salt-marsh harvest mouse	B *Balsamorhiza macrolepis*	K *Trifolium amoenum*

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0 0.5 1 2 3 Miles

Figure 5. Known Records for Special-Status Species Within 3 Miles of the Green Island Road Reconstruction and Widening Project Site

Map Preparation Date: July 1, 2019
3-Mile Radius
Source: CDFW, California Natural Diversity Data Base, 2019

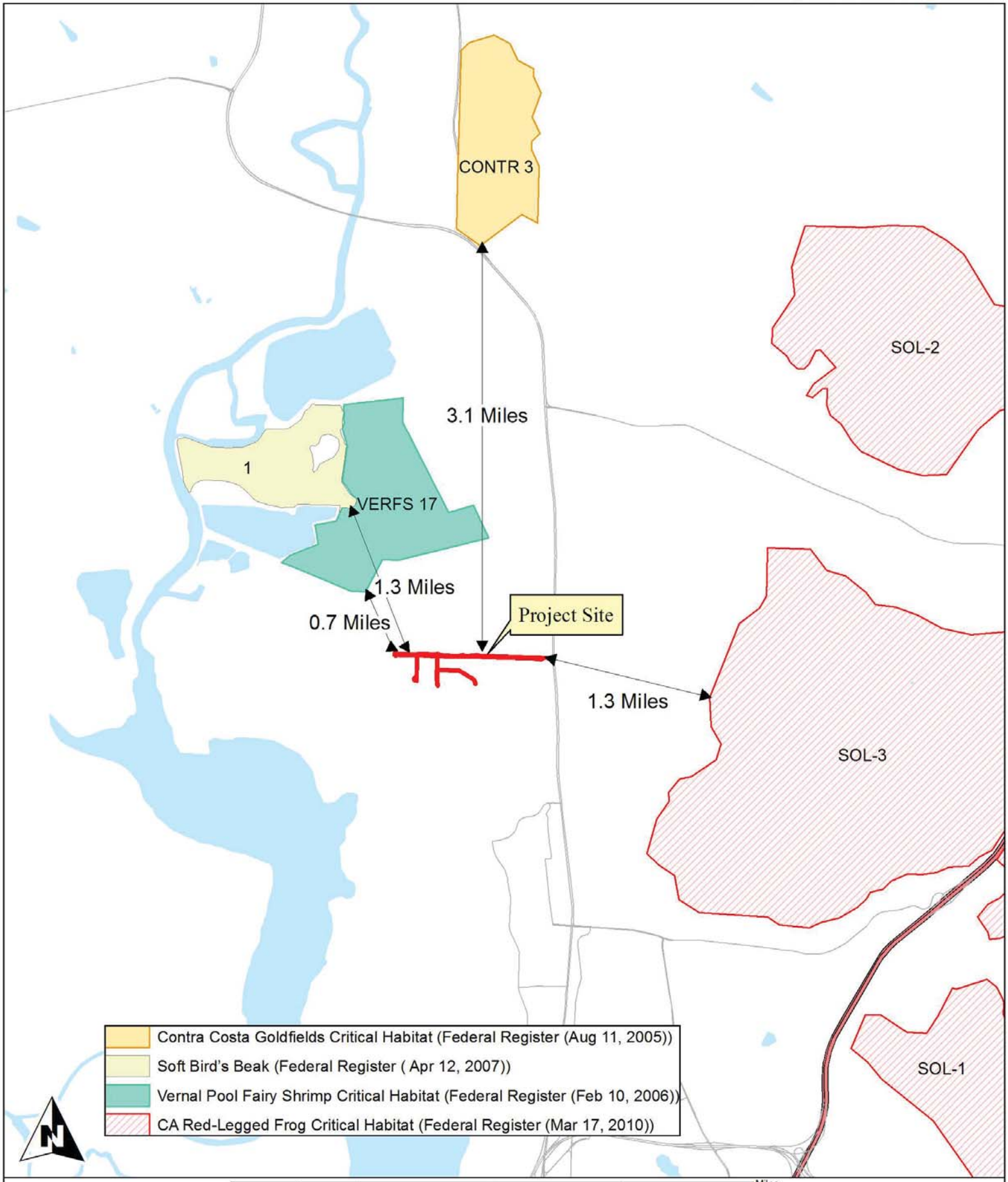

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Figure 6. USFWS Critical Habitat
In the Vicinity of the
Green Island Road Reconstruction and Widening Project Site

County: Napa
Critical Habitat Source: USFWS
Map Preparation Date: July 1, 2019

Table 1

Plant Species Observed on the Green Island Road Reconstruction and Widening Project Site

Angiosperms - Dicots

Apiaceae

**Ammi majus*	Greater ammi
Eryngium aristulatum var. aristulatum	California coyote-thistle
**Foeniculum vulgare*	Sweet fennel

Asteraceae

**Carduus pycnocephalus subsp. pycnocephalus*	Italian thistle
**Helminthotheca echioides*	Bristly ox-tongue
Hemizonia congesta subsp. luzulifolia	White hayfield tarweed
**Matricaria discoidea*	Pineapple-weed

Boraginaceae

Plagiobothrys undulatus	Wavy-stemmed popcornflower

Brassicaceae

**Brassica nigra*	Black mustard
**Raphanus sativus*	Wild radish

Chenopodiaceae

**Atriplex prostrata*	Hastate orache

Convolvulaceae

**Convolvulus arvensis*	Bindweed

Fabaceae

**Medicago polymorpha*	California burclover

Geraniaceae

**Geranium dissectum*	Cut-leaf geranium

Lythraceae

**Lythrum hyssopifolia*	Hyssop loosestrife

Malvaceae

**Malva parviflora*	Cheeseweed

Myrsinaceae

**Lysimachia arvensis*	Scarlet pimpernel

Plantaginaceae

**Plantago lanceolata*	English plantain

Polygonaceae

**Rumex conglomeratus*	Green dock
**Rumex crispus*	Curly dock

Ranunculaceae

**Ranunculus muricatus*	Spiny-fruit buttercup

Rosaceae

**Rubus armeniacus*	Himalayan blackberry

* Indicates a non-native species

Table 1

Plant Species Observed on the Green Island Road Widening Project Site

Angiosperms -Monocots

Alismataceae

Alisma triviale	Water plantain

Cyperaceae

Eleocharis macrostachya	Creeping spikerush

Poaceae

**Avena barbata*	Slender wild oat
**Bromus hordeaceus*	Soft chess
**Bromus madritensis subsp. madritensis*	Foxtail chess
Distichlis spicata	Saltgrass
**Elymus caput-medusae*	Medusahead
Festuca idahoensis	Idaho fescue
**Festuca perennis*	Italian ryegrass
**Hordeum marinum subsp. gussoneanum*	Mediterranean barley
**Hordeum murinum subsp. leporinum*	Hare barley
**Phalaris aquatica*	Harding grass
**Polypogon monspeliensis*	Annual beard grass

* Indicates a non-native species

Table 2
Wildlife Species Observed on the Green Island Road Reconstruction and Widening Project Site

Amphibians	
Sierran treefrog	*Pseudacris sierra*
Birds	
Turkey vulture	*Cathartes aura*
Red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Eurasian collared-dove	*Streptopelia decaocto*
Mourning dove	*Zenaida macroura*
Black phoebe	*Sayornis nigricans*
Western scrub jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
Tree swallow	*Tachycineta bicolor*
Cliff swallow	*Petrochelidon pyrrhonota*
Barn swallow	*Hirundo rustica*
Bushtit	*Psaltriparus minimus*
Western bluebird	*Sialia mexicana*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
California towhee	*Pipilo crissalis*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
House finch	*Haemorhous mexicanus*
Lesser goldfinch	*Spinus psaltria*
House sparrow	*Passer domesticus*
Mammals	
Botta's pocket gopher	*Thomomys bottae*
Raccoon	*Procyon lotor*
Feral cat	*Felis catus*

Table 3

Special-Status Plant Species Known to Occur in the Vicinity of the Green Island Road Reconstruction and Widening Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Apiaceae					
Lilaeopsis masonii Mason's lilaeopsis	Fed: - State: CR CNPS: Rank 1B.1	April-October	Marshes and swamps (brackish or freshwater); riparian scrub.	Closest record located 2.6 miles northwest of the project site (Occurrence No. 10)	None. No suitable habitat along road shoulder. Highly disturbed.
Asteraceae					
Balsamorhiza macrolepis Big-scale balsam-root	Fed: - State: - CNPS: Rank 1B.2	March-June	Cismontane woodland; chaparral; valley and foothill grassland; [sometimes serpentinite]. 90 - 1555 meters	Closest record located 2.3 miles southeast of the project site (Occurrence No. 7)	None. No suitable habitat along road shoulder. Highly disturbed.
Lasthenia conjugens Contra Costa goldfields	Fed: FE State: - CNPS: Rank 1B.1	March-June	Valley and foothill grassland (mesic); vernal pools.	CNPS one quad: Cuttings Wharf 3812223	None. No suitable habitat along road shoulder. Highly disturbed.
Symphyotrichum lentum Suisun Marsh aster	Fed: - State: - CNPS: Rank 1B.2	August-November	Marshes and swamps (brackish and fresh water)	Closest record located 1.4 miles northwest of the project site (Occurrence No. 128)	None. No suitable habitat along road shoulder. Highly disturbed.
Campanulaceae					
Downingia pusilla Dwarf downingia	Fed: - State: - CNPS: Rank 2.2	March-May	Valley and foothill grassland (mesic); vernal pools.	Closest record located 2.6 miles north of the project site (Occurrence No. 108)	None. No suitable habitat along road shoulder. Highly disturbed.
Legenere limosa Legenere	Fed: - State: - CNPS: Rank 1B.1	April-June	Vernal pools.	CNPS one quad: Cuttings Wharf 3812223	None. No suitable habitat along road shoulder. Highly disturbed.

Table 3

Special-Status Plant Species Known to Occur in the Vicinity of the Green Island Road Widening Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Chenopodiaceae					
Extriplex joaquinana San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	Closest record located 2.2 miles south of the project site (Occurrence No. 58)	None. No suitable habitat along road shoulder. Highly disturbed.
Cyperaceae					
Carex lyngbyei Lyngbye's sedge	Fed: - State: - CNPS: Rank 2	May-August	Marshes or swamps (brackish or freshwater)	Closest record located 1.6 miles northwest of the project site (Occurrence No. 28)	None. No suitable habitat along road shoulder. Highly disturbed.
Fabaceae					
Astragalus tener tener Alkali milkvetch	Fed: - State: - CNPS: Rank 1B.2	March-June	Playas; mesic grasslands (adobe clay), vernal pools (alkaline).	Closest record located 2.3 miles south of the project site (Occurrence No. 50)	None. No suitable habitat along road shoulder. Highly disturbed.
Lathyrus jepsonii jepsonii Delta tule pea	Fed: - State: - CNPS: Rank 1B.2	May-September	Marshes and swamps (freshwater and brackish).	Closest record located 1.8 miles west of the project site (Occurrence No. 13)	None. No suitable habitat along road shoulder. Highly disturbed.
Trifolium amoenum Showy Indian clover	Fed: FE State: - CNPS: Rank 1B.1	April-June	Valley and foothill grassland (sometimes serpentinite)	Closest record located 0.4 miles southeast of the project site (Occurrence No. 23)	None. No suitable habitat along road shoulder. Highly disturbed.
Trifolium hydrophilum Saline clover	Fed: - State: - CNPS: Rank 1B.2	April-June	Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools. 0-300 m.	CNPS one quad: Cuttings Wharf 3812223	None. No suitable habitat along road shoulder. Highly disturbed.

Table 3

Special-Status Plant Species Known to Occur in the Vicinity of the Green Island Road Widening Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Orobanchaceae					
Castilleja affinis neglecta Tiburon paintbrush	Fed: FE State: CT CNPS: Rank 1B.2	April-June	Valley and foothill grassland [serpentinite]	Closest record located 2.3 miles southeast of the project site (Occurrence No. 5)	None. No suitable habitat along road shoulder. Highly disturbed.
Chloropyron molle molle Soft salty bird's-beak	Fed: FE State: CR CNPS: Rank 1B.2	July-September	Marshes and swamps (coastal salt).	Closest record located 1.3 miles northwest of the project site (Occurrence No. 3)	None. No suitable habitat along road shoulder. Highly disturbed.

***Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern

CNPS:
Rank 1A - Presumed extinct in California
Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

CNPS Continued:
Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 2A - Extirpated in California, common elsewhere
Rank 2B.1 - Seriously endangered in California, but more common elsewhere
Rank 2B.2 - Fairly endangered in California, but more common elsewhere
Rank 2B.3 - Not very endangered in California, but more common elsewhere
Rank 3 - Plants about which we need more information (Review List)
Rank 3.1 - Plants about which we need more information (Review List) Seriously endangered in California
Rank 3.2 - Plants about which we need more information (Review List) Fairly endangered in California
Rank 4 - Plants of limited distribution - a watch list

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Green Island Road Reconstruction and Widening Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Invertebrates				
Vernal pool fairy shrimp *Branchinecta lynchi*	Fed: FT State: - Other:	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains. Inhabit static rain-filled/vernal pools, small, clear water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression	Closest record located 0.7 miles north of the project site (Occurrence No. 232)	None. Seasonal wetlands within road do not provide suitable habitat.
Fish				
Steelhead - Central California Coast DPS *Oncorhynchus mykiss irideus*	Fed: FT State: - Other:	From Russian River south to Soquel Creek, and to Pajaro River. Also found in San Francisco & San Pablo Bay Basins. Spawn in clear, cool, well oxygenated streams greater than 18 cm deep.	Closest record located 0.9 miles south of the project site (Occurrence No. 4) in North Slough (tributary to Napa River)	None. No rivers or streams.
Longfin smelt *Spirinichus thaleichthys*	Fed: -- State: CT Other:	Endemic to the Sacramento-San Joaquin River system. Inhabits open waters in the Delta and Suisun Bay. After spawning, larvae are carried downstream to brackish nursery areas.	Closest record located 1.5 miles west of the project site (Occurrence No. 26) in Napa River	None. No rivers or streams.
Amphibians				
California red-legged frog *Rana draytonii*	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Closest record located 0.5 miles east of the project site (Occurrence No. 1062)	None. No suitable breeding/aquatic habitat and no migration habitat along road.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Green Island Road Widening Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Reptiles				
Western pond turtle *Actinemys marmorata marmorata*	Fed: - State: CSC Other:	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.	Closest record located 0.2 miles south of the project site (Occurrence No. 552)	None. No suitable aquatic habitat.
Birds				
Northern harrier *Circus cyaneus*	Fed: - State: CSC Other:	Nests on the ground or in shrubby vegetation typically in grasslands, fallow farm lands, near freshwater and salt water marshes.	Closest record located 2.4 miles west of the project site (Occurrence No. 29)	None. Unlikely to nest along road shoulder.
Swainson's hawk *Buteo swainsoni*	Fed: - State: CT Other:	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	Closest record located 2.4 miles north of the project site (Occurrence No. 1717)	None. Unlikely to nest near project site. Preconstruction survey will be conducted.
Ferruginous hawk *Buteo regalis*	Fed: -- State: WL Other:	Winter migrant to California where they prefer grasslands, cultivated fields and arid areas with an abundance of prey species, such as pocket gophers, black-tailed hares, and cottontails.	Closest record located 1.2 miles north of the project site (Occurrence No. 28)	None. Does not nest in California.
California black rail *Laterallus jamaicensis coturniculus*	Fed: -- State: CT Other:	Inhabits salt marshes bordering larger bays. Prefers tidal salt marshes of pickleweed.	Closest record located 1.2 miles northwest of the project site (Occurrence No. 31)	None. No marsh habitat in project area.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Green Island Road Widening Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
California Ridgway's rail *Rallus obsoletus obsoletus*	Fed: FE State: CE Other:	Inhabits salt water and brackish marshes with tidal sloughs in San Francisco Bay. Prefers dense pickleweed for cover, but forages for invertebrates along mud-bottomed sloughs.	Closest record located 1.2 miles northwest of the project site (Occurrence No. 16)	None. No marsh habitat in project area.
Western snowy plover *Charadrius alexandrinus nivosus*	Fed: FT State: CSC Other:	Prefers sandy beaches, salt pond levees, and shores of large alkali lakes. Requires sandy, gravelly, or friable soil for nesting.	Closest record located 2.8 miles west of the project site (Occurrence No. 121)	None. No nesting habitat in project area.
Western burrowing owl *Athene cunicularia hypugaea*	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Closest record located 2.2 miles north of the project site (Occurrence No. 935)	None. Unlikely to nest along road shoulder.
Salt marsh common yellowthroat *Geothlypis trichas sinuosa*	Fed: - State: CSC Other:	Resident of freshwater and salt water marshes in the San Francisco Bay region. Requires thick, continuous cover for foraging and tall grasses, tules, or willows for nesting.	Closest record located 1.2 miles northwest of the project site (Occurrence No. 37)	None. No nesting habitat in project area.
San Pablo song sparrow *Melospiza melodia samuelis*	Fed: -- State: CSC Other:	More properly known as Samuels Song Sparrow. Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the California marshes; nests in grindelia bordering slough channels.	Closest record located 2.0 miles northwest of the project site (Occurrence No. 16)	None. No nesting habitat in project area.
Tricolored blackbird *Agelaius tricolor*	Fed: - State: CC Other: CSC	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	Closest record located 0.6 miles north of the project site (Occurrence No. 243)	None. No nesting habitat in project area.

Table 4

Special-Status Animal Species Known to Occur in the Vicinity of the Green Island Road Widening Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Mammals				
Salt marsh harvest mouse *Reithrodontomys raviventris*	Fed: FE State: CE Other:	Inhabits saline marshes in the San Francisco Estuary. Prefers pickleweed marshes. Requires higher areas for escaping high water.	Closest record located 1.2 miles northwest of the project site (Occurrence No. 48)	None. No marsh habitat in project area.

***Status**

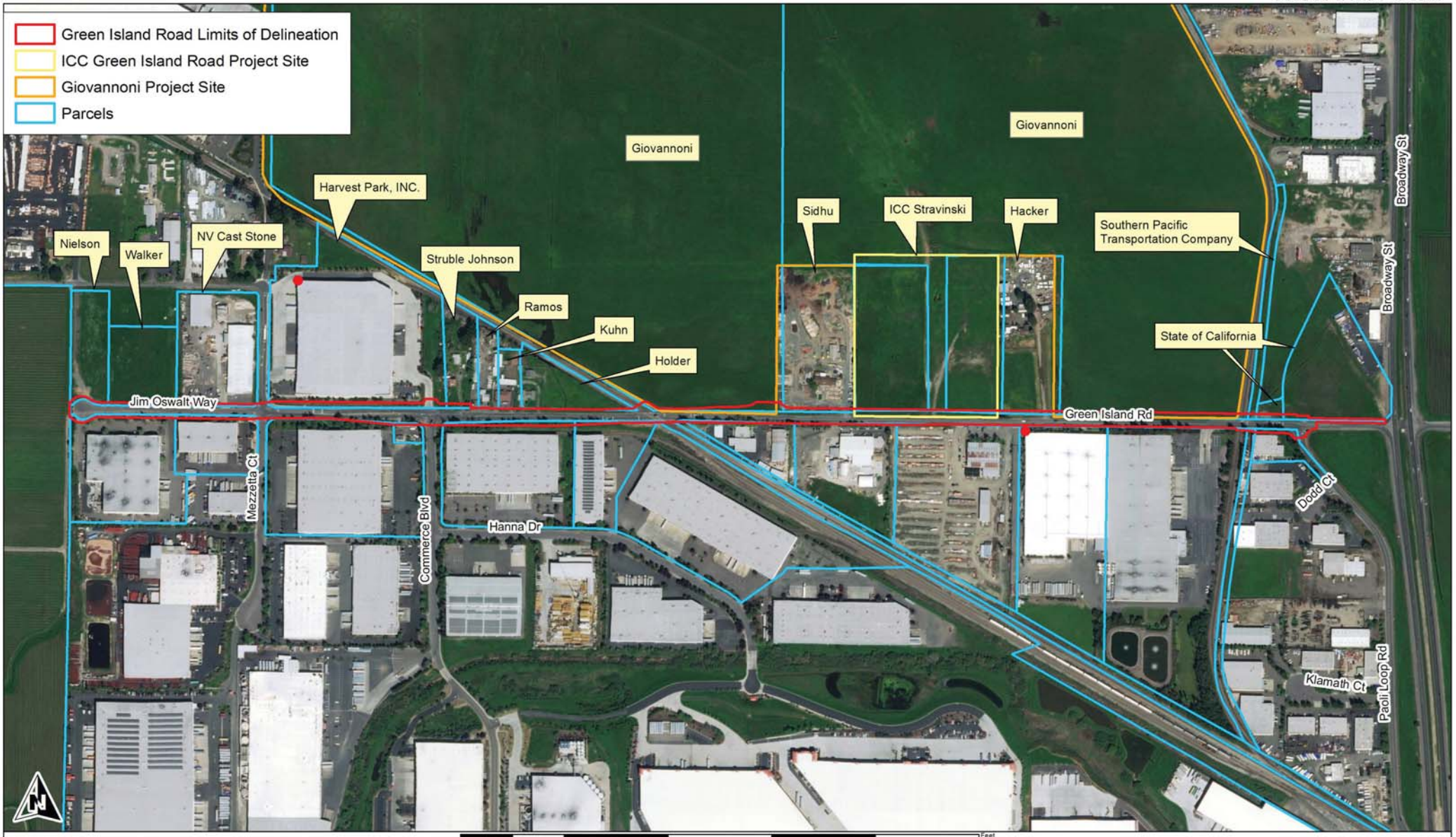
Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate
FPD - Federally Proposed for delisting

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CC - California Candidate
CSC - California Species of Special Concern
FP - Fully Protected
WL - Watch List. Not protected pursuant to CEQA

Table A: Tree Survey Data– Green Island Road Reconstruction and Widening Project Site

Tag Number	Tree Species	# of Stems	DBH (inches)	Health (0-5)
3919	Unknown	4	8.7, 6.5, 4.0, 4.5	3
3920	Pyrus calleryana	11	3.0, (3) 2.0, 1.5, (5) 1.0, 0.5	4
3921	Sequoia sempervirens	1	22.3	4
3922	Sequoia sempervirens	1	21.7	4
3923	Sequoia sempervirens	1	33.6	4
3924	Sequoia sempervirens	1	16.7	4
3925	Sequoia sempervirens	1	27.0	4
3926	Sequoia sempervirens	1	34.3	4
3927	Sequoia sempervirens	1	33.2	4
3928	Sequoia sempervirens	1	17.6	3
3929	Sequoia sempervirens	1	28.0	4
3930	Sequoia sempervirens	1	30.0	4
3931	Sequoia sempervirens	1	7.7	4
3932	Sequoia sempervirens	1	23.2	4
3933	Sequoia sempervirens	1	21.0	4
3934	Sequoia sempervirens	1	21.0	4
3935	Sequoia sempervirens	1	31.0	4
3936	Sequoia sempervirens	1	30.0	4
3937	Sequoia sempervirens	1	24.0	3
3938	Sequoia sempervirens	1	18.0	3
3939	Quercus agrifolia agrifolia	6	1.5, (2) 3.0,6.0,4.0,2.0	4
3940	Quercus agrifolia agrifolia	5	4.0, (2) 3.0, 2.0, 1.0	4
3941	Quercus agrifolia agrifolia	1	15.0	5
3942	Quercus agrifolia agrifolia	2	10.0, 5.0	5
3943	Quercus agrifolia agrifolia	8	6.0,3.0,(4) 4.0, 2.0, 1.0	5
3944	Quercus agrifolia agrifolia	6	4.0, 4.5, 7.0, (3) 2.0	5
3945	Quercus agrifolia agrifolia	4	5.9, 6.0, 4.0, 2.0	4
3946	Quercus agrifolia agrifolia	6	6.8, 6.7, 4.0, (3) 1.0	4
3947	Quercus kelloggii	1	7.9	4
3948	Quercus agrifolia agrifolia	16	(2) 4.0, 3.5, 3.0, (3) 2.0, 1.5, (8) 1.0	4
3949	Quercus agrifolia agrifolia	1	11.5	5
3950	Quercus kelloggii	1	10.5	4
3951	Quercus agrifolia agrifolia	7	3.5,3.0,2.0,1.0,1.0,1.0,2.0	5
3952	Quercus agrifolia agrifolia	3	6.3, 11.0, 10.0	5
3953	Pyrus calleryana	1	10.2	4
3954	Quercus agrifolia agrifolia	1	5.4	5
3955	Populus fremontii fremontii	2	20.1, 5.6	4
3956	Populus fremontii fremontii	1	22.0	4
3957	Quercus chrysolepis	1	11.2	4
3958	Sequoia sempervirens	1	20.4	1

Tag Number	Tree Species	# of Stems	DBH (inches)	Health (0-5)
3959	Sequoia sempervirens	1	17.4	0
3960	Sequoia sempervirens	1	13.5	2
3961	Sequoia sempervirens	1	20.5	2
3962	Sequoia sempervirens	1	17.1	3
3963	Sequoia sempervirens	1	22.4	0
3964	Sequoia sempervirens	1	26.0	0
3965	Sequoia sempervirens	1	24.7	0
3966	Sequoia sempervirens	1	24.4	0
3967	Sequoia sempervirens	1	16.2	0
3968	Sequoia sempervirens	1	21.7	4
3969	Sequoia sempervirens	1	18.5	1
3970	Sequoia sempervirens	1	18.3	2
3971	Prunas Sp.	1	19	0
3972	Sequoia sempervirens	1	18.7	4
3973	Sequoia sempervirens	1	20.1	4
3974	Sequoia sempervirens	1	19.7	4
3975	Befula nigra	1	15.1	0
3976	Sequoia sempervirens	1	20.0	4
3977	Prunas Sp.	1	11.2	0
3978	Sequoia sempervirens	1	20.0	4
3979	Sequoia sempervirens	1	19.5	4
3980	Sequoia sempervirens	1	22.0	4
3981	Unknown	1	9.0	0
3982	Prunas Sp.	1	20.3	0
3983	Phoenix canariensis	1	41.2	4
3984	Sequoia sempervirens	1	21.4	4
3985	Prunas Sp.	1	22.0	0
3986	Prunas Sp.	1	24.0	0
3987	Sequoia sempervirens	1	21.2	4
3988	Sequoia sempervirens	1	16.3	4
3989	Sequoia sempervirens	1	12.3	4
3990	Quercus lobata	1	25.1	4
3991	Sequoia sempervirens	1	11.0	3
3992	Sequoia sempervirens	1	21.0	2
3993	Sequoia sempervirens	1	23.0	1
3994	Sequoia sempervirens	1	29.0	5
3995	Sequoia sempervirens	1	26.0	3
3996	Sequoia sempervirens	1	28.0	5
3997	Sequoia sempervirens	1	23.5	5
3998	Sequoia sempervirens	1	24.5	5
3999	Morus alba	3	11.5, 4.0, 3.5	5
4000	Morus alba	1	8.25	4
XXXX	Fraxinus oxycarpa	1	3.3	3



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Sheet A. Property Owners affected by the
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: July 1, 2019

