

Appendix C Biological Resources

**Part 1: Proposed Project
Part 2: Reduced Footprint
Alternative**

DRAFT BIOLOGICAL RESOURCES REPORT
HIGHWAY 12 LOGISTICS CENTER
SUISUN CITY, SOLANO COUNTY, CALIFORNIA
(Amended August 2023)



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This report should be cited as: Huffman-Broadway Group, Inc. 2023. *Biological Resources Report, Highway 12 Logistics Center, Suisun City, Solano County, California (Amended August 2023)*. San Rafael, California. 115 pp. plus attachments. Prepared for Buzz Oates Construction, Inc., Sacramento, California. August.

1.0 INTRODUCTION

On behalf of Buzz Oates Construction, Inc., Huffman-Broadway Group, Inc. (HBG) has prepared a Biological Resources Report for the Highway 12 Logistics Center Project in the City of Suisun City and Solano County, California dated August 2023¹. The project site consists of 486.64 acres of land, 3.7 acres of roads, 2.1 acres of a railroad parcel, and 5 acres of a privately owned parcel for a total project site of approximately 497.44-acre area mostly located in unincorporated Solano County, California, west of the City of Suisun City (Suisun City). An approximately 4.54-acre parcel in the northwest portion of the project site lies within the City of Suisun City limits, and the remainder of the project site is located west of the existing City limits. The northern portion of the project site, north of the California Northern Railroad tracks, is within the City of Suisun City Sphere of Influence (SOI).

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 approximately 1.28 million square feet of building space on approximately 93.40 acres of land area (the development area) and permanently preserve approximately 393.24 acres of open space (the Managed Open Space). The development area of the site would encompass three separate areas, Planning Area 1, 2 and 3, and consist of seven buildings. The project also proposes to annex and pre-zone approximately 161.2 acres of the approximately 497.44-acre project site into the City of Suisun City. As part of the project, and included in the assessment of this Biological Resource Report, improvements will be made to portions of Pennsylvania Avenue and Cordelia Road, a railroad spur will extend from the Union Pacific Railroad to portions of the Development Site, a stormwater discharge pipe with concrete wingwalls and rip-rap will extend from a stormwater detention basin onto the perennial brackish marsh slough channel adjacent to the development portion of the site on the east side of Pennsylvania Avenue, and mitigation in the form of establishing/creating wetlands will occur within the Managed Open Space.

The objective of this biological evaluation is to provide a determination of the potential for the 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 project site 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.

¹ This Biological Resources Report dated August 2023 has been amended with updated information and supersedes the previous Biological Resources Report dated April 2023.

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 project site. A Biological Resources Report was prepared by HBG in January of 2006 on this project site for the proposed Gentry-Suisun Project that included annexation of approximately 161.2 acres from Solano County into the City of Suisun City and the subdivision and development of a mixed-use project on approximately 93.40 acres. This biological report incorporated technical studies prepared by other consultants including a wetland delineation prepared by Vollmar Consulting in 2003 as well as protocol special status plant surveys conducted by Vollmar Consulting in 2000, 2001, 2002, 2003, and 2005. Other technical biological reports prepared for the 2006 HBG Biological Report included a protocol wet season survey for federally listed vernal pool brachiopods conducted by Dr. Brent Helm (then of May Consulting Services) in 2000, and dry season surveys by Dr. Helm of Helm Biological Consulting in 2002 and again by Dr. Helm of Area West Environmental in 2005. The surveys by May Consulting Services in 2000 included dip-netting larval surveys for federally listed California tiger salamander (CTS). Vollmar Consulting also conducted a sein net survey for CTS in 2006 and CTS Upland Habitat Assessment in 2007. The site was also reviewed for the potential presence of valley elderberry longhorn beetle and Delta green ground beetle. The proposed Gentry-Suisun Project was not implemented.

This new Biological Resources Report includes a revised and updated wetland delineation conducted and rare plant surveys conducted by HBG in 2021 and Helm Biological Consulting who completed a second year of rare plant surveys during the spring and summer of 2022. Recent studies also include both dry and wet season surveys for listed brachiopod species by Helm Biological Consulting in 2020 and 2021. In addition, recent work by HBG also included an updated review of the California Natural Diversity Data Base (CNDDB) and additional reconnaissance-level surveys in 2020, 2021, and 2022 to check for potential habitat or presence of other special-status invertebrates, amphibians, mammals, and birds.

2.0 PROPOSED PROJECT

2.1 Project Location

The project site consists of 492.29 acres in unincorporated Solano County and 4.54 acres in Suisun City for a total of approximately 497.44 acres. Suisun City is in central Solano County on the Suisun Channel, which connects with Suisun and Grizzly bays and links the City with the Sacramento River and San Francisco Bay. The portion of the project site north of the California Northern Railroad tracks, is within the City of Suisun City Sphere of Influence.

The 497.44-acre project site is bounded to the east by the Union Pacific Railroad, to the north by State Highway 12, and to the west by Ledgewood Creek in the northern portion of the site and Orehr Road in the southern portion of the project site. Suisun Marsh is south of the project site, and marshland associated with Suisun Marsh occurs in southern portions of the project area. The latitude and longitude of the center of the project site is at approximately 38.235321 N and -122.052096 W. The project site encompasses portions of the U.S. Geological Survey (USGS) 7.5-minute Fairfield North and Fairfield South quadrangles.

The California Northern Railroad is oriented west to east, horizontally dividing the project area and meeting with the Union Pacific Railroad tracks at the western perimeter of the project site. Pennsylvania Avenue is located in the northern portion of the project site, extending from the California Northern Railroad past State Highway 12.

A regional location map for the project site is shown in Figure 1. Figure 2 shows the location of the project site on the Fairfield North and Fairfield South, California, USGS 7.5-minute topographic quadrangles and an aerial image of the project site shown in Figure 3.

2.2 Nature of Project Site and Surrounding Area

The project site is mostly within unincorporated Solano County. The Solano County General Plan designates the portion of the project site north of the California Northern Railroad as Urban Industrial. The southern portion of the project site is designated Public/Quasi-Public with a Resource Conservation Overlay. The Solano County Zoning Ordinance zoning for the northern portion of the site is “Exclusive Agriculture 40 Acres” and the northern portion is zoned as “Marsh Preservation”. The Suisun City General Plan designates the areas of the project site west of Pennsylvania Avenue and north of the California Northern Railroad line as Commercial Mixed Use and the remainder is designated as Agriculture and Managed Open Space.

Proposed Development Area of the Project Site (Planning Areas 1, 2, and 3) north of Cordelia Street consist of nearly level grazed upland annual grasslands, seasonally saturated annual grasslands, vernal pool, and alkali seasonal wetland. The upland annual grasslands and seasonally saturated annual grasslands are dominated by introduced annual grass species. Within Planning Area 1 there is one a vernal pool that covers approximately 8 acres. The vernal pool appears to have formed or was enhanced due to the construction of a berm along Pennsylvania Avenue and partially blocked culverts. The alkali seasonal wetlands are dominated by halophytes such as brass buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed (*Salicornia pacifica*). Elevation within the site ranges from 5 to 10 feet msl.

Planning Area 3, the proposed annexation area east of Pennsylvania Avenue, consists of approximately 10.71 acres of the 54.1-acre Accessor Parcel Number (APN) 003-020-100. The remaining approximately 43.39 acres of the APN will be incorporated into the Managed Open Space area. Within Planning Area 3, there are upland annual grasslands, alkali seasonal wetlands, one vernal pool that covers approximately 6 acres, and a perennial brackish marsh. Planning Area 3 is grazed and supports annual grasslands dominated by introduced annual grass species. The vernal pool appears to have been formed or enhanced by the construction of a berm along the channelized perennial brackish marsh abutting the eastern boundary and an elevated landfill abutting the northern boundary. The alkali seasonal wetlands and vernal pool are dominated by halophytes such as brass buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed (*Salicornia pacifica*).

The southern portion of the project site is within the Primary Management Area of the Suisun Marsh Protection Plan and a small portion of the southwestern extremity of the project site is within the Secondary Management Area of the Suisun Marsh Protection Plan. All portions of the project site that are in the Primary Management Area and Secondary Management Area of the Suisun Marsh Protection Plan south and southeast of Cordelia Road and Cordelia Street are proposed for Managed Open Space that will be preserved in perpetuity using a deed restriction or conservation easement as a part of the project. No commercial development is proposed in this area.

The project site is currently comprised of agricultural grazing land and undeveloped open space. Cattle graze throughout the entire project site.

Located near the center of the project site, but not within the project site, are two commercial businesses operating near the intersection of Pennsylvania Avenue and the California Northern Railroad: (1) J&T Towing, located at 1001 South Pennsylvania Avenue, consists of a towing company, and (2) Nor Cal Concrete, a concrete contractor, that is immediately south of J&T Towing. An approximately 5-acre parcel (APN 0032-020-040) east of Pennsylvania Avenue and adjacent to the project site, is fenced off and consists of a former landfill.

The City of Fairfield southern city limit is on the opposite side of State Route 12, north of the project site. Existing uses in this portion of Fairfield include single-family residences, offices, and

light industrial uses. East of the Union Pacific Railroad tracks that are adjacent to the northeastern perimeter of the project site is Downtown Suisun City and the Suisun City waterfront, which is developed with a variety of commercial, residential, assembly, repair, and retail land uses. Undeveloped land to the southeastern perimeter includes the Peytonia Slough Ecological Reserve and along the southern perimeter is a managed duck club. To the west of the project site, across Ledgewood Creek, are industrial warehouse and office uses.

2.3 Project Objectives

Suisun City has identified Project Objectives to guide planning for the project site:

- Further the goals and policies of the City of Suisun City General Plan by developing land contemplated to support urban development.
- Promote economic growth through new capital investment, expansion of the tax base, and creation of new employment opportunities.
- Improve the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas.
- Capitalize on the existing Interstate 80 and State Highway 12 transportation corridor, the existing rail facilities that can provide direct rail service unique to this logistics market area, and the increased demand for warehouse and distribution services in the City and region.
- Create a master planned complex of buildings to accommodate the current and future need for warehouse and distribution uses in an economically viable project with coordinated infrastructure and landscaping.
- Create opportunities to generate jobs and attract new employment – creating industries in Suisun City that generate new tax revenue and minimize demands on City services.
- Continue the orderly development of the western gateway of Suisun City and provide a visual environment that gives visitors an immediate positive first impression of Suisun City with attractive building facades and landscaping.
- Preserve and manage areas of the project site with concentrations of wetlands and other sensitive habitat for permanent Managed Open Space to mitigate impacts and further regional habitat and species preservation goals.
- Implement a range of sustainability measures aimed at conserving resources, decreasing energy and water consumption, and reducing air and water pollution.
- Install circulation improvements along Pennsylvania Avenue and Cordelia Road that provide efficient ingress and egress to the proposed project, while also ensuring these facilities operate at acceptable levels.

- Design internal circulation to provide efficient ingress and egress while ensuring facilities operate at acceptable levels.
- Offer a project with the scale, location, amenities, and sustainability features necessary to create competitive advantages in attracting and retaining a variety of reputable warehousing and logistics users.

2.4 Project Description

2.4.1 Proposed Land Use

2.4.1.1 Annexation and General Plan Amendment

The project proposes to annex and pre-zone 161.23 acres of the approximately 497.44-acre project site into the City of Suisun City, as shown in Figure 4. The proposed development area, as described below in Section 2.4.1.2, would be on approximately 93.40 acres within this annexation area. The remaining 35.52 acres of parcel 0032-020-100 and 21.51 acres of parcel 0032-020-140 would be part of the Managed Open Space. The remaining acreage not proposed for annexation is outside the City’s SOI, is not proposed for any SOI change or annexation, and will serve as Managed Open Space within the unincorporated area of the County.

| Table 1. Annexation Areas | |
|---------------------------------------|----------------|
| Parcel APN | Acreage |
| 0032-010-390 | 69.55 |
| 0032-020-100 | 46.23 |
| 0032-020-140 | 21.51 |
| 0032-190-160 & 0032-190-260 | 13.14 |
| Pennsylvania Avenue, Cordelia Road | 3.7 |
| Railroad Parcel | 2.1 |
| Privately Owned Parcel | 5.0 |
| Total Acreage | 161.23 |

The proposed General Plan land use designations for the project site include Commercial Mixed Use for the proposed development area and Agriculture and Open Space for the proposed Managed Open Space conservation area. The area of the project site proposed for development is proposed for the Commercial Mixed Use General Plan land use designation, would be pre-zoned as Commercial Services and Fabricating (CSF) as part of the annexation process. The project will require an amendment to the City’s General Plan Land Use Diagram so that the proposed development and conservation areas are consistent with the General Plan’s Commercial Mixed Use and Open Space land use designations.

2.4.1.2 Proposed Development

The proposed project Development Site is bounded by State Route 12 to the north, Pennsylvania Avenue to the east, Cordelia Road to the south, and Ledgewood Creek to the west. The project proposes development of approximately 1.28 million square feet of building space on approximately 93.40 acres of land area and approximately 393.24 acres of permanently preserved Managed Open Space. As part of the project development, improvements will be made to portions of Pennsylvania Avenue and Cordelia Road and a railroad spur will extend from the Union Pacific Railroad to Planning Area 1. The development area would encompass three separate Planning Areas and consist of seven buildings, as summarized in Table 2 and Table 3. The location of the development Planning Areas are shown in Figure 17 in Section 5.2.5, which also shows the proposed conceptual wetland mitigation plan. Planning Area 1, consisting of 69.55 acres, would be bounded by the California Northern Railroad tracks to the south and Pennsylvania Avenue to the west. Planning Area 2, totaling 13.14 acres, would be bounded by Cordelia Road to the south and southwest and by the Union Pacific Railroad tracks to the north. Planning Area 3, 10.71 acres, would be east of Pennsylvania Avenue, somewhat centrally located along the eastern perimeter of Planning Area 1.

| Table 2. Development Site Planning Areas | | |
|---|----------------------------|-----------------------------|
| Planning Area | Acreage² | Associated Buildings |
| 1 | 69.55 | A, B/C, D, E |
| 2 | 13.14 | F |
| 3 | 10.71 | G |
| Total Development Area | 93.40 | A through G |

| Table 3. Development Site Buildings and Parking | | |
|--|--------------------------------|-----------------------|
| Proposed Buildings | Building Square Footage | Parking Stalls |
| A | 152,305 | 416 |
| B/C | 710,489 | 771 |
| D | 56,880 | 183 |
| E | 56,880 | 197 |
| F | 172,380 | 269 |
| G | 127,303 | 188 |
| All Proposed Buildings | 1,276,237 | 2,024 |

2.4.1.3 Managed Open Space

In total, 393.24 acres would be proposed for Managed Open Space for environmental mitigation and conservation purposes: 4.54 acres currently in the City of Suisun City, 57.03

² Acreages reflected in Table 2 are the parcels controlled by the applicant and do not include roadways.

acres in the proposed annexation area, and 331.67 acres that would remain in the unincorporated County.

| Table 4. Managed Open Space Parcels & Acreage | | | |
|--|-------------------------------|-----------------------------------|--------------------|
| APN | Latitude and Longitude | Section Township Range | Acreage |
| 0032-020-160 | 38.242142; -122.042786 | Section 35, Township 5N, Range 2W | 4.54 ³ |
| 0032-020-100 | 38.238951; -122.0425780 | | 35.52 ⁴ |
| 0032-020-140 | 38.240581; -122.047591 | | 21.51 ⁵ |
| 0032-190-190 | 38.232773; -122.053062 | | 136.66 |
| 0032-190-180 | 38.231161; -122.057803 | | 10.87 ⁶ |
| 0032-190-170 | 38.230872; -122.060749 | | 25.80 |
| 0032-190-200 | 38.229500; -122.056264 | | 0.7 |
| 0046-910-280 | 38.229950; -122.063802 | | 8.6 |
| 0046-010-390 | 38.227957; -122.054964 | | 149.04. |
| Total Managed Open Space | | | 393.24 |

The Managed Open Space would be managed consistent with the USFWS and CDFW permit requirements and in accordance with any required permit conditions imposed by the US Army Corps of Engineers in accordance with the 2008 Compensatory Mitigation for the Loss of Aquatic Resources; Final Rule (33 CFR Parts 325 and 332; 40 CFR Part 230), *Subpart J – Compensatory Mitigation for Losses of Aquatic Resources* outlined in the State Water Resources Control Board “Procedures” and State Water Resources Control Board *Implementation Guidance* dated April 2020, and in accordance with San Francisco Bay Conservation Development Commission permit requirements.

The Managed Open Space would also be managed consistent with the Suisun Marsh Protection Plan. The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh wildlife habitats and to assure retention of upland

³ Currently located in the City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

⁴ To be annexed into the City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

⁵ To be annexed into City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

⁶ Title report identifies acreage at 10.87 acres, County APN data list parcel as 7.9 acres.

areas adjacent to the Marsh in uses compatible with its protection. Policies of the Suisun Marsh Protection Plan include activities that may conflict with the objectives but are seen as important if they are managed, such as increased public recreational uses, agriculture, and duck hunting. The Suisun Marsh Protection Plan public acquisition recommendations includes acquiring land within and adjacent to the marsh close to population centers “such as the Suisun City” to manage as wildlife habitat and provide refuge areas to protect wildfowl, especially during hunting season.

Approximately 61.57 acres of the 393.24 acre Managed Open Space is outside of the Suisun Marsh Protection Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge for wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67 acres are within the primary and secondary management areas of the Suisun Marsh.

The entire 393.24 acre Managed Open Space will be protected by a site protection instrument such as a deed restriction or conservation easement(s). Although the Suisun Marsh Protection Plan does provide protection from commercial and residential development and guidance on how lands should be preserved and enhanced, it encourages uses that may not be compatible with wildlife, such as recreation (fishing, boating, hunting etc.), and it does not provide funding to implement its policies/goals such as managing agricultural lands to support waterfowl or enhance wildlife habitat. A site protection instrument designed specifically to preserve and manage the land for wildlife habitat will provide the Managed Open Space with additional protections and funding to implement such protections. The site protection instrument will restrict use of the Managed Open Space area to offset the Project’s wetland impacts and impacts to rare plants and to manage the land as wildlife habitat with additional restrictions and funding the Suisun Marsh Protection Plan does not afford. The site protection instrument will restrict recreation, which can have adverse impacts on wildlife habitat, will provide a sanctuary for wildfowl during hunting season by excluding duck hunting and creating freshwater seasonal wetlands, provide funding to effectively manage, protect and enhance rare plants found onsite, provide funding to clean up trash blown onto the site or illegally dumped before it can enter the waterway, provide funding to minimize homeless encampments from establishing, and ensure current grazing practices are compatible with preserving and enhancing the wildlife habitat. The long-term endowment will be funded by the proposed project to manage the entire 393.24 acre Managed Open Space in perpetuity. The Managed Open Space will be planned and managed to offset impacts of on-site development, may serve as mitigation for other projects, and/or preserve and avoid impacts to covered species consistent with the City of Suisun City’s General Plan.

2.4.2 Supporting Infrastructure

2.4.2.1 Roadway and Circulation Improvements

Access to the development would be provided in four locations along Pennsylvania Avenue to both Planning Area 1 and Planning Area 3, and at three locations along Cordelia Road to

Planning Area 2. Approximately 2,024 parking stalls are anticipated to serve all six buildings, as detailed in Table 3, above.

Regional access to the site is primarily provided by State Route 12 via Pennsylvania Avenue. Pennsylvania Avenue and Cordelia Road provide local access. The proposed project will also improve Pennsylvania Avenue and Cordelia Road along the project frontages. The improvements include adding one continuous acceleration/deceleration lane in each direction for project driveway access and one center two-way left-turn lane on both sides of Pennsylvania Avenue south of State Route 12. On Cordelia Road, along the project frontage only, the project would also add an acceleration/deceleration lane for project driveway access and one center two-way left-turn lane. The two-way left-turn lane would open to a left-turn pocket for vehicles traveling on Cordelia Road to continue onto Pennsylvania Avenue at the Cordelia Street/Cordelia Road/Pennsylvania Avenue intersection.

The project site has direct access to an existing rail spur, and the project applicant will coordinate with the Southern Pacific Railroad, which merged with Union Pacific Railroad in 1996, regarding access to this existing railroad spur for proposed on-site uses.

2.4.2.2 Storm Drainage

A drainage master plan was prepared for the proposed project to provide infrastructure master plans and design standards for storm drain facilities within the project site. The Drainage Master Plan identifies the improvements necessary for development of the proposed project to satisfy the City of Suisun City's drainage design requirements and is shown in Figure 5.

Currently, the project site primarily drains to the southeast into Peytonia Slough, with the exception of the southern portion of the proposed development area south of Southern Pacific Railroad, which drains to LedgeWood Creek.

Three detention basins are proposed to reduce post-development storm runoff to pre-development levels or less. All stormwater runoff from impervious surfaces (roofs and paving) will be routed into landscape vegetated swales, bioretention planters, and other open areas for infiltration and treatment prior to discharge to the on-site detention basin. Due to topographical constraints of the project site, the construction of three new drainage pump stations will be required to service the eastern portion of the project site. The drainage pump stations shall be supplied with acceptable backup power and backup pumps. Inlet pipes to the detention basins are anticipated to be below the gravity discharge elevation and, therefore, a storm drain pump station will be installed at each detention basin location prior to discharge to the public main or existing drainage ditch/channel.

The proposed on-site detention basin volumes shall be based on the 100-year, 24-hour storm event with outflows restricted to 95 percent of pre-development flows or less. The proposed storm drainage system shall comply with the City of Suisun City's Design Standards for Drainage and Stormwater (City of Suisun City 1996). Where needed, the Solano County Water Agency

Hydrology Manual may also be used or stormwater modeling requirements. Low impact development (LID) stormwater quality treatment control measures and flood control measures will be implemented strategically throughout the project site to ensure stormwater runoff is captured, stored, and treated on-site, thereby resulting in cleaner and more controlled discharge to the receiving bodies of water. LID measures, such as disconnected roof drains and pavement, will be considered during the detailed design phase. Treatment control measures, including bioretention facilities, will also be considered during detailed design phase.

2.4.2.3 Utilities and Service Systems

The proposed project would require installation of supporting underground utilities, including water, wastewater, electricity, natural gas, and telecommunications.

Water Supply and Distribution- Currently, there are no public water supply facilities within the project site. Water for the project would be supplied by Solano Irrigation District and alternative sources for water delivery are under examination, including via facilities owned by either the Suisun-Solano Water Authority or the City of Fairfield. The City of Fairfield has existing operational water transmission lines in Pennsylvania Avenue adjacent to the project site.

Wastewater Collection and Treatment-The project site is not currently within but is proposed to be annexed to the Fairfield-Suisun Sewer District. The proposed wastewater system includes the on-site private sewer pipe system, one on-site private pump station, and an off-site public combination force main and gravity line in Cordelia Road. The proposed on-site sewer system serving Planning Areas 1 and 2 would be designed using a gravity-fed system. The general pattern of sewer discharge will be from north to south. The sewer service from Planning Area 3 will be brought across Pennsylvania Avenue and combine with the Planning Area 1 sewer system via gravity line. The combined Planning Area 1 and 3 on-site sewer mains will then cross under the Union Pacific Railroad tracks and right-of-way and combine with the Planning Area 3 on-site sewer line until it reaches Cordelia Road at the southwest corner of Planning Area 2 frontage. At this location, an on-site private sewer pump station will be constructed to pump sewer flows via an off-site force main and gravity sewer line along Cordelia Road to the intersection with Beck Avenue, approximately 2,700 feet west, at which location the wastewater line will tie into the Fairfield-Suisun Sewer District facilities at an existing sanitary sewer manhole and 27-inch sewer main owned and operated by the Fairfield-Suisun Sewer District.

Solid Waste Collection- The City has an exclusive solid waste handling franchise agreement with the Solano Garbage Company. With annexation, the project site would be incorporated within the City's limits. The provision of solid waste handling services under the existing service agreement would then apply to the project site in the same manner it does currently for areas within the City's limits.

Electricity and Natural Gas- Electricity and natural gas service for the project site would be provided by PG&E. Service laterals would be extended to project buildings from existing facilities along Pennsylvania Avenue and Cordelia Road. On-site electrical transmission infrastructure and natural gas lines would be installed underground.

2.4.3 Construction

Construction of the development area is anticipated to begin in June 2024 and be phased in, subject to market conditions. Construction of an individual phase (e.g., Planning Area 1) is assumed to last for approximately 18 months, while full buildout is anticipated to be complete by 2026 at the soonest. Construction will typically occur 5 days per week, Monday through Friday, between the hours of 7 a.m. and 8 p.m. On-site construction activities will include site clearing, excavation and fill, grading, utility trenching, foundation and building construction, paving and architectural coatings. Additional off-site construction activities will include utility trenching and installation and roadway improvements, as detailed above.

A stormwater pollution prevention plan (SWPPP) will be prepared in conformance with the State Water Resources Control Board's latest General Construction Permit Guidelines and implemented during construction.

2.4.4 Required Project Approvals

Project site development would require various permits and other types of approvals from the City of Suisun City and other agencies with a purview over air quality, biological resources, water quality, public services and utilities, and other topics.

The proposed project would require the following discretionary approvals by the City of Suisun City:

- General Plan Amendment
- Grading Permit
- Pre-zoning
- Planned Unit Development
- Site Plan / Architectural Review
- Tentative Parcel Map
- Use Permit

The following parties would act as responsible agencies for the proposed project:

- Bay Area Air Quality Management District – Authority to Construction Permit
- California Department of Fish and Wildlife – Section 1602 Lake and Streambed Alteration Agreement
- California Department of Transportation – Improvements along SR 12 within Caltrans Right-of-Way
- Fairfield-Suisun Sewer District – Annexation into the District
- San Francisco Bay Regional Water Quality Control Board – Section 401 Water Quality Certification
- San Francisco Bay Conservation and Development Commission (BCDC)
- Solano County Airport Land Use Commission – Land Use Compatibility Review
- Solano Irrigation District – Negotiated Agreement for Water
- Solano Local Agency Formation Commission (LAFCo) – Annexation
- United States Army Corps of Engineers – Section 404 Permit
- United States Fish and Wildlife Service – ESA Section 7 Consultation

Other agencies that may require permissions or approvals may include, but are not limited to:

- City of Fairfield
- City of Vallejo
- Solano County
- Solano County Water Agency
- Suisun-Solano Water Authority
- National Marine Fisheries Service ESA Section 7 and EFH Consultation

3.0 REGULATORY FRAMEWORK

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 the 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)).

Solid Waste Agency of Northern Cook County 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). 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.

A ruling in the U.S. District Court for the District of Arizona on August 30, 2021, in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*, may result in the Final NWPR being overturned permanently. The Environmental Protection Agency (USEPA) and USACE are reviewing the U.S. District Court's order vacating and remanding the NWPR, have halted implementation of the Navigable Waters Protection Rule, and are currently interpreting "waters of the United States" consistent with the pre-2015 WOTUS definition and USEPA and USACE regulatory policies and guidance regime until further notice.

Clean Water Act- National Pollution Discharge Elimination System 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 provides 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 (RWQCBs) 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, 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. 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). Section 7 of the FESA 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). In the regulations found 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.” Critical habitat is defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and that “may require special management considerations or protection.” Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless “essential for the conservation of the species.” Critical habitat designations identify, with the best available knowledge, those biological and physical features (primary constituent elements) which provide for the life history processes essential to the conservation of the species.

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.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFA) conserves and manages the fishery resources found off the coasts of the United States, the anadromous species, and the Continental Shelf fishery resources of the United States, including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSFA and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSFA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regard to the overall productivity and sustainability of U.S. marine fisheries (Public Law 104-267). The revised MSFA mandates the identification and protection of Essential Fish Habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect such habitat. Federal agencies are required to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSFA 305.b.2).