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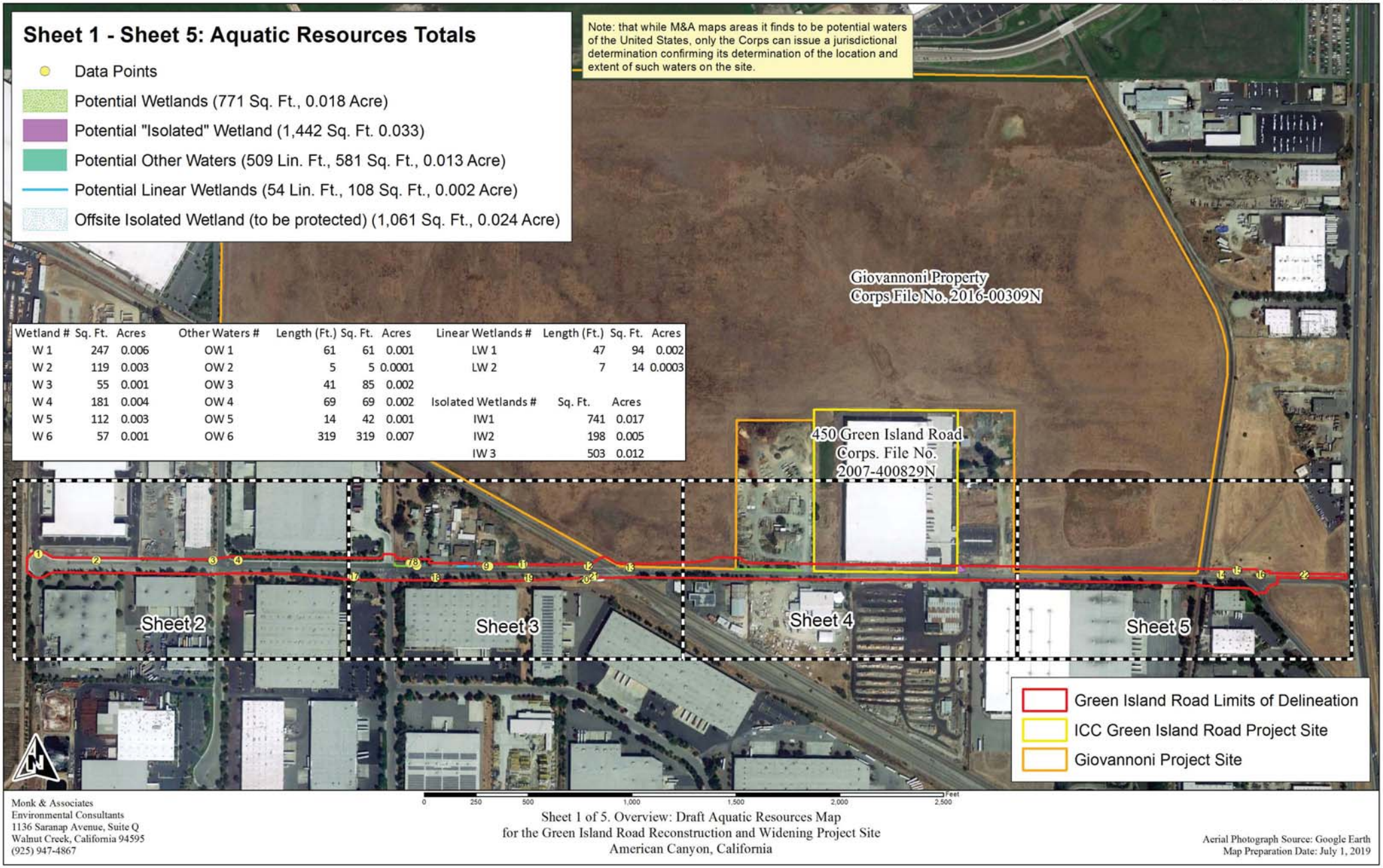
Sheet B. Assessor's Parcel Numbers for the
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Aerial Photograph Source: ESRI
Map Preparation Date: July 1, 2019



Wetland #	Sq. Ft.	Acres
W 1	247	0.006
W 2	119	0.003
W 3	55	0.001
W 4	181	0.004
W 5	112	0.003
W 6	57	0.001

Other Waters #	Length (Ft.)	Sq. Ft.	Acres
OW 1	61	61	0.001
OW 2	5	5	0.0001
OW 3	41	85	0.002
OW 4	69	69	0.002
OW 5	14	42	0.001
OW 6	319	319	0.007

Linear Wetlands #	Length (Ft.)	Sq. Ft.	Acres
LW 1	47	94	0.002
LW 2	7	14	0.0003

Isolated Wetlands #	Sq. Ft.	Acres
IW1	741	0.017
IW2	198	0.005
IW 3	503	0.012

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Sheet 1 of 5. Overview: Draft Aquatic Resources Map
for the Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

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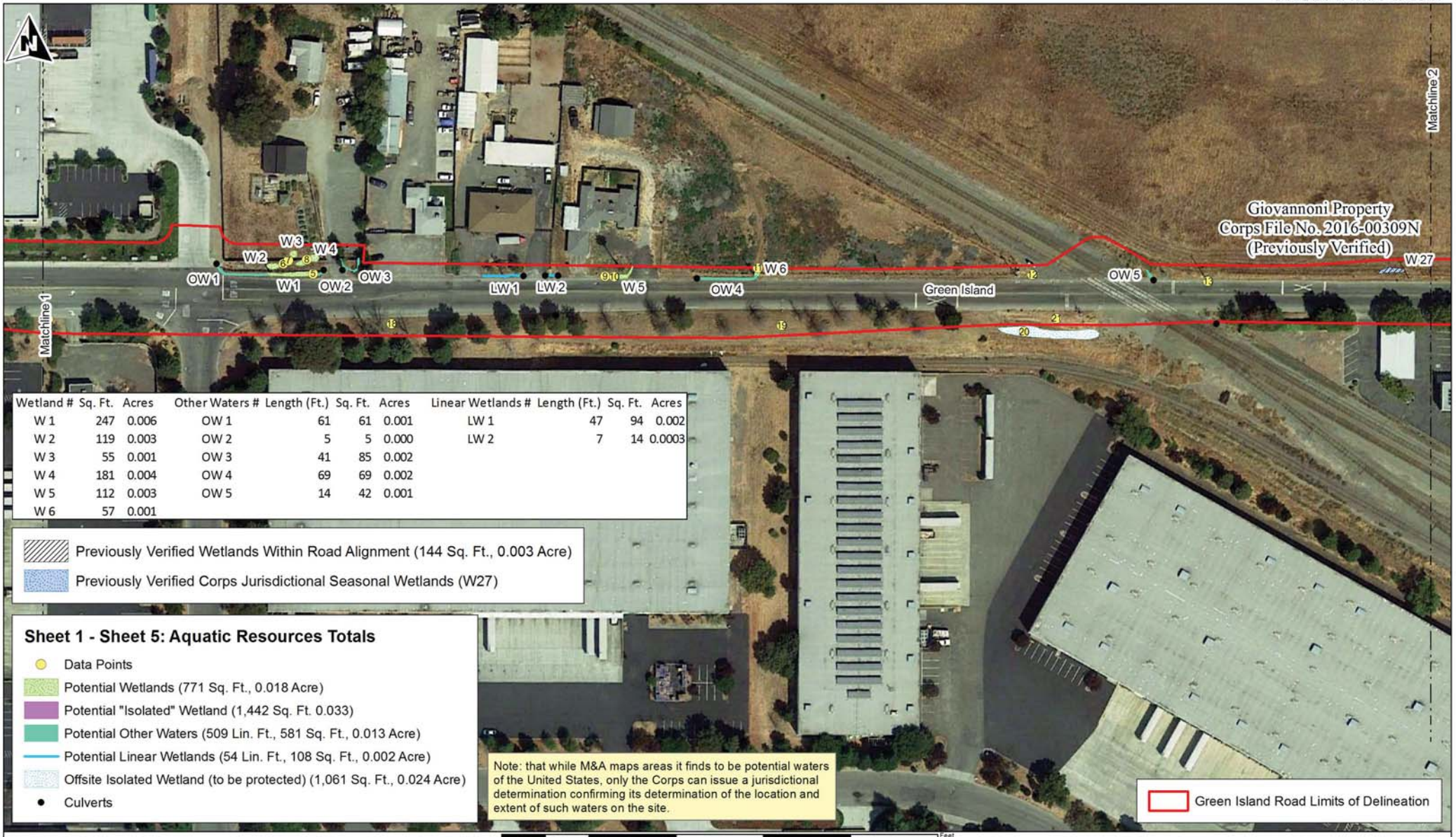
Sheet 2 of 5. Draft Aquatic Resources Map
for the Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019



Wetland #	Sq. Ft.	Acres	Other Waters #	Length (Ft.)	Sq. Ft.	Acres	Linear Wetlands #	Length (Ft.)	Sq. Ft.	Acres
W 1	247	0.006	OW 1	61	61	0.001	LW 1	47	94	0.002
W 2	119	0.003	OW 2	5	5	0.000	LW 2	7	14	0.0003
W 3	55	0.001	OW 3	41	85	0.002				
W 4	181	0.004	OW 4	69	69	0.002				
W 5	112	0.003	OW 5	14	42	0.001				
W 6	57	0.001								

Previously Verified Wetlands Within Road Alignment (144 Sq. Ft., 0.003 Acre)

Previously Verified Corps Jurisdictional Seasonal Wetlands (W27)

Sheet 1 - Sheet 5: Aquatic Resources Totals

- Data Points
- Potential Wetlands (771 Sq. Ft., 0.018 Acre)
- Potential "Isolated" Wetland (1,442 Sq. Ft. 0.033)
- Potential Other Waters (509 Lin. Ft., 581 Sq. Ft., 0.013 Acre)
- Potential Linear Wetlands (54 Lin. Ft., 108 Sq. Ft., 0.002 Acre)
- Offsite Isolated Wetland (to be protected) (1,061 Sq. Ft., 0.024 Acre)
- Culverts

Note: that while M&A maps areas it finds to be potential waters of the United States, only the Corps can issue a jurisdictional determination confirming its determination of the location and extent of such waters on the site.

Green Island Road Limits of Delineation

0 50 100 200 300 400 500 Feet

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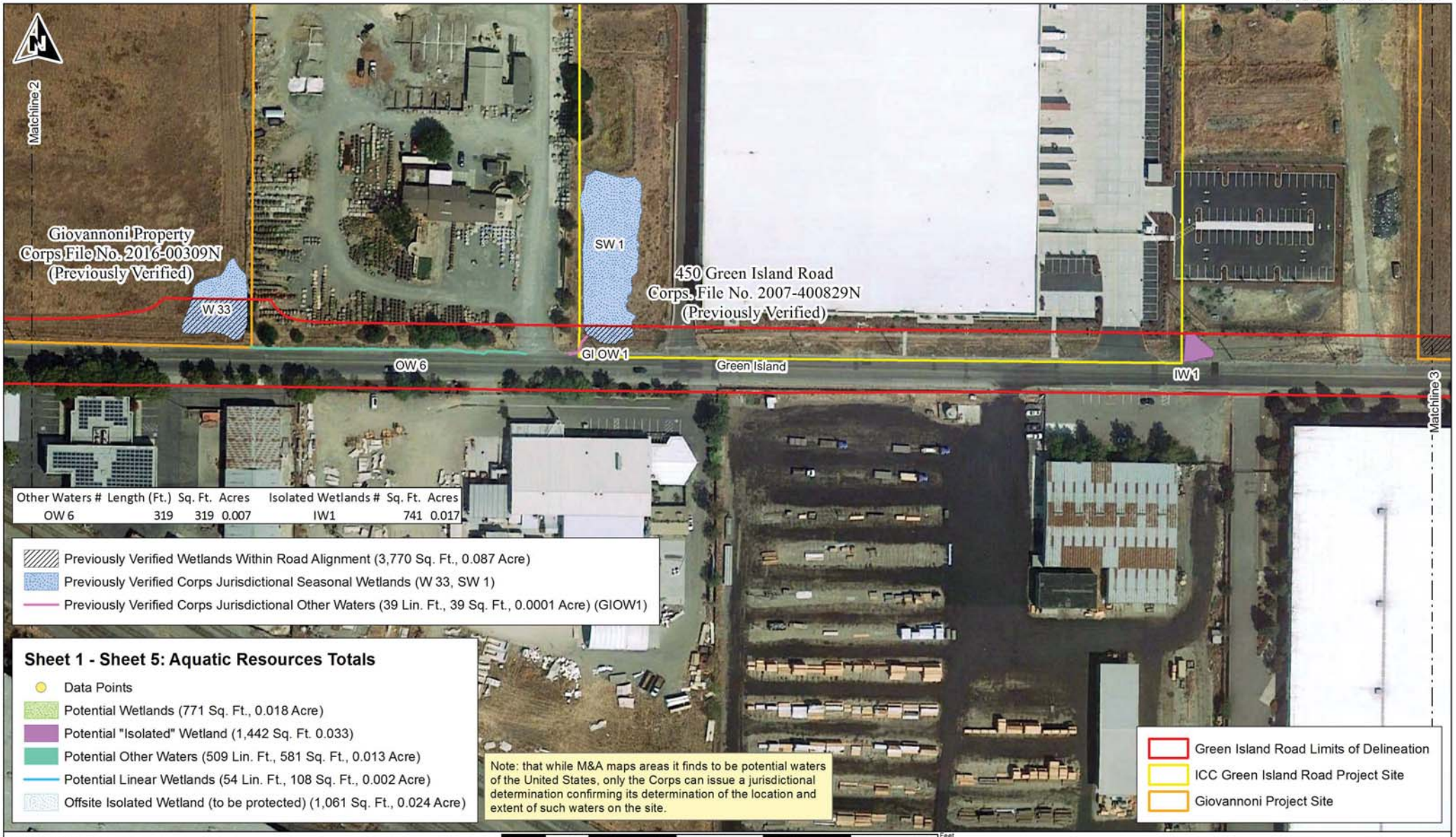
Sheet 3 of 5. Draft Aquatic Resources Map
for the Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019



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Sheet 4 of 5. Draft Aquatic Resources Map
for the Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

Isolated Wetlands #	Sq. Ft.	Acres
IW1	741	0.017
IW2	198	0.005
IW3	503	0.012

Previously Verified "Isolated" Seasonal Wetlands Within Road Alignment (962 Sq. Ft., 0.022 Acre)
Previously Verified "Isolated" Seasonal Wetlands (IW 10)

Sheet 1 - Sheet 5: Aquatic Resources Totals

- Data Points
- Potential Wetlands (771 Sq. Ft., 0.018 Acre)
- Potential "Isolated" Wetland (1,442 Sq. Ft. 0.033)
- Potential Other Waters (509 Lin. Ft., 581 Sq. Ft., 0.013 Acre)
- Potential Linear Wetlands (54 Lin. Ft., 108 Sq. Ft., 0.002 Acre)
- Offsite Isolated Wetland (to be protected) (1,061 Sq. Ft., 0.024 Acre)

Note: that while M&A maps areas it finds to be potential waters of the United States, only the Corps can issue a jurisdictional determination confirming its determination of the location and extent of such waters on the site.

- Green Island Road Limits of Delineation
- ICC Green Island Road Project Site
- Giovannoni Project Site

0 50 100 200 300 400 500 Feet

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Sheet 5 of 5. Draft Aquatic Resources Map
for the Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

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Exhibit A. Tree Survey
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

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Exhibit B. Tree Survey
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

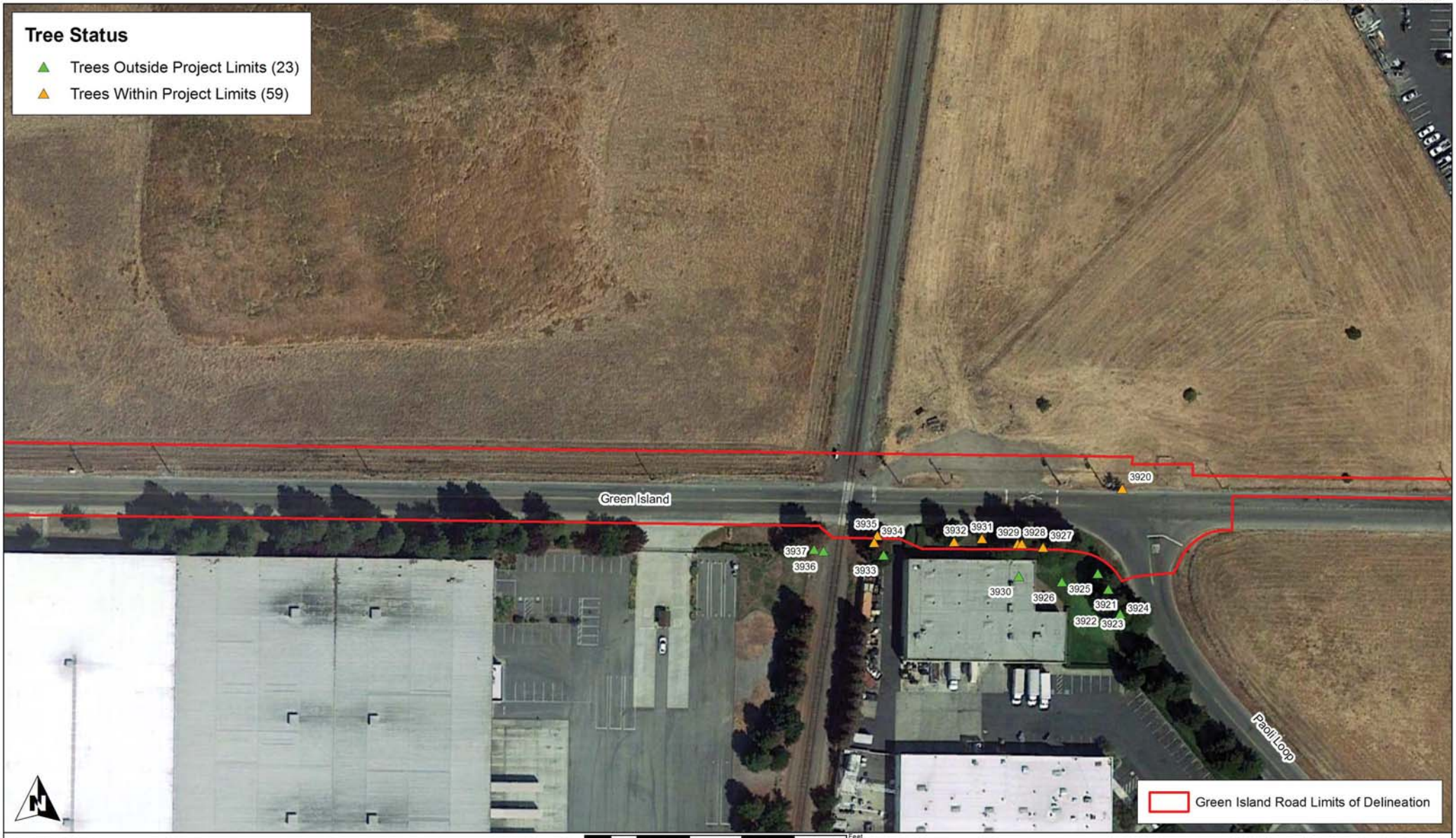

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Exhibit C. Tree Survey
Green Island Road Reconstruction and Widening Project Site
American Canyon, California

Scale: 1 inch = 100 feet
Aerial Photograph Source: Google Earth
Map Preparation Date: July 1, 2019

C.8 - Jennings 2021 California Red-legged Frog Habitat Assessment

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HABITAT ASSESSMENT
FOR THE CALIFORNIA RED-LEGGED FROG,
AT THE PROPOSED GIOVANNONI LOGISTICS PROJECT SITE,
AMERICAN CANYON, NAPA COUNTY, CALIFORNIA

March 11, 2021

Prepared for:

Robert F. Perrera
The Huffman-Broadway Group, Inc.
828 Mission Street
San Rafael, CA 94901

Prepared by:

Mark Jennings
Rana Resources
P.O. Box 2185
Davis, CA 95617-2185

TABLE OF CONTENTS

FIGURES

SUMMARY

This report is a Habitat Assessment for the federally threatened California red-legged frog (*Rana draytonii*, hereafter CRLF) at the location of the approximately 210-acre infill development [=Giovannoni Logistics Project] between Devlin Road to the north and Green Island Road to the south in the northwestern part of the City of American Canyon, Napa County (Project). The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings, along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east. The Napa River estuary lies further to the west.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The closest known CRLF records to the site are 0.6-2.4 miles to the east and southeast; additional CRLF records 3.7 miles and further away lie within Critical Habitat designated for this species (SOL-2 and SOL-3). All of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

1.0 INTRODUCTION

A proposed development for 6 warehouse and office buildings on the Giovannoni Parcel within the northwest portion of the City of American Canyon, Napa County, California, has been proposed (Figure 1). Since the 210-acre site lies within the historic range for the California red-legged frog (*Rana draytonii*, hereafter CRLF) [Stebbins 2003], and is near occupied Critical Habitat for CRLF (USFWS 2010), a habitat assessment was conducted for this species.

2.0 PROJECT DESCRIPTION AND SETTING

The 210-acre project site is located between Devlin Road to the north and Green Island Road to the south in the northwestern part of American Canyon, Napa County (Project) [Figure 1]. The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings,

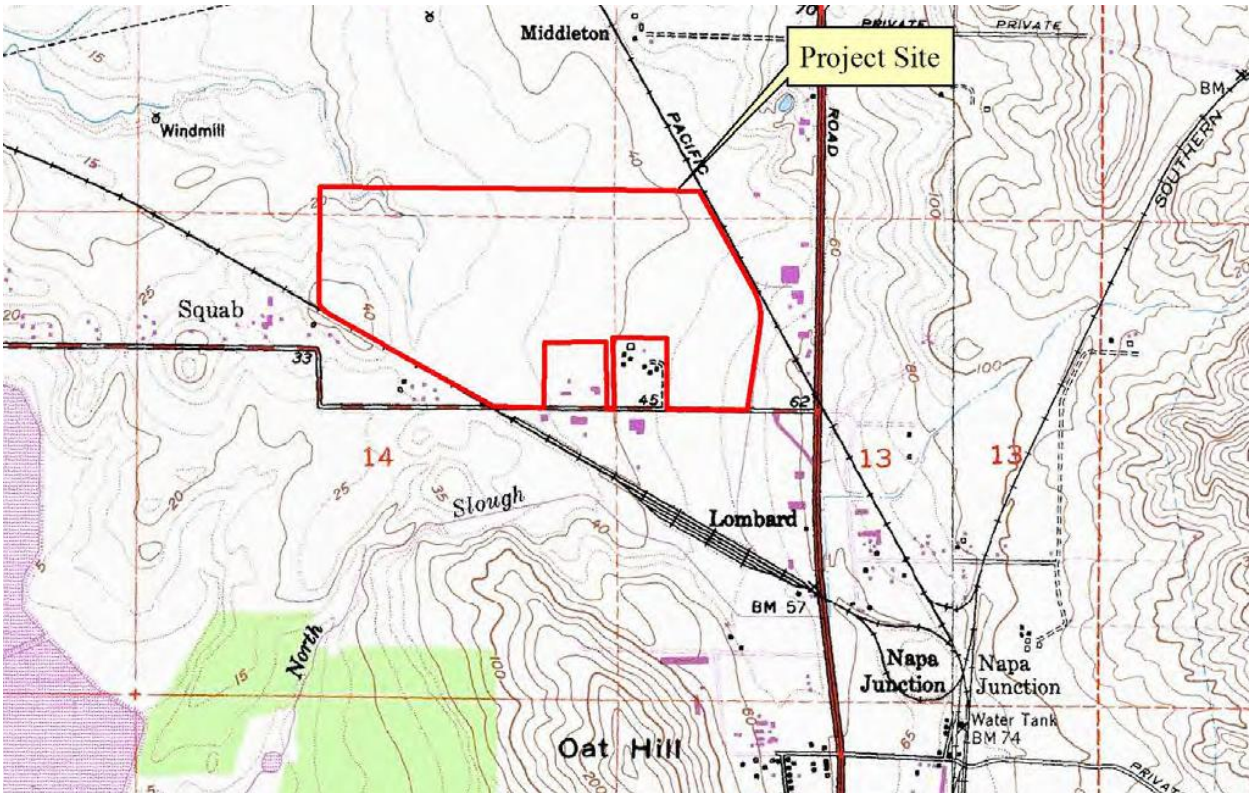

Figure 1. Location of 210-acre Giovannoni parcel within the City of American Canyon.

along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east (Figure 2). The Napa River estuary lies further to the west.

Figure 2. Location of the 210-acre Giovannoni parcel in American Canyon showing surrounding infrastructure and development. Google Earth photograph taken in 2020.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands that has used for cattle (*Bos taurus*) grazing. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road and eventually drains into the Napa River estuary. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The Project site has been previously surveyed and mapped for wetlands by Monk and Associates (2018). They also conducted surveys for special status plants and animals, including CRLF on a small portion of the site (for the Devlin Road and Napa Valley Vine Trail Project). All of the wetlands were determined to be shallow and seasonal, with inundation limited to only about 3-4 months during the year after sufficient winter and spring rainfall.

There are no trees or dense riparian vegetation thickets of any type on site. Botta pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*) burrows are scattered throughout the more upland areas.

3.0 METHODS

The methods employed to produce this report include evaluating the suitability of habitat for CRLF on site by conducting a reconnaissance-level site visit during the day by me on 10 February 2021. I followed the U.S. Fish and Wildlife Service protocol for the CRLF habitat assessment (USFWS 2005) and made observations regarding any amphibians and reptiles observed, or potentially inhabiting the vicinity. Additionally, CRLF occurrence records within 3.1 miles of the Project site (CNDDB 2021) were mapped. Finally, I examined 7.5' USGS quadrangles and aerial photographs for potentially suitable aquatic habitats within a 3.1-mile radius of the site and connectivity of these habitats with the Project site.

4.0 RESULTS AND DISCUSSION

No CRLF were observed during my day visit of the Project site on February 10, 2021 (see Appendix). I also did not observe any other amphibian species other than some Pacific treefrog (*Hyla regilla*) egg masses.

Suitable breeding and rearing habitat for CRLF is generally characterized by dense, shrubby riparian vegetation associated with deep (>2.3 feet), still or slow-moving water (see Jennings and Hayes 1994, Jennings 1988, Hayes and Jennings 1988). All of the inundated wetlands that I observed on site were too shallow and ephemeral to support a breeding population of CRLF.

These findings are consistent with previous findings recorded by Monk and Associates (2018) for a small portion of the proposed road alignments on through the eastern part of the Project site.

A review of the most recent California Natural Diversity Database files (CNDDB 2021) revealed that there are no records of CRLF in American Canyon west of Highway 29 almost certainly due to the high amount of vehicle traffic, highway berms, and stream courses being diverted into buried culverts below the freeway. Based on the data from the CNDDB, 3 CRLF occurrences are located within a 3.1-mile radius of the southeast corner of the Study Area, all located east of Highway 29 (Figure 3). The closest sighting is a single adult observed 0.6 miles to the east in the North Slough drainage on July 26, 2006, 2008 (Record #1062). The next closest is another single adult observed 1.1 miles to the southeast in a marsh area near an old quarry pond on August 04, 2008 (Record #896). The third closest is 2.4 miles to the southeast near the Flosden Road where multiple larvae, juveniles, and adults have been observed between 2008 and 2015 (Record #228). There are other records further away within Critical Habitat units SOL-2 and SOL-3 to east and southeast. However, there are no hydrologic connections with any streams that drain the agricultural fields and adjacent foothills east of Highway 29 (a finding also noted by Monk and Associates (2018, 2019). Additionally, the Project site is now nearly entirely surrounded by extensive urban development and infrastructure. Thus, there is no chance for any CRLF to access the site from occupied habitats to the east and southeast due to the presence of Highway 29 (as described above), as well as railroads, urban streets, fences, and buildings.