Under the MSFA, NMFS identifies, conserves, and enhances EFH for those species regulated under a federal fisheries management plan (FMP). EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity and includes all associated physical, chemical, and biological properties of aquatic habitat that are used by fish. Projects that have the potential to adversely affect EFH must initiate consultation with NMFS. Adverse effects are any impacts that reduce the quality and/or quantity of EFH and can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). There are four FMPs in California, Oregon, and Washington that identify EFH for groundfish, coastal pelagic species, Pacific salmon, and Pacific highly migratory fisheries.

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, and the elimination of protections pursuant to the MBTA went into effect in January of 2021. On his first day in office, new President Joe Biden placed the Trump Administration's changes to the MBTA on hold, pending further review. The Biden Administration announced the repeal of the January 2021 changes and the reinstatement of protection for migratory birds in December of 2021.

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 (RWQCBs). 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., RWQCB) 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 the RWQCB 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 RWQCB, 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 SWQCB'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 analysis 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.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) has permit jurisdiction over San Francisco Bay. There are two types of BCDC jurisdiction within the Bay Area:

- (a) Bay Jurisdiction: San Francisco Bay jurisdiction, being all areas that are subject to tidal action from the south end of the bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended north easterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands

(land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).

(b) Shoreline Band Jurisdiction: A shoreline band consisting of all territory located between the shoreline of San Francisco Bay as defined above in item (a) and a line 100 feet landward of and parallel with that line; provided that the commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

BCDC is authorized to issue or deny permits for any filling of the Bay. Section 66605 of the McAtteer-Petris Act allows the Commission to authorize Bay fill only for water-oriented uses, and minor fill to improve shoreline appearance or public access. Furthermore, the McAtteer-Petris Act requires that the fill only should be authorized if there is no feasible upland location, the fill is the minimum amount necessary, the fill minimizes harmful effects to the Bay, and the public benefits clearly exceed its detriments.

The extent of BCDC jurisdiction over the project site is discussed in the section regarding the Suisun Marsh Protection Plan in Section 3.3.

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. 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 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 CEQA compliance has been achieved, usually through the CEQA Lead Agency providing documentation by preparing a negative declaration or EIR.

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 mentioned in the Fish and Game Code provisions governing Lake and Streambed Alteration Agreement, but CDFW often asserts 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- 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 (CNDDDB). All known occurrences of sensitive habitats are mapped onto 7.5-minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDDB. Sensitive plant communities are also identified by

CDFW on their List of California Natural Communities Recognized by the CNDDDB. 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 California Legislature in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Protection of Fully Protected species is described in four sections of the Fish & Game Code that lists fully protected species (Fish & Game Code §§ 3511, 4700, 5050, and 5515). These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of Fully Protected species when activities are proposed in areas inhabited by these species, except pursuant to an approved Natural Community Conservation Plan. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Permits may be issued for the take of Fully Protected bird 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)).

3.3 Other Protections

California Native Plant Society

The California Native Plant Society (CNPS), a nongovernmental organization, has no regulatory authority but provides information that is often used by regulatory bodies. 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 included 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.

3.4 Local Requirements

City of Suisun City General Plan

In addition to federal and state laws and regulations, the Open Space and Conservation Element of the City of Suisun City General Plan (May 2001) identifies the following objectives and policies to provide for a variety of open spaces to meet community needs for environmental protection, agriculture, recreation, flood management, and water quality.

Objective 1: To designate sufficient lands for various open space uses that will meet the parks and recreation requirements of the capital improvements program, protect the City from flooding, preserve the Suisun Marsh, preserve natural resources and amenities, and ensure continued agricultural production as an interim use:

Policy 1: Location of Open Space Lands. Suisun City will designate certain lands to remain undeveloped or developed only with uses that are consistent with plans and programs (Specific Plan, CIP, Marsh Protection District Plan, etc.) for the use of such lands.

Policy 2: Management of Open Spaces. In some cases, such as for park and recreation use, land will be acquired and managed publicly. In other cases, open space uses will be assured through cooperative agreements with private property owners or through public easements.

Policy 3: Types of Open Spaces. Open space lands will serve a variety of purposes:

- a. Outdoor recreational pursuits
- b. Resource Management and habitat preservation.
- c. Agricultural production
- d. Visual enjoyment and enhancement of community character.
- e. Flood management.
- f. Watershed and water quality protection.
- g. Ensuring the safety of the community by avoiding sites hazardous to urban development.

The City of Suisun City General Plan states that the environmental preservation goal is to improve the qualities and amenities of the Suisun Marsh environment as a natural habitat and recreation area and to the waterways emptying into the Marsh.

Objective 1: To increase the accessibility of the Marsh to residents of Suisun City, in conjunction with State action, while assuring its protection and enhancement in accordance with State policies governing the management of lands within and adjacent to the marsh.

Policy 7: Use and Protection of the Suisun Marsh. Land within the Primary management area prescribed by the Suisun Marsh Protection Plan will be preserved as open space for appropriate agricultural and wildlife habitat and limited outdoor recreational use compatible with the objectives of the Suisun Marsh Protection plan. Other use of the Primary management area will be limited to constructing any roads or bicycle and pedestrian paths, required for access to the marsh for the above uses, to publicly and privately sponsored recreation activities which are compatible with the marsh environment, and the transportation and utility corridor along the south side of Highway 12. Such access must be in conformity to the Marsh Protection Plan on utilities, facilities, and transportation.

Policy 9: Protection of Watercourses and Floodways. Natural watercourses and drainage channels shall be protected and preserved to the extent possible; runoff from urban development and upland watershed areas will be contained by channels and reservoirs to control debris, sediment, and the rate and dispersal of runoff.

The City of Suisun City's General Plan currently designates all of the area north of Cordelia Road, which includes the 93.4-acre Development Site, for urban development (mainly as limited industrial/business park, except portions designated as general commercial).

Solano County General Plan

Most of the project site is within an unincorporated area governed by the Solano County General Plan. A single 4.54-acre parcel in the northwest portion of the project site lies within the City of Suisun City limits and approximately 161.2 acres north of the California Northern Railroad tracks is within the City of Suisun City Sphere of Influence. The remainder of the site, including the southern portion of the site south of the California Northern Railroad and Cordelia Road, is within Solano County. The proposed Managed Open Space area of the project site that is south of the California Northern Railroad and Cordelia Road, is within unincorporated Solano County and not proposed for annexation into the City of Suisun City Sphere of Influence.

The Resources chapter of the Solano County General Plan identifies goals, policies, and implementation measures that will be used by the County in day-to-day decision making to protect natural, cultural, and open space resources. The Biological Resources section of the Resources chapter addresses biological resources and the actions that the County can take to maintain, protect, and preserve the County's biological resources that include a wide range of

species and natural communities. Priority habitat areas are mapped in the General Plan, and these were used to create the Resource Conservation Overlay shown in Figure RS-2 of the Plan. The Overlay indicates general locations of priority habitat, provides both opportunities and restrictions regarding the use of the underlying properties, and identifies these areas as high priority targets for future management of biological resources.

The proposed Managed Open Space area of the project site is within the Resource Conservation Overlay Area.

The following includes the Solano County General Plan policies regarding biological resources that may be relevant to the proposed project.

- ▶ RS.P-1: Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections.
- ▶ RS.P-2: Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.
- ▶ RS.P-3: Focus conservation and protection efforts on high-priority habitat areas depicted in Figure RS-1 [of the Solano County General Plan (2008)].
- ▶ RS.P-4: Together with property owners and federal and state agencies, identify feasible and economically viable methods of protecting and enhancing natural habitats and biological resources.
- ▶ RS.P-5: Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.
- ▶ RS.P-6: Protect oak woodlands and heritage trees and encourage the planting of native tree species in new developments and along road rights-of-way.

The Solano County General Plan identifies the County portion of the project site as within both primary and secondary management areas of the Suisun Marsh Protection Plan. The Suisun Marsh Protection Plan and its influence as it pertains to the project site is described in the sections below.

Suisun Marsh Protection Plan

Development and use of the Suisun Marsh is regulated under State law. In 1976, the California legislature passed the Suisun Marsh Preservation Act because of the need to protect the marsh from potential residential, commercial, and industrial developments and the need to preserve the marsh for future generations. The Act directs BCDC and CDFW to prepare the Suisun Marsh

Protection Plan (Plan) to “preserve the integrity and assure continued wildlife use” of the Suisun Marsh.

The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh aquatic and wildlife habitats and to assure retention of upland areas adjacent to the Marsh in uses compatible with its protection. Policies of the Suisun Marsh Protection Plan include activities that may conflict with their own stated objectives, but are seen as important as long as they are managed, such as increased public recreational uses, agriculture, and duck hunting.

The Plan divides Suisun Marsh into two zones: a primary management area and a secondary management area. The primary management area encompasses 89,000 acres of tidal marsh, managed wetlands, adjacent grasslands, and waterways over most of which BCDC has jurisdiction. The secondary management area encompasses approximately 22,500 acres of buffer. Solano County administers the local protection program while BCDC represents the State’s interest and also serves as the land use permitting agency for major projects in the primary management area. Figure 6 shows the Suisun Marsh Protection Plan primary and secondary management areas within the project site boundary.

Details regarding habitat protection required within both the Primary and Secondary Suisun Marsh Management Areas are described in the sections below. Development is not proposed as part of the Project for either the primary or secondary management areas within the project site. The establishment of aquatic resources and listed species habitat to offset impacts associated with the Development Site is proposed in the secondary and primary management areas.

Suisun Marsh Primary Management Area. In the primary management area protection of environmental values and existing uses, including recreation, are the primary consideration. Urban development is precluded however other uses and activities such as cattle grazing, duck clubs, recreation (fishing, hunting, water sports etc.), oil and gas exploration and construction and operations of utilities and other facilities are regulated but allowed in the primary management area. With respect to agriculture the Plan suggests agriculture should be limited to activities compatible with, or intended for, the maintenance or improvement of wildlife habitat.

Within the primary management area “... land and water areas should be managed so as to achieve the following objectives:

- Preservation and enhancement of Marsh habitat.
- Provision of habitat attractive to waterfowl.
- Improvement of water distribution and levee systems.
- Encouragement of agricultural and grazing practices consistent with wildlife use, waterfowl hunting, and elimination of mosquito breeding.

- Restoration of historic wetlands.”

BCDC has jurisdiction over most of the primary management area and serves as the land-use permitting agency for major projects in the primary management area.

Suisun Marsh Secondary Management Area. The Secondary management area encompasses approximately 22,500 acres of “significant buffer lands”, including upland grasslands and agricultural lands, surrounding the primary management area of the Suisun Marsh. The function of the secondary management area is to act as a buffer area protecting the Marsh habitats within the primary management area from adverse impacts of urban development. The secondary management area also serves as a transitional zone that is used by Marsh wildlife particularly when the wetlands are flooded and during periods of high hunting pressure in the Marsh. Goals of the secondary management area include:

- Returning historical marshes that have been converted for urban land use practices back to their original wetland status.
- Maintaining and enhancing Marsh-related wildlife habitats in the Secondary management area by planting or encouraging valuable wildlife food or cover plant species.
- Supporting existing agricultural land uses consistent with the protection of the Marsh, such as grazing and grain production.
- Establishing local runoff, erosion, and sediment control ordinances over the watershed of the Suisun Marsh to prevent or minimize earth disturbance, erosion, water pollution, and hazards to public safety.

The secondary management area's function as a buffer and transitional zone to protect the Marsh is the prime consideration in building and land-use restrictions over the area. The Suisun Marsh Protection Plan disfavors urban development and encourages protection of existing grazing and agricultural practices. It also tolerates existing commercial ventures, provided they do not have adverse impacts on the Suisun Marsh. These potential impacts, whether from an existing or proposed use, include direct, quantifiable effects such as degradation of water quality, to less quantifiable impacts such as the intrusion of domestic pets.

Solano County, which has jurisdiction over the secondary management area, assesses compatibility of a proposed land use according to the policies defined in the Suisun Marsh Protection Plan and further detailed in Solano County’s Local Protection Program. New commercial ventures in the secondary management area are not prohibited, but it is required that such ventures be compatible with the Local Protection Program. Solano County authorizes land use and development through a rigorous permitting process. When considering a permit, there are three principal concerns:

1. That the construction should not be disruptive to the ecosystem.
2. That the new development should not "have lasting effects on wildlife by

- forming barriers and obstacles to their movements and flight patterns."
3. That the process or development itself should not "stimulate urban development by providing services that are a prerequisite for such development."

Any development within the secondary management area must be authorized through the Marsh Development Permit process. Application for a Marsh Development Permit must be obtained by and filed with the Solano County Planning Department. In order for the Zoning Administrator or Planning Commission to grant a Marsh Development Permit, it must be demonstrated in the application that the proposed development shall be consistent with the policies defined in the Suisun Marsh Local Protection Program, which outlines Solano County's strategies for following policies defined in the Suisun Marsh Protection Plan for the secondary management area.

Suisun Marsh Agency Responsibilities. Rather than give one agency responsibility over the Suisun Marsh, the Suisun Marsh Protection Plan allows for control by multiple agencies that must maintain practices compatible with the policies of the Plan. Local government agencies with jurisdiction over an area of the Marsh retain administrative control, including permit authority, and shoulder responsibility for day-to-day implementation of the Plan. For guidance, those agencies reference a "local protection program" that outlines how that area should conform to the Plan.

Besides administrating its own lands in the Marsh, the State maintains an oversight role, which is carried out by BCDC. The State's principal oversight duties are twofold: 1) "to ensure to the maximum extent feasible that existing uses of the Marsh continue," and 2) to ensure "that further development in the watershed does not adversely affect water quality." The means of oversight include a permit system for development in the primary management area, appellate review over local decisions that "significantly affect the Marsh," and certification of the Local Protection Program.

Solano County is responsible for preparing and administering Solano County's Local Protection Program and also has permit authority in the secondary management area. Solano County refers to a regulatory document called the "Solano County Policies and Regulations Governing the Suisun Marsh" for guidelines and policies concerning land use activities in the secondary management area. Solano County also refers to the County General Plan to determine marsh protection policies and land use designations.

Suisun City, Fairfield, and Benicia have permit authority in the region of the secondary management area that falls within the cities' boundaries. They reference their local protection programs and general plans to determine policies concerning land designations and land use activities within the secondary management area.

The Fish and Game Commission and CDFW maintain ultimate authority and responsibility for management of the fish and wildlife resources of the Marsh. CDFW manages lands acquired

with State funds that are intended for wildlife habitat and recreational use. Because of the daily presence of its employees in the Marsh, and the ground-level understanding that comes from this presence, CDFW also has significant influence and responsibility over the general management of the Marsh. This includes review of the Local Protection Program, consultation on wildlife and water management and appeals, the development of Marsh programs, and the authority to inspect and report on the Marsh.

The Suisun Resource Conservation District (District) is empowered to regulate water management practices of private lands in the Marsh. Local agencies retain the responsibilities of day-to-day water management, and those agencies retain the power to enter into agreements with landowners. In instances where the District is unable to regulate water-management practices, then the appropriate State or special purpose district assumes those responsibilities. The State Water Resources Control Board sets salinity standards for water in the Marsh, while the Department of Water Resources administers any alternative freshwater source necessary to the Marsh.

The State Lands Commission advises the BCDC on State land title and ownership questions and resolves ownership disputes. It also conducts Plan management recommendations on lands under its stewardship.

The State is authorized to acquire fee interests where appropriate, and to offer advice, data, staff support to local agencies to help with implementation of the Plan, and is encouraged to collaborate with non-profit corporations such as the Trust for Public Lands to make timely land purchases for inclusion in the Marsh public lands.

The Plan requires the continuation and expansion of research investigating how to better manage the Marsh. Federal and State agencies and the Solano County Mosquito Abatement District have the responsibility for conducting this research.

BCDC, which has jurisdiction over the primary management area, determines acceptance of permit applications based on whether the proposed land and water uses will be compatible with the maintenance and improvement of wildlife habitat and water quality in the Suisun Marsh. BCDC generally cannot authorize urban uses, such as houses, industries, roads, businesses, and offices within the primary management area. It is necessary to obtain authorization from BCDC before undertaking any of the following activities within the Commission's jurisdiction:

- Placing solid material, pilings, floating structures, boat docks, or other fill.
- Dredging or other extraction of material.
- Making a substantial change in use of a structure or an area.
- Undertaking most types of development including some subdivisions of property.

In addition to having permit authority over potential development projects in the primary management area, BCDC also regulates currently existing agricultural practices. This type of land use is supported provided it is compatible with management goals. Intensive agricultural activities involving removal or persistent plowing of natural vegetation and maintenance of fallow land during part of the year is not permitted.

Suisun Marsh Management Area Designations on the Project Site. Cordelia Avenue defines the northern boundary of the area regulated by the Suisun Marsh Protection Plan. All areas north of Cordelia Road on the west and east sides of Pennsylvania Avenue (including the annexation area and the development portion of the site) are located outside (north of) the jurisdictional area of the Suisun Marsh Protection Plan and are not subject to the land use regulations of the Plan.

The entire area south of Cordelia Road and the California Northern Railroad is situated within the jurisdictional area of the Suisun Marsh Protection Plan, and as shown in Figure 5, with the majority of this area located within the primary management area. A small area in the western portion of this area is located within the secondary management area. Areas south of Cordelia Road are therefore subject to the regulations and land use restrictions of the Suisun Marsh Protection Plan. The portion of the area south of Cordelia Road is located within the primary management area and is under the jurisdiction and permitting authority of BCDC. Permitted development projects are typically restricted to the construction or maintenance of duck hunting club or wildlife viewing facilities, maintenance of levees, existing railways, roads, utilities, and buildings, gas and oil exploration, and construction and operation of natural gas wells. Residential or commercial development projects are generally not permitted in this area.

The small area located within the secondary management area is under the jurisdiction and permitting authority of Solano County. This area is zoned by the County as MP (Marsh Preservation District). A single primary residence is an allowed use on MP zoned lands. Other limited developments such as certain types of agricultural operations, hunting clubs or preserves, gas and oil exploration, and construction and operation of natural gas wells can also be permitted. Any proposed development project is authorized through the Marsh Development Permit and must conform to Solano County's General Plan and Suisun Marsh Local Protection Program.

3.5 Solano Habitat Conservation Plan Volume I Public Draft dated 2012

In March 1999, the USFWS, in accordance with Section 7 of the federal Endangered Species Act of 1973 (as amended), issued a Biological Opinion regarding the Solano Project Water Service Contract Renewal between the Bureau of Reclamation and the Solano County Water Agency (SCWA). The contract provides for continued delivery of Solano Project water throughout the SCWA contract service area. SCWA delivers Solano Project water in accordance with its eight Member Agency contracts, which includes the City of Suisun City. The Bureau of Reclamation, SCWA, and the member agencies have agreed to implement conservation measures to ensure

the protection of threatened and endangered species and their habitat within the SCWA contract service area. As a condition of the Biological Opinion, SCWA and its member agencies are required to prepare a Habitat Conservation Plan (HCP), per Section 10(a)1(B) of the Federal Endangered Species Act, in order to obtain authorization for incidental take of listed species that may be impacted by activities associated with future water use in the Solano Project contract service area.

Thirty-six species are proposed to be covered under the Solano HCP. The purpose of the HCP is to promote conservation of biological diversity consistent with the recognition of private property rights, providing for a healthy economic environment for the citizens, agriculture, and industries, and on-going maintenance and operation of public and private facilities in Solano County.

The Solano Multi-Species HCP establishes a framework for complying with State and Federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. It will account for all activities undertaken by or under the permitting authority and control of the Plan participants within Solano County, of which Suisun City is a plan participant and therefore the proposed Project would be subject to appropriate HCP conservation measures. The Solano HCP is currently in draft form.

The Solano HCP includes the proposed 161.2-acre annexation area, which includes the proposed 93.40-acre Development Site, in Zone 1 "Urban Zone." This zone is defined as the existing and identified potential urban development areas within the member agency cities of Vacaville, Fairfield, Suisun City, Rio Vista, Dixon, and Vallejo. The remainder of the overall project site is within Zone 3. Covered activities within this zone are primarily related to implementation of the HCP/ conservation measures (i.e., management, enhancement, habitat restoration/construction, monitoring, scientific collection, and associated compatible activities on designated reserves, mitigation sites/banks, and open space lands and adjacent lands) and non-agricultural activities carried out under the authority of or participation by the Plan Participants on lands outside of the designated urban boundaries (communication towers, water supply reservoirs, recreational facilities management).

The Solano HCP has been in draft form since approximately 2002 (over 20 years), has gone through several iterations, is still not approved for use, and there is no indication it will be approved in the foreseeable future. If the Solano HCP does get approved prior to obtaining all permits and approvals for the Highway 12 Logistics Center, the applicant would consider the use of the Solano HCP and/or incorporating mitigation measures suggested in the Solano HCP.

4.0 EXISTING BIOLOGICAL SETTING

4.1 Regional Setting

The project site is in southwestern Solano County within the Sacramento Valley geographic sub region of the Great Central Valley. The Central Valley is a north-south oriented valley that extends approximately 430 miles from southern Tehama County to south-central Kern County in southern California. Elevations range from approximately sea level to 400 feet above Mean Sea Level (msl). In general, the borders of the Central Valley are considered to be those areas where alluvial soils grade into bedrock features. Now predominantly agricultural, it once supported grassland (California Prairie), marshes, extensive riparian woodlands, and valley-oak savanna. The Sacramento Valley is the smaller, wetter, northern sub-region of the Central Valley, extending from Red Bluff in Tehama County to the salt marshes of the Suisun Marsh in southwestern Solano County.

The Project Site is adjacent to the Suisun Marsh, while portions of the proposed Open Space Management Area are located within the Marsh itself. The Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America. It is a critical migratory stop for birds using the Pacific Flyway and a critical part of the San Francisco Bay-Delta estuary ecosystem. Encompassing 116,000 acres, the Suisun Marsh includes vernal pools, managed wetlands, upland grasslands, tidal wetlands and bays and sloughs. It is home to public and private waterfowl hunting areas, is important to the state's commercial salmon fishery by providing important tidal rearing areas for juvenile fish and provides important habitat for many rare plant and animal species indigenous to California. Additionally, the Marsh has 230 miles of levees that provide critical protection of the drinking water for 22 million people by preventing saltwater intrusion into the Delta.

4.2 Local Setting

The 497.44-acre project site is bounded to the east by the Union Pacific Railroad, to the north by State Highway 12, and to the west by Ledgewood Creek in the northern portion of the site and Orehr Road in the southern portion of the project site. Suisun Marsh is south of the project site, and marshland associated with Suisun Marsh occurs in southern portions of the project area. The larger area south of Cordelia Road and Cordelia Street is bordered on the west by Orehr Road, on the east by the UPRR, and on the south by the upper Suisun Marsh. The UPRR tracks along the eastern boundary of this portion of the project site separate the area south of Cordelia Road and Cordelia Street from the Peytonia Slough Ecological Reserve, a California Department of Fish and Wildlife ecological reserve.

Within the 497.44-acre site, the project applicant proposes to annex 161.2⁷ acres in the northern portion of the project site as shown in Figure 4. The applicant proposes development on 93.4 acres of this 161.2-acre annexation. The 93.4-acre development area of the site is

⁷ This includes 3.7-acres of Pennsylvania Ave and Cordelia Rd, and 2.1-acre portion of a railroad parcel and a 5-acre privately owned parcel.

bounded by State Route 12 to the north, Pennsylvania Avenue to the east, Cordelia Road, and Cordelia Street to the south, and Ledgewood Creek to the west. The California Northern Rail Road Union Pacific Railroad (UPRR) bisects the development site east-west separating PA-1 and PA-2 from PA-3.

4.2.1 Proposed Development Portion of the Site

The proposed development area of the project site (Planning Areas 1, 2, and 3) north of Cordelia Street consists of nearly level grazed upland annual grasslands, seasonally saturated annual grasslands, vernal pool, and alkali seasonal wetland. The upland annual grasslands and seasonally saturated annual grasslands are dominated by introduced annual grass species. Within Planning Area 1 there is one a vernal pool that covers approximately 8 acres. The vernal pool appears to have formed or was enhanced due to the construction of a berm along Pennsylvania Avenue and partially blocked culverts. The alkali seasonal wetlands are dominated by halophytes such as brass buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed (*Salicornia pacifica*). Elevation within the site ranges from 5 to 10 feet msl.

Planning Area 3, the proposed annexation area east of Pennsylvania Avenue, consists of approximately 10.71 acres of the 54.1-acre Accessor Parcel Number (APN) 003-020-100. The remaining approximately 43.39 acres of the APN will be incorporated into the Managed Open Space area. Within Planning Area 3, there are upland annual grasslands, alkali seasonal wetlands, one vernal pool that covers approximately 6 acres, and a perennial brackish marsh. Planning Area 3 is grazed and supports annual grasslands dominated by introduced annual grass species. The vernal pool appears to have been formed or enhanced by the construction of a berm along the channelized perennial brackish marsh abutting the eastern boundary and an elevated landfill abutting the northern boundary. The alkali seasonal wetlands and vernal pool are dominated by halophytes such as brass buttons (*Cotula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed (*Salicornia pacifica*).

4.2.2 Proposed Annexation Area East of Planning Area 3

Excluding the 5-acre privately owned parcel, the 57.03-acre portion of the proposed annexation area east of Planning Area 3 and the 4.54-acre parcel currently within the City of Suisun City is proposed to remain undeveloped and Managed Open Space protected by a conservation easement. This 61.57-acre portion of the Managed Open Space is adjacent to but outside of the Suisun Marsh Protection Act jurisdiction. This area is dominated by a mix of wetland and upland habitats. A perennial brackish marsh drainage channel runs north to south through the western portion of this portion of the site. This ditch carries stormwater runoff from the City of Fairfield and may also convey runoff from natural drainages north of Fairfield. It flows directly to a slough feeding into Suisun Bay and is subject to tidal fluctuation. West of the drainage channel are several medium to large seasonal wetlands, including both vernal pools and alkali seasonal wetlands. These aquatic features are not tidally influenced. The property east of the drainage channel supports perennial brackish marsh with dense stands of cattail (*Typha sp.*), California bulrush (*Schoenoplectus californicus*), and pickleweed (*Salicornia pacifica*). These wetlands

receive tidal flow from the perennial brackish marsh drainage channels, which are open to this portion of the site. The limited upland areas on the site support introduced annual grassland.

4.2.3 Area south of Cordelia Road

The southern portion of the project site is within the Primary Management Area of the Suisun Marsh Protection Plan and a small portion of the southwestern extremity of the project site is within the Secondary Management Area of the Suisun Marsh Protection Plan. All portions of the project site that are in the Primary Management Area and Secondary Management Area of the Suisun Marsh Protection Plan south and southeast of Cordelia Road and Cordelia Street are proposed for Managed Open Space that will be preserved in perpetuity using a deed restriction or conservation easement as a part of the project. No commercial development is proposed in this area.

The approximately 331.67 acres area south of Cordelia Road and Cordelia Street proposed for Managed Open Space consists of nearly level terrain with a gentle slope trending south-southeast toward Peytonia Slough Ecological Reserve. Elevation ranges from approximately 10 feet msl to sea level. The higher areas in the northern portions of the property support introduced nearly level, grazed, upland annual grasslands with interspersed seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands. Lower areas in the southern portion are dominated by muted tidal perennial brackish marsh.

Peytonia Slough and several smaller unnamed sloughs cut through the perennial brackish marsh habitat. These sloughs are subject to muted tidal fluctuations and are hydrologically connected to Suisun Slough via a culvert under the railroad tracks. Ledgewood Creek, which originates in Gordon Valley several miles to the northwest, bisects this area north to south discharging freshwater into Peytonia Slough. The perennial brackish marsh drainage channel is muted tidal and conveys stormwater runoff from the City of Fairfield and is hydrologically connected to Peytonia Slough. This lower portion of Ledgewood Creek and the perennial brackish marsh drainage channel are subject to muted tidal fluctuations and support bankside stands of perennial brackish marsh vegetation. The perennial brackish marsh drainage channel has an inoperative flap gate a few hundred yards south of Cordelia Road that prevented tidal backflow when it was operating.