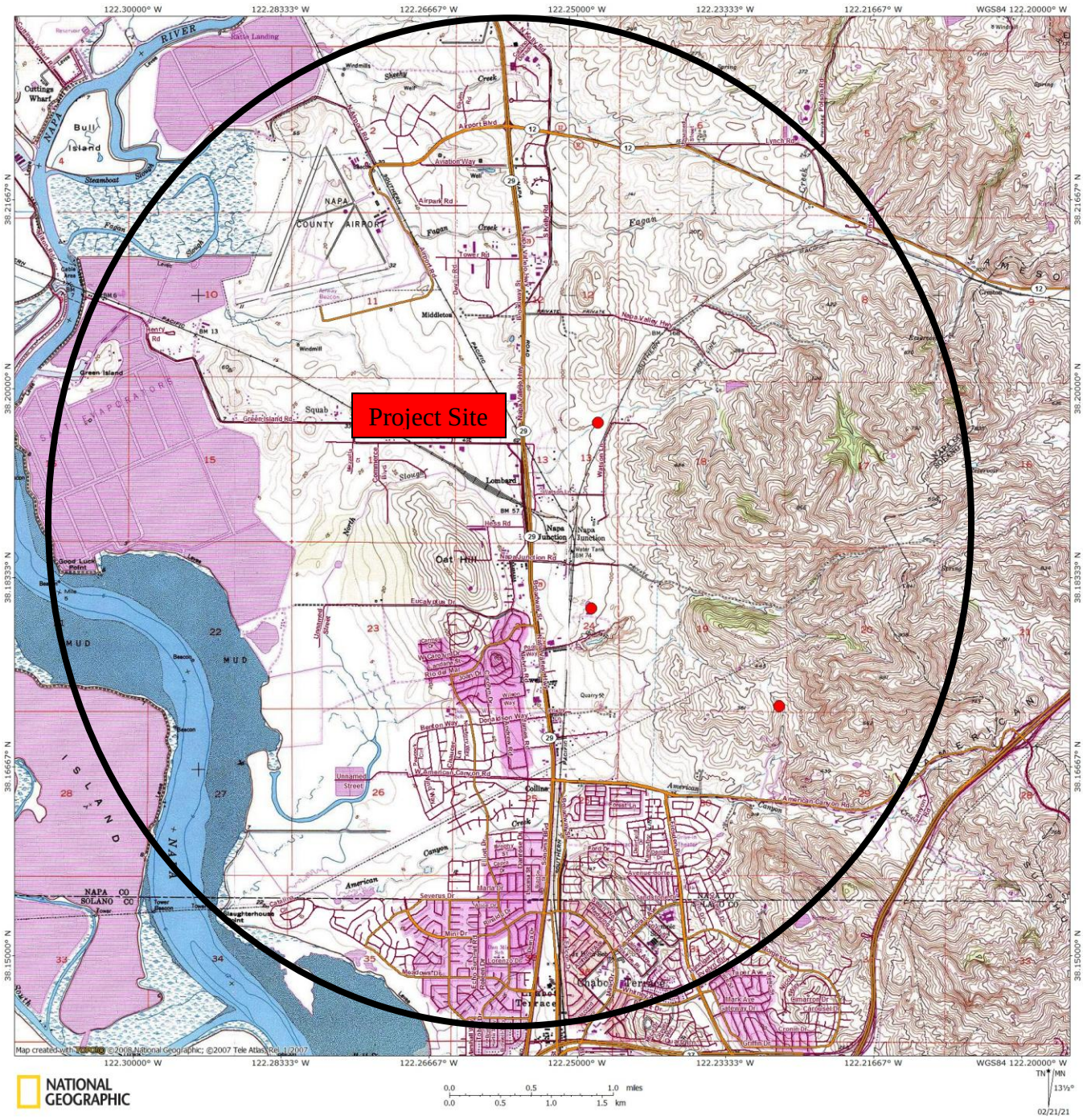

Figure 3. Locations of CRLF within 3.1 miles of the southeast corner of the Project site.

5.0 CONCLUSIONS

Although occupied CRLF habitat is present within 0.6-2.4 miles east and southeast of the Project site, all of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of

drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29.. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

6.0 REFERENCES

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7.0 APPENDIX

Data Sheet from Appendix D of the *Revised guidance on site assessment and field surveys for the California red-legged frog* (USFWS 2005) completed on 10 February 2021.

California Red-Legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 02/10/2021
(mm/dd/yyyy)

Site Assessment Biologists: Jennings, Mark _____
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

Site Location: Napa, City of American Canyon, T.4N, R.4W, Sections 1(NE) and 13(NW
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Giovannoni Logistics Project
Brief description of proposed action: Proposed development of 6 warehouse and office buildings on a 210-acre site in the northwest portion of the City of American Canyon

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? (YES) NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 8' x 15' Maximum depth: 4 inches

Vegetation: emergent, overhanging, dominant species: mostly sedges and grasses with a few cockleburs. No trees or denser riparian vegetation present

Substrate: clay and sand.

Perennial or Ephemeral (*circle one*). If ephemeral, date it goes dry: April - May most years

California Red-Legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 2 feet
Depth at bank full: 1 foot
Stream gradient: 2 degrees

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum Depth of stream Pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Mostly riffle.

Vegetation: emergent, overhanging, dominant species: Grasses and sedges. No willows or cattails or tules.

Substrate: Clay and sand

Bank description: Ruderal grasslands.

Perennial or (Ephemeral) (*circle one*). If ephemeral, date it goes dry: April - May most years

Other aquatic habitat characteristics, species observations, drawings, or comments:

Only observed a Pacific treefrog egg masses. Lots of California vole and Botta pocket gopher burrows present.

Area used for livestock grazing. Now completely surrounded by development and urban infrastructure.

Wetlands too ephemeral and shallow to be used by CRLF. Thus, no habitat present. Also, no riparian connection with drainages to the east of Hwy 29. Therefore, adjacent CRLF occupied habitats to the east and southeast are disconnected from the project site and no overland movements can occur to the site.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs.
3. Maps with important habitat features and species locations

C.9 - Brent Helm 2021 Rare Plant Survey Report

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PROTOCOL-LEVEL
SPECIAL-STATUS NATIVE PLANT SURVEYS
AT THE
GIOVANNONI LOGISTICS CENTER PROJECT,
NAPA COUNTY, CALIFORNIA

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August 2021

PROTOCOL-LEVEL SPECIAL-STATUS NATIVE PLANT SURVEYS AT THE GIOVANNONI LOGISTICS CENTER PROJECT, NAPA COUNTY, CALIFORNIA

INTRODUCTION

Helm Biological Consulting (HBC), a division Tansley Team, Inc., was contracted by Huffman-Broadway Group (HBG), Inc. to conduct botanical surveys for the presence of special-status plant species with the potential to occur at the Giovannoni Logistics Project (hereafter "Project"), Napa County, California.

PROJECT LOCATION

The Project consists of roughly 208 acres and is situated west of the Calistoga Branch of the Southern Pacific Railroad; north of Green Island Road and the Santa Rosa Branch of the Southern Pacific Railroad; and South of Devin Road, Middleton, Napa County, California (Figure 1).

DEFINITIONS

Several terms relating to biological resources used in the report are described briefly below.

COMMUNITY

A community is an assemblage of populations of plants, animals, bacteria, and fungi that live in an environment and interact with one another, forming a distinctive living system with its own composition, structure, environmental relationships, development, and functions (Whittaker 1975).

SENSITIVE NATURAL COMMUNITY

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special-status plants or their habitat. A sensitive community has particularly high ecological value or functions.

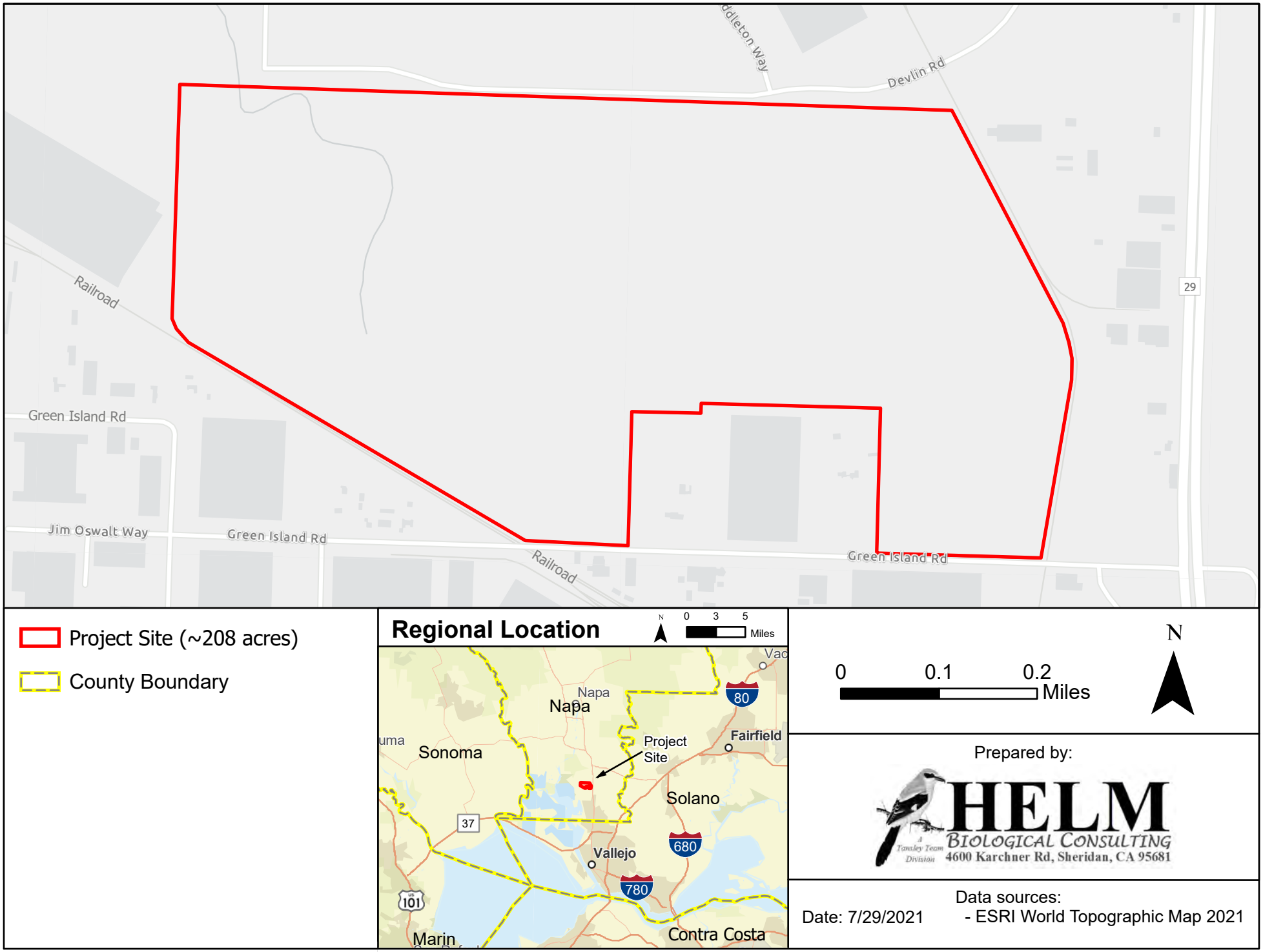


Figure 1. Location of Giovannoni Logistics Center Project

Sensitive communities are considered important because their degradation or destruction could threaten populations of dependent plant and wildlife species and significantly reduce the regional distribution and viability of the community. As the number and extent of sensitive natural community continue to diminish, the endangerment status of dependent special-status (i.e., rare, threatened, or endangered) species could become more precarious, and populations of currently stable species (i.e., non special-status species) could become rare. Loss of sensitive natural communities can also eliminate or reduce important ecosystem functions, such as water filtration by wetlands and bank stabilization by riparian forests or wetlands.

Loss or disturbance of these sensitive communities may constitute significant adverse impact as defined under the California Environmental Quality Act (CEQA). This definition applies to certain natural communities because of their relative scarcity and ecological values, and the vulnerability of remaining occurrences to elimination.

HABITAT

Habitat is the place or type of site where a plant or animal naturally or normally lives and grows.

SPECIAL-STATUS PLANT SPECIES

For the purposes of this document, special status plants include all those that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under the federal endangered Species Act (ESA) or candidates for possible future listing as threatened or endangered under the ESA (50 C.F.R., § 17.12).

- Listed or candidates for listing by the State of California as threatened or endangered under California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.). In CESA, “endangered species” means a native species or subspecies of plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish & G. Code, § 2062). “Threatened species” means a native species or subspecies of plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA (Fish & G. Code, § 2067). “Candidate species” means a native species or subspecies of plant that the California Fish and Game Commission has formally noticed as being under review by California Department of Fish and Wildlife (CDFW) for addition to either the list of endangered species or the list of threatened species, or a species for which the California Fish and Game Commission has published a notice of proposed regulation to add the species to either list (Fish & G. Code, § 2068).

- Listed as rare under the California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish & G. Code, § 1901).

- Meet the definition of endangered, rare, or threatened species under CEQA Guidelines section 15380, subdivisions (b) and (d), which may include:
    - Plants tracked by the California Natural Diversity Database (CNDDB) as California Rare Plant Rank (CRPR) 1 or 2; and
    - Plants that may warrant consideration on the basis of declining trends, recent taxonomic information, or other factors. This includes plants tracked by the CNDDB as CRPR 3 or 4.

- Considered locally significant plants, that is, plants that are not rare from a statewide perspective but are rare or uncommon in a local context such as within a county or region (CEQA Guidelines, § 15125, subd. [c]), or as designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include plants that are at the outer limits of their known geographic range or plants occurring on an atypical soil type.

The remainder of this report discusses the methods and results of the 2021 special-status native plant surveys at the Project.

METHODS

In an effort to determine if the Project supports special-status plants, and in support of CEQA and agency requirements, HBC conducted botanical surveys during the spring of 2021. These surveys utilized CDFW's protocols identified in "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" dated March 20, 2018. The method included a pre-field survey and a field survey, both described below.

PRE-FIELD SURVEY

Prior to conducting field surveys, a computer search of the CNDDB and the California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants was conducted to determine whether any special-status plants had been reported onsite or within a 10-mile radius of the Project (CDFW 2021 and CNPS 2021). This search was also used to compile a list of special-status plants that would be targeted during field surveys.

In addition, the following resources were compiled and reviewed:

- US Geological Survey topographic maps (USGS 2021)
- Existing project documents provided by HBG (i.e., Biological Resource Analysis [Monk & Associates, Inc. 2018])
- US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2021)
- Project descriptions and initial project designs provided by HBG and/or Buzz Oats

FIELD SURVEY

Special-status plant species identified during the pre-survey investigation as having the potential to occur on the study site were targeted during field surveys. Field surveys for special-status plants incorporated floristic survey methods, as recommended by CDFW (2018). Floristic survey methods require identification of all plant species located onsite. Each species encountered was identified to the extent necessary to determine if it had any legally protected status. Floristic surveys were conducted to ensure that special-status plant species were not inadvertently overlooked because they were not targeted for surveys. Botanical field surveys were conducted by Dr. Brent Helm on April 7, 2021, May 4, 2021, and May 17, 2021. Dr. Helm walked meandering transects throughout the Project to ensure all habitats were adequately

sampled. Plants were identified using keys in The Jepson Manual (Baldwin *et al* 2012) and recorded in field notes.