4.3 Land Use

The project site is currently comprised of agricultural grazing land and undeveloped open space, roads, and a privately owned 5-acre parcel. Cattle graze throughout the entire project site.

The parcel bound by Ledgewood Creek, Cordelia Road had been occupied by large homeless encampments in the past comprised of temporarily built shelters, RVs, and personal vehicles. During the summer of 2019, the Solano County Sheriff's department removed the encampment, and the County cleared the garbage and debris left behind. The fences along Ledgewood Creek and Cordelia Road are monitored and repaired on a regular basis to deter the

encampments from being re-established. Grass fires occur regularly due to these encampments and the encampments along Ledgewood Creek.

4.4 Topography

The topographic relief on the majority of the site is flat with slopes ranging from 2-3%. Elevations range on the majority of the Study Area from 15 feet to 0 feet mean sea level (msl)⁸.

4.5 Soils

A review of the Natural Resources Conservation Service (NRCS) Soil Survey maps for Solano County shows five soil types occurring in the Study Area. A soils map of the project site is shown in Figure 6.

Field investigations confirmed that the NRCS soils mapping is reasonably accurate throughout the project site. Pertinent soil characteristics are summarized in Table 5 below:

| Table 5. Pertinent Characteristics of Soils Mapped within the Project Site | | | | | | |
|--|------------------------------|------------------------------|-------|-------------------------|----------------------|-------------------------------|
| Map Unit Symbol and Unit Name | Landform / Landform Position | Depth to Restrictive Feature | Slope | Drainage Class | Depth to Water Table | Frequency of Flooding/Ponding |
| St - Sycamore silty clay loam, saline | Alluvial Fans | 36 inches | 0-2% | Somewhat poorly drained | 36 to 60 inches | None / None |
| Pc - Pescadero silty clay loam, 0 percent slopes, MLRA 17 | Basin Floors | 4 inches | 0% | Somewhat poorly drained | 4 to 85 inches | None-Rare / Frequent |
| An - Alviso silty clay loam | Tidal Flats | 80+ inches | 0-2% | Poorly drained | 24 to 36 inches | Rare / None |
| Ja - Joice muck, MLRA 16 | Tidal Flats | 80+ inches | 0-2% | Very poorly drained | 24 to 36 inches | Frequent to None / Frequent |
| W-Water | NA | NA | NA | NA | NA | NA |

4.6 Hydrology

Watersheds: The Hydrologic Unit Code (HUC) watershed boundaries encompassing the Study Area are shown for the HUC 8, HUC 10, and HUC 12 watershed boundaries in Figures 7, 8, and 9, respectively. According to the USGS National Hydrography Dataset (NHD), the Project Site is in HUC 8 Suisun Bay subbasin and within the HUC 10 Suisun Bay watershed with a portion in the HUC 10 Wooden Valley Creek-Frontal Suisun Bay Estuaries watershed.

Inundation Source: The source of inundation of the Perennial brackish marsh is muted tide which enters through Peytonia Slough by way of a culvert under the UPRR. The culvert under

⁸ Sourced from the Biological Assessment prepared by HBG dated 2006.

UPRR appears to be undersized, which likely restricts flows causing a “muted” tidal cycle. The ebb and flow of the tide enters Peytonia Slough from the Suisun Slough which receives tidal waters from Grizzly Bay.

The primary source of inundation of the seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands are from direct precipitation. Pooling surface water and saturation below the soil surface is driven by direct precipitation during the winter months. During heavy storm events the pooling water may overflow into the adjacent perennial brackish marsh. Once precipitation for the winter/spring ends, surface water and soil saturation remain until the water has evaporated. The hydrology within these wetlands is not driven by the influence of tides, snow melt, or seasonal ground water.

Federal Emergency Management Agency (FEMA) rate map shows that the Study Area is in Zone A. Zone A has 0.1% annual chance of flooding.

4.7 Vegetation Communities

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. The project site contains six vegetation communities: Upland Annual Grassland; Seasonal Saturated Annual Grassland; Vernal Pool; Alkali Seasonal Wetland; and Perennial Brackish Marsh, and Urban which consist of paved roads. The Riparian habitat within Ledgewood Creek is adjacent to the western portion of the project site. An inventory of plant species found on the project site during biological studies is provided in Attachment 2 Table 1. Refer to Figure 10 for the Vegetation Communities map.

The following habitat types were identified on various portions of the 497.44-acre project site during these investigations:

1. Upland Annual Grassland
2. Vernal Pools
3. Alkali Seasonal Marsh
4. Seasonally Saturated Annual Grasslands
5. Perennial Brackish Marsh
6. Urban / Roads

Upland Annual Grasslands (165.32 acres)

Upland portions of the property support introduced upland annual grassland. This habitat is dominated by several species of introduced annual grasses such as soft chess (*Bromus hordeaceus*), riggut (*Bromus diandrus*), and barley (*Hordeum murinum*). A variety of native and non-native herbs also occur within the grasslands such as butter-and-eggs (*Triphysaria eriantha* ssp. *eriantha*), valley tassels (*Castilleja attenuata*), miniature lupine (*Lupinus bicolor*), bur-clover (*Medicago polymorpha*), and filaree (*Erodium botrys*). In low-lying areas and areas bordering wetlands, species composition shifts to include some marginal wetland indicator species such as Italian ryegrass (*Festuca perenne*) and Mediterranean barley (*Hordeum marinum* var.

gussoneanum). In general, there is a very low occurrence of noxious weeds within the grasslands such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Taeniatherum caput-medusae*).

Vernal Pools (19.76 acres)

Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater from the pool basins. They are inundated throughout the winter and gradually dry during the spring and summer through evaporation and plant transpiration. The vernal pools then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools may support a unique assemblage of plants and animals specifically adapted to their unique hydrologic regime and soil chemistry. They are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

The vernal pools on the properties are concentrated in the western and eastern portions of the Development Site. Many of the pools appear to have formed or were enhanced due to the construction of berms, unmaintained roadside ditches, and partially blocked culverts on the site. The partially blocked culverts and berms and ditches may collect and block the flow of water across the landscape. This is especially true in the northern portion of the project site within the proposed annexation area. The large vernal pool within PA-1 of the Development Site may be the result of, or enhanced by, the adjacent berm that runs parallel to Pennsylvania Avenue and unmaintained and partially blocked culvert along Pennsylvania Avenue.

Dominant species within the pools on the three properties include a mix of classic vernal pool indicator species such as Vasey's coyote-thistle (*Eryngium vaseyi*), California semaphore grass (*Pleuropogon californica*), flat-faced downingia (*Downingia pulchella*), smooth goldfields (*Lasthenia glaberrima*), hyssop-leaved loosestrife (*Lythrum hyssopifolia*), and stipitate popcornflower (*Plagiobothrys stipitatus* var. *micranthus*). In addition to vernal pool indicator species, they support some alkali-tolerant species (halophytes) such as alkali heath (*Frankenia salina*), pickleweed (*Salicornia virginica*), and alkali weed (*Cressa truxillensis*).

Alkali Seasonal Wetland (46.41 acres)

The alkali seasonal wetlands form in low-lying basins and clay flats. They become seasonally inundated or saturated during the rainy season and gradually dry through the spring and early summer. Salinity comes from residual salts concentrated in a buried silty clay loam soil horizon within the predominant soil type (Sycamore silty clay, saline).

Alkali seasonal wetlands are in the northeastern portion of the Development Site, the southwestern portion of the annexation area east of Pennsylvania, and the northern and northwestern portions of the area south of Cordelia Road/Cordelia Street. Dominant plant species within these wetlands include several halophytes including sickle grass (*Parapholis incurva*), alkali weed, and alkali heath. Slightly lower areas within the wetlands are dominated

by pickleweed (*Salicornia pacifica*). The alkali seasonal marsh generally lacks vernal pool indicator species.

Seasonally Saturated Annual Grasslands (78.88 acres)

Given the very flat topography across the overall project area, there are broad transitional wetland areas between the low-lying seasonal wetlands (vernal pools and alkali seasonal wetlands) and the surrounding upland annual grasslands. These transitional areas have prolonged periods of surface and subsurface saturation but are rarely inundated. The dominant plants include a mix of facultative wetland species associated with both the annual grasslands and alkali seasonal marsh. Common species include Italian ryegrass, Mediterranean barley, alkali weed, and alkali heath.

Perennial Brackish Marsh (176.27 acres)

Perennial brackish marsh occurs throughout the southern and southeastern portions of the area south of Cordelia Road/Cordelia Street and dominates the eastern portion of the annexation area. This habitat occurs in estuarine environments where there is a mixing of fresh and salt waters such as occurs in the Delta region. The soils are perennially inundated or saturated and is generally subject to some level of tidal fluctuation. The perennial brackish marsh habitat found in the project area is subject to tidal fluctuations that extend from Suisun Bay, up tidal sloughs, and into drainage ditches that traverse the properties. The ditch within the eastern portion of the annexation area has one branch that extends northeast and provides water to the marsh habitat. In addition, water levels become elevated during the rainy season and gradually lower through the spring through evaporation, transpiration, and drainage. This is especially true for the northern portion of the marsh. The majority of alkalinity within the marsh habitat comes from residual salts in the silty clay soils in addition to salts carried through tidal fluctuations.

Within the eastern portion of the annexation area, the deepest areas within the marsh (concentrated along the eastern portion of this property) are dominated by a mix of dense, tall-growing perennial marsh species including tule (*Schoenoplectus acutus* var. *occidentalis*), Olney's bulrush (*Schoenoplectus americanus*), California bulrush (*Schoenoplectus californicus*), saltmarsh bulrush (*Schoenoplectus maritimus*), broad-leaved cattail (*Typha latifolia*), and narrow-leaved cattail (*Typha angustifolia*). Slightly higher areas are dominated by low-growing species, especially pickleweed (*Salicornia virginica*) and brass buttons (*Cotula coronopifolia*). The upper perimeter of the marsh includes additional low-growing species such as saltgrass (*Distichlis spicata*), saltmarsh sand-spurrey (*Spergularia marina*), sicklegrass, and annual beard grass.

Dominant plant species within perennial brackish marsh within the area south of Cordelia Road/Cordelia Street include a broad range of perennial emergent monocots and herbaceous and woody dicots often occurring in a mosaic dependent on local soil condition, hydrologic regime, and micro-elevation. Low-lying areas and the lower banks of sloughs are dominated by tall, dense emergent monocots including tule, Olney's bulrush, California bulrush, saltmarsh

bulrush, broad-leaved cattail, and narrow-leaved cattail. Upper slough banks are dominated by a mix of woody dicots such as annual saltmarsh aster (*Aster subulatus* var. *ligulatus*), Douglas' false-willow (*Baccharis douglasii*), western goldenrod (*Euthamia occidentalis*), and mugwort (*Artemisia douglasiana*). The special-status plants delta tule pea and Suisun Marsh aster occur in scattered locations along the upper slough banks (see "Special Status Species" section). Open areas along some of the smaller slough channels support native herbs such as water-parsley (*Oenanthe sarmentosa*) and whorled pennywort (*Hydrocotyl verticillata*). There are also dense stands of pickleweed and saltgrass in some low-lying areas away from the slough channels.

Urban / Roads (10.8 acres)

In addition to various undeveloped parcels being annexed into the City of Suisun City, a 1.1-acre portion of Cordelia Road, 2.6-acre segment of Pennsylvania Avenue, 2.1-acre portion of rail road property, and 5-acre privately owned parcel which had been used as a landfill in the past will also be incorporated. The majority of the roads are paved and may include narrow strips of hardpacked gravel along each side, and the 5 acre privately owned parcel consist of concrete debris along its perimeter and hardpacked gravel on the surface.

Riparian Wetland

Ledgewood Creek is adjacent to the western border of the project development area and is not part of the project site. The creek transitions to perennial marsh habitat that bisects a portion of the area south of Cordelia Road and the UPRR. Dominant tree species include arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*). California blackberry (*Rubus ursinus*) and mugwort (*Artemisia douglasiana*) are the understory dominants.

4.8 Animal Populations

The project site provides habitat for wildlife species, mostly those adapted to open grassland and wetland habitat areas, pasturelands, and somewhat disturbed environments. Both upland and wetland grasses and herbaceous plants within the project site provide nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. The complex of habitats includes the presence of standing water, on a seasonal basis, which can accommodate wildlife adapted to aquatic areas. 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. Tidal wetlands in the southern portion of the project site provide aquatic habitat for wildlife on regular tidal cycles. Significant riparian habitat is found within Ledgewood Creek adjacent to and just west of the proposed annexation area. Ledgewood Creek, just beyond the western boundary of the project site would be considered a wildlife corridor. Ledgewood Creek was channelized by the U.S. Army Corps of Engineers for flood control and is currently managed by a public agency for flood control purposes.

A list of wildlife species observed onsite or expected to utilize the site was obtained through habitat reconnaissance, field observation, and literature sources. Literature sources included

consultation with the California Natural Diversity Data Base (CNDDB) and USFWS species lists. A complete listing of the references from which information was compiled on the flora and fauna inhabiting the region is contained in the References section. Wildlife observations were also made during site reconnaissance visits conducted by HBG both during preparation of the 2006 Biological Assessment and during more recent evaluations conducted in 2020, 2021 and early 2022. Attachment 2, Table 2, provides species lists based on these reconnaissance level observations for reptiles, amphibians, birds, and mammals. The table lists wildlife species observed or expected to occur within the project site. The table includes the scientific names of all species mentioned in the text.

A number of wildlife species were observed on the site during the site reconnaissance conducted by HBG's wildlife biologist in the summer of 2005 (during preparation of the 2006 Biological Assessment) and during the summer of 2022. All species are common to abundant in the region and would be expected in the combination of grassland and wetland habitats present at the site. Some of the species observed at the site could nest onsite or in the general vicinity.

Raptors (birds of prey) observed foraging over the onsite grasslands and wetlands included red-tailed hawk, northern harrier, and American kestrel. Additional birds documented within onsite grasslands included Canada goose, American white pelican, killdeer, rock pigeon, mourning dove, Anna's hummingbird, European starling, American crow, northern mockingbird, black phoebe, western kingbird, loggerhead shrike, savannah sparrow, western meadowlark, Brewer's blackbird, brown-headed cowbird, house finch, and house sparrow. Both cliff swallows and barn swallows were observed nesting underneath bridge structures over the creeks and various drainages and foraging over the project site grasslands. Additional avian species that were observed flying over the site during the surveys included turkey vulture and white-throated swift. Observed within areas of seasonal and perennial marsh were great blue heron, green heron, great egret, snowy egret, marsh wren, common yellowthroat, Suisun song sparrow, and red-winged blackbird. Several water birds and shorebirds were found only in the northeastern portion of the project area, including American bittern, black-necked stilt, and long-billed curlew.

The riparian habitat adjacent to the site within LedgeWood Creek could support additional species such as northern flicker, California towhee, and lesser goldfinch, and wintering species such as ruby-crowned kinglet, yellow-rumped warbler, and golden-crowned and white-crowned sparrows. More extensive offsite riparian habitats of LedgeWood Creek could support migratory breeding species such as Pacific-slope flycatcher, warbling vireo, black-headed grosbeak, and Bullock's oriole.

Special status bird species observed during onsite surveys conducted by HBG biologists included the northern harrier (state species of special concern for nesting and USFWS bird species of conservation concern), long-billed curlew (state watch list for nesting), loggerhead shrike (state species of special concern), and Suisun song sparrow (state species of special). Suisun song

sparrows were observed during the summer months and may nest within the wetlands in the eastern portion of the proposed annexation area. Northern harrier and loggerhead shrike were also observed during the summer and may nest in the project area, though nesting habitat for loggerhead shrike does not occur on the project site. These species are discussed below in the Special Status Species section, along with a number of other special status species known to occur in the project area. The long-billed curlew is not known to nest in the project area. The curlew individuals observed during the summer were likely non-breeding individuals that are often known to linger in appropriate Central Valley habitats (like those on the project site) during the nesting season.

Western fence lizards were documented during the survey, and additional species of reptiles and amphibians found at the site would be expected to include common species such as Pacific chorus frog, Pacific gopher snake, western kingsnake and common garter snake. The site would be expected to support common mammal species such as Virginia opossum, black-tailed jackrabbit, Botta's pocket gopher, California ground squirrel, deer mouse, California vole, striped skunk, raccoon, and mule deer.

4.9 Aquatic Resources

4.9.1 History of Jurisdictional Delineations and USACE Determinations

Vollmar Consulting conducted an aquatic resource delineation on the parcels north of Cordelia Road that was subsequently verified by the USACE on March 5, 2003, and May 16, 2003, under USACE file No. 26613N, and the parcel south of Cordelia Road, which was verified by the USACE on January 27, 2004, under USACE file No. 27207N. Since the verified wetland delineations did not include the rights of way for Cordelia Road and Pennsylvania Avenue, HBG conducted a delineation to include these areas and to re-verify the January 27, 2004, verification. This re-verification was verified by the USACE on July 2, 2008, under USACE file No. 2005-29818N.

HBG conducted an aquatic resource re-verification delineation in the summer of 2020 and winter and spring of 2021 that was verified as a Preliminary Jurisdictional Determination on February 1, 2022, under USACE file No. SPN-2005-298180.

4.9.2 2021 Aquatic Resource Delineation

Overview

An aquatic resources delineation was conducted by HBG Senior Wetland Scientist, Robert Perrera, during 2020 and 2021 following the methodology described in the Corps of Engineers' (Corps) 1987 *Wetlands Delineation Manual*; the Corps' 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*; supporting Corps and US EPA guidance documents. Robert Perrera also followed the State Water Resources Control Board (SWRCB) April 2, 2019, *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board, 2019) and current CDFW guidance regarding identification and delineation of lake and

streambed boundaries to determine if the aquatic resources identified may also be subject to regulation by these two agencies.

The aquatic resources delineation was conducted within most of the project site and areas abutting the project site, which included a portion of Ledgewood Creek, Cordelia Road and Pennsylvania Avenue, and an area between Cordelia Road and Union Pacific Railroad. HBG conducted field work for a re-verification in the summer of 2020. Based on the vegetation observed, and lack of hydrologic indicators, it appeared a significant vegetation shift has occurred over the past 15 years. Based on this observation HBG conducted additional field work in 2021 to record direct observations of ponding and soil saturation in the winter, and additional sample points recording vegetation, soils, and hydrology taken in the spring during the peak growing season. As part of the spring field work HBG requested cattle grazing on PA-1 be delayed until after the field work was completed.

Due to the below average rainfall, hydrology conditions were considered “naturally problematic” and the “Difficult Wetland Situations in the Arid West” procedures for wetlands that periodically lack indicators of wetland hydrology was used. In accordance with these procedures, if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation (e.g., no drainage ditches, dams, levees, water diversions, etc.), and the region has been affected by drought, then the area should be identified as a wetland. HBG followed this procedure and included areas that met the hydrophytic vegetation and hydric soil indicators, but lacked wetland hydrology indicators, as “wetlands.”

Rainfall Analysis

An antecedent precipitation analysis was also conducted for the project site. The rainfall analysis followed the USACE guidance <https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool> that was required by the USACE in 2020. In addition to the antecedent precipitation analysis, HBG acquired USDA NRCS historical precipitation data for the Study Area using the WETS Tables station for Fairfield. HBG reviewed the rainfall mean total precipitation data from 1990-2020 and compared rainfall data from 2011-2020 to the rainfall data from 2001-2010. The purpose of this review was to determine what may be causing the vegetation shift observed within the Study Area.

In summary, a significant decrease in precipitation over the last 30 years has driven a shift in vegetation from facultative or greater rated plants to more upland and facultative upland rated plants. This decrease in precipitation has resulted in a decrease in the extent of seasonally saturated annual grasslands. HBG has conducted various plant surveys and wetland delineations from 2005 to the present and has noticed an observable, and measurable change over the past 15+ years. The mean annual rainfall per year from 1991-2020 is 24.67 inches. When compared with yearly mean rainfall data every 10 years over the last 30 years, the average annual rainfall totals have consistently decreased. This decrease in precipitation is a long-term trend which is likely driven by climate change. If climate change continues as

predicted, HBG anticipates the extent of shallow aquatic resources driven by direct precipitation will likely decrease further within the foreseeable future.

Results

Refer to Figure 11 for the USACE verified preliminary jurisdictional delineation map and Attachment 3 for a copy of the USACE preliminary jurisdictional determination verification letter.

4.10 Special Status Species

Special status species to be evaluated in reviews pursuant to the California Environmental Quality Act (CEQA) 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 Special Concern (species that 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 were rare or faced 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. Special status species included in CEQA review also include bat species protected by the California Fish and Game Code and that have been designated with conservation priority by the Western Bat Working Group. CEQA also requires evaluation of impacts to plant species on California Rare Plant Rank (CRPR) Lists 1 and 2.

The CDFW maintains records for the distribution and known occurrences of special status species and sensitive habitats in the California Natural Diversity Database (CNDDDB). The CNDDDB is organized into map areas based on 7.5-minute topographic quadrangle maps produced by the U.S. Geological Survey (USGS). All known occurrences of special status species are mapped onto quadrangle maps maintained by the CNDDDB. 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 located on the Fairfield North and Fairfield South USGS 7.5-minute quadrangle maps.

Attachment 2, Tables 3 and 4 present a list of special status plants and animals reported by the CNDDDB within a ten-mile radius of the project site. An evaluation of the potential for all sensitive species to occur at the site is included in Tables 3 and 4.

4.10.1 Special Status Plant Species

A list of special status plants with potential to occur on the project site was developed from the CNDDDB. A complete list of special status plant species occurring in the vicinity of the property is

included in Attachment 2 Table 3. The table includes all species of flora mentioned in the CNDDDB within approximately ten miles of the site.

Based on the information obtained through the CNDDDB and the results of past surveys and protocol rare plant surveys conducted on the project site, seven special status plant species have been known to occur on the site and several additional special status species are known to occur in the vicinity of the project site. These species are discussed below.

4.10.1.1. Protocol Rare Plant Surveys

Historical Surveys. Vollmar Consulting conducted special-status plant surveys on the portion of the site south of Cordelia Road and Cordelia Street during spring and summer 2000. These spring surveys were conducted on May 3 and 4, 2000, with an additional summer survey conducted on August 15, 2000. Vollmar Consulting conducted additional targeted surveys in this portion of the site during spring 2001 and 2002, focusing on vernal pools, seasonal alkali marsh, and seasonally saturated annual grassland habitats. These additional spring surveys during 2001 and 2002 were conducted in late April and early May. Spring surveys conducted between 2000 and 2002 were conducted throughout the entire project site that targeted special-status plant species associated with vernal pool, annual grassland, and seasonally saturated grassland habitats. Spring surveys were timed to coincide with peak spring bloom period, which typically occur during mid-spring. The summer surveys of 2000 targeted special-status plant species associated with alkali seasonal marsh and perennial marsh habitats. The summer surveys were timed to coincide with the peak summer bloom period, which typically occurs during mid-summer.

Vollmar Consulting also conducted special-status plant surveys throughout the entire project site on eight dates in 2005. The surveys targeted special-status plant species associated with each vegetation community on the project site. April surveys were timed to coincide with peak spring bloom. August surveys focused on the alkali seasonal marsh and perennial brackish marsh habitats associated with the upper Suisun Marsh and were timed to coincide with the peak summer bloom period.

Plant surveys during the period 2000 to 2002 were part of a broader biological survey and wetland delineation. During all surveys, the entire project site was walked, with the survey effort focused on specialized habitats with high potential to support special-status plant species. All plant species observed were identified and recorded. Those specimens that could not be readily identified in the field were collected and identified later. Locations of special-status plants were mapped onto enlarged (1:3,600) aerial photo base maps of the project site obtained from WAC Corporation in Eugene, Oregon.

Surveys during 2005 focused on special-status plant species only. The surveys included complete coverage of entire project site with special focus on specialized habitats with high potential to support special-status plant species. Locations of special-status plants were

mapped using a GPS unit with sub-meter accuracy (Trimble GeoXT). At each occurrence of a special-status plant, the number and density of plants, the associated species, and basic habitat information were recorded. The number of plants was determined by visual estimate.

2021 and 2022 Surveys. Additional surveys were performed in 2021 and 2022 in accordance with state and federal plant survey protocols (CDFW 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. Protocol rare plant surveys were conducted by Terry Huffman, PhD, of Huffman-Broadway Group, Inc.(HBG) in the spring and summer of 2021 and by Brent Helm of Helm Biological Consulting (HBC) in the spring and summer of 2022. Surveys were conducted during the flowering periods of target special status species when they would be identifiable. Dr. Huffman conducted three separate surveys on April 23, May 19, and June 18, 2021. Brent Helm surveyed the site during 2022 on March 31, April 1, 5, 8, 12 and 26, May 13, June 16, July 7, and September 12, The timing of the protocol field surveys was based on consideration of both the blooming period for the special status species which were identified as having a potential to occur within the habitat type or types in the project site and soil moisture conditions which allow for adequate plant growth. Given the size of the project site, it was divided into survey grid areas where biologists conducted pedestrian surveys walking meandering transects within each survey grid to allow for thorough visual ground observations to be made throughout the various plant communities.

Prior to conducting the field surveys, the CNDDDB, the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Study Area. Previous rare plant surveys conducted on the project site (described above) were also reviewed. Reference sites were established to confirm that target species were identifiable at the time of the botanical surveys. The Jepson herbarium collection was also consulted.

Survey Results. The results of the 2000, 2001 and 2002 special status plant surveys are reported in *Special-Status Species Survey and Wetland Delineation Report for the Barnfield Property, Suisun, Solano County, California* (Vollmar Consulting, November 11, 2003), and *Wetland Delineation and Special Status Species Survey Report for the Gentry and Tooby Properties, Suisun, Solano County, California* (Vollmar Consulting, January 27, 2003). The results of the spring 2005 surveys and summaries of the earlier findings are reported in *Gentry, Tooby and Barnfield Properties-Special-Status Plant Survey Report 2000 – 2002 and 2005 Field Seasons* (Vollmar Consulting, June 23, 2005). Copies of the Vollmar Consulting rare plant survey reports from 2000, 2001, 2002, 2003, and 2005 are included in Attachment 4.

Results of the protocol surveys conducted in 2021 are reported in the 2021 Plant Survey Report for Highway 12 Logistics Center HBG 2021) and results of the surveys conducted in 2022 are reported in the 2022 Protocol-Level Special Status Native Plant Surveys at the Gentry Logistics

Center Project (Helm Biological Consulting 2022). Also refer to Attachment 4 for a copy of the HBC 2022 rare plant survey report and the HBG 2021 rare plant study report.

Seven special-status plant species have been observed within the project site:

Alkali Milk-vetch- Alkali milk-vetch (*Astragalus tener* var. *tener*) is a small, purple-flowered annual in the pea family (Fabaceae). It is considered to be rare and endangered (List 1B.2) by CNPS. It is associated with seasonally saturated grasslands with alkaline soils as well as the upper margins of alkaline vernal pools. Its historical range included the Central Coast, San Francisco Bay, Delta, and mid Central Valley regions. However, due to habitat loss, it has been extirpated from the Central Coast and Bay regions and most areas in the Central Valley. Its remaining stronghold is in the Delta, especially Solano County, where it is known from approximately 65 element occurrences in the CNDDDB.

Contra Costa Goldfields- Contra Costa goldfields (*Lasthenia conjugens*) are a small, yellow-flowered annual in the sunflower family (Asteraceae). It is federally listed as endangered and is considered rare and endangered (List 1B.1) by CNPS. It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands. Approximately 29 element occurrences have been documented in the CNDDDB, all of which are in California's Delta and coastal regions with a large majority in the immediate vicinity of Fairfield, Solano County.

Delta Tule Pea- Delta tule pea (*Lathyrus jepsonii* ssp. *jepsonii*) is a robust, pink-flowered perennial in the pea family (Fabaceae). It has a climbing growth habit with stems up to 8 feet long. It is considered rare and endangered (List 1B.2) by the California Native Plant Society (CNPS). It occurs in marsh habitats along the margins of brackish water (and occasionally freshwater) bays and sloughs. Its range is restricted to the upper San Pablo Bay and Delta regions of California. It historically occurred in the southwestern San Francisco Bay (Santa Clara County) but has been extirpated from this region due to habitat loss. It is known from approximately 133 element occurrences in the CNDDDB.

Saline Clover- Saline clover (*Trifolium depauperatum* var. *hydrophilum*) is a pink flowered annual and member of the pea family (Fabaceae). It is considered to be rare and endangered (List 1B.2) by CNPS. It occurs in mesic grasslands and around vernal pools, typically in areas with subalkaline soils. It occurs in scattered location through the Delta, San Francisco Bay, and Central Coast regions of California, where it is known from approximately 56 element occurrences in the CNDDDB. Although saline clover does not have federal status, prior to the surveys on the project site, saline clover was known from only three sites in Solano County. Additional sites in the San Francisco Bay area include one site in Yolo County, four sites in Sonoma County, and two sites in Napa County. Saline clover is threatened by the loss of seasonally saturated annual grassland

and vernal pool habitat. The core population on the project site is located within the Managed Open Space area.

Suisun Marsh Aster- Suisun Marsh aster (*Symphotrichum lentum*) is a 3- to 4-foot-tall lavender-flowered perennial in the sunflower family (Asteraceae). It is considered rare and endangered (List 1B.2) by the California Native Plant Society (CNPS). It occurs along the margins of bays and the banks of slough channels with brackish waters. Its range is restricted to the upper San Pablo Bay and Delta regions of California, where it is known from approximately 175 occurrences in the CNDDDB.

Heckard's Pepper-Grass (*Lepidium latipes* var. *herckardii*). Heckard's pepper-grass is no longer recognized as a distinct variety in the latest edition of the Jepson Manual (Baldwin et al 2012), but the species is ranked 1B.2 in the CNPS Rare Plant Inventory. This pepper-grass is in the mustard family (Brassicaceae). The nearest CNDDDB occurrence of this species is 17 miles from the project site at Haas Slough. This species grows in grasslands and alkaline flats in the Central Valley.

Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*). Long-styled sand spurrey grows in alkaline seeps and meadows and is ranked 1B.2 in the CNPS Rare Plant Inventory. Sand-spurries are in the plant family Caryophyllaceae. The nearest occurrence of this species is based on a 1953 specimen collected near the project site.

Each of these species and their occurrence onsite is discussed below. The location of each of these species in the project area is shown on Figure 12, which also shows the location of the various species in relation to the proposed development portion of the site.

Alkali Milk-vetch. During historical surveys of the project site, alkali milk-vetch was found within the current development site and in portions of the area south of Cordelia Road. In the surveys conducted between 2000 and 2002, alkali milk-vetch was observed in one location in seasonally saturated annual grassland near the western end of the Development Site. This location consisted of approximately 20 plants in a 1-meter square area. The 2000 occurrence of alkali milk-vetch was also one of seven occurrences located in this portion of the site during the 2005 surveys. The occurrence, located in 2000 as 20 plants, was relocated in 2005 as a single plant. This species is known to bloom sporadically and the change in number of plants from year to year is expected. Of the remaining six occurrences, three occurrences of alkali milk-vetch were located north of the California Northern Railroad and three were located south of the railroad. The northern occurrences included a single plant in the seasonally saturated grassland in the west, and two occurrences in the middle of the property, each consisting of two plants also located in the seasonally saturated grassland habitat. The southern occurrences include a single plant, an occurrence of two plants and an occurrence of three plants, all in weedy (ruderal pasture) annual grassland habitat. As this species is known to bloom sporadically from season to season, it is likely that the additional occurrences of alkali milk-vetch found in 2005 are to be expected during favorable years.

Alkali milk-vetch was observed in one location near the northwest corner of the portion of the site located south of Cordelia Road and Cordelia Street in the 2000-2002 surveys. This occurrence consisted of several hundred plants. This population was not observed in 2001 but was observed in the 2005 surveys as approximately 200 plants within a 175-square-foot area. An additional new occurrence was located during 2005 in the northwestern region of this portion of the project site and consisted of approximately 50 plants scattered in a 141-square-foot area.

Alkali milk-vetch was documented at the site in 2021, and a single population of approximately 300 individuals, located south of Cordelia road and west of Ledgewood Creek, was mapped at the site during surveys conducted in 2022. The population of alkali milk-vetch found in 2022 was growing with populations of Contra Costa goldfields and saline clover.

Contra Costa Goldfields. During previous plant surveys, Contra Costa goldfields were observed in the Development Site, within the annexation area east of the Development Site, and within the remainder of the property south of Cordelia Road/Cordelia Street.

During surveys conducted in 2000-2002, one occurrence of Contra Costa goldfields was observed on the proposed development portion of the site, near the northeast corner. Twenty to 30 plants were observed in a small depression within the seasonally saturated annual grasslands. This population was also found during the 2005 surveys, which also found an additional occurrence in the northeast region of the Development Site and three additional occurrences in the southwest portion of the Development Site. This new occurrence of Contra Costa goldfields in the northeast area consisted of 9 plants in a small depression within seasonally saturated grassland habitat. Of the three occurrences in the southwest portion, two were single plant occurrences located on the edge of seasonally saturated grassland habitat. The third occurrence consisted of approximately 50 plants scattered in a 583-square-foot area within the seasonally saturated grassland habitat adjacent to a man-made ditch.

During surveys conducted in 2000-2002, four occurrences of Contra Costa goldfields were observed within the annexation area east of the proposed development. Two occurrences, each consisting of a single plant, were located in two vernal pools in the northwest region of the property. Two additional occurrences were located in a larger vernal pool located in the southwest region of the property. These two occurrences each consisted of 10 to 20 plants near the upper edge of the pool basin. In 2005, ten occurrences of Contra Costa goldfields were located in this area, including four occurrences located in 2000 and six new occurrences. The four previously known occurrences included two relocated in the two small vernal pools in the northern region of the property and the two moderate sized occurrences of the 2000 surveys relocated in 2005 as single plant occurrences in the larger vernal pool in the south end of the property. Of the six new occurrences, one new occurrence was located in the large vernal pool in the south and consisted of a dense patch of approximately 100 plants in a 100-square-foot area. Five additional occurrences were located in the north-central region of the property along

the west edge of the brackish marsh habitat, including an occurrence of 20 plants in a 100-square-foot area; an occurrence of 15 plants in a 100-square-foot area; an occurrence of 100 plants in a 536-square-foot area; an occurrence of 30 plants scattered in a 728-square-foot area; and an occurrence of 100 plants scattered in a 13,027-square-foot (0.3 acre) area.

During surveys conducted in 2000-2002 south of Cordelia Road/Cordelia Street, Contra Costa goldfields were observed in several scattered colonies in the northwestern portion of the property that can be grouped into four primary areas. A few thousand plants were observed in five small, shallow vernal pools just south of Cordelia Road and west of Ledgewood Creek. Several thousand plants were observed along a low-gradient, seasonally saturated grassland slope near the northwestern corner of the property. This slope is just above a low-lying area that supports seasonal alkali marsh. It appears that the goldfields occupy an intermediate area along the slope gradient, which provides sufficient prolonged soil saturation without excessive soil salinity. In addition to these occurrences, a few thousand plants were observed across a broad area in the far western portion of the site. This area consists of a terrace surrounding a small hill. The terrace has undulating mound/basin topography. The basins are generally small, less than 5 feet in diameter. Contra Costa goldfields occurred as individuals and small clusters within some of these basins.

The four previously mapped, large, scattered colonies of Contra Costa goldfields were located again during the 2005 surveys. The four colonies are more accurately mapped as 3 large polygons, 14 smaller polygons, and 1 single plant occurrence. The general locations of the 2005 occurrences are similar to the year 2000 surveys. The three large occurrences included an occurrence of roughly 7.7 million plants in a 5.2-acre area; an occurrence of 10,000 plants in a 3.5-acre area; and an occurrence of 3,000 plants scattered in an 8.5-acre area. The 14 smaller polygons vary from as few as 5 plants scattered in a 150 square-foot area to a dense patch of 10,000 plants in a 0.25-acre area.

Contra Costa goldfields was documented at the site in 2021, and in surveys conducted in 2022, an estimated 115,000 individuals of Contra Costa goldfields were observed at the project site, mostly in the southwestern portion of the site west of Ledgewood Creek and south of Cordelia Road. Two small populations were observed north of Cordelia Road as well: one population of 54 plants southwest of the intersection of Pennsylvania Avenue and Highway 12 and a population of 17 plants east of Pennsylvania Avenue midway between Highway 12 and Cordelia Road. Fourteen small populations of Contra Costa goldfields were observed north of Cordelia Road in prior surveys, but only two were relocated in 2022, presumably because of extreme drought conditions that prevailed at the time.

Delta Tule Pea. Delta tule pea was not found anywhere within the proposed annexation area (including the Development Site) during the 2000-2002 or 2005 surveys but was observed in 2005 at one localized area south of Cordelia Road/UPRR at the south end of the area along the eastern bank of Peytonia Slough. This occurrence was estimated to include 400 plants. Delta tule pea was also observed during the 2021 and 2022 surveys, with an estimated 1,350 plants

observed in the southern portion of the site in 2022. Five additional small populations were found in 2022, all associated thickets of California rose bordering slough edges.

Saline Clover. During surveys conducted in 2000-2002, one large occurrence of saline clover was observed in the proposed development area of the site around the upper margins of the large vernal pool. The population was estimated at several hundred plants. In addition, 16 occurrences of saline clover were located during 2005 surveys in this portion of the site. The original occurrence located in 2000 was mapped in 2005 as seven individual occurrences surrounding the large vernal pool in the eastern region portion of the site. These seven mapped points and polygons consisted of approximately 200 plants scattered in a total area of 15,292 square feet, or approximately 0.35 acre. Seven additional occurrences were located in or on the edge of the seasonally saturated grassland habitat in the northwest region of the development area. These seven occurrences consisted of three occurrences each with a single plant; a small polygon of 15 plants scattered in a 100-square-foot area; 20 plants scattered in a 971-square-foot area; 40 plants scattered in a 1,241-square-foot area; and 100 plants scattered in a 0.69-acre area. Two additional occurrences were located south of the Union Pacific Railroad line in the southern region of the development area within a weedy (ruderal pasture) annual grassland habitat. One occurrence consisted of 15 plants scattered in a 0.17-acre area and another consisted of 50 plants scattered in a 0.12-acre area. Saline clover is known to bloom sporadically from year to year based on weather conditions and is often not present in the same location each year. The increase in number of plants from 2000 to 2005 is therefore to be expected.

A total of three occurrences of saline clover were located within the annexation area east of the development area during the 2005 surveys. One occurrence of 15 plants in a 100-square-foot area was located in the large vernal pool in the southern region of the property. Two additional occurrences were located in the small vernal pools in the northern region of the property. These include 30 plants in a 231-square-foot area and 5 plants in a 100-square-foot area.

Saline clover was not found in the annexation area during the 2000-2002 surveys, but a total of 40 occurrences of saline clover were located within the area south of Cordelia Road Cordelia Street during the 2005 survey. Most of the occurrences were located in seasonally saturated annual grasslands in the western region of the property, with minor amounts in nearby upland annual grasslands and a few occurrences were located in the shallow vernal pools in the far northeast region of the property. Together the 40 occurrences total approximately 6,300 plants in a total combined area of 19.036 acres.

Saline clover was observed in 2021, and, in 2022, an estimated 22,000 individuals of saline clover were observed at the project site, predominantly in the central and southwest portions of the site south of Cordelia Road. The area occupied by saline clover was greatly reduced from previous years, presumably due to several years of drought.

Suisun Marsh Aster. Suisun Marsh aster was not observed at the Development Site during the 2000-2002 and the 2005 surveys but was observed in scattered locations along the southern portion of the drainage ditch that traverses the portion of the annexation area east of the Development Site during the previous late-season surveys conducted on August 15, 2000, and August 8, 2005. The ditch is subject to daily tidal fluctuations of mildly brackish waters. Total population size was estimated at 200 plants.

Suisun Marsh aster was observed in several scattered colonies along slough banks in the southern and southeastern portions of the area south of Cordelia Road and Cordelia Street during late-season surveys conducted on August 15, 2000, and August 8, 2005. Dense colonies were also observed along the two ditches on the property. Total population size of all colonies was estimated at 4,000 plants. The species was noted at the site during surveys conducted in 2021, and an estimated population of 23,000 Suisun Marsh aster plants were observed in perennial brackish marsh in the southeastern portion of the site in 2022 .

Heckard's Pepper-Grass (*Lepidium latipes* var. *herckardii*). Heckard's pepper-grass is no longer recognized as a distinct variety in the latest edition of the Jepson Manual (Baldwin et al 2012), but the species is ranked 1B.2 in the CNPS Rare Plant Inventory. This species grows in grasslands and alkaline flats in the Contra Valley. Heckard's pepper-grass was not observed in prior plant surveys of the site in 2000, 2001, 2002, 2005, and 2021, but an estimated population of 280 plants was observed on the site during surveys conducted in 2022.

Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*). Long-styled sand spurrey grows in alkaline seeps and meadows and is ranked 1B.2 in the CNPS Rare Plant Inventory. The species was observed at the site during prior surveys but was not mapped because it had no listing status at the time. Long-styled sand-spurrey was observed at a single location at the project site during surveys conducted in 2022. A few plants were observed growing in the seasonally saturated annual grassland north of Cordelia road and west of Pennsylvania Avenue.

Designated Critical Habitat for Contra Costa Goldfields and Suisun Thistle. Critical Habitat has been designated on the project site for two federally listed endangered plant species: Contra Costa goldfields (*Lasthenia conjugens*) and Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*). The location of the Critical Habitat designations on the project site for these two species is shown in Figure 14.

The USFWS final designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon included designation of critical habitat for Contra Costa Goldfields. The 93.4-acre development is included in 737 acres of the Contra Costa goldfields Critical Habitat designation "Subunit 5G". The location of known Contra Costa goldfields populations on the project site are shown in Figure 12 and are discussed above.

The perennial brackish marsh in the southeastern area of the project site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle. Suisun thistle is known from only a

few locations, including one along lower Peytonia Slough. There is potential habitat for this species along the slough channels in the southern portion of the property south of Cordelia Road and the UPRR, but rare plant surveys conducted over the project site during six years since 2000 have yielded negative results for this species. There is the possibility this species could be present in the brackish marsh in the southern portion of the site but was not seen during field surveys due to the difficulty of accessing this area.

Other Special-Status Plant Species. No other special-status plants were observed on the project site during surveys conducted in six years since 2000. Special status vernal pool species included in Attachment 2, Table 3, such as dwarf downingia (*Downingia pusilla*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legenere limosa*) were searched for during rare plant surveys and none of these species were observed during field surveys. Other vernal pool species listed in Table 3, including two Orcutt grasses, Colusa grass (*Neostapfia colusana*), and Crampton's tuctoria (*Tuctoria mucronata*), were considered also target species during surveys. These two grasses typically occupy large and/or deep vernal pools that remain inundated into the summer during an average rainy year. The large pool in the development area can be considered possible habitat for Colusa grass and Crampton's tuctoria, however, surveys over the entire site over a total of six years yielded negative results for these species.

The alkali seasonal wetlands on the site provide potential habitat for several of the special-status plant species listed in Attachment 2, Table 3, such as San Joaquin spearscale (*Atriplex joaquiniana*) and other species of saltbush (*Atriplex* spp.). San Joaquin spearscale is known from Travis Air Force Base (a few miles northeast of the property) in habitat similar to that observed on the property. However, since none of these species was observed during field surveys, they are unlikely to occur on the property.

Several of the species in Attachment 2, Table 3 are associated with marsh habitat along brackish sloughs and bay margins including soft bird's-beak (*Chloropyron mollis* ssp. *mollis*), and Mason's lilaepsis (*Lilaeopsis masonii*). Mason's lilaepsis and soft bird's beak are more likely to occur south of the property closer to Grizzly Bay though there is low potential for them to occur along sloughs in the far southern portion of the project site. Surveys over the entire site over six years yielded negative results for these species. As with Suisun thistle, there is the possibility these species could be present but were not seen during field surveys due to the difficulty of accessing this area. However, it should be noted that this area is not proposed for development.

It is noteworthy that the three large, mapped occurrences of Contra Costa goldfields within the area south of Cordelia Road and Cordelia Street are included within an area that contains a high cover of wildflower species associated with seasonally saturated grasslands and vernal pools. These fields are notable for their lack of introduced annual grasses. In addition to the high cover of Contra Costa goldfields, other common wildflower species include California goldfields (*Lasthenia californica*), smooth goldfields (*Lasthenia glaberrima*), varieties of cowbag clover (*Trifolium depauperatum* var. *amplectens* and *Trifolium depauperatum* var. *depauperatum*),

variegated clover, (*Trifolium variegatum*), butter and eggs (*Triphysaria eriantha*), little owl's clover (*Triphysaria pusilla*), Valley tassels (*Castilleja attenuata*), Vasey's coyote-thistle (*Eryngium vaseyi*), flat-faced downingia (*Downingia pulchella*), brass buttons (*Cotula coronopifolia*), and stipitate popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*). The native vernal pool grass, California semaphore grass (*Pleuropogon californicus*), is a common associate in the lower depressions within the seasonally wet areas.

It is also important to note that although the aquatic resources within Planning Areas 1, 2, and 3 appear to provide suitable habitat for Contra Costa goldfields, the population within the development area is limited to less than 0.023 acre (approximately 102 individual plants) and has not expanded over the last 20 years. The majority of the core Contra Costa goldfields population ends once the soil type changes to the sycamore silty clay loam saline. Refer to Figure 15 for the CCG locations overlaid onto the NRCS soils type map. The proposed development area includes a broad range of pool types, thatch is minimized by cattle grazing, does not support dense populations of annual grasses within the wetlands, includes bare ground areas where Contra Costa goldfields could easily compete, and soils are clearly alkaline as is evident from the population of pickleweed and alkali heath. However, the population has not expanded over time. Although Contra Costa goldfields are adapted to alkaline soils, it is likely the soil type within the proposed development area, sycamore silty clay loam saline, is less suitable for Contra Costa goldfields compared to other soil types, which may be the reason the population has not expanded. It is also important to note the core population of Contra Costa goldfields occurs within the Managed Open Space area of the project site. The majority of the core population covers approximately 17 acres (approximately 8,000+ plants) within the southwestern area of the proposed Managed Open Space area, within which the soil type is Pescadero silty clay loam.

4.10.2 Special Status Animal Species

Animal species noted in the CNDDDB 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 Attachment 2, Table 4. A number of special status animal species with habitat requirements similar to habitats present at the project site are noted in the CNDDDB as occurring either on portions of the project site or in the immediate vicinity of the site or have been observed on the site by HBG or other biologists during field surveys at the property. These species include vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), California linderiella (*Linderiella occidentalis*), northern harrier (*Circus hudsonius*), Swainson's hawk (*Buteo swainsoni*), California black rail (*Laterallus jamaicensis coturniculus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludvicianus*), Suisun song sparrow (*Melospiza melodia maxillaries*), Suisun shrew (*Sorex ornatus sinuosus*), and salt marsh harvest mouse (*Reithrodontomys raviventris*).

Additional special status species with occurrence records further from the project site could also find suitable habitat conditions within the project site. These species include Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*),

Western pond turtle (*Emmys marmorata*), Delta green ground beetle (*Elaphrus viridis*), California tiger salamander (*Ambystoma californiense*), western spadefoot toad (*Scaphiopus hammondi*), short-eared owl (*Asio flammeus*), grasshopper sparrow (*Ammodramus savannarum*), and tricolored blackbird (*Aegelaius tricolor*). All species known or suspected of occurring within ten miles of the project site are evaluated in Attachment 2, Table 4, including species such as ferruginous hawk (*Buteo regalis*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco mexicanus*), and merlin (*Falco columbarius*), which would be expected to occasionally use the site as a foraging habitat in the winter.

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.

A variety of special status species surveys and assessments have taken place on the project site over the last 20 years. Protocol-level wet season surveys were conducted by May Consulting Services in the winter/spring of 2000 for federally listed vernal pool brachiopods (vernal pool fairy shrimp and tadpole shrimp). These surveys also served to check for the presence of California tiger salamanders (*Ambystoma californiense*), Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*), and curved-foot hygrotus diving beetle (*Hygrotus curvipes*). Protocol-level dry-season sampling for federally listed vernal pool brachiopods was conducted in summer of 2002 by Helm Biological Consulting and in the fall of 2005 by Area West Environmental. Recent protocol surveys for vernal pool large brachiopods included dry-season sampling in 2020 and wet-season surveys in 2021 conducted by Helm Biological Consulting. Vollmar Consulting (2006 and 2007) reviewed habitat conditions pertaining to potential presence of California tiger salamander and conducted seining for CTS larvae. Reconnaissance-level surveys were conducted during the period 2000 to 2003, 2005, and 2020, 2021 and 2022 to check for potential habitat for other special-status invertebrates, amphibians, mammals, and birds. The results of the species-specific site assessments, reconnaissance surveys, and habitat assessments are summarized in the following sections.

4.10.2.1 Invertebrates: Vernal Pool Brachiopods

Listing Status and Life Cycle Information

Vernal Pool Fairy Shrimp. Vernal pool fairy shrimp (*Branchinecta lynchi*) 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 1.25-miles southwest of designated critical habitat.

The vernal pool fairy shrimp 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.

Conservancy Fairy Shrimp. The Conservancy fairy shrimp (*Branchinecta conservatio*) was listed as federally endangered in September 1994 (59 FR 48153). The project site is approximately 3.25 miles west of designated Critical Habitat.

The Conservancy fairy shrimp is a small crustacean in the Branchinectidae family. Conservancy fairy shrimp are believed to have occurred historically throughout the Central Valley of California. This species inhabits lake-sized vernal pools (often called playa pools) that have turbid water. The pools at Jepson Prairie and Vina Plains inhabited by the Conservancy fairy shrimp have neutral pH, very low conductivity, total dissolved solids and alkalinity. Fairy Shrimp are not known to occur in permanent bodies of water, and are dependent upon seasonal fluctuations in their habitat, such as the absence or presence of water during specific times of the year.

Conservancy fairy shrimp are known primarily from the Jepson Prairie area within Solano County, including the Jepson Prairie Preserve and the potential Muzzy and Gridley mitigation banks. Additional records of the Conservancy fairy shrimp are from the large vernal pools lying along the base of the Potrero hills and one location near Collinsville. Suitable large pool habitat is also present in northeast Fairfield, north of Travis Air Force Base, although the Conservancy fairy shrimp has yet to be documented there (Draft Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan, Appendix B, August 2004).

Longhorn Fairy Shrimp. The longhorn fairy shrimp (*Branchinecta longiantenna*), a federally listed endangered species, inhabits clear to turbid grass-bottomed vernal pools in grasslands and clear-water pools in sandstone depressions. This species is known only from four disjunct populations along the eastern margin of the central coast range from Concord, Contra Costa County south to Soda Lake in San Luis Obispo County, the Kellogg Creek watershed, the Altamont Pass area, the western and northern boundaries of Soda Lake on the Carrizo Plain and Kesterson National Wildlife Refuge in the Central Valley. All vernal pools inhabited by this species are filled by winter and spring rains and may remain inundated until June. The longhorn fairy shrimp has been observed from late December until late April. The water in grassland pools inhabited by this species has very low conductivity, TDS and alkalinity (59 FR 48137). There is no Critical Habitat designated for this species.

Vernal Pool Tadpole Shrimp. The vernal pool tadpole shrimp (*Lepidurus packardii*) was designated as threatened in its entire range on September 19, 1994 (*Federal Register* 59:48136-48153). Vernal pool tadpole shrimp is a federally listed threatened species. The project site is approximately 1.25 miles northwest of designated Critical Habitat.

Vernal pool tadpole shrimp require seasonally aquatic habitats that are wet for at least 7 weeks. It occurs in a variety of natural and artificial seasonally inundated habitats including vernal pools, seasonal wetlands, alkaline pools, clay flats, vernal swales, stock ponds, railroad right of way pools, roadside ditches, and road rut pools resulting from vehicular activity. Occupied pools and wetlands typically have highly turbid waters or aquatic vegetation that may provide shelter from predators. It has also been observed in clear waters.

The vernal pool tadpole shrimp is known from populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, from a small population near the Napa County airport, and from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, but which has been converted to mainly agricultural and urban uses.

California Linderiella. The California linderiella (*Linderiella occidentalis*), also known as the California fairy shrimp, is not listed by the federal ESA or CESA, but was at one time a federal species of concern and is listed by the International Union for the Conservation of Nature (IUCN) as a species threatened with extinction. It is generally found in the same types of aquatic habitats as vernal pool fairy shrimp and frequently co-occurs with this species. This species tends to live in large, fairly clear, vernal pools and lakes. However, they can survive in clear to turbid water with a pH from 6.1 to 8.5, and they have also been found in exceedingly small pools. They are tolerant of water temperatures from 41 degrees to 85 degrees F, making them the most heat tolerant fairy shrimp in California. The California fairy shrimp is the most common fairy shrimp in the Central Valley. It has been documented in most landforms, geologic formations and soil types supporting vernal pools in California, at altitudes as high as 3800 feet

above sea level. The range extends from Shasta County south to Fresno County and across the valley to the coast and Transverse Ranges from Willits in Mendocino County south to near Sulfur Mountain in Ventura County.

Occurrence in the Project Area

Historical Brachiopod Surveys. Protocol level wet-season surveys for federally listed vernal pool large brachiopods (fairy and tadpole shrimp) were conducted during the winter/spring of 1999/2000 by May Consulting Services. Protocol level dry-season sampling for listed large brachiopods was conducted in summer 2002 by Helm Biological Consulting and in the fall of 2005 by Area West Environmental. Additional recent protocol surveys for vernal pool large brachiopods included dry-season sampling in 2020 and wet-season surveys in 2021 conducted by Brent Helm.

2000 Wet-Season Surveys. Year 2000 wet-season large brachiopod (vernal pool fairy shrimp and tadpole shrimp) sampling was conducted by Dr. Brent Helm of May Consulting Services. Each pool was sampled on six occasions at roughly two-week intervals during the 2000 wet-season on February 4, March 14, 24 & 31; and April 11 & 21, 2000. For each wetland sampled, data were collected on presence and relative abundance of federally listed large brachiopods as well as other macroscopic aquatic invertebrates observed. Complete wet-season survey methods and results are discussed in the May Consulting report entitled *Wet-Season Surveys for Federally Listed Large Brachiopods at the Gentry Property, Fairfield, California* (May Consulting Services, April 2000). A total of 20 pools were sampled within the annexation area (including the Development Site) and 17 pools were sampled in the area south of Cordelia Road. No large brachiopods were observed during sampling efforts.

2002 Dry-Season Surveys. Dr. Helm conducted dry-season soil sample analysis in 2002 for 13 pools within the annexation area (including the Development Site) and 11 pools south of Cordelia Road. Those pools selected for dry sampling were determined to provide potential habitat for listed large brachiopods during the wet season surveys. Dr. Helm processed and analyzed all soils samples collected for the presence of large brachiopod cysts following USFWS protocols. Complete survey methods and results are discussed in Dr. Helm's dry-season survey report entitled *Dry-Season Sampling for Federally-listed Large Brachiopods at the Gentry Property, Fairfield, California* (Helm Biological Consulting, June 2002). No cysts of large brachiopods were observed.