In addition, any milkweed species (*Asclepias* ssp.) encountered were mapped and their populations counted/estimated. Milkweed is critical for the survival of the monarch butterfly (*Danaus plexippus*). Caterpillars of this iconic butterfly species feed exclusively on the leaves of milkweeds. On December 15, 2020, the U.S. Fish and Wildlife Service (USFWS) announced the proposed listing of the monarch as "Warranted, but Precluded". This means that, while the USFWS has determined the Monarch meets the definition of a threatened or endangered species, there are currently not enough resources (e.g., funding, personnel) to list the species presently, although listing could occur in the future. The monarch is also considered a "Conservation Priority" under CESA.

Several reference sites with known special-status plants targeted for field surveys were visited to:

1. Determine whether those special-status plants were identifiable at the times of year the botanical field surveys took place; and
2. To obtain a visual image of the special-status plants, associated habitat, and associated natural communities.

Reference sites included:

- Little Egbert Tract for Suisun Marsh aster, Mason's lilaeopsis and Delta tule pea.
- Sacramento Utilities Municipal District's Rancho Seco Conservation Bank lands for legenere and dwarf downingia.
- Gentry Logistics Project, Suisun for Contra Costa goldfields.

RESULTS

ENVIRONMENTAL CONDITIONS

HISTORIC CONDITIONS

Historically, the Project lied roughly midway between the foothills of the Sulfur Springs Mountains and the tidal marshes of the Napa River and was part of the watershed for an unnamed tributary (dubbed "South Fork" for the purposes of this discussion) of Fagan Slough. The multiple tributaries, of which Fagan Slough was one, was appropriately named - Brazos ("Arms" in Spanish) given to the cluster of tidal channels in this region. However, given the Site's, elevation it was probably just above the tidal influence of the Napa River. Prior to the turn of the century, the South Fork of the Fagan Slough onsite was orientated in a west-east direction. The headwaters of this drainage originated in the foothills to the east of the Project. However, by the early 1900's, most of the upper portion of the South Fork had been diverted and channelized. During a similar time period, a substantial ditch (orientated in a north-south direction) was excavated in an attempt to drain a large wetland (situated along the northern edge of the Santa Rosa Branch of the Southern Pacific Railroad) into the South Fork onsite. Unfortunately with the offsite portions of the South Fork diverted or removed, the upper portion of the North Fork onsite received reduced flows. Further hydrologic inputs to this drainage were reduced from the construction of several ditches, most orientated in an east-west fashion along the northern boundary of the Project. The overall effect of these ditches has reduced the resident time of surface water onsite.

Additionally, the disking that has occurred onsite tended to "smear" the wetlands across the landscape which increased the ponding surface area while decreasing the ponding depth and duration. Disking also decreases soil compaction; therefore, increasing the soils ability to absorb water, thus delaying the onset of ponding and decreasing ponding duration within the wetlands.

In conclusion, most of the disturbances to the site occurred long before historical aerial photographs and topographic maps could have document the changes. The railroads, numerous roads, channels, and ditches had occurred prior to or just after the turn of the century.

CURRENT CONDITIONS

CLIMATE

The climate at the Project is typical of the northern portion of the Bay Area, with an average low temperature in January of 38.5 degrees Fahrenheit (^{o}F) and average high temperature in July of 83.3 ^{o}F. Rainfall averages 24.2 inches per year, most of which falls during the winter months. On average, there are 265 sunny days per year at the Project (Bestplaces 2021).

TOPOGRAPHY AND HYDROLOGY

The Project consist of a relatively flat piece of ground sloping from east to west with the highest elevation at roughly 60 feet (ft) above mean sea level (msl) located in the southeast corner and lowest elevation in the northwest corner of roughly 25 ft msl.

The Project occurs within the Tulucay Creek-Frontal San Pablo Bay Estuaries watershed, Environmental Protection Agency (EPA) Hydrologic Unit Code (HUC10) 1805000204 (Figure 2). Additionally, most of the Project occurs within the Tulucay Creek-Frontal San Pablo Bay Estuaries subwatershed (HUC12: 180500020402), while a small portion of the Project along the southern boundary occurs in the American Canyon Creek-Frontal San Pablo Bay Estuaries (HUC12: 180500020401) (Figure 2). The Napa River occurs roughly 1.8 miles to the west and roughly 1.3 miles to the southwest of the Project.

Direct inception of rainfall occurs within the numerous depressional areas consisting of seasonally inundated wetlands (vernal pools and seasonal wetlands). However, ditches have been historically excavated in an attempt to drain many of the larger onsite wetlands (See Historic Conditions section below for more details). Most of the ditches are orientated to drain to the north where they intercept remnant segments, or channelized portions thereof, of the South Fork of Fagan Slough/Creek. Additional hydrologic surface inputs to the remaining channels of Fagan Slough are derived from upslope but offsite watersheds that have been diverted into ditches which convey storm water and irrigation runoff to the northeast corner of the site via a culvert situated under the Calistoga Branch of the Southern Pacific Railroad. Other hydrological inputs may be derived from irrigation and storm water runoff occurring within the large industrial areas located to the south of the Site.

SOILS

According to the Web Soil Survey (USDA NRCS 2021), three soil map units are present onsite (Table 1 and Figure 3).

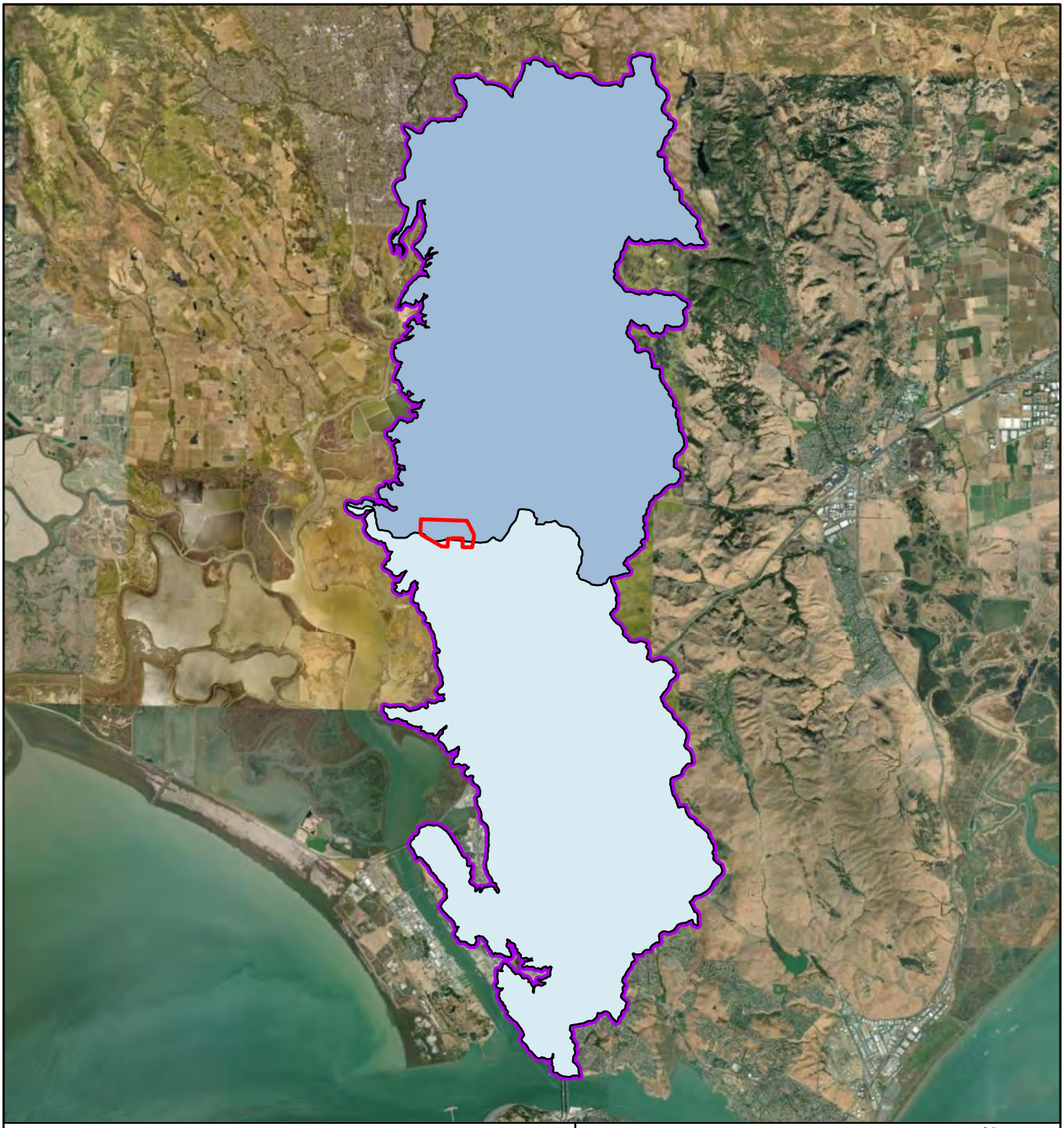
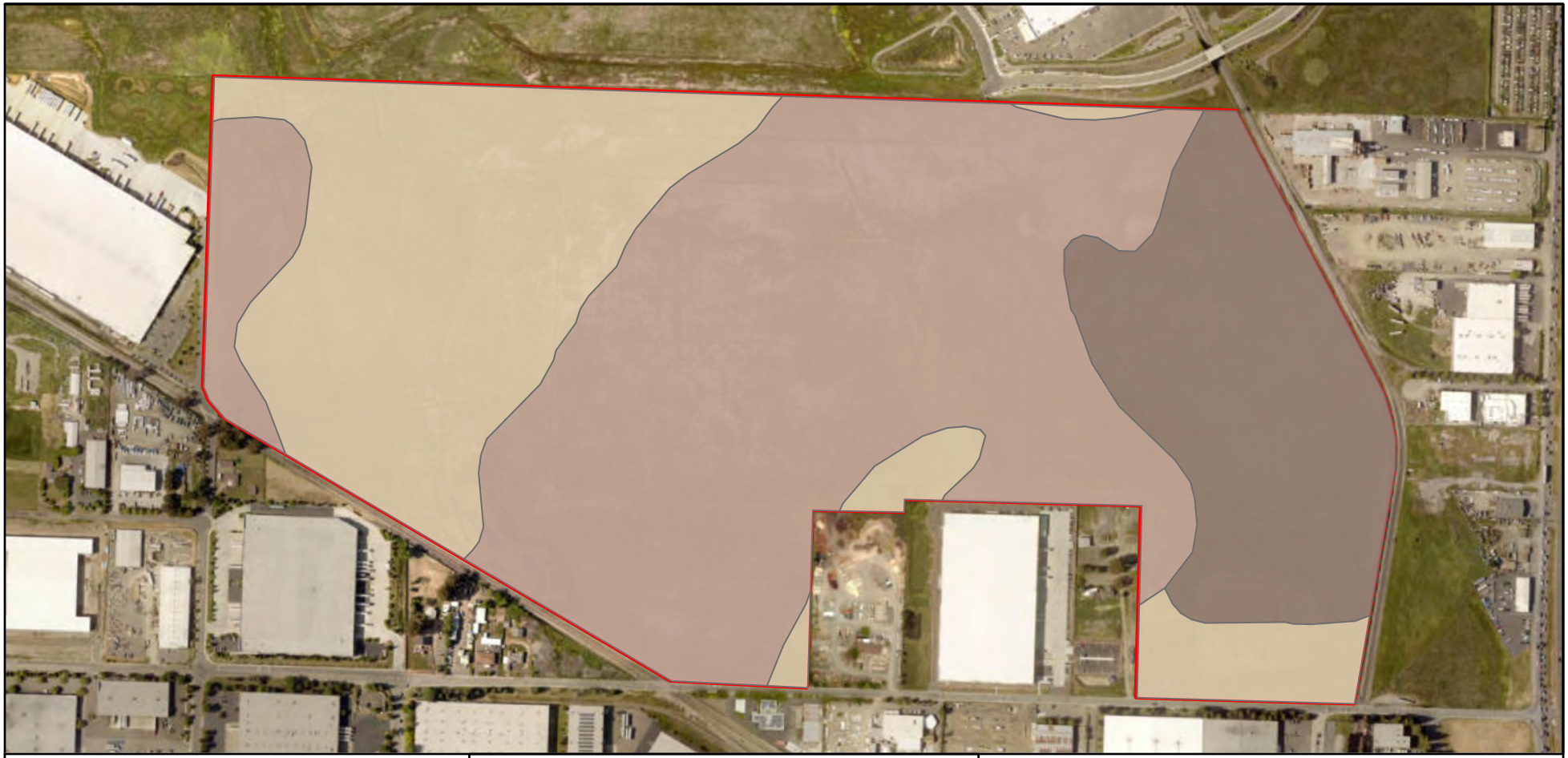


Figure 2. Watershed



Project Site (~208 acres)

County Boundary

Soils

Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14

Haire clay loam, 2 to 9 percent slopes

Haire loam, 2 to 9 percent slopes

Regional Location

0 0.1 0.2 Miles

N

Prepared by:

HELM BIOLOGICAL CONSULTING
A Tansley Team Division
4600 Karchner Rd, Sheridan, CA 95681

Date: 7/29/2021

Data sources:
- ESRI World Imagery Map 2021
- NRCS Web Soil Survey 2021

Figure 3. Soils

Table 1. Hydric Soil Conditions, Percent of Components and Geographic Position of Soil Series an Associated Inclusions Mapped by NRCS at the Giovannoni Logistics Center Project, Napa County, California

Soil Series				Inclusions			
Name	**Hydric Soil**	**Percent**	**Geomorphic Position**	**Name**	**Hydric soil**	**Percent**	**Geomorphic Position**
116 - Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14	Yes	90	Basin floors	Unnamed	?	5	Alluvial flats
				Cambell	No	3	Foodplains, Toe of alluvial fans, Basin margins
				Sunnyvale	No	2	Level flood plains and basins
146 - Haire loam, 2 to 9 percent slopes	No	85	Terraces, Alluvial fans, Footslopes	Clear Lake	Yes	5	Alluvial fans
148 - Haire clay loam, 2 to 9 percent slopes	No	85	Terraces, Alluvial fans, Footslopes	Clear Lake	Yes	5	Alluvial fans

VEGETATION COMMUNITIES

The combination of the Project's climate, hydrology, soils and disturbance regime (draining and disking) supports community types typical of the North Bay Area. The majority of the site consists of annual grasslands, with scattered seasonally inundated wetland depressions consisting of vernal pools, seasonal pools, swales, ephemeral drainages, and ditches (See Exhibit A for Confirmed Aquatic Resources Delineation Map).

A description of each of the six community/habitat types including dominant vegetation is provided below.

Annual Grassland. Due to the current ungrazed condition of the Site, the annual grassland habitat consists of mostly thatchy nonnative annual grass species including: medusa-head grass (*Elymus caput-medusae*), soft chess (*Bromus hordeaceus*), wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), and hare barely (*Hordeum murinum* ssp. *leporinum*).

Subdominant grasses include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass (*Festuca perennis*), and annual bluegrass (*Poa annua*), especially when this habitat transitions to the wetlands onsite. Forbes are present, but generally are more abundant along the sites edges or where the grassland shifts to wetland. These forbs include field mustard (*Brassica rapa*), broadleaf filaree (*Erodium bothrys*), wild lettuce (*Lactuca serriola*), wild mustards *(Raphanus sativa and R. raphanistrum)*), and yellow star thistle (*Centaurea solstitialis*).

Vernal Pool. Vernal pools are seasonally flooded landscape depressions where water ponds because of limitations to surface or subsurface drainage. Surface drainage is prevented by a depressed or concave topography. Soil layers impervious to the downward infiltration of water inhibit subsurface drainage resulting in swallow ponding during the wet-season. Vernal pools support distinct vegetation adapted to periodic or continuous inundation during the wet season, and the absence of either ponded water or wet soil during the dry season.

Vernal pools are considered sensitive natural communities by USFWS and CDFW and their occurrences are tracked by CNDDB.

Vernal pools are lentic habitats which pond water rather than conveying it (lotic) such as swales, ditches, and ephemeral drainages. The adjective "vernal" refers to its occurrence in the spring". However, the term "vernal" is used in this report to denote the presence of two or more vernal habitat indicator plants (*Downingia* ssp., *Lasthenia* ssp., *Eryngium* ssp., *Plagiobothrys* ssp., *Psilocarpus* ssp., etc.). In contrast, the term "seasonal" refers to those wetlands that are seasonally inundated but do not support the presence of two or more vernal habitat indicator plants.

Vernal pools occurring onsite support plant species typical of a combination of the Santa Rosa Region and the Solano-Colusa Region (Keeler-Wolf et al. 1998). Vernal pool basins are dominated by small stipitate popcorn flower (*Plagiobotrys stipitatus var. micranthus)* and annual semaphoregrass (*Pleuropogon californicus*). Other subdominant species included: water pygmy-weed (*Crassula aquatica*), common spike rush (*Eleocharis macrostachya*), smooth goldfields (*Lasthenia glaberrima*), Jepson's button celery (*Eryngium aristulatum* var. *aristulatum*), and hyssop loosestrife (*Lythrum hyssopifolia*).

Other plant species which occur to a lesser extent onsite include: water-starwort (*Callitriche marginata*), Italian ryegrass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), toad rush (*Juncus bufonius*), and annual blue grass (*Poa annua*).

Seasonal Pool. Seasonal pools are shallow to deep topographic depressions underlain by soils with slow water permeability that promote ponding or soil saturation during the wet season. It is presumed that most of the seasonal pools onsite were historically vernal pools that have had their hydroregimes altered (either increased or decreased) due to human activities (e.g., disking, draining, ground water pumping, irrigation runoff, etc.).

The vegetation within seasonal pools is similar to vernal pools described above, except they lack the presence of two or more vernal habitat plant indicators. Seasonal wetlands support a number of plant species adapted to periodic inundation during the growing season. Typical seasonal wetland plant species include Italian ryegrass (*Festuca perennis*), rabbit's foot grass (*Polypogon monspeliensis*), ditch beard grass (*Polypogon interruptus*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex cripus*), Baltic rush (*Juncus balticus* ssp. *ater*), Mediterranean barley

(*Hordeum marinum* ssp. *gussoneanum*), toad rush (*Juncus bufonius var. bufonius*), and umbrella sedge (*Cyperus eragrostis*).

***Swale*.** Swales are broad, shallow (< 1 ft deep), seasonally inundated areas that primarily convey water during and shortly after rain events. Surface runoff collects in swales, wetting and saturating the soil for short periods. Swales are typically vegetated and have poorly defined channels that lack a distinct bed and bank characterizing the ephemeral drainage habitats described below.

Swale vegetation is a transitional community that is wetter than the surrounding annual grassland but drier than the ephemeral drainages. Similar to pool habitats, there are two types of swales onsite depending on the presence or absence of vernal habitat plant indicators. Vernal swales have plant compositions similar to vernal pools. Whereas season swales have plant species compositions more similar to seasonal pools. The major difference between swales and pools is the hydrologic regime. Swales generally convey water whereas pools pond it.

***Ephemeral Drainage*.** The ephemeral drainage habitat onsite are characterized by broad (> 5 feet in width) and deep (1-3 feet in depth) channels with well-defined beds and banks. Their bottoms are smoothly concave in cross-section (no sharp edges), with a fairly sharp and steep bank near the existing grade. This habitat receives hydrologic inputs from swale and ditch habitats as well as overland flow.

Large portions of this habitat have been lost or converted to ditch and swale habitat from ditching and disking, respectively. The ephemeral drainage habitat is most defined at the northwest corner of the site where the historic meanders of the South Fork of Fagan Slough (see Historic Condition section above).

The ephemeral drainages onsite are dominated by plants species associate with emergent marsh habitat which are characterized by a predominance of perennial monocots (a subclass of herbaceous seed plants with a single stem/leaf structure) that grow in permanently or semi-permanently flooded (or saturated) soils that emerge from the water. The plants associated with this habitat include Baltic rush (*Juncus balticus* ssp. *ater*), Mexican rush (*J. mexicanus*), common spike rush (*Eleocharis macrostachya*), and umbrella sedge (*Cyperus eragrostis*). Some of the deeper areas are dominated entirely by Bermuda grass (*Cynodon dactylon*) with patches of broadleaf cattail *(Typha latifolia),*

***Ditch*.** Ditch habitats onsite are human excavated channels for the purposes of surface water conveyance offsite. These habitats are general “V” or “U” shaped in cross-section and are 1-3 feet wide and general 1-2 feet in depth. The smaller ditches generally occur in the southern portion of the Project and are oriented in a north-south direction, thus draining the larger wetlands and terminating into the west-east orientated larger ditches, ephemeral drainages, or

swales located in the northern portion of the Project. The larger ditches flow surface water from the east to the west.

Vegetation within the ditch habitat is dependent on the hydrologic regime. The larger deeper ditches have similar vegetation composition to the ephemeral drainage habitat onsite. Similarly, the small and medium size ditches have vegetation similar to the annual grassland and swale habitats, respectively.

SPECIAL-STATUS PLANTS

The search of the CNNDB and CNPS On-line Inventory of Rare and Endangered Plants did not reveal any special-plant species occurring onsite (CNPS 2021). However, 37 special-status plants are known to occur within a 10-mile radius of the Project (Figure 4). However, of these 37 plants only 23 were associated with habitats that are known to occur onsite (Appendix A). The remaining 14 plants were not considered to have potential to occur onsite since they inhabit plant communities (i.e., chaparral, cismontane woodland, coastal brackish or saltwater marsh and swamps, coastal scrub, coast bluff shrub, and lower montane coniferous forest) that are not present onsite.

No special-status plant species were observed onsite. In general, most of the plants listed in Appendix A are not likely to occur onsite. Only a few have low potential for future occurrence. A list of all vascular plant species observed onsite during field surveys is included in Appendix B. Representative photographs of habitat onsite are included in Appendix C.

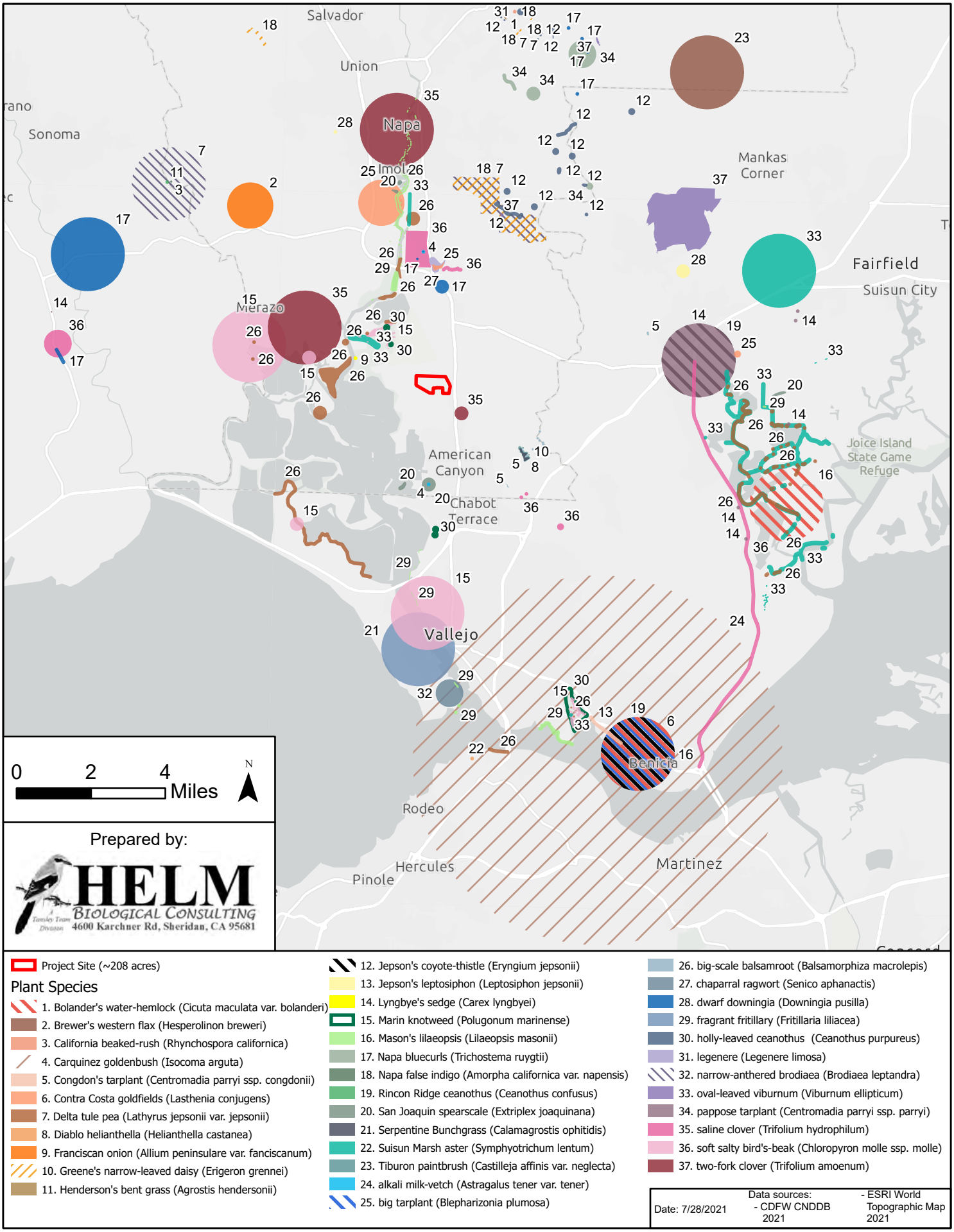


Figure 4. Known Special-Status Plant Species Locations within the Vicinity of the Giovannoni Logistics Center Project

DISCUSSION

Although the low rainfall of 2020/2021 within the vicinity of the Project (UCIPM 2021) may have influenced the potential presence of special-status plant species onsite, our results are similar to those of Monk & Associates, Inc. (2018) who conducted special-status plant surveys during March through July 2016. Because two years of special-status plant surveys with negative results have been conducted onsite within a five-year period, impacts to special status-plants would not be expected from Project implementation.