2005 Dry-Season Surveys. Dr. Helm of Helm Biological Consulting conducted dry-season sampling and analysis of large brachiopod in September 2005. Sampling within pool locations occurred throughout the site, including the annexation area (including the Development Site) and the area south of Cordelia Road. Soil collection, processing, and analysis generally followed protocols published by the U.S. Fish and Wildlife Service *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Brachiopods* (1996). Complete survey methods and results are discussed in Dr. Helm's

dry-season survey report entitled *Dry-Season Sampling for Federally Listed Large Branchiopods at the Gentry-Suisun Project* (Area West Environmental, December 2005). Soils from 61 seasonal wetlands within the Project Area were analyzed. No cysts of large branchiopods were observed.

2020 Dry- and 2021 Wet-Season Surveys. Helm Biological Consulting conducted dry season protocol surveys for listed brachiopods during the summer of 2020. Dr. Helm followed USFWS (2017) Guidelines for Listed Brachiopods for Dry -Season Sampling which outline methods for soil collection, processing, and analysis. Dry-season sampling was conducted in all basins (habitats) within the project site with the potential to support federally listed large brachiopods (total of 52 basins). Within larger basins, soil samples were collected from the lowest topographic area. Complete survey methods and results are discussed in Dr. Helm’s dry-season survey report entitled *Protocol-Level Dry-Season Sampling for Federally Listed Large Branchiopods at the Gentry Logistics Project* (Helm Biological Consulting April 2021).

Dr. Helm also conducted wet-season protocol surveys for listed brachiopods during the winter of 2020-2021. Dr. Helm followed USFWS’s (2017) Survey Guidelines for Listed Large Branchiopods for wet-season sampling. Wet season sampling was conducted through direct observation of individual brachiopods and through dip-netting. Complete survey methods and results are discussed in Dr. Helm’s wet-season survey report entitled *Protocol-Level Wet-Season Sampling for Federally Listed Large Branchiopods at the Gentry Logistics Project* (Helm Biological Consulting April 2021).

Both historical and recent dry-season and wet-season protocol surveys were negative for presence of federally listed large brachiopods on the project site. Vernal pool fairy shrimp and vernal pool tadpole shrimp do not occur on the project site. Refer to Attachment 5 for a copy of the Helm Biological Consulting 2020 and 2021 dry and wet season survey reports.

4.10.2.2 Other Invertebrates

Delta Green Ground Beetle

Background. Delta green ground beetle (*Elaphrus viridis*) was designated as a threatened species in its entire range in 1980 (*Federal Register* 45:52807-52809). The Delta green ground beetle is known to occur only at two sites south of Dixon, and at the Jepson Prairie Preserve in Solano County, California. The historical distribution of the Delta green ground beetle is unknown; however, the widespread disruption of wetland and grassland habitat of the Central Valley since the middle of the last century strongly suggests that the range of the beetle has shrunk and become fragmented. At the present time the beetle is protected at the Jepson Prairie Preserve south of Dixon.

Primary habitat for the Delta green ground beetle is the immediate shoreline of playa lakes that support the appropriate mix of bare or sparsely vegetated ground (<25% plant cover), low-growing vegetation (primarily *Navarretia prostrata*, and secondarily *Frankenia grandiflora*,

Downingia bicornuta, *Juncus bufonius*, and several bunchgrasses), and prey items (primarily springtails, i.e., Collembola). This species may occasionally be found in association with nearby, but smaller vernal pools, hog wallows, or grassy swales, particularly during wet years. However it is believed that the beetle is probably only transient at these smaller pools, as it disperses between the larger playa lakes, rather than a resident breeder. During dry or drought years, annual grasses and other weedy plants increase in numbers at the small vernal pools, thereby rendering habitat conditions unsuitable for the beetle.

Occurrence in the Project Area. Vollmar Consulting assessed the habitat within the project site for the presence of potential habitat of the Delta green ground beetle during studies conducted in 2003. Based on discussions of preferred habitat characteristics with Larry Sherpa, a species expert with the Nature Conservancy, Vollmar Consulting assessed the vernal pools within the Development Site and the annexation area as not appearing to provide suitable habitat for this species since the vernal pools onsite are mostly small and shallow, and lack barren areas (Vollmar Consulting, November 2003). Vollmar Consulting indicated that the large vernal pools in the southern portion of the property appear to provide only marginally suitable foraging habitat for this species. This, along with the fact that the pools are manmade or enhanced, makes it very unlikely the beetles would occur on the site (Vollmar Consulting, January 2003). HBG wildlife biologists reviewed these findings during field reviews conducted in 2020, 2021, and 2022, and find that the only area of the site providing marginally suitable habitat are areas within the southern portion of the preserved Managed Open Space closest to Suisun Marsh.

4.10.2.3 Fish

The Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run and the spring run Chinook salmon and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough and these fish could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur on the in the marshes within the eastern portion of the annexation area and within the portion of the site south of Cordelia Road. The lower reach of Ledgewood Creek adjacent to the southern portions of the property and a slough that runs through the eastern portion of the annexation area to the southern portion of the project area are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species.

4.10.2.4 Amphibians

California Tiger Salamander

Background. California tiger salamander (*Ambystoma californiense*) from the Central Valley Distinct Population Segment (includes Solano County) is listed as a threatened species under the federal Endangered Species Act. The species is also state listed as threatened under the California Endangered Species Act.

Historically, the California tiger salamander inhabited low elevation grassland and oak savanna plant communities of the Central Valley, and adjacent foothills, and the inner Coast Ranges in California. The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills. Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

Although the larvae of California tiger salamanders develop in vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders and spend most of their postmetamorphic lives in widely dispersed underground retreats. Subadult and adult California tiger salamanders spend the dry summer and fall months of the year in upland refugia such as the burrows of small mammals such as California ground squirrels and Botta's pocket gopher or other landscape features such as leaf litter or desiccation cracks in the soil. The upland burrows inhabited by California tiger salamanders have often been referred to as "aestivation" sites or as "upland habitat."

Once fall or winter rains begin, the salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds. Adult salamanders' mate in the breeding ponds, after which the females lay their eggs in the water. Historically, California tiger salamanders utilized vernal pools, but the animals also currently breed in livestock stock ponds. After breeding, adults leave the pool and return to the small mammal burrows, although they may continue to come out nightly for approximately the next two weeks to feed. In drought years, the seasonal pools may not form, and the adults cannot breed.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) inter-pond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. California tiger salamanders are known to travel large distances from breeding sites into upland habitats. Sweet (1998) found CTS individuals dispersing up to 1.3 miles from breeding ponds in Santa Barbara County, and Orloff (2011) found a similar result for CTS in Contra Costa County. In addition to traveling long distances during migration to or dispersal from ponds, California tiger salamanders may reside in burrows that are far from ponds. Although California tiger salamanders can travel far, typically they stay closer to breeding ponds, and evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adults.

Occurrence in the Project Area. Vollmar Consulting (2006) reported that the closest CTS occurrence to the project area was a 2001 report of thousands of larvae observed at a location approximately 5 miles southeast in the Potrero Hills, with the next nearest occurrence reported

from approximately six miles northeast of the project area (about 1.5 miles northwest of Travis Field). Five additional occurrences are reported from 10-20 miles northeast of the project area. A recent data search with the CNDDDB (CDFW 2023) shows that the situation with respect to CTS in this part of Solano County remains fairly unchanged. There are a total of 24 total occurrences of CTS within 10 miles of the project site, 6 found in the Potrero Hills between 5 to 6 miles southeast of the project site and an additional 18 found between 6 to 10 miles northeast of the site. The nearest breeding pond is located about 5 miles southeast of the project site near the Potrero Hills Landfill, where evidence of breeding has been documented as recently as 2017.

For their 2006 study, Vollmar Consulting followed federal survey protocols and conducted a regional and local CTS habitat assessment as well as three rounds of seining for larvae. May Consulting Services also have conducted dip-net surveys for this species at the site in 2000. No CTS were observed during the seine surveys conducted by either May Consulting Services in 2000 or by Vollmar Consulting in 2006. In addition, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect CTS.

Vollmar Consulting concluded that suitable CTS breeding habitat occurred within some pools in the northern portion of the site as some pools remained inundated for periods that could support CTS breeding, but the water in these pools was clear to moderately clear, which is not consistent with CTS preference for turbid waters. All of the pools in the southern portion of the project area were too shallow to support breeding by CTS. Vollmar Consulting (2006) also found suitable upland CTS habitat in the non-native annual grasslands surrounding some pools in the northern portion of the site, but they found no ground squirrel burrows in the project area (mainly due to seasonal surface and subsurface soil saturation) which decreases the potential suitability of the uplands for CTS aestivation habitat. Use of uplands areas of the site by CTS would not be likely as the nearest known breeding pond is 5 miles away, well beyond the 1.3-mile maximum dispersal distance of the species. In addition, significant barriers to migration occur between the project area and known CTS occurrences which include roadways, residential, commercial, and industrial development, and large tidal water bodies. In 2007 Vollmar conducted a CTS upland habitat assessment and concluded due to the distance from known occurrences, the presence of significant migration barriers, and lack of surrounding breeding habitat, it was highly improbable that adult CTS could access and use the project site as upland habitat. Perhaps just as significant, the entirety of the Development Site is within the 100-year floodplain as is 95% of the area south of Cordelia Road, which is an additional factor not conducive to presence of CTS. Refer to Attachment 6 for a copy of the 2006 and 2007 Vollmar Consulting CTS reports.

Occurrence in the Project Area. Vollmar Consulting (2006) reported that the closest CTS occurrence to the project area was a 2001 report of thousands of larvae observed at a location approximately 5 miles southeast in the Potrero Hills, with the next nearest occurrence reported from approximately six miles northeast of the project area (about 1.5 miles northwest of Travis Field). Five additional occurrences were reported from 10-20 miles northeast of the project

area. A recent data search with the CNDDDB (CDFW 2023) shows that the situation with respect to CTS in this part of Solano County remains fairly unchanged. There are a total of 24 total occurrences of CTS within 10 miles of the project site, 6 found in the Potrero Hills between 5 to 6 miles southeast of the project site and an additional 18 found between 6 to 10 miles northeast of the site. The nearest breeding pond is located about 5 miles southeast of the project site near the Potrero Hills Landfill, where evidence of breeding has been documented as recently as 2017.

Western Spadefoot Toad

Background. The western spadefoot toad (*Scaphiopus hammondi*) is a state designated species of special concern that is known from the Central Valley and adjacent foothills, and from the interior coast ranges south of San Francisco Bay to Baja California. Western spadefoot toads require presence of an aquatic habitat for breeding and a terrestrial habitat for feeding and aestivation. Western spadefoot toads are mostly terrestrial, using upland habitats to feed and burrow in for their long dry-season dormancy. The species primarily occurs in grasslands habitat, typically near extensive areas of friable soils (but usually not sandy), but can occur in valley-foothill woodlands, coastal scrub, and chaparral communities below 3,000 ft. elevation.

The western spadefoot toad requires seasonally-inundated wetlands for reproduction and metamorphosis but have been known to utilize slow-moving waters and pools within washes, river floodplains, alluvial fans, alkali lakes and playas. They mate during the rainy season (generally from January to March), usually after heavy rains. Potential western spadefoot toad breeding habitat includes any seasonally to semi-permanently inundated depression that on average ponds water at a sufficient depth and duration for a toad to complete its lifecycle (eggs to metamorphosis) which occurs in the known range of the species. Habitats that swiftly flow water (e.g., creeks, streams, and ephemeral drainages) or support populations of predators (e.g., bullfrogs, fish, crayfish) are generally not considered suitable habitat for western spadefoot toad larvae.

Occurrence in the Project Area. There are no CNDDDB records in the vicinity of the property. The nearest recorded occurrences are more than 20 miles to the east and south. In addition, May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Dip net surveys included checking for larvae and egg masses. Dip-net surveys also correspond with the rainy period when breeding toads are most likely to be observed migrating to breeding sites. Survey results were negative.

4.10.2.5 Birds

Northern Harrier

Background. The northern harrier (*Circus hudsonius*) is a medium-sized raptor that is a USFWS bird species of conservation concern and a state designated species of special concern. The females are brown with a white tail patch while the males are gray and white. It is a state species of special concern with respect to nesting. 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. The species forages over open habitats and annual croplands and nests in grassland and marsh habitats. 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 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 open grasslands and wetlands over the project site also provide suitable nesting habitat for northern harriers. The nearest report of northern harrier nesting in the CNDDDB is from 2004 at a location over two miles southeast of the project site within the area of Suisun Marsh. Northern harriers have been observed by HBG wildlife biologists foraging over the project site during the nesting season, suggesting that the species may nest somewhere in the project vicinity. Vollmar Consulting also observed individuals foraging over the perennial marsh and grassland habitats in the portion of the site south of Cordelia Road when conducting studies for the 2006 Biological Assessment. Northern harriers use the grasslands and wetlands within the project site as a foraging habitat, and there is a high probability that individuals of this species nest in the southern portion of the project area.

Swainson's Hawk

Background. The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that is state listed in California under CESA as a 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.

The number of breeding pairs of Swainson's hawks in California has grown rapidly in recent years. Bloom (1980) estimated that as many as 17,136 pairs of Swainson's hawks historically nested in California and in the same report, based on a 1979 survey, estimated that only 375 (± 50) breeding pairs remained in California. This demonstration of a 90% decline in the population prompted the listing of Swainson's hawk as a state threatened species in 1983. Estep (1989) estimated 430 breeding pairs in the Central Valley and 550 breeding pairs Statewide in

1988, and an estimate published by CDFW a decade later (CDFW 2007) showed a modest increase with an estimated number of breeding pairs statewide at 1,893 in 2005 and in the Central Valley at 2,251 in 2006. In a recent study published by CDFW researchers in early 2022, Furnas et al (2022) concluded that California's Swainson's hawk summering population grew between 2005 and 2018 at the rapid rate of 13.9 percent per year and estimated the total Statewide population at 18,810 breeding pairs in 2018, which is within the range of the historical baseline that Dr. Bloom estimated in 1979. According to the Five-Year Status Review for Swainson's Hawk published by CDFW in 2016, habitat loss continues to be the primary threat to Swainson's hawk populations in California.

Occurrence in the Project Area. There are no large trees located on the project site, and few large trees of a size and stature that they would be capable of supporting nesting by Swainson's hawk in the immediate project vicinity, therefore it can be stated that is unlikely that Swainson's hawk nests in the immediate vicinity of the project site. Trees adjacent to the site include trees within the offsite riparian habitat of LedgeWood Creek, but these trees are mostly willows not of a size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within ½ mile of the site could support nesting by the species. The non-native grasslands and seasonal and brackish/tidal 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. There are 20 records of Swainson's hawk in the CNDDDB within 10 miles of the project site, including 5 that are within 3 miles. The closest record of nesting Swainson's hawk to the project site is of a nest discovered in the summer of 2022 by an HBG wildlife biologist near Chadbourne Road and Courage Drive, a location that is approximately 1.4 miles west of the project site. (CNDDDB 2023).

California Black Rail

Background. The California black rail (*Laterallus jamaicensis coturniculus*) is a state listed threatened species and a California Fully Protected Species. The California black rail most commonly occurs in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrush in association with pickleweed. In freshwater marshes, they are usually found in bulrush, cattails, and saltgrass. These rails typically occur in the high wetland zones near the upper limit of tidal influence. In California, the species occurs at San Francisco Bay, the Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and the lower Colorado River. Loss of upper marsh zone around San Francisco Bay has reduced numbers considerably.

Occurrence in the Project Area. No California black rails were seen or heard on the project area, during a large number of field visits to the site over the last 20 years, though no formal vocalization surveys were conducted. The CNDDDB records California black rail occurrences south of the site in marsh habitat bordering Suisun Bay and associated sloughs. The perennial marsh habitat on the eastern portion of the annexation area provides low to medium quality foraging and nesting habitat for this species. Though not detected during informal surveys, it is possible the species is present along slough channels with dense perennial marsh habitat in the southern portion of the Managed Open Space area closest to Suisun Marsh.

Short-eared Owl

Background. Short-eared owl (*Asio flammeus*) is a widespread species, with populations occurring on several continents, but in California, short-eared owl is considered a species of special concern for its nesting habitat due to threats related to habitat loss, grazing, invasive plants, water management projects and disease. The species is also considered a USFWS bird species of conservation concern. Short-eared owls are found in the open country of grasslands, freshwater and saltwater marshes, lowland meadows, and irrigated alfalfa fields, inhabiting areas where small mammals, especially voles, are plentiful. Tule patches or heavily-grassed areas are needed for nesting and daytime seclusion. These owls' nest on dry ground in depressions concealed in vegetation. In winter, short-eared owls forage in open habitats with grassland and marshes with a plentiful source of prey.

Occurrence in the Project Area. No short-eared owls were observed on the site during multiple site visits over the last 20 years. The CNDDDB records numerous nesting occurrences at the Grizzly Island Wildlife Area in both perennial marsh and grassland habitat. The perennial brackish marsh along the eastern portion of the study site provides potential foraging and nesting habitat for the species. The annual grassland and wetland habitats on the rest of the site are generally too short to provide suitable habitat, but nesting by short-eared owl in the southern portion of the site cannot be ruled out.

Western 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 CDFW species of special concern. CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012, Staff Report (CDFW 2012).

Occurrence in the Project Area. No burrowing owls or their burrows were observed on the site by HBG wildlife biologists, although a formal survey was not completed. No burrowing owls were reported at the site by other biologists who have studied the site over the last 20 years,

including biologists conducting branchiopod surveys (May Consulting Services, Area West Environmental, Helm Biological Consulting), rare plant surveys (Vollmar Consulting, HBG), and numerous site reconnaissance surveys by HBG wildlife biologists. The nearest record of burrowing owls in the CNDDDB is a 2004 report of an occupied burrow off the site adjacent to Cordelia Road.

Vollmar Consulting (2006) reported that they found no ground squirrels burrows on the project site, presumably mainly due to seasonal surface and subsurface soil saturation, which limits the potential for burrowing owls to inhabit the site. HBG biologists conducting field surveys at the site for nearly 20 years report few ground squirrels on the project site, which decreases the potential suitability of the uplands as burrowing owl habitat. Some areas of non-native grassland are potentially suitable for occupation by burrowing owls, especially in the few areas where ground squirrel colonies are present. The species could also occur along levee banks and other raised areas that do not become saturated during the winter and spring. 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.

Loggerhead Shrike

Background. Loggerhead shrike (*Lanius ludovicianus*) is a California-designated species of special concern. Loggerhead shrikes are resident and winter visitors in lowlands and foothills throughout California and are rare along the coast in winter north to Mendocino County. Preferred habitat includes open areas such as desert, grasslands, and savannah. Loggerhead shrikes' nest in thickly foliated trees or tall shrubs and forage in open habitats which contain trees, fence posts, utility poles, and other perches. Loggerhead shrikes are usually solitary birds. They feed on insects, reptiles, and small mammals, which they frequently impale on thorns and barbed wire after capturing.

Occurrence in the Project Area. This species was observed onsite by HBG in June 2005 and in the area south of Cordelia Road in July of 2021. Biologists from Vollmar Consulting also observed a single loggerhead shrike perched on the fence line along the eastern edge of the development area in May 2000. Loggerhead shrikes utilize the site for foraging and perching but it is unlikely to nest on the site due to a general lack of suitable habitat.

Salt Marsh Common Yellowthroat

Background. The salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), a type of warbler, is a subspecies of the widespread common yellowthroat is designated as a California species of special concern and is a USFWS bird species of conservation concern and is designated as a California species of special concern. The breeding range of salt marsh common yellowthroat extends from Tomales Bay in the north, Carquinez Strait to the east, and Santa Cruz County to the south. This year-round resident is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. The species occupies the ecotone between moist and upland situations (Shuford and Gardali 2008), but requires thick,

continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting.

Occurrence in the Project Area. Common yellowthroats have been observed by both HBG and Vollmar Consulting in the dense perennial brackish marsh habitat in the southern portion of the site south of Cordelia Road. However, a review of the breeding range map for the salt marsh common yellowthroat subspecies that is a state designated species of special concern shows that the breeding range of the subspecies of concern extends to the east only as far as about Carquinez Strait and does not include the marsh area near Suisun Bay. Although yellowthroats are present in the southern portion of the project site, they are not likely to be the salt marsh common yellowthroat that is a species of special concern.

Grasshopper Sparrow

Background. Grasshopper sparrow (*Ammodramus savannarum*) occurs in grasslands across North America and ranges from southern Canada to as far south as Ecuador. Grasshopper sparrows are common only in the Great Plains, but numbers are in decline due to loss of habitat, conversion of pasture to row crops, and fire suppression. Grasshopper sparrows in California prefer moderately open, short to middle-height grassland habitats with scattered shrubs (Shuford and Gardali 2008). In California, agricultural and urban development has fragmented habitats within the range of the species, and Grasshopper sparrow has been designated in the state as a species of special concern.

Occurrence in the Project Area. Grasshopper sparrows were not observed during field surveys of the project site, but non-native annual grasslands on the property may provide suitable nesting and foraging habitat for the species.

Suisun Song Sparrow

Background. The Suisun song sparrow (*Melospiza melodia maxillaries*) is a state species of special concern endemic to Suisun Bay. Intermixed stands of bulrush (*Schoenoplectus* spp.), cattail (*Typha* spp.) and other emergent vegetation provide suitable habitat. Suisun song sparrows forage on the bare surface of tidally exposed mud among the tules and along slough margins in the brackish marshes of Suisun Bay during low tides (Shuford and Gardali 2008). This species' nests are strung along the edges of sloughs and bays in linear fashion. Each territory must have enough area for nesting and foraging, including tidally exposed mud, water, and vegetation suitable for nesting and cover while foraging. The vegetation must also harbor food and include permanent water or moisture in the form of tidal ebb and flow. Suisun song sparrows are physiologically and behaviorally adapted to naturally occurring brackish water conditions of Suisun Marsh. They are one of the few passerine birds that are adapted to allow direct consumption of saline water. This species prefers to consume water of the average salinity range that naturally occurs within its habitat. Previously, the literature suggested that these birds are confined to undiked tidal marshes. Recent field surveys have noted Suisun song sparrows along ditches, permanent ponds, and other areas in diked wetlands of Suisun Marsh where required plant assemblages and brackish water conditions exist.

Occurrence in the Project Area. Individuals of this species were observed by HBG in June 2005 foraging in the dense perennial marsh habitat both in the eastern portion of the annexation area and in the portion of the site south of Cordelia Road. This species was also observed by Vollmar Consulting biologists in the spring of 2000, foraging in the dense perennial marsh habitat along the eastern portion of the annexation area. The species uses the perennial marsh habitat on the site for foraging and may use the site for nesting.

Tricolored Blackbird

Background. The tricolored blackbird (*Agelaius tricolor*) is a medium-sized songbird similar in appearance to the more common red-winged blackbird but with three colors on its wing patches: red, yellow, and white. Tricolored blackbird (*Aegelaius tricolor*) is listed as threatened under the California Endangered Species Act and is a USFWS 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. No tricolored blackbirds were observed on the site and there are no current CNDDDB records for the species in the vicinity. However, the perennial marsh habitat along the eastern portion of the annexation area provides suitable nesting habitat for the species.

4.10.2.6 Mammals

Suisun Shrew

Background. Suisun shrew (*Sorex ornatus sinuosus*) typically inhabit tidal marshes characterized in order of decreasing tolerance to inundation, by *Spartina foliosa*, *Salicornia ambigua*, and *Grindelia cuneifolia* and brackish marshes dominated by *Schoenoplectus californicus* and *Typha latifolia*. It inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays. It is a state species of special concern. They require dense, low-lying cover where invertebrates are abundant.

Occurrence in the Project Area. The CNDDDB records an occurrence of Suisun shrew immediately east of the southern portion of the project area. Given the close proximity of this occurrence and the presence of suitable habitat, it is likely the Suisun shrew occurs within the perennial marsh habitat on the southern portion of the property. Suisun Shrew is also likely to occur within the perennial marsh habitat along the eastern portion of the annexation area as well. It is unlikely to occur elsewhere on the site, including the development area of the site, due to a lack of suitable habitat.

Salt Marsh Harvest Mouse

Background. The salt marsh harvest mouse was federally listed as endangered in its entire range in 1970 (*Federal Register* 35:16047). It is also state listed as endangered and a California Fully Protected species. The salt marsh harvest mouse is a small native rodent. There are two subspecies: the northern (*R. r. halicoetes*) and the southern (*R. r. raviventris*). The northern subspecies lives in the marshes of the San Pablo and Suisun bays, the southern subspecies resides in the marshes of Corte Madera, Richmond, and South San Francisco Bay. Salt marsh harvest mice are critically dependent on dense cover and their preferred habitat is dominated by pickleweed. In marshes with an upper zone of peripheral halophytes (salt tolerant plants), mice use the vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides. Salt marsh harvest mice probably live on leaves, seeds, and stems of plants. The northern subspecies of the salt marsh harvest mouse can drink sea water for extended periods but prefer fresh water.

Occurrence in the Project Area. The CNDDDB records an occurrence of the species in the perennial marsh habitat along the eastern portion of the proposed annexation area. This record was of a salt marsh harvest mouse trapped as part of trapping surveys conducted in the perennial brackish marsh at the east end of the annexation area in 1986. This area supports localized, homogeneous stands of pickleweed. It is assumed the species is still present in this location. There are a couple of small pickleweed stands within the portion of the site south of Cordelia Road near the railroad tracks along the southeastern property line. Given the occurrence of salt marsh harvest mice in similar habitat nearby, it is likely the species also occurs within the perennial marsh habitat on the southern portion of the property. The species is unlikely to occur on the rest of the site, including the development area of the site, due to lack of suitable habitat.

4.11 Sensitive Natural Communities

CDFW designates sensitive natural communities which are either 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 as those communities that provide special functions or values. CDFW identifies sensitive plant communities on their List of California Natural Communities and records their mapped presence as part of the information documented within the CNDDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

The area of the project site is documented within the CNDDDB as supporting two communities designated on CDFW's list of sensitive natural communities: Northern clay pan vernal pools and Coastal brackish marsh. The mapped information in the CNDDDB, shown on Figure 18, provides a general location of these wetland habitat types within the project area. Both of these natural communities were mapped in greater detail by HBG during field work conducted in 2021 as part

of an Aquatic Resources Delineation pursuant to federal Clean Water Act and state Porter-Cologne Act criteria (see Section 4.9). The Aquatic Resources Delineation of the project site, which has been verified by the U.S. Army Corps of Engineers, is shown in Figure 11, and is broken down by natural community type in Figure 10. Areas noted in Figure 13 as perennial brackish marsh are a more detailed representation of the Coastal brackish marsh generally mapped in the CNDDDB. Northern clay pan vernal pools are mapped as vernal pool communities in Figure 10, but the verified aquatic resources delineation also includes additional wetland areas that would be classified as seasonally saturated annual grasslands, alkali seasonal wetlands, and riparian wetlands.

Some of the vernal pool habitats on site could be classified as a *Downingia pulchella* – *Cressa truxillensis* association, under the *Lasthenia fremontii* – *Distichlis spicata* alliance. Others fit better in the *Lasthenia glaberrima* – *Pleuropogon californicus* association or the *Lasthenia glaberrima* *Trifolium variegatum* association, both under the *Lasthenia glaberrima* alliance (Sawyer *et al.* 2009). Both the *Lasthenia fremontii* – *Distichlis spicata* alliance and the *Lasthenia glaberrima* alliance have a global and state rarity ranking of 2 (G2 and S2) and therefore are considered sensitive natural communities regardless of their wetland status.

The riparian corridor of Ledgewood Creek located west of and adjacent to the development area of the project would be considered a sensitive natural community. The riparian canopy of Ledgewood Creek, comprised mostly of willows, provides habitat for various species of wildlife and the creek itself serves as a wildlife corridor. Currently the area immediately adjacent to the creek contains an access road which is used by pedestrians, occupants of illegal encampments along the creek and vehicles of these occupants, and City maintenance crews. The illegal encampments and pedestrians trespassing on the access road along with a five-foot-high chain link fence likely interferes with the natural movement of wildlife. In addition, the trash the encampments generate, along with illegal dumping of household trash (appliances, old fiberglass boat, furniture, and many types of plastics) within this buffer likely contributes to a large amount of trash entering Ledgewood Creek, and eventually Peytonia Slough. Topographically the Project site naturally flows away from Ledgewood Creek, not toward Ledgewood Creek.