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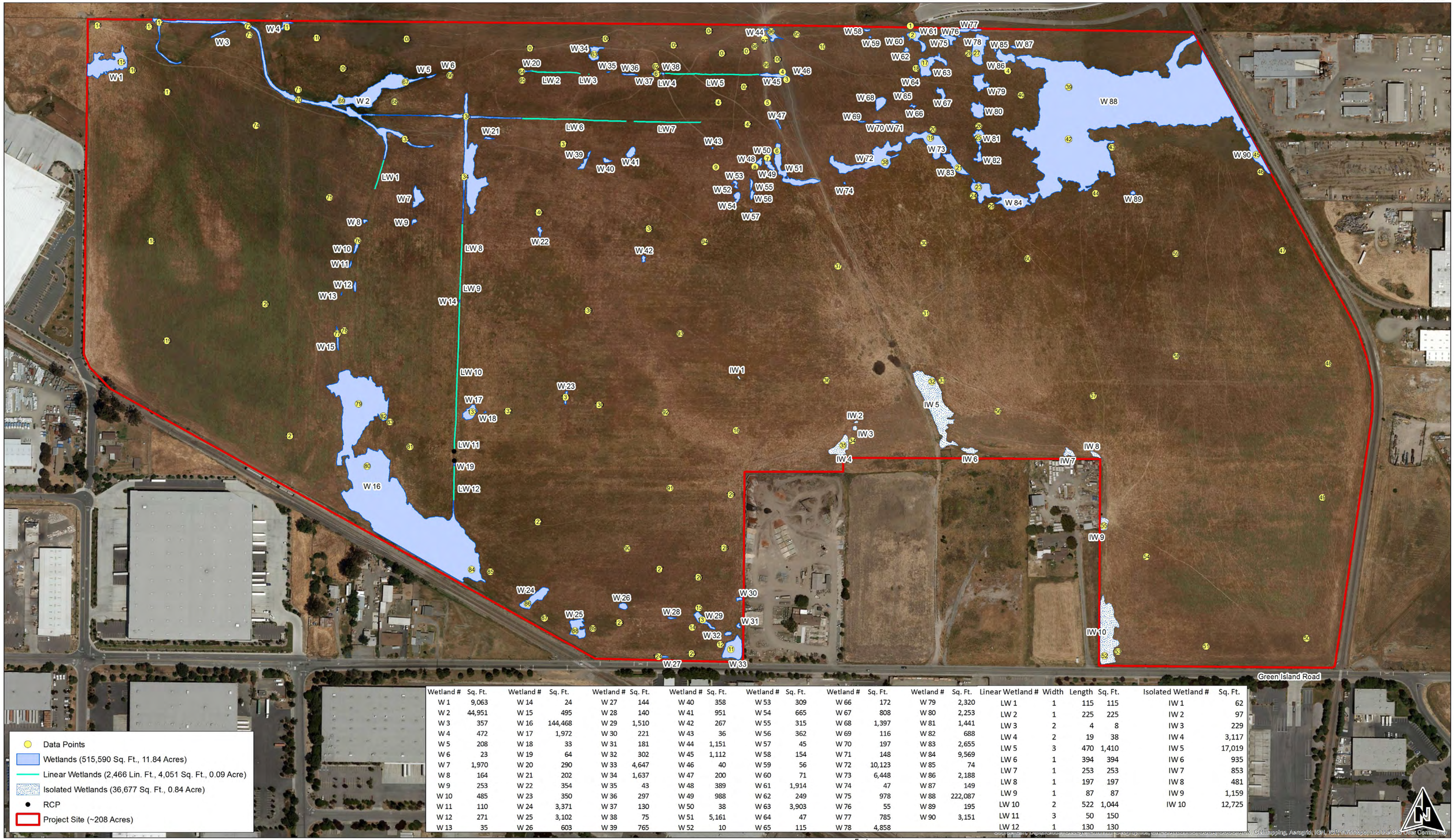
EXHIBIT A.
AQUATIC RESOURCE DELINEATION MAP



Data Points
Wetlands (515,590 Sq. Ft., 11.84 Acres)
Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
Isolated Wetlands (36,677 Sq. Ft., 0.84 Acre)
RCP
Project Site (~208 Acres)

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Linear Wetland #	Width	Length	Sq. Ft.
LW 1	1	115	115
LW 2	1	225	225
LW 3	2	4	8
LW 4	2	19	38
LW 5	3	470	1,410
LW 6	1	394	394
LW 7	1	253	253
LW 8	1	197	197
LW 9	1	87	87
LW 10	2	522	1,044
LW 11	3	50	150
LW 12	1	130	130

Isolated Wetland #	Sq. Ft.
IW 1	62
IW 2	97
IW 3	229
IW 4	3,117
IW 5	17,019
IW 6	935
IW 7	853
IW 8	481
IW 9	1,159
IW 10	12,725

0 100 200 400 600 800 1,000 Feet

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Sheet 1. Confirmed Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Scale: 1 inch = 200 feet
Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Confirmation Date: September 26, 2016
Map Confirmed by Daniel Breen, Corps
Map Preparation Date: October 25, 2016

APPENDIX A.
SPECIAL-STATUS PLANT SPECIES ORIGINALLY TARGETED FOR SURVEYS AT THE GIOVANNONI LOGISTICS CENTER PROJECT

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Giovannoni Logistics Center Project

Scientific Name	Common Name	Plant Family	Lifeform	Blooming Period	Special-Status Listings and Ranks					General Habitat	Occurrence at the Project Site
					Fed List	State List	Global Rank	State Rank	Ca Rare Plant Rank		
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2	Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Allium peninsulare var. francisc anum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr) May-Jun	None	None	G5T2	S2	1B.2	Clay soils (volcanic or serpentine) in Cismontane woodland, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. Although clay soils (Clear Lake) occur onsite, this species is general associated with volcanic or serpentine derived soils which are not present onsite.
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Playas, Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species. No Astragalus species were observed onsite. This species generally occurs in alkaline soils which are not present onsite.
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. No Balsamorhiza species were observed onsite. This species is perennial and would have been present and visible during surveys.
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul	None	None	G3?	S3?	1B.2	Broad-leafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species.
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2	Marshes and swamps	**Not Present.** Protocol surveys were negative for this species. No Carex species were observed onsite. This species is perennial and would have been present and visible during surveys.
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	FE	ST	G4G5T1 T2	S1S2	1B.2	Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. This species has a very limited distribution and is associated with serpentine soils which are not present onsite.
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct (Nov)	None	None	G3T1T2	S1S2	1B.1	Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Chaparral, Coastal prairie, Marshes and swamps, Meadows and seeps, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Giovannoni Logistics Center Project

Scientific Name	Common Name	Plant Family	Lifeform	Blooming Period	Special-Status Listings and Ranks					General Habitat	Occurrence at the Project Site
					Fed List	State List	Global Rank	State Rank	Ca Rare Plant Rank		
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. No Extriplex species were observed onsite. This species generally occurs in alkaline soils which are not present onsite.
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species.
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. No Isocoma species were observed onsite. This species is a perennial shrub and would have been visible during surveys, if present.
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Vernal pools within Cismontane woodland, Playas, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul (Aug-Sep)	None	None	G5T2	S2	1B.2	Marshes and swamps	**Not Present.** Protocol surveys were negative for this species. Note: This species is generally associated with tidal influenced perremial waterways. This species was present and highly visible at the chosen Reference Site. Therefore, this species would have been observed onsite, if present.
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Vernal pools	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	None	None	G2G3	S2S3	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species.

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Giovannoni Logistics Center Project

Scientific Name	Common Name	Plant Family	Lifeform	Blooming Period	Special-Status Listings and Ranks					General Habitat	Occurrence at the Project Site
					Fed List	State List	Global Rank	State Rank	Ca Rare Plant Rank		
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	SR	G2	S2	1B.1	Mudflats within marshes and swamps, Riparian scrub	**Not Present.** Protocol surveys were negative for this species. Note: This species is generally associated with tidal influenced perremial waterways. This species was present and highly visible at the chosen Reference Site. Therefore, this species would have been observed onsite, if present.
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr) May-Nov	None	None	G2	S2	1B.2	Marshes and swamps	**Not Present.** Protocol surveys were negative for this species. Note: This species is generally associated with tidal influenced perremial waterways.
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	Jun-Oct	None	None	G1G2	S1S2	1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species.
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Coastal bluff scrub, Valley and foothill grassland	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Marshes and swamps, Valley and foothill grassland, Vernal pools	**Not Present.** Protocol surveys were negative for this species. Note: This species is wetland dependent and its presence could be affected by the below annual rainfall that occurred in 2020/2021 wet-season.

Federal	Definition
FE	Federally Endangered (listed as Endangered under Federal Endangered Species Act [ESA])

State	Definition
SR	Listed as rare under California Endangered Species Act (CESA)
ST	Listed as threatened under the CESA

Global Rank	Definition
G1	Critically Imperiled — At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2	Imperiled — At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3	Vulnerable — At moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G5	Secure — Common; widespread and abundant.
GU	Unrankable — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.
G#G#	Range Rank — A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty about the exact status of a taxon or community.
G#T#	Infraspecific Taxon — The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' Global Rank. Rules for assigning T-ranks follow the same principles as those for Global Ranks. However, a T-rank cannot imply the subspecies or variety is more abundant than the species. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.
?	Qualifier: Inexact Numeric Rank — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.
Q	Qualifier: Questionable Taxonomy — The distinctiveness of this entity as a taxon or community at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Giovannoni Logistics Center Project

Scientific Name	Common Name	Plant Family	Lifeform	Blooming Period	Special-Status Listings and Ranks					General Habitat	Occurrence at the Project Site
					Fed List	State List	Global Rank	State Rank	Ca Rare Plant Rank		

State Rank	Description
S1	Critically Imperiled — Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
S2	Imperiled — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.
S3	Vulnerable — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S#S#	Range Rank — A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community.
?	Qualifier: Inexact or Uncertain — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

APPENDIX B.
LIST OF ALL VASCULAR PLANT SPECIES OBSERVED

List of Vascular Plants Observed in the Project	
Scientific Name	**Common Name**
*Amaranthus albus**	Pigweed amaranth
*Anthemis cotula**	Mayweed
*Avena barbata**	Slender oats
Baccharis pilularis	Coyote brush
*Brassica rapa**	Field mustard
*Briza minor**	Little qauking grass
*Bromus diandrus**	Ripgut grass
*Bromus hordeaceus**	Soft brome
Callitriche marginata	California water starwort
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle
*Centaurea solstitialis**	Yellow star-thistle
Centromadia pungens	Common spikeweed
*Cerastium glomeratum**	Mouse-ear chick-weed
*Chichorium intybus**	Chicory
*Cirsium vulgare**	Bull thistle
Claytonia perfoliata ssp. perfoliata	Minor's lettuce
*Convulvulus arvensis**	Field bindweed
*Cotula coronopifolia**	Brass buttons
Crassula aquatica	Water pygmy-weed
Croton setigerus	Turkey-mullein
*Crypsis schoenoides**	Swampgrass, swamp timothy
*Cynara cardunculus**	Artichoke thistle
*Cynodon dactylon**	Bermuda grass
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Common spike rush
*Elymus caput-medusae **	Medusa-head grass
Elymus triticoides	Beardless wild rye
Epilobium branchycarpum	Tall annual willow herb
Epilobium ciliatum	Slender willow herb
Erigeron canadensis	Canadian horseweed
*Erodium botrys**	Broadleaf filaree
*Erodium cicutarium**	Red-stem filaree
*Erodium mochatum**	White-stem filaree
Eryngium aristulatum var. aristulatum	Jepson's button celery
*Euphorbia oblongata**	Eggleaf spurge
*Euphorbia oblongata**	Egg leaf spurge
*Festuca arundinacea**	Tall festuca
*Festuca bromoides**	Six-weeks grass
*Festuca perennis**	Italian ryegrass
*Foeniculum vulgare**	Fennel
Fraxinus latifolia	Oregon ash
Galium aparine	Bedstraw

List of Vascular Plants Observed in the Project	
Scientific Name	**Common Name**
*Geranium dissectum**	Cut-leave geranium
*Glyceria declinata**	Waxy manna grass
Gnaphalium palustre	Lowland cudweed
*Helminthotheca echioides**	Prickly ox-tounge
Hemizonia congesta ssp. *luzulifolia*	White hayfield tarweed
*Hirschfeldia incana**	Short-pod mustard
Hordeum brachyantherum ssp. *branchyantherum*	Meadow barley
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley
Hordeum murinum ssp. *leporinum**	Hare barley
Juncus balticus ssp. *ater*	Baltic rush
Juncus bufonius var. *bufonius*	Toad rush
Juncus mexicanus	Mexican rush
*Lactuca serriola**	Prickly wild lettuce
Lasthenia glaberrima	Smooth goldfields
Leontodon saxitilis ssp. *longirostris**	Hairy hawkbit
*Lepidium latifolium**	Perrenial peppergrass
Leymus triticoides	Creeping wildrye
*Lotus corniculatus**	Birds' foot trefoil
Lysimachia arvensis	Scarlet pipernel
*Lythrum hyssopifolia**	Hyssop loosestrife
*Malva parviflora**	Cheeseweed
*Paspalum dilatatum**	Dallis grass
Peridérida kelloggii	Kellogg's yampah
*Phalaris aquatica**	Harding grass
*Phalaris minor**	Little seed canarygrass
*Phalaris paradoxa**	Hood canarygrass
Plagiobothrys stipitatus var. stipitatus	Popcorn flower
*Plantago lanceolata**	Narrow leaf plantain
Pleuropogon californicus var. *californicus*	Annual semaphoregrass
*Poa annua**	Annual bluegrass
*Polygonum aviculare**	Common knotweed
*Polypogon interruptus**	Ditch beard grass
*Polypogon monspeliensis**	Rabbit's footgrass
*Pseudognaphalium luteoalbum**	Jersey cudweed
Psilocarphus brevissimus var. *brevissimus*	Woolly marbles
*Ranunculus muricatus**	Spiny-fruit butter cup
*Raphanus raphanistrum**	Jointed charlock
*Raphanus sativa**	Wild mustard
*Rubus armeniacus**	Himalayan berry
*Rumex acetosella**	Sheep sorrel
*Rumex crispus**	Curly dock
*Rumex pulcher**	Fiddle dock

List of Vascular Plants Observed in the Project	
Scientific Name	**Common Name**
*Salsola tragus**	Russian tumbleweed
*Senecio vulgaris**	Common groundsel
Sisyrinchium bellum	Western blue-eyed grass
Sonchus asper ssp. *asper**	Prickly sow thistle
*Sonchus oleraceus**	Common sow thistle
*Stellaria media**	Common chick-weed
*Trifolium dubium**	Shamrock clover
*Trifolium hirtum**	Rose clover
*Trifolium subterraneum**	Subterranean clover
Triglochin scilloides	Flowering quillwort
Triphysaria versicolor ssp. *faucibarbata*	Yellow owl's clover
*Typha angustifolia**	Narrow leaf cattail
*Veronica anagalis-aquatica**	Water speedwell
Veronica peregrina spp. *xalapensis*	Purslane speedwell
Vicia villosa ssp. *villosa**	Winter vetch
Xanthium strumarium	Cocklebur
Zeltnera muehlenbergii	Muehlenberg's centaury

* = non native

APPENDIX C.
REPRESENTATIVE PHOTOGRAPHS

Emergent marsh habitat within the northeastern corner of wetland W88. Taken facing east on May 4, 2021.

Bermuda grass (*Cynodon dactylon*) dominated area within northeastern edge of wetland W88. Taken facing east on May 4, 2021.

Bermuda grass (*Cynodon dactylon*) dominated areas (grayish color) within wetland W88. Taken facing west on May 4, 2021.

Grass and thatch dominating the non-wetland portions of the site. Taken facing north from wetland IW 1 on May 4, 2021.

Emergent marsh habitat within eastern edge of wetland W90. Taken facing east on May 4, 2021.

The north end of Wetland W3 before going off site and under the newly constructed bridge.

Wetland W3. Taken facing west from west end of Wetland W2 on April 7, 2021.

Emergent marsh habitat within eastern edge of wetland W90. Taken facing north on April 7, 2021.

Wetland W3 close up. Taken facing west from west on April 7, 2021.