4.12 Critical Habitat and Recovery Plans

4.12.1 Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants

The USFWS final designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon included designation of critical habitat for Contra Costa Goldfields. The entire project site is included in the Contra Costa goldfields Critical Habitat designation “Subunit 5G”. The development area would impact 93.40 acres (12.7%) of the 737 acres critical habitat Subunit 5G and preserve approximately 284 acres (38.5%) within the Managed Open Space.

4.12.2 Designation of Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the project site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed development area and proposed wetland mitigation area is not located within Critical Habitat Unit 2 for the Suisun thistle and surveys have not detected any occurrences of the Suisun thistle, therefore, no potentially significant impacts to Critical Habitat Unit 2 or Suisun thistle would result from construction of the project.

4.12.3 Designation of Critical Habitat for the California Tiger Salamander, Central Population

The USFWS final designation of Critical Habitat for the California Tiger Salamander, Central Population includes the project site. The project site is within the 5,699-acre Critical Habitat designated as Jepson Prairie Unit. The proposed development area would impact 93.4 acres (1.6%) of the 5,699-acre Jepson Prairie Unit and preserve 393.24 acres (6.9%) within the Managed Open Space. Jepson Prairie Unit represents the northwestern portion of the species' distribution and represents the southern end of Solano-Colusa vernal pool region in Solano County.

4.12.4 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan covers 33 species of plants and animals that occur exclusively or primarily within a vernal pool ecosystem in California and southern Oregon. The recovery plan goals include protecting and conserving intact vernal pools and vernal pool complexes within the recovery planning area to maintain viable populations of listed species and species of concern and prevent additional threats from emerging over time. The recovery plan includes designated "core" areas that are specific sites necessary to recover these endangered or threatened species or to conserve the species of concern addressed in the recovery plan. The project site is within the "*Suisun Marsh Core Area*" and the extent and location is similar to the Contra Costa goldfields Critical Habitat designation Subunit 5G. For the purpose of this analysis HBG is assuming the area of the *Suisun Marsh Core Area* is the same or similar to Subunit 5G of the Contra Costa goldfields Critical Habitat.

5.0 BIOLOGICAL IMPACTS AND MITIGATION MEASURES

5.1 Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts to biological resources are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. They also reflect the requirements of laws other than CEQA that protect biological resources (e.g., the federal Clean Water Act, the Porter-Cologne Water Quality Control Act, the federal and state endangered species acts, and the Natural Community Conservation Planning Act). As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G.

Additional guidance on the significance of biological resource impacts is found in CEQA Guidelines section 15065, subdivision (a)(1), which provides that a lead agency shall find that a project may have a significant effect on the environment if "[t]he project has the potential to: ... substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; [or]substantially reduce the number or restrict the range of an endangered, rare or threatened species[.]" The "mandatory findings of significance" are also found in the Appendix G sample Initial Study checklist, though near the end.

In light of the foregoing, the proposed project would have a significant effect related to biological resources if the project would:

1. 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 United States Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or United States Fish and Wildlife Service.
3. Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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 wildlife nursery sites.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.
7. Substantially reduce the habitat of a fish or wildlife species.
8. Cause a fish or wildlife population to drop below self-sustaining levels.
9. Threaten to eliminate a plant or animal community; or
10. Substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

5.2 Impacts and Mitigation Measures

1) The proposed project could 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.

5.2.1 Special Status Plants

Implementation of the project as planned within the Development Site will impact special status botanical species found within that portion of the overall project site. Direct impacts to five special status plant species will result from construction of the proposed project: federally listed endangered and CNPS List 1B.1 Contra Costa goldfields, in addition to alkali milk-vetch, saline clover, Suisun Marsh aster, and long-styled sand-spurry, all four designated on CNPS List 1B.2. The location of impacts to these four species of special status plant resulting from construction of the proposed project are shown in Figure 12.

Contra Costa Goldfields

Based on the 2000-2002 and 2005 surveys conducted by Vollmar Consulting, and the more recent 2021 and 2022 surveys conducted by HBG and HBC, approximately 8,445 individual Contra Costa goldfields, over an 18.36-acre area, are present within the 497.44-acre project site. Within the proposed development area of the project site, an approximately 0.023-acre area occupied by approximately 102 individual Contra Costa goldfields would be directly impacted by the proposed project. The impact to 102 individual plants represents approximately 1.2 percent of the known population of Contra Costa goldfields or 0.13 percent of the known occupied area within the entirety of project site.

Additional impacts to Contra Costa goldfields could result from the placement of fill material within 38 acres of marginal habitat for Contra Costa goldfields. These 38 acres are comprised of seasonally saturated annual grassland, alkali seasonal wetland, and vernal pool vegetation. This 38-acre area is currently unoccupied by Contra Costa goldfields, and surveys conducted over the past 20 years have not detected this species in this area. As discussed in Section 4.10.1, the sycamore silty clay loam saline soil type that is present in the 38 acres of marginal habitat is likely less suitable for Contra Costa goldfields compared to Pescadero silty clay loam, where the

majority of the Contra Costa goldfields population occurs. It is likely that the soil type within the proposed development area of the project site, sycamore silty clay loam saline, is not suitable or is marginal at best for Contra Costa goldfields and may be the reason the populations has remained at approximately 102 individual plants over 0.023 acres and not expanded over time. It is also important to note the core population on the project site supports over 8,000 individual plants over 17 acres of land and is restricted to the southwestern area of the project site within the Pescadero silty clay loam soil type. As shown in Figure 12, the core population of Contra Costa goldfields on the project site abruptly ends once the soil type changes to the sycamore silty clay loam saline.

Loss of marginal Contra Costa goldfields habitat (i.e., habitat characterized by sycamore silty clay loam soil) in the development area would total 38.00 acres, which equals the amount of impacted jurisdictional wetlands within the project development area.

The proposed project would result in direct impacts (discharge of fill) within 0.023 acres occupied by Contra Costa goldfields, the project would also result in the fill of 38 acres of seasonal wetlands and vernal pools which provide potential habitat for Contra Costa goldfields within the designated Critical Habitat for the species. After implementation of the project, the area throughout the site with habitat conditions suitable for growth of Contra Costa goldfields would remain unchanged as mitigation for wetland losses includes creation of wetlands (including vernal pools) to achieve no net loss of these habitats.

Implementation of the proposed Managed Open Space area of the project would require grading near occupied Contra Costa goldfields habitat to establish wetlands, and therefore has potential to alter the hydrology within occupied Contra Costa goldfields habitat, potentially rendering it unsuitable for Contra Costa goldfields occupancy. Vehicles or pedestrians entering occupied Contra Costa goldfields habitat during construction could also adversely affect Contra Costa goldfields habitat. Construction activities could also harm Contra Costa goldfields populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment.

Impact 1- Direct impacts to a 0.023-acre area occupied by approximately 102 individual Contra Costa goldfields, loss of 38 acres of marginal Contra Costa goldfields habitat, and potential direct and indirect impacts associated with wetland grading in the proposed Managed Open Space area of the project site.

Level of Significance Before Mitigation--Potentially significant impact.

Mitigation Measure 1-1: Establish New Contra Costa goldfields Habitat and Populations.

To ensure a no-net-loss of occupied habitat the project applicant shall establish/create a minimum of 0.023 acre (1:1 ratio) of Contra Costa goldfields habitat with the

performance standard of supporting a minimum of 102 individual Contra Costa goldfields plants at least 2 out of the 10 years of monitoring period. Establishing new populations of Contra Costa goldfields shall be done in consultation with USFWS and CDFW and with approval from these agencies and may be accomplished by collecting seed from extant populations and salvaging seed and topsoil from occupied Contra Costa goldfields habitat within the proposed development impact area. As described in the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7), the new Contra Costa goldfields populations would occur in the established/created wetlands within the proposed Managed Open Space area of the project site, adjacent to the existing large population within the Pescadero silty clay loam soil type. A plan for collecting seeds and establishing new populations shall be coordinated with the USFWS during the ESA Section 7 consultation process, as described in the Mitigation and Monitoring Plan.

Mitigation Measure 1-2: Preserve and Manage Contra Costa Goldfields Habitat

The project applicant shall preserve and manage the Contra Costa goldfields occupied habitat in the proposed Managed Open Space area as described in the Mitigation and Monitoring Plan. The Open Space Management Area contains an approximately 17-acre area in the southwestern area of the project site supporting over 8,000 individual Contra Costa goldfields plants within the Pescadero silty clay loam soil, a 2.35-acre area of occupied habitat supporting 267 individual plants in the northern area east of Pennsylvania Road, and approximately 145.21 acres of unoccupied seasonal wetlands similar to the 38-acres of wetland impacts, all of which will be preserved within the Managed Open Space area. Management actions to be implemented to manage, protect, and enhance Contra Costa goldfields occupied habitat shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created Contra Costa goldfields habitat shall continue in perpetuity as described in the Mitigation and Monitoring Plan (Attachment 7).

Mitigation Measure 1-3: Establish and Manage 38 Acres of Wetland Habitat.

To ensure a no-net-loss of potential Contra Costa goldfields habitat, the project applicant shall establish/create 38 acres of in-kind wetland habitat within the proposed Managed Open Space area of the project site, prior to or concurrent with project construction. The established/created wetlands shall be implemented, and performance standards shall be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7). Management actions to be implemented to manage, protect, and enhance wetlands and associated rare plant populations shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to

authorizing agencies. Protection and management of the created wetlands shall continue in perpetuity as described in the Mitigation and Monitoring Plan. Prior to site mobilization the project applicant shall secure approval of detailed construction plans for wetland mitigation in the Managed Open Space from USFWS, CDFW, RWQCB and BCDC.

If additional wetland mitigation is required by the USFWS, CDFW, RWQCB or BCDC, the project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the project site and which support existing populations of Contra Costa goldfields. If no mitigation banks that service the proposed development area are available, the project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 1-4: Install Construction Fencing.

To avoid direct or indirect impacts to occupied Contra Costa goldfields habitat during grading activities within the proposed Managed Open Space area of the project site, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied Contra Costa goldfields habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the Contra Costa goldfields populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measures 1-5: Limit Introduction and Spread of Invasive Species.

To reduce and limit the spread of invasive nonnative plant species on the project site from invasive or noxious weeds, construction vehicles and equipment shall be cleaned inside and out before arrival at the project site. Exterior cleaning shall consist of pressure washing vehicles and equipment, with close attention paid to the tracks, feet, and/or tires and on all elements of the undercarriage. Vehicle cabs shall be swept out, and refuse disposed at an approved off-site location. If vehicles are driven in areas of invasive or noxious weeds already present in portions of the project site, vehicles shall be cleaned before moving from infested areas to areas that are weed-free.

Levels of Significance After Mitigation-- Implementation of these mitigation measures would offset permanent impacts to occupied Contra Costa goldfields habitat and would ensure that Contra Costa goldfields occupied habitat, which supports 99 percent of the Contra Costa goldfields within the project site, is preserved and managed for Contra Costa goldfields in

perpetuity. The measures described above would ensure no-net loss of potential Contra Costa goldfields habitat area, Contra Costa goldfields Critical Habitat, or threat to the recovery of Contra Costa goldfields. These mitigation measures will reduce potential impacts to Contra Costa goldfields to a less-than-significant level.

Alkali Milk-Vetch

This species was found in areas of seasonally saturated annual grassland within the proposed development area. In 2005, a year with very high rainfall, it was also found on the development area in three locations of ruderal annual grassland habitat. Approximately twelve individual alkali milk-vetch plants would be impacted by the proposed project development. In addition, the proposed project development would impact 16.32 acres of seasonally saturated annual grassland habitat constituting suitable habitat for alkali milk-vetch.

Establishment of the proposed Managed Open Space area of the project site would require grading to establish wetlands. Grading to establish wetlands within close proximity to occupied alkali milk-vetch habitat could result alter the hydrology supporting the wetlands and adversely affect wetland habitat that supports alkali milk-vetch. In addition, vehicles or pedestrians could enter habitat supporting this species, resulting in direct and indirect impacts. Construction activities could also harm alkali milk-vetch populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment.

Impact 2- Development of the proposed project would directly impact approximately 12 individual alkali milk-vetch plants over an approximately 0.016-acre area, and 16.32 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch and may indirectly affect occupied alkali milk-vetch habitat.

Level of Significance Before Mitigation--Potentially significant impact.

Mitigation Measure 2-1: Preserve and Establish Alkali Milk-Vetch Habitat.

Within the proposed Managed Open Space portion of the project site, the project applicant shall (1) preserve the 0.007 acre of seasonally saturated annual grassland habitat occupied with approximately 250 alkali milk-vetch plants, and (2) establish/create the equivalent of 16.32 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of seasonally saturated annual grassland habitat within the proposed Managed Open Space portion of the project site as mitigation for the loss of potential habitat for the Contra Costa goldfields would also serve as mitigation for the loss of potential alkali milk-vetch habitat. Topsoil from occupied alkali milk-vetch habitat within the proposed development area shall be collected and used to inoculate the established/created seasonally saturated annual grassland.

Mitigation Measure 2-2: Install Construction Fencing.

To ensure no direct impact to occupied alkali milk-vetch habitat occurs during grading activities to establish wetlands in the proposed Managed Open Space portion of the project site, a non-disturbance buffer delineated by orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied alkali milk-vetch habitat. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an onsite qualified biologist to be of sufficient size to protect alkali milk-vetch populations from direct and indirect impacts. The contractor, in consultation with the qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Levels of Significance After Mitigation - Implementation of Mitigation Measures 2-1 and 2-2 would avoid and offset permanent impacts to occupied alkali milk-vetch habitat and ensure there is no-net loss of potential alkali milk-vetch habitat area. Mitigation Measure 1-5 would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to alkali milk-vetch to a less-than-significant level.

Saline Clover

Saline clover was observed around the upper margins of the large vernal pool within the proposed development area of the project site and in seasonally saturated annual grassland. The loss of the vernal pool habitat and the seasonally saturated annual grassland habitat within the project development footprint represents a potential loss of 405 individual saline clover plants over a 1.10-acre area. Impacts to 1.10 acres of the on-site population of saline clover are anticipated as a result of project implementation, based on the 2000-2002 and 2005 surveys and the more recent surveys in 2021 and 2022. Implementation of the Mitigation and Monitoring Plan for the proposed Managed Open Space area of the project site would require grading to establish wetlands. Grading to establish wetlands within close proximity to occupied saline clover habitat could result in impacts from vehicles or pedestrians entering the habitat. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment.

Impact 3- Development of the proposed project would directly impact 405 individual saline clover plants over a 1.10 acres area, and 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support saline clover and may indirectly affect occupied saline clover habitat. Indirect impacts may also occur from the establishment/creation of wetlands adjacent to Contra Costa goldfields habitat by altering the hydrology within occupied Contra Costa goldfields habitat.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 3-1: Preserve and Establish Saline Clover Habitat.

Within the proposed Managed Open Space portion of the project site, the project applicant shall (1) preserve 1.10 acres of saline clover habitat occupied with a minimum of 405 individual plants; and (2) or establish the equivalent of 14.09 acres of vernal pool habitat and 16.32 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of vernal pool and seasonally saturated annual grassland habitat within the proposed Managed Open Space portion of the project site as mitigation for the loss of potential habitat for the Contra Costa goldfields will also serve as mitigation for the loss of potential saline clover habitat. Topsoil from occupied saline clover habitat within the proposed development area of the project site shall be collected and used to inoculate the established/created vernal pools and seasonally saturated annual grassland.

Mitigation Measure 3-2: Install Construction Fencing.

To ensure no impact to occupied saline clover occurs during grading activities to establish wetlands in the proposed Managed Open Space portion of the project site, orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied saline clover habitat. The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect saline clover populations from direct and indirect impacts. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Levels of Significance After Mitigation - Implementation of Mitigation Measures 3-1 and 3-2 would offset and avoid permanent impacts to occupied saline clover habitat and ensure there is no-net loss of potential saline clover habitat area. Mitigation Measure 1-5 would avoid the introduction and spread of invasive plant species. These mitigation measures would therefore reduce potential impacts to saline clover to less than significant.

Suisun Marsh Aster

In the 2000-2002 and 2005 special status plant surveys and the 2021 survey by HBG, the Suisun Marsh aster was observed in scattered locations along the perennial brackish marsh slough channel that traverses the northeastern portion of the project site. This population is estimated to be 200 plants. Based on the current proposed development area footprint, a stormwater culvert would be constructed on the western bank of the slough channel covering

approximately 0.002-acre area. Construction of the culvert could potentially impact the Suisun Marsh aster at the culvert's location. The majority of the populations of Suisun Marsh aster, approximately 4,000 individuals, was observed in scattered colonies along slough banks in the southern and southeastern portions of the property. No impact to Suisun Marsh aster would occur in this area, which is proposed as part of the project as Managed Open Space.

Impact 4: Development of the proposed project could directly impact a few individual plants of Suisun Marsh aster if they occur at the location of the proposed stormwater culvert.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 4-1: Conduct Preconstruction Plant Survey and Implement Avoidance Measures.

Plant surveys shall be conducted prior to the design of the stormwater culvert outfall to determine the location of Suisun Marsh aster plants in relation to the proposed outfall. If individual plants occur in the proposed location of the stormwater outfall culvert or in an area where impacts could occur to the plants, the location shall be modified, if feasible, to avoid directly or indirectly affecting the plants.

Mitigation Measure 4-2: Mitigate for Impacts on Suisun Marsh Aster.

If impacts to individual plants are unavoidable, even with modifications to the project design, the project applicant shall establish/create a minimum of 0.002 acres (1:1 ratio) of Suisun Marsh aster habitat in the proposed Managed Open Space portion of the project site. The performance standard for this mitigation shall be supporting the same or greater number of plants impacted for at least 2 out of the 10 years of the monitoring period. This mitigation measure for establishing new Suisun Marsh aster plants shall be incorporated into the Preliminary Mitigation and Monitoring Plan provided in Attachment 7.

Level of Significance After Mitigation - Implementation of Mitigation Measures 4-1 would avoid and minimize impacts to Suisun Marsh aster. If impacts to individual plants are unavoidable, Mitigation Measure 4-2 would offset permanent impacts to occupied Suisun Marsh aster by establishing new populations at a 1:1 ratio in proposed Managed Open Space portion of the project site. This measure would ensure no-net loss of occupied or potential Suisun Marsh aster habitat area, thus reducing potential impacts to a less-than-significant level.

Long-styled Sand-spurry

Several plants of long-styled sand-spurry were observed growing in the seasonally saturated annual grassland north of Cordelia road and west of Pennsylvania Avenue in a location that is part of the footprint for the proposed development. Construction of the project would eliminate these several plants and 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support the species.

Impact 5- Development of the proposed project would directly impact several long-styled sand-spurry plants and would remove 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support the species.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 5-1: Preserve and Establish Long-Styled Sand-Spurry Habitat.

Within the proposed Managed Open Space portion of the project site, the project applicant shall establish the equivalent of 14.09 acres of vernal pool habitat and 16.32 acres of seasonally saturated annual grassland habitat within the proposed Managed Open Space as proposed as part of the Mitigation and Monitoring Plan to mitigate for elimination of long-styled sand-spurry habitat. Collection of topsoil within the proposed development area within occupied habitat for alkali milk-vetch and saline clover and use of the soil to inoculate established/created seasonally saturated grassland (Mitigation Measures 2-1 and 3-1) shall be accomplished as such soil will also contain seeds for long-styled sand-spurry.

Mitigation Measure 5-2: Install Construction Fencing.

The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer to protect Contra Costa goldfields, alkali milk-vetch, and saline clover, which will also protect the small extant population of long-styled sand-spurry.

Levels of Significance After Mitigation - Implementation of Mitigation Measures 5-1 and 5-2 would offset and avoid permanent impacts to occupied long-styled sand-spurry habitat and would ensure there is no-net loss of potential habitat for the species. These mitigation measures would therefore reduce potential impacts to long-styled sand-spurry to less than significant.

Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the project site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed development area and proposed wetland establishment within the Managed Open Space area are not located on Critical Habitat Unit 2 for the Suisun thistle and surveys have not detected any occurrences of the Suisun thistle on the development area or Managed Open Space area, therefore, no potentially significant impacts to Critical Habitat Unit 2 or Suisun thistle would result from construction of the project. Therefore, no impact to Critical Habitat for Suisun thistle would result from construction of the proposed project and no mitigation is warranted.

5.2.2 Special Status Animals

5.2.2.1 Special Status Animals Not Impacted By Project

The special status animal species discussed in Section 4.10.2.1 are species known from the CNDDDB to occur within 10 miles of the project site or known to occur in the project vicinity based on the local knowledge of HBG biologists, with habitat requirements that may potentially be satisfied by habitat conditions on the project site. Evaluations of the onsite habitat with regard to the potential suitability of these habitats to support a variety of special status species were reported in Section 4.10.2.1. It was determined that the following species, discussed in Section 4.10.2.1, are not present on the Project Site or the immediate vicinity, and no impacts to these species would result from implementation of the proposed project.

Special Status Vernal Pool Crustaceans and Critical Habitat

As described in Section 4.10.2.1, one wet and two dry season surveys were conducted for special status vernal pool crustaceans (vernal pool tadpole shrimp, vernal pool fairy shrimp) between 2000 and 2005. The wet season survey was conducted in 2000 and the dry season surveys were conducted in the late fall of 2002 and late fall of 2005. The results of all three surveys were negative.

In 2006 Area West Environmental conducted dry and wet season sampling for federally-listed large branchiopods (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [*Lepidurus packardii*]) vernal pool. Survey generally followed USFWS *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. Survey results were negative. Also noted in the report were negative findings for CTS and CRLF.

New surveys have been conducted that include dry season surveys in 2020 and wet season surveys in 2021. These surveys conducted over consecutive years were also negative for the presence of large vernal pool brachiopods. Based on the results of these surveys, vernal pool fairy shrimp and vernal pool tadpole shrimp do not occur anywhere within the project site. Therefore, no impacts to special status vernal pool crustaceans would result from construction of the proposed project and no mitigation is warranted.

Despite the lack of vernal pool crustaceans on the project site as demonstrated by protocol surveys conducted on the property, the seasonal wetlands within the project site provide suitable habitat conditions for these vernal pool crustaceans. Approximately 38 acres of these habitats would be impacted (filled) to accommodate project construction, but overall habitat conditions suitable for vernal pools crustaceans would remain as mitigation for wetland losses includes creation of 38 acres of wetlands (including vernal pools) to achieve no net loss of these habitats. In addition, approximately 107.21 acres of seasonal wetlands (including vernal pools)

will be preserved within the Managed Open Space area. Overall within the Managed Open Space area suitable habitat will be established at a 1:1 ratio and preserved at a 2.8:1 ratio.

Monarch Butterfly

No trees are present on the project site so there is no possibility for the presence of a monarch butterfly overwintering site at the project site. Several biologists, including most recently from HBG, 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 project site. Therefore, no impacts to monarch butterflies would result from construction of the proposed project and no mitigation is warranted.

Delta green ground beetle

This species may occasionally be found in association with nearby smaller vernal pools, hog wallows, or grassy swales, particularly during wet years. However, it is believed that the beetle is probably only transient at these smaller pools, as it disperses between the larger playa lakes, rather than a resident breeder. During dry or drought years, annual grasses and other weedy plants increase in numbers at the small vernal pools, thereby rendering habitat conditions unsuitable for the beetle. Due to the (1) lack of suitable habitat on the project site; (2) distance between the project site and the nearest known delta green ground beetle is within playa lake complexes at the Jepson Prairie, and (3) the project site is not within designated critical habitat, construction of the proposed project will have no impact to the delta green ground beetle and no mitigation is warranted.

California tiger salamander and Critical Habitat, Central Valley DPS

The entire project site, which includes the 93.40-acre development area, is within the 5,699-acre Critical Habitat designated as the Jepson Prairie Unit. The Jepson Prairie Unit represents the northwestern portion of the species' distribution and represents the southern end of Solano-Colusa vernal pool region in Solano County. According to the final rule, this unit contains all three of the primary constituent elements and four extant occurrences of the species in one aggregation.

Although the project falls within the Critical Habitat designated as the Jepson Prairie Unit, the project site supports only one of the three primary constituent elements required for habitat to be considered potential CTS habitat. The project site does support vernal pools that become inundated during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall. However, the project site does not have upland habitats that are adjacent to or accessible from breeding ponds as there are no breeding ponds within the dispersal distance of the species nor is the site accessible to CTS from more distant breeding sites due to barriers to movement of individuals. Although within Critical Habitat, the site does not contain the physical or biological features essential to conservation of the species.

In 2006 Vollmar Consulting conducted a CTS site assessment and aquatic survey. The site assessment and aquatic surveys followed the guidelines described in the CDFW and USFWS *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*. Aquatic survey results were negative, and the site assessment concluded the closest CTS occurrence to the project area is located approximately 5 miles southeast, in the Potrero Hills area, well beyond the 1.3-mile maximum dispersal distance known for the species. It also concluded significant barriers to migration occurred between the project site and known CTS occurrences which include roadways, residential, commercial, and industrial development and large tidal channels. Additionally, the majority of the project site is within the 100-year flood plain and no mammal burrows were observed on-site. In addition, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect CTS.

It is clear that the project site does not support CTS based upon (1) a 2006 Vollmar Consulting CTS site assessment accompanied by aquatic surveys with negative results for CTS, (2) additional aquatic surveys conducted by May Consulting in 2000 and Helm Biological in 2021 also did not detect CTS, (3) water in vernal pools in the northern portion of the site was clear to moderately clear which is not consistent with CTS preference for turbid waters, and all of the pools in the southern portion of the project area were too shallow to support breeding by CTS, (4) the project site is surrounded by significant barriers to known CTS breeding ponds that are nearly 5 miles from the project site, making the project site inaccessible to CTS from known occurrences, and (5) the project site lies within the 100-year floodplain that is not conducive to presence of CTS. As the site would not support CTS breeding, foraging or dispersal habitat, no impacts to CTS would result from construction of the proposed project and no mitigation is warranted. Regardless, approximately 393.24 acres of CTS Critical Habitat will be preserved within the Managed Open Space with implementation of the project.

Western spadefoot toad

The nearest recorded occurrences of this species from the project site are more than 20 miles away to the east and south. Dip-net surveys conducted for CTS by Vollmar Consulting in 2006 and dip-net surveys conducted for vernal pool fairy shrimp 2006 by Area West Environmental and 2021 by Helm Biological did not detect western spadefoot toads. Based on the nearest recorded occurrence is over twenty miles from the project site and dip-net surveys for other species did not turn up this species, the proposed project will have no impacts to the western spadefoot toad. Therefore, no impacts to western spadefoot toad would result from construction of the proposed project and no mitigation is warranted.

5.2.2.2 Special Status Animals Potentially Impacted By Project

Special Status Fish Species

Fish species including the Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run and the spring run Chinook salmon and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood

Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough and these fish could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur in the marshes within the Managed Open Space area. The lower reach of Ledge wood Creek adjacent to the southern portions of the property and a slough that runs through the eastern portion of the annexation area to the southern portion of the project area are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species. The proposed project is located outside Ledge wood Creek and the slough channels with the exception of a stormwater outfall culvert which may impact 0.002 acres of a perennial brackish marsh.

Especially with respect to salmonids, off-site migration of soil leading to possible siltation of salmon streams is an important consideration as excessive siltation can result in covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature, all potentially resulting in adverse impacts to fish populations. Implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and BMPs, would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. For example, silt fence and straw wattles would be installed along portions of the project site to prevent water pollutants from migrating offsite. In addition, vegetation would only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates shall be stabilized as quickly as possible to prevent erosion and runoff.

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 Ledge wood 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. With implementation of BMPs and the SWPPP grading, excavation, placement of fill material, and other ground-disturbing activities associated with construction activities would avoid erosion sedimentation and introduction of potential contaminants in Ledge wood Creek and other aquatic resources.

Impact 6: Special Status Fish Species. Project construction activities could result in potential water quality impacts in Ledge wood Creek and other waterways and could have an adverse effect to special status fish species.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 6-1: Implement SWPPP and BMPs

The project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges. The SWPPP shall provide guidance for measures to protect environmentally sensitive areas, and to prevent and minimize stormwater and non-stormwater discharges. Protective measures shall include the following, at a minimum:

1. Discharge of pollutants into storm drains or watercourses from vehicles and equipment cleaning will be prohibited.
2. Maintenance and refueling areas for equipment will be located a minimum of 50 feet from active stream channels in predesignated staging areas, except at an established commercial gas station or vehicle maintenance facility.
3. Spill containment kits will be maintained on-site at all times during construction operations and/or staging or fueling of equipment.
4. Dust control measures will include the use of water trucks and dust palliatives to control dust in excavation-and-fill areas, and to cover temporary stockpiles when weather conditions warrant such action.
5. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment.
6. Permanent erosion control measures, such as biofiltration strips and swales to receive stormwater discharges from the highway or other impervious surfaces, will be implemented to the maximum extent practicable.
7. Construction Site Management Practices. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
 - Routes and boundaries of roadwork will be clearly marked before initiation of construction or grading.
 - All equipment will be maintained to prevent leaks of automotive fluids, such as gasoline, oils, or solvents, and a spill response plan will be prepared.

- Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is located at least 100 feet from wetlands and aquatic habitats.
- Before construction activities begin, the contractor, in consultation with a qualified biologist and in accordance with the project plans, will clearly demarcate environmentally sensitive areas adjacent to the project footprint. Temporary fencing will be installed along the perimeter of all environmentally sensitive areas that are to be avoided; will remain in place throughout the duration of construction and will be fully maintained and inspected daily when project activities are underway. Repairs to the fencing will be made within 24 hours of identifying the need for repair. After construction is completed, the fencing will be completely removed.
- Restrict Vehicles and Construction to Designated Work Areas. All construction equipment will be restricted to operating within the designated work areas, staging areas, and access routes. The limits of designated work areas and staging areas (i.e., project footprint) will be clearly marked before beginning construction.

Level of Significance After Mitigation—less than significant level.

Northern Harrier and Short-eared Owl

Northern harriers and short-eared owls have not been documented nesting on the project site, but suitable nesting habitat for the northern harrier 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 the summer (breeding season) during site reconnaissance of the property by HBG. Suitable breeding habitat for short-eared owl also occurs on the project site, particularly in the eastern portion of the annexation area east of Pennsylvania Avenue and in the area south of Cordelia Road. If a northern harrier or short-eared owl were found to be nesting on the project site during the construction period, potential impacts to either of these species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Disturbances to nest sites for these special status species are possible either during grading or vegetation removal for project construction within the proposed development area of the project site or from grading required for creation of mitigation wetlands within the proposed Managed Open Space area in the southern portion of the project site. Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or abandonment of eggs or young) would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code.

Impact 7: Northern Harrier and Short-Eared Owl. Grading or vegetation removal associated with construction of the proposed project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space area, could result in

disruption of northern harrier or short-eared owl nesting. This impact would be **potentially significant**.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 7-1: Preconstruction Nesting Survey.

A qualified biologist shall conduct a preconstruction nesting survey for northern harrier and short-eared owl if construction is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance by walking transects through all suitable habitat (grassland, seasonal wetlands, and swales) within the proposed development area and the proposed Managed Open Space area of the project site.

Mitigation Measure 7-2: Implement Non-Disturbance Buffers.

If an active northern harrier or short-eared owl nest is detected during the surveys, the nest site shall be protected by implementing a minimum 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 shall be extended onto the project site and demarcated where it intersects the project site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that northern harriers or short-eared owls 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.

Level of Significance After Mitigation - Implementation of this mitigation measures would avoid disturbing a northern harrier or short-eared owl active nest, thus reducing potential impacts to a level considered less than significant.

Swainson's Hawk

Development of the project would permanently remove approximately 55.40 acres of non-native grasslands, and 38 acres of seasonal wetlands and swales that provide suitable foraging habitat for Swainson's hawks. No nesting habitat would be directly affected by the proposed project because no trees occur on the project site, and no large trees capable of supporting nesting by Swainson's hawk occur in the immediate project vicinity. Trees adjacent to the site include trees within the offsite riparian habitat of LedgeWood Creek, but these trees are mostly willows not of a size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within ½ mile of the site could support nesting by the species. Swainson's hawks were found to be nesting near project construction during the nesting season, potential

impacts to this species could occur, including disturbance to nesting birds, nest abandonment and possible mortality of eggs or nestlings.

The loss of 93.4 acres of foraging habitat for Swainson's hawk would be mitigated by preserving at a minimum 93.4 acres of annual grasslands and seasonal wetlands considered suitable for Swainson's hawk foraging habitat within the Open Space Preserve. This area would be protected in perpetuity by deed restriction or a conservation easement and would provide compensation acreage for the loss of Swainson's hawk foraging habitat at a ratio of 1:1.

Impact 8: Swainson's hawk. Project construction would result in the loss of 93.4 acres of Swainson's hawk foraging habitat. Construction activities could disturb nesting Swainson's hawk if individuals of this species were found to be nesting near project construction activities.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 8-1: Preserve Swainson's Hawk Foraging Habitat

To offset impacts to 93.40 acres of Swainson's hawk foraging habitat, a minimum of 93.40 acres of annual grasslands and seasonal wetlands within the Managed Open Space area shall be preserved and protected in perpetuity by deed restriction or a conservation easement that would provide compensation acreage suitable for foraging by Swainson's hawk at a minimum ratio of 1:1. The preserved 93.40 acres of Swainson's hawk foraging habitat would be enhanced by grazing the Managed Open Space area to control the buildup of thatch.

Mitigation Measure 8-2: Preconstruction Nesting Surveys.

Preconstruction surveys for Swainson's hawk shall be conducted prior to initiation of project construction activities. Surveys shall follow CDFW guidelines for conducting surveys for Swainson's hawk (SHTAC 2000). These preconstruction surveys shall 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. If no nesting Swainson's hawks are found during the first two required survey periods (Survey Period II and III) starting March 20 and extending to April 20, then project construction may commence. If during the third survey period (June 10 to July 30) Swainson's hawks are found to be nesting in the project vicinity and construction has commenced, the project applicant shall consult CDFW to determine whether the nesting Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site and setbacks can be reduced or whether additional measures are needed to avoid adversely affecting nesting activities.

Mitigation Measure 8-3: Implement Nest Buffer.

If Swainson's hawks are found to be nesting within 0.25 miles of project construction, a non-disturbance buffer shall be established to keep all construction activities a minimum of 0.25 miles from the nest site (CDFW 1994). The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified biologist.

Level of Significance After Mitigation Implementation of these mitigation measures would compensate for the loss of Swainson's hawk foraging habitat and would avoid adverse effects on Swainson's hawks nesting near the project site. These measures would reduce potential impacts on Swainson's hawks to less than significant.

Burrowing Owl

No burrowing owls or their burrows have been observed on the site by HBG wildlife biologists or other biologists studying the site over a 20-year period. The nearest record of burrowing owls in the CNDDDB is a 2006 report of an occupied burrow off the site adjacent to Cordelia Road. Portions of the on-site grasslands are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present, but much of the site consists of wetlands that have saturated soils during at least a portion of the year that would not be conducive to creation of ground squirrel dens nor occupation by burrowing owl. The species could occur along levee banks and other raised areas that do not become saturated during the winter and spring. 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. Disturbances to either nesting or wintering burrowing owl could occur during grading or vegetation removal within the proposed development area of the project site or from grading required for creation of mitigation wetlands within the proposed Managed Open Space area of the project Impact 8: Burrowing Owl. Construction of the project, including the proposed development area or for creation of wetlands within the proposed Managed Open Space area of the project, could impact burrowing owls if found to be present in or near areas of construction.

Impact 9: Burrowing Owl-Construction of the project, including the proposed development area or for creation of wetlands within the proposed Managed Open Space area of the project, could impact burrowing owls if found to be present in or near areas of construction.

Level of Significance Before Mitigation – Potentially significant impact.

Mitigation Measure 9-1: Preconstruction Burrowing Owl Nesting Surveys.

Pre-construction surveys for burrowing owls shall be conducted prior to any ground-disturbance for construction of the project at the proposed development area of the project site or for construction of mitigation wetlands within the proposed Managed Open Space area of the project site. The pre-construction surveys will be conducted within 14 days prior to the onset of any ground disturbing activities. Surveys shall be

conducted by a qualified raptor biologist following CDFW survey methods (CDFG 2012) to establish the status of burrowing owl on the project site.

Mitigation Measure 9-2: Avoid Impacts to Occupied Burrows.

If preconstruction surveys determine that burrowing owls occupy the project site during the non-breeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone in consultation with CDFW. During the non-breeding season, If a qualified raptor biologist determines in consultation with CDFW that an occupied burrow(s) may be impacted even with implementation of non-disturbance buffers, the project applicant shall consult CDFW to determine if a passive relocation effort and implementation of a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW guidelines (CDFG 2012) is appropriate to avoid impacts. Implementation of such a Burrowing Owl Exclusion Plan would likely require habitat mitigation consistent with the requirements of the 2012 CDFW Staff Report.

If burrowing owls are found to be present on the project site during the breeding season (February 1 to August 31), the project applicant shall consult CDFW and implement the CDFW recommended avoidance protocol (CDFG 2012) whereby occupied burrows will be avoided with a no-disturbance buffer.

Level of Significance After Mitigation Implementation of these mitigation measures would avoid disturbing an active burrowing owl nest and avoid harming a burrowing owl during the nonbreeding season. These measures would reduce potential impacts to burrowing owls to less than significant.

California black rail

The CNDDDB contains records of California black rail south of the site in marsh habitat bordering Suisun Bay and associated sloughs. These rails may occur along slough channels with dense perennial marsh habitat in the southern portion of the project area closest to Suisun Marsh and within the perennial marsh habitat on the eastern portion of the annexation area that provides low to medium quality foraging and nesting habitat for the species. No habitat for this species is found within the proposed development area of the project site; therefore, no direct impacts to California black rail would result from construction of the proposed project.

Mitigation wetlands are proposed to be constructed within the proposed Managed Open Space area of the project site, both within the eastern portion of the annexation area and within the proposed Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh (see Figure 16). Though the created wetlands are proposed to be constructed in uplands, some proposed locations for wetland creation are close enough to areas of marsh habitat that disturbances to nesting California black rail, if present, are possible. Although no direct impacts to the marsh habitat of California black rail would occur, if a California black rail was nesting in or near the work area for wetland construction, an individual could be disturbed by the operation of equipment and the activities of work crews conducting construction activities at

that site. Such indirect disturbance could cause individuals to disperse, could result in harassment, harm or even mortality, or could cause individuals to remain more susceptible to predation during high tide events. Noise and other disturbances could disrupt nesting and breeding activity, as well as behaviors associated with foraging and other essential activities engaged in by the species. Construction activity near nests could cause nest abandonment, reduced care for young or eggs, or increased dispersal with subsequent potential increases in predation.

Impact 10: California Black Rail. Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space portion of the project site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present.

Level of Significance Before Mitigation – Potentially significant impact.

Mitigation Measure 10-1: If construction work is proposed during the black rail nesting season (February 1 through August 31) pre-construction surveys for nesting California black rail shall be conducted to determine whether proposed construction activities are to occur within 700 feet of a California black rail nest and to determine if setbacks are warranted to protect nesting California black rail from indirect impacts. Surveys shall be conducted using the methodology described in *Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges* (Wood et al. 2017), or a variation thereof as approved by CDFW. If the surveys detect the presence of a California black rail nest, or the activity center of vocalizing California black rails, a non-disturbance buffer or other appropriate avoidance measures shall be established in consultation with CDFW.

Level of Significance After Mitigation - Implementation of this mitigation measure would allow avoidance of nesting California black rail, thus reducing potential impacts to a level considered less than significant.

Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird

Direct and indirect impacts to nesting populations of state species of concern including loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or tricolored blackbird could occur through habitat removal or disturbance of potential nest sites during construction. Disturbances to nesting activities are possible either during grading or vegetation removal for construction of the project, including within the proposed development area, or from grading for creation of mitigation wetlands within the proposed Managed Open Space area in the southern portion of the project site. Impacts on nesting birds, including these special status species, include visual or auditory disturbance from construction noise and human presence. These types of disturbance could result in nest abandonment or failure by deterring birds from preferred nest and foraging sites, and/or distracting adults from tending to their eggs or young. These impacts would be potentially significant.

Impact 11: Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. Grading or vegetation removal associated with construction of the project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space area of the project site, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of are present.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 11-1: Preconstruction Nesting Surveys.

If construction will occur during the nesting season (February 1 through August 31) in the proposed development area of the project site or for construction of mitigation wetlands within the proposed Managed Open Space area of the project site, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to any ground-disturbance. Surveys shall be conducted by a qualified biologist to search for nesting of loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony. If the surveys find an active tricolored blackbird colony CDFW shall be consulted to develop an appropriate non-disturbance buffer. If nests of loggerhead shrike, Suisun song sparrow, or grasshopper sparrow are found, appropriate buffer zones determined by the qualified biologist shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. The buffer shall be marked with orange construction fencing. The size of buffer zones shall be determined per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Level of Significance After Mitigation - Implementation of this mitigation measure would avoid disturbing a nesting loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony, thus reducing potential impacts to a level considered less than significant.

Salt Marsh Harvest Mouse & Suisun Shrew

The CNDDDB reports that a salt marsh harvest mouse was trapped in the perennial brackish marsh near the proposed development area of the project site in the eastern portion of the annexation area in 1986. No habitat for salt marsh harvest mouse or Suisun shrew occurs within the proposed development area of the project site, but it is assumed that salt marsh harvest mouse and Suisun shrew could occur within suitable habitat in the eastern portion of the proposed annexation area or within the area south of Cordelia Road within the proposed Managed Open Space portion of the project site.

No habitat loss for salt marsh harvest mouse or Suisun shrew would occur from construction within the proposed development area or the proposed Managed Open Space portion of the project site, as no habitat for these species occurs in these areas. However, both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of brackish marsh. If construction activities occurred in upland habitat near brackish marshes in areas in the proposed development area or the proposed Managed Open Space portion of the project site, direct construction impacts could occur to a wandering salt marsh harvest mouse or Suisun shrew in the adjacent upland areas. This risk is highest during extreme high tides when these species seek refugia in uplands. Construction for the proposed project, especially in Planning Area 3, is anticipated to occur close to uplands bordering high marsh areas of the perennial brackish marsh at the east end of the annexation area. Grading to establish wetlands in the southern portion of the site may also impact salt marsh harvest mouse and Suisun shrew, which could occur in uplands adjacent to brackish marsh habitat, especially during extreme high tides.

Project operation could have indirect impacts on the salt marsh harvest mouse and/or Suisun shrew that may occur within in the eastern portion of the annexation area or near Suisun Marsh in the portion of the site south of Cordelia Road. Increased food availability associated with development could attract and support larger populations of small mammals such as rats, house mice, feral and domestic cats, and raccoons that could prey on salt marsh harvest mice or Suisun shrew. As predator populations associated with development increase, other predators forced out of developed areas could infiltrate harvest mice or shrew habitat. In addition, industrial development within the proposed development area of the project site could provide additional habitat for crows and ravens that could prey on salt marsh harvest mice or Suisun shrew. If desirable food is available and suitable nesting habitat exists nearby, crows and ravens will breed in the area. The introduced industrial use would also bring more people and associated disturbances to the vicinity of the habitat for salt marsh harvest mouse and Suisun shrew.

Operational activities at the site including truck and other vehicle traffic and pedestrian activities could result in noise and other disturbances that could affect salt marsh harvest mouse, Suisun shrew and other wildlife species in the adjacent habitats within the Managed Open Space. An increase in the number of people within the development site has the potential to increase noise and other disturbances in the vicinity of the perennial marsh habitat. Night-lighting could spill over into the perennial marsh habitat or immediately surrounding uplands can be an additional disturbance to salt marsh harvest mouse, Suisun shrew, and other nocturnal species.

Impact 12: Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew. Direct and indirect impacts to salt marsh harvest mouse or Suisun shrew may occur as a result of construction or operation of the project.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation 12-1: Worker Environmental Awareness Training.

All workers involved in the clearing of vegetation or other construction activities associated with construction of the project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space portion of the project site, shall participate in a training session led by a qualified biologist prior to initiation of work. This training session shall include information on the ecology and identification of salt marsh harvest mouse and Suisun shrew. The training shall also include information related to the Endangered Species Act and penalties associated with harm done to an individual of a listed species and the need to stop work and inform the on-site biologist in the event of a potential sighting.

Mitigation Measure 12-2: Vegetation Removal and Installation of Exclusion Fencing.

Proposed construction work areas in areas immediately adjacent to brackish marsh habitat shall be protected with exclusion fencing to ensure that individuals of salt marsh harvest mouse or Suisun shrew do not wander into the work area during the construction period. The fence shall be established in all areas subject to construction disturbance within 50 feet of brackish marsh habitat subsequent to removal of pickleweed and other vegetation as described below. Exclusion fencing shall be made of a material that does not allow small mammals to pass through, such as a properly installed silt fence buried at least 6 inches below the ground surface and with stakes facing toward the work area so small mammals use the stakes to make their way over the fence and out of the work area rather than into it. The exclusion fence shall be installed on all three sides of the development (e.g., Pennsylvania Avenue down to the perennial brackish marsh slough channel back to Pennsylvania Avenue) and between areas of proposed created mitigation wetlands and brackish marsh in the proposed Open Space Management Area. .

Prior to installation of the exclusion fence described above, efforts should be made to ensure that salt marsh harvest mouse and Suisun shrew are not present in areas of salt or brackish marsh or immediately adjacent uplands subject to potential impact from either the development or from construction of created mitigation wetlands within the proposed Open Space Management Area. Prior to removal of vegetation, a qualified biologist will walk the work zone to ensure no nests of harvest mouse or Suisun shrew are present. Pickleweed and other vegetation shall be removed using hand tools such as weed-whackers from all construction areas within 50 feet of brackish marsh habitat. Once vegetation removal is complete and it is assured that salt marsh harvest mouse and Suisun shrew are not present within the construction zone, the temporary exclusion fencing will be placed around the defined work area prior to the start of construction activities to prevent salt marsh harvest mouse or Suisun shrew from moving into construction areas. A biological monitor approved by USFWS and CDFW shall be present during vegetation clearing and installation of the exclusion fence.

Mitigation Measure 12-3: Biological Construction Monitoring.

A qualified biologist shall remain on-site during all work involving vegetation clearing and ground disturbance associated with construction of the development (especially near Planning Area 3) or of mitigation wetlands within the Managed Open Space to help ensure that no salt marsh harvest mouse or Suisun shrew are harmed. The biological monitor shall check the integrity of the exclusion fence, search for salt marsh harvest mice or Suisun shrew that may have wandered into the work area and monitor construction to ensure impacts to the species do not occur. If a salt marsh harvest mouse is found on the site within the work area, construction should be halted until it appears that the individual has left the project area of its own volition. If a Suisun shrew is found in the work area, the individual should be relocated outside of the work area after coordination with CDFW regarding appropriate relocation methodologies.

Mitigation Measure 12-4: Establish Setback of 25 feet.

Establish a minimum of a 50-foot (average) setback from the proposed development area of the project site and the adjacent perennial brackish marsh slough channel to minimize indirect impacts to salt marsh harvest mouse and Suisun shrew habitat from industrial uses introduced by the proposed project.

Mitigation Measure 12-5: Install Permanent Fencing.

Install a permanent fence along the boundaries of the proposed development area of the project site adjacent to perennial brackish marsh slough channel, to prevent people from accessing potential salt marsh harvest mouse and Suisun shrew habitat.

Mitigation Measure 12-6: Proper Waste Disposal

During operation of the project, appropriate waste disposal procedures shall be adopted and enforced for the industrial uses proposed (i.e., all garbage shall be placed in cans with lids) to avoid and minimize attracting predators such as crows and ravens.

Mitigation Measure 12-7: Night Lighting Shielding

Night lighting shall be shielded and directed onto the proposed development area of the project site and away from marsh areas and immediately surrounding uplands.

Level of Significance After Mitigation - Implementation of this mitigation measure will reduce impacts resulting from construction and operation of the project to less than significant.

Project construction would permanently impact approximately 55 acres of upland annual grassland and convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the project site, resulting in indirect impacts to wildlife which rely on upland refugia habitat adjacent to the tidal marsh. If sea levels continue to rise beyond the 2050 predictions, upland refugia habitat with higher topographic elevations

would become more critical adjacent to the tidal marsh. Suitable habitat for salt marsh harvest mouse and Suisun shrew can be found in brackish marsh areas of Suisun Marsh in the southern portion of the project site. Construction of mitigation wetlands is proposed in the proposed Managed Open Space area south of Cordelia Road to compensate for impacts to wetlands associated with impacts within the proposed development area of the project site. The *Permittee-Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Mitigation Management Plan for the Highway 12 Logistics Center* (Mitigation and Monitoring Plan) for the proposed Managed Open Space portion of the project site includes details regarding placement of created wetlands in upland portions of the proposed Managed Open Space area away from marsh areas that provide habitat for salt marsh harvest mouse and Suisun shrew (see Figure 17).

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of high marsh, and also use these areas as upland refugia during high tides. The upland annual grassland habitat within the proposed Managed Open Space portion of the project site is relatively flat but currently offers sufficient topography to provide upland refugia during high tides. The proposed wetland mitigation described below would convert approximately 38 acres of upland annual grasslands adjacent to tidal marsh areas to seasonal wetlands within the proposed Managed Open Space portion of the project site. During the winter and early spring, portions of the 38 acres of wetlands in the proposed Managed Open Space portion of the project site would be ponded for several days to several weeks at a time and therefore not available as upland refugia habitat. For this reason, grading to establish wetlands in the southern portion of the site as per the Mitigation and Monitoring Plan during high tides may impact the salt marsh harvest mouse and Suisun shrew by exposing them to increased levels of predation. Precautions need to be taken to ensure that either direct or indirect impacts to salt marsh harvest mice or Suisun shrew that may wander near the construction area during project implementation of the Mitigation and Monitoring Plan, especially during extreme high tides, do not occur.

Impact 13. Loss of Upland Refugia. Project construction would permanently impact approximately 55 acres of upland annual grassland and would convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the project site. This habitat loss and conversion could result in potential indirect impacts to salt marsh harvest mice, the Suisun marsh, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 13-1: Create Upland Refugia in Managed Wetland.

To offset potential loss of upland refugia for salt marsh harvest mouse, Suisun shrew and any other species that need cover during high tide events, soil from the excavation of the established seasonal wetlands would be used to raise the topographic elevation

of portions of the 71.92 acres of upland areas within the Managed Open Space adjacent to the perennial brackish tidal marsh. Detailed design plans, including a Vegetation Planting Plan, for the upland refugia in the Managed Open Space shall be developed in consultation with USFWS.

Level of Significance After Mitigation--Implementation of this mitigation measure will provide upland refugia in the proposed Managed Open Space portion of the project site for salt marsh harvest mouse, Suisun shrew, and any other species that need cover during high tide events and will reduce this potential impact to less than significant.

2) The proposed project could 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.

5.2.3 Riparian Habitat

No riparian habitat would be directly affected by the proposed project. However, the western boundary of the proposed development area of the project site is adjacent to Ledgewood Creek. Construction activities could result in degradation of water quality and sensitive habitat areas and adversely affect wildlife activities through increased erosion and sedimentation, spills during vehicle refueling, or disposal of food and trash. Project development and activities during project operation could reduce the value of wildlife habitat in the riparian corridor and potentially disrupt wildlife activities and movement in the riparian zone.

Impact 14: Construction activities in close proximity to the riparian corridor of Ledgewood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, increased sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with project operation could also adversely affect wildlife in the riparian corridor.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 14-1: Construction Best Management Practices

Construction activities shall be implemented using the following BMPs to protect Ledgewood Creek:

- As required in Mitigation Measure 5-1, the project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges.

- Vehicle Fueling and Maintenance. All fueling and maintenance of vehicles and other equipment as well as locations of staging areas shall occur at least 100 feet from the edge of the riparian area of LedgeWood Creek. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- Proper Waste Disposal . Food, trash, and other solid wastes shall be disposed of in contained, covered refuse containers, and regularly removed from the construction site.

Mitigation Measure 14-2: Riparian Corridor Protection Zone.

The project applicant shall establish a riparian corridor buffer zone protected with permanent fencing before construction. The western boundary of the proposed development area of the project site and the fence line adjacent to LedgeWood Creek shall be set back a minimum of 50 feet from the top of the bank or outside edge of riparian vegetation, whichever distance is greater. To improve vertical structure of the riparian canopy and wildlife habitat values, the project applicant shall plant native trees spaced a maximum of 100 feet apart adjacent to the fence line within the project property boundary. The project applicant shall provide funding in perpetuity for security and coordination with law enforcement to address encampments within the 50-foot buffer along the fence line on the Project property boundary. Funding shall also be provided to remove trash from illegal dumping within the project property boundary.

Level of Significance After Mitigation--Mitigation Measure 14-1 provides BMPs to avoid direct and indirect impacts to LedgeWood Creek and its riparian habitat. Mitigation 14-2 will create a 50-foot fenced buffer from LedgeWood Creek riparian habitat and will provide management funding. Currently LedgeWood Creek and its riparian habitat is subject to disturbance from encampments along the creek and associated pedestrian and vehicular activities which potentially interferes with wildlife movements and activities such as foraging and nesting. In addition, the trash the encampments generate, along with illegal dumping of household trash (appliances, old fiberglass boat, furniture, and many types of plastics) within this buffer likely contributes to trash entering LedgeWood Creek, and eventually Peytonia Slough. Establishment of a riparian setback from LedgeWood Creek, along with funding to coordinate with law enforcement and to clean up the trash generated from illegal dumping and encampments, would serve to protect the stream from current activities that result in environmental degradation These measures would reduce impacts to less than significant.

3) The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

5.2.4 Wetlands

Development of the proposed project within the proposed development area will result in permanent impacts to 38 acres of wetlands considered WOUS and WOS. The location of wetland impacts associated with development of the proposed project within the development area is shown in Figure 13. The project will result in the permanent loss of 16.33 acres of seasonally saturated annual grassland, 14.09 acres of vernal pools; 7.42 acres of alkali seasonal wetlands; and 0.002 acre of perennial brackish marsh. Grading within the Managed Open Space to create wetlands could also adversely affect the hydrology of existing wetlands.

An enumeration of the wetland vegetation community impacts as a result of project development are detailed below in Table 6.

| Table 6. Impacted and Unimpacted Wetlands | | | |
|--|--|---------------------------------|-------------------------------|
| Vegetation Community | Total Wetland Acreage by Habitat Type | Unimpacted Wetlands (ac) | Impacted Wetlands (ac) |
| Seasonally Saturated Annual Grassland | 78.88 | 62.55 | 16.33 |
| Vernal Pool | 19.76 | 5.67 | 14.09 |
| Alkali Seasonal Wetland | 46.41 | 38.99 | 7.42 |
| Perennial Brackish Marsh | 176.27 | 176.268 | 0.002 |
| Property Totals | 321.32 | 283.478 | 37.842 |

Impacts to wetlands totaling 38 acres would require that the applicant submit an application for a Department of the Army 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. The project 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 Waste Discharge Requirements from SFBRWQCB pursuant to the Porter-Cologne Water Quality Control Act. The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction for much of the project area and a BCDC permit will be required. In addition, grading within the Managed Open Space to establish and create mitigation wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands.

Impact 15: Grading activities would result in the permanent placement of fill material into approximately 38 acres of wetlands, consisting of 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh. In addition, grading within the Managed Open Space to establish

and create mitigation wetlands may have an indirect adverse effect on the hydrology of adjacent existing wetlands.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 15-1: Secure Permits and Implement All Permit Conditions

The project applicant shall coordinate with the San Francisco District USACE, the San Francisco Bay RWQCB and the BCDC to obtain proper permits for the placement of fill material within approximately 38 acres of wetlands and implementation of the Mitigation and Monitoring Plan. The project applicant shall coordinate with the San Francisco Bay Conservation Development Commission to obtain proper permits for work associated with the implementation of the Mitigation and Monitoring Plan, which includes construction of mitigation wetlands in the Managed Open Space portion of the project site within the Suisun Marsh primary and Secondary Management Areas. The project applicant shall implement all conditions required in these permits. The Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay RWQCB, San Francisco District USACE, and BCDC for review as part of the permitting process with these agencies.

Mitigation Measure 15-2: Wetland Establishment and Performance Monitoring.

The project applicant shall establish/create wetlands at a 1:1 ratio to include 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh concurrent with project construction. Performance standards for the established/created wetlands will be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7).

Mitigation Measure 15-3: Avoid Impacts to Existing Wetlands in Managed Open Space

To ensure detailed construction plans will avoid potential indirect impacts to existing wetlands and special status plants and wildlife, the project applicant shall obtain detailed topographic plans, at minimum of 0.5-foot contours, before implementing the proposed wetland creation activities described in Attachment 7. This topographic information will be used to conduct a water balance study to determine if construction of the created wetlands in the proposed Managed Open Space could adversely affect ponding and/or soil saturation in adjacent existing wetlands. This study would supplement the "Adequate Hydrology Determination" presented in the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7). If it is determined there is an adverse effect on the hydrology of existing wetlands due to grading within the Managed Open Space to establish/create wetlands that would reduce the extent of the wetlands, construction plans will be modified to avoid alterations to the hydrology of existing wetlands.

Mitigation Measure 15-4: Limit Staging Areas and Access Routes.

To avoid potential impacts to preserved wetlands during construction of the proposed project, including the proposed development area and construction of mitigation wetlands of the proposed Managed Open Space area, the number of access routes, and number and size of staging areas shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly marked/flagged. These areas shall be outside of wetland areas and other sensitive areas proposed for preservation.

Mitigation Measure 15-5. Implement Mitigation and Monitoring Plan

To compensate for loss of wetlands and impacts to rare plant populations the project applicant shall implement the Mitigation and Monitoring Plan for the proposed Managed Open Space portion of the project site (Attachment 7), which has been 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 referenced Mitigation and Monitoring plan may be modified based on recommendations from the USACE, USFWS, and RWQCB during the permitting process. In summary, the Mitigation and Monitoring Plan will:

- ▶ Establish within the Managed Open Space a minimum of 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh.
- ▶ Provide financial assurances to ensure a high level of confidence that the Mitigation and Monitoring Plan will be successfully completed, in accordance with applicable performance standards.
- ▶ Design ecological performance standards to assess whether the Mitigation and Monitoring 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.
- ▶ Monitor the site for a minimum of 10 years to determine if the Mitigation and Monitoring Plan is meeting the performance standards.
- ▶ Protect the approximately 393.24 acre Managed Open Space in perpetuity using a site protection instrument such as a deed restriction or conservation easement, and provide an endowment sufficient to fund the Mitigation and Monitoring Plan's Long-Term Management Plan; and
- ▶ 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 Mitigation and Monitoring Plan specifically to minimize these potential effects.

►
The Mitigation and Monitoring Plan shall include a site protection instrument (e.g., deed restriction or conservation easement[s]) that will restrict use of the proposed Managed Open Space portion of the project site to offset impacts to wetlands and impacts to rare plants and shall include a long-term endowment funded by the proposed project to manage the entire 393.24-acre Managed Open Space in perpetuity (see Property Analysis Record in the Mitigation and Monitoring Plan, Attachment 7).

Levels of Significance After Mitigation - Implementation of these mitigation measures would offset permanent impacts to the 16.32 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.58 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh and ensure there is no-net loss of wetland area, thus reducing potential impacts to a level considered less than significant pursuant to CEQA.

The proposed project would protect 393.24 acres within the eastern portion of the annexation area east of Pennsylvania Avenue and south of Cordelia Road; this area would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately 331.67 acres of this 393.24-acre Managed Open Space is currently within the Suisun Marsh Protection Plan jurisdiction. However, the proposed Managed Open Space provides additional benefits to enhance the quality and diversity of Suisun Marsh wildlife habitats beyond that provided by the Suisun Marsh Protection Plan. The site protection instrument would create new freshwater wetlands and will provide a sanctuary for wildfowl during hunting season by excluding duck hunting, and foster implementation of Suisun Marsh Protection Plan policies and goals such as managing agricultural lands to support waterfowl and enhancements of wildlife habitat. The project would create a long-term endowment to provide funding to support regular site inspections, maintenance actions and sustained stewardship to:

- manage vegetation grazing practices to be compatible with wildlife habitat enhancement and rare plant protections,
- implement invasive plant inspections and undertake remedial actions,
- clean up dump sites and remove trash before it enters waterways,
- prevent damage from homeless encampments,
- maintain fences, gates, and signage.

In addition, Managed Open Space will add protection to approximately 61.57 acres to the 393.24-acre Managed Open Space which is not currently within the Suisun Marsh Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge for wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67 acres are within the primary and Secondary Management Areas of the Suisun Marsh. Implementation of the proposed Managed Open Space in accordance with Mitigation Measures 15-1 through 15-5 would therefore offset permanent impacts to the 16.33 acres of

Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh and ensure there is no-net loss of wetland area, thus reducing potential impacts to less than significant.

4) The proposed project could 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?

5.2.5 Wildlife

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, the development of the proposed Project would not result in significant impacts to wildlife populations on the site. The proposed project site abuts the Suisun Marsh which is 116,000 acres of grasslands, wetlands, bays, and sloughs providing habitat for a wide variety of fish and wildlife species. The development will impact 93.40 acres of grassland and wetland habitat suitable for a variety of wildlife species and preserve approximately 393.24 acres which abuts the Suisun Marsh. Based on the location of the proposed development area with urban uses on the north and west boundaries and the southern and eastern boundaries proposed for preservation as Managed Open Space and the southern portion of the site abutting the Suisun Marsh, the proposed project will not fragment existing wildlife habitat and will not substantially reduce wildlife habitat of species typically found in grassland and wetland habitat adjacent to and within the Suisun Marsh.

Mitigation measures to address impacts to sensitive habitats, most notably the onsite wetlands, are included herein that include the preparation and implementation of a detailed Compensatory Wetland Mitigation Plan. Other mitigation measures are recommended to address indirect impacts to wildlife found in perennial marsh habitats and surrounding uplands in close proximity to the development during both construction and operational periods of the project. These measures include recommendations for setbacks, protective fencing, access restrictions, forms of onsite management and maintenance, and treatment of night lighting, among others. Additional mitigation measures address possible impacts to the wildlife corridor along LedgeWood Creek through the establishment of a protective buffer zone in addition to erosion control and other measures.

The site design includes the preservation of an approximately 393.24-acre Managed Open Space that will preserve grassland and wetland habitat suitable to provide cover, shelter, nesting sites, and foraging areas for a variety of amphibians, reptiles, birds, and mammals. Potential impacts to special status avian species will be mitigated as the applicant for the proposed project is required herein to conduct preconstruction surveys for nesting by special status bird species including California black rail, Swainson's hawk, burrowing owl, northern harrier, short-eared owl, loggerhead shrike, Suisun song sparrow, grasshopper sparrow, and tricolored blackbird, and is obligated to conduct preconstruction surveys and provide other

protection measures for special status species such as Suisun shrew and salt marsh harvest mouse that may inhabit adjacent properties.

Any species of fauna that may be displaced during preparation of the site for development of the proposed project should find nearby available habitats, including habitats within the approximately 393.24-acre Managed Open Space. The wildlife corridor along LedgeWood Creek will remain unaffected as protection measures are included as mitigation. 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 31 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 by HBG over a period of 20 years. 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 4.8 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 16: The removal of vegetation during the February 1 to August 31 breeding season for the proposed project could result in mortality of nesting avian species if they are present.

Level of Significance Before Mitigation - Potentially significant impact.

Mitigation Measure 16-1: Preconstruction Nesting Surveys.

If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist shall conduct a pre-construction breeding

bird survey in areas of suitable habitat within 14 days prior to the onset of construction activity. Nesting bird surveys shall cover the project footprint in addition to a 500-foot buffer beyond the boundaries of the footprint.

Mitigation Measure 16-2: Nest Zone Buffers.

If bird nests are found, appropriate non-disturbance buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Buffer zones shall be 500 feet for raptors and 250 feet for passerines and other bird species. The size of the buffer zone may be modified per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation--Implementation of Mitigation Measures 16-1 and 16-2 will avoid and minimize potential impact nesting avian species, thus reducing potential impacts to less than significant.

5) The proposed project would not 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 the proposed project. All work for the Project would take place consistent with biological requirements of the General Plan and Zoning Ordinance of the City of Suisun City and Solano County.

6) The proposed project would not 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 Solano Multispecies Habitat Conservation Plan (SMHCP) has been in draft form for approximately 20 years. The SMHCP has not yet been adopted and currently there are no proposals to adopt this conservation plan in the foreseeable future. Therefore, the proposed project poses no conflict with an adopted conservation plan. If the SMHCP is approved prior to obtaining all permits and approvals for the proposed project, the project applicant will ensure that the project's mitigation measures are consistent with the avoidance, minimization and mitigation measures described in the SMHCP.

The proposed project is consistent with the provisions and objectives of the Suisun Marsh Protection Plan. The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh wildlife habitats and to assure retention of upland areas adjacent to the Suisun Marsh in uses compatible with its protection. All portions of the project site that overlap with the Primary and Secondary Management Areas of

the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats. The project would bring funding and additional management oversight for 331.67 acres of the Management Area within the Suisun Marsh Protection Plan and 61.57 outside of the Suisun Marsh Protection Plan. As described in Appendix C, Attachment 7, a site protection instrument, and a long-term endowment fund would provide resources to manage the entire 393.24-acre proposed Managed Open Space area with the goal of protecting and enhancing wildlife habitat.

The public acquisition recommendations in the Suisun Marsh Protection Plan specify acquisition of lands within and adjacent to the marsh close to population centers like Suisun City so that these lands can be managed as wildlife habitat and provide refuge areas to protect wildfowl, especially during hunting season. Approximately 61.57 acres of the 393.24-acre proposed Managed Open Space of the project site is currently outside of the Suisun Marsh Protection Plan's jurisdiction. The proposed project would provide new protections for these 61.57 acres because it would be managed in perpetuity as wildlife habitat in the proposed Managed Open Space area and would provide refuge to wildfowl, consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67 acres are within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan. Because the proposed project would not conflict with the provisions of any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, this impact would be **less than significant**.

7) The proposed project would not substantially reduce the habitat of a fish or wildlife species?

See Section 5.2.6 (Wildlife) and the Section entitled "Special Status Fish Species" in Section 5.2.2 for a discussion of possible impacts related to the reduction of a fish or wildlife species.

8) The proposed project would not cause a fish or wildlife population to drop below self-sustaining levels?

See Section 5.2.6 (Wildlife) and the Section entitled "Special Status Fish Species" in Section 5.2.2 for a discussion of possible impacts related to fish and wildlife populations.

9) The proposed project would not threaten to eliminate a plant or animal community?

See Section 5.2.1 (Special Status Plants), Section entitled "Special Status Fish Species" in Section 5.2.2 and Section 5.2.6 (Wildlife) for a discussion of possible impacts related plant and animal communities.

10) The proposed project would not substantially reduce the number or restrict the range of an endangered, rare, or threatened species?

Impacts related to special status species, including endangered, rare, or threatened species, are evaluated in Section 5.2.1 and 5.2.2.

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ATTACHMENT 1.

FIGURES

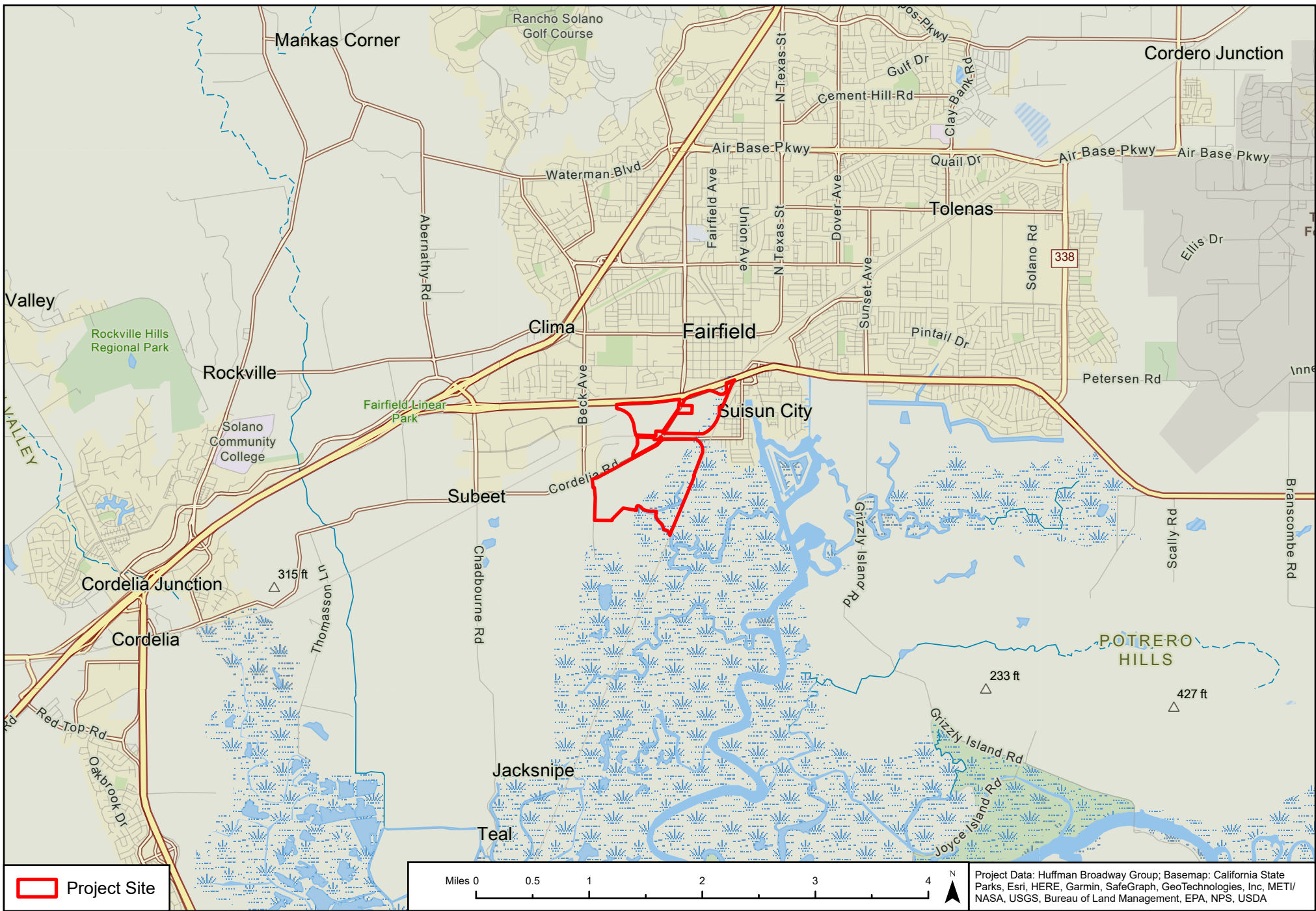


Figure 1. Project Site Location
 Highway 12 Logistics Center Project
 Solano County, California

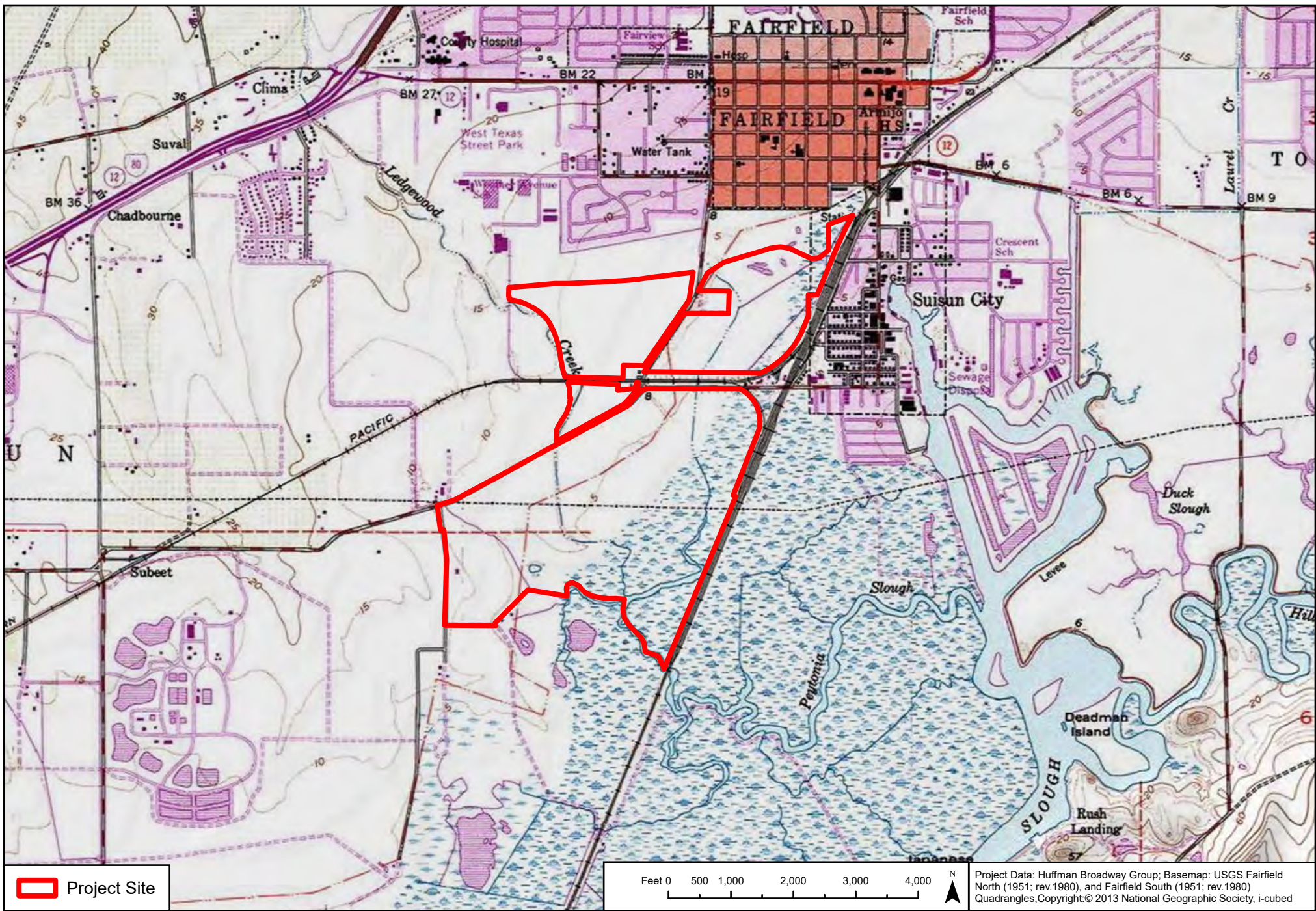
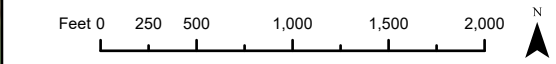


Figure 2. USGS Topographic Map of the Project Site
 Highway 12 Logistics Center Project
 Solano County, California



 Project Site



Project Data: Huffman Broadway Group; Basemap: The County of Napa, Yolo County, Maxar; Imagery Date: 11/25/2021

Figure 3. Aerial Image of the Project Site
Highway 12 Logistics Center Project
Solano County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS



Figure 4. Annexation Area
 Highway 12 Logistics Center Project
 Solano County, California

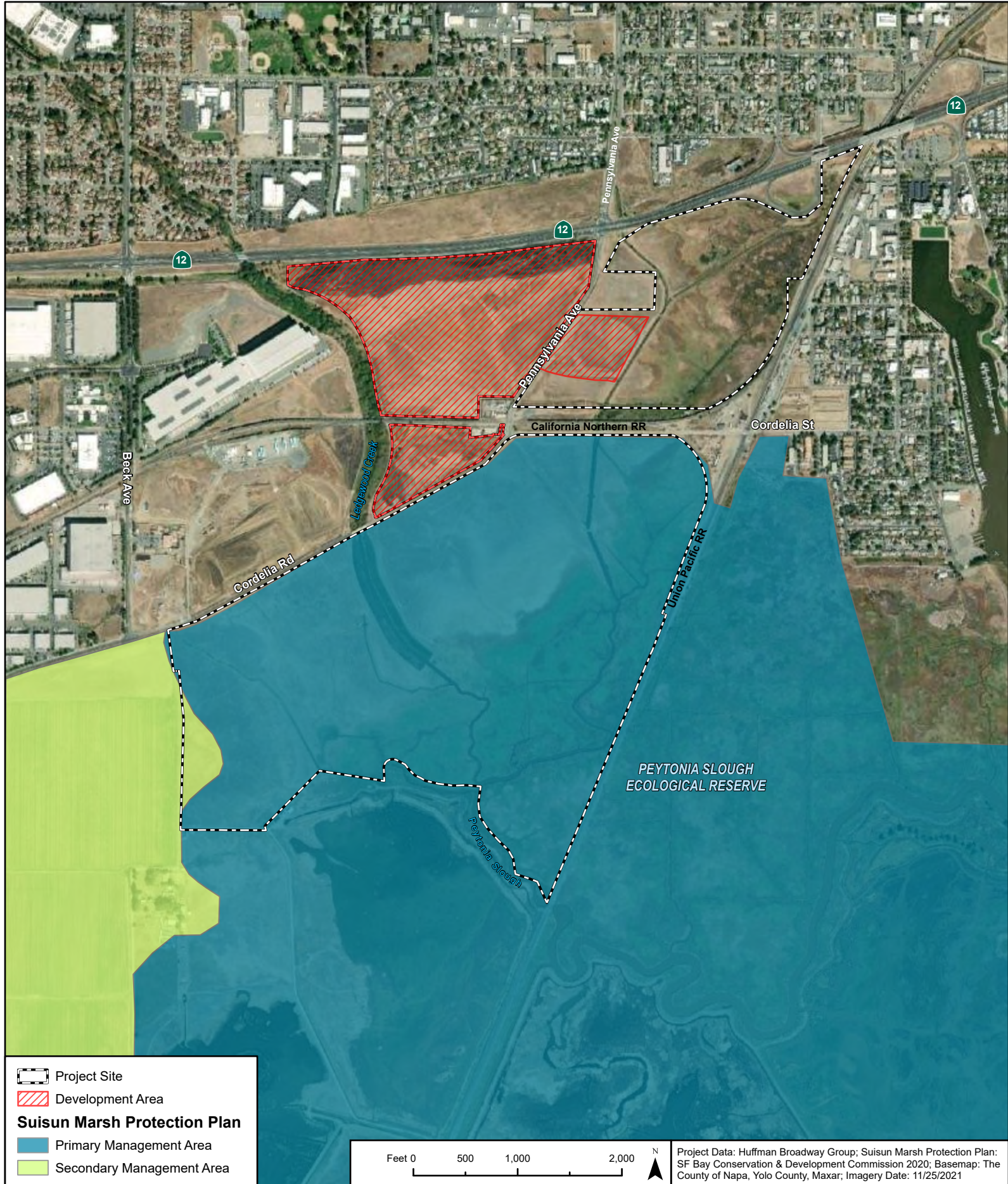


Figure 5. Suisun Marsh Primary and Secondary Management Areas
 Highway 12 Logistics Center Project
 Solano County, California

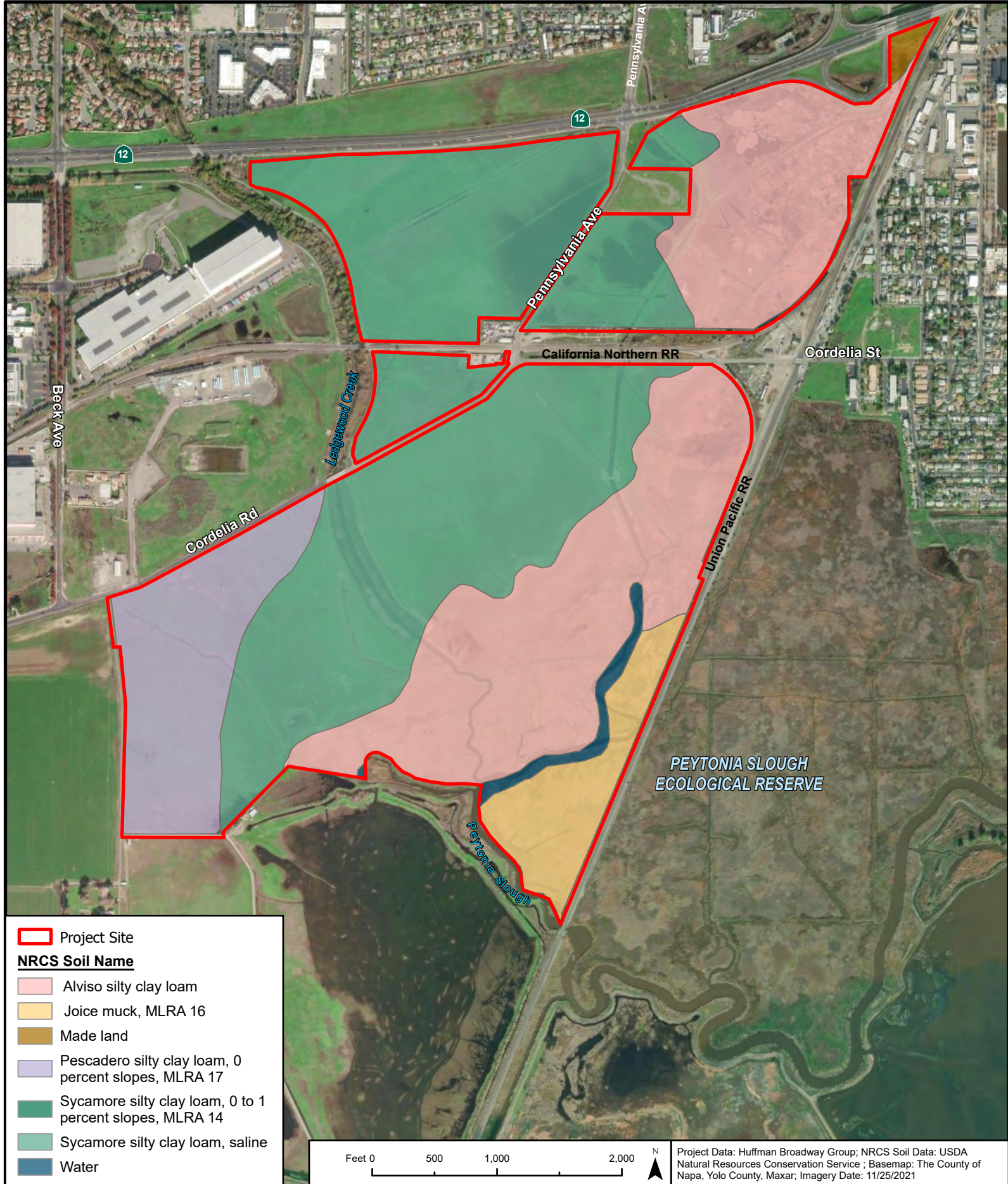


Figure 6. NRCS Soils Map
 Highway 12 Logistics Center Project
 Solano County, California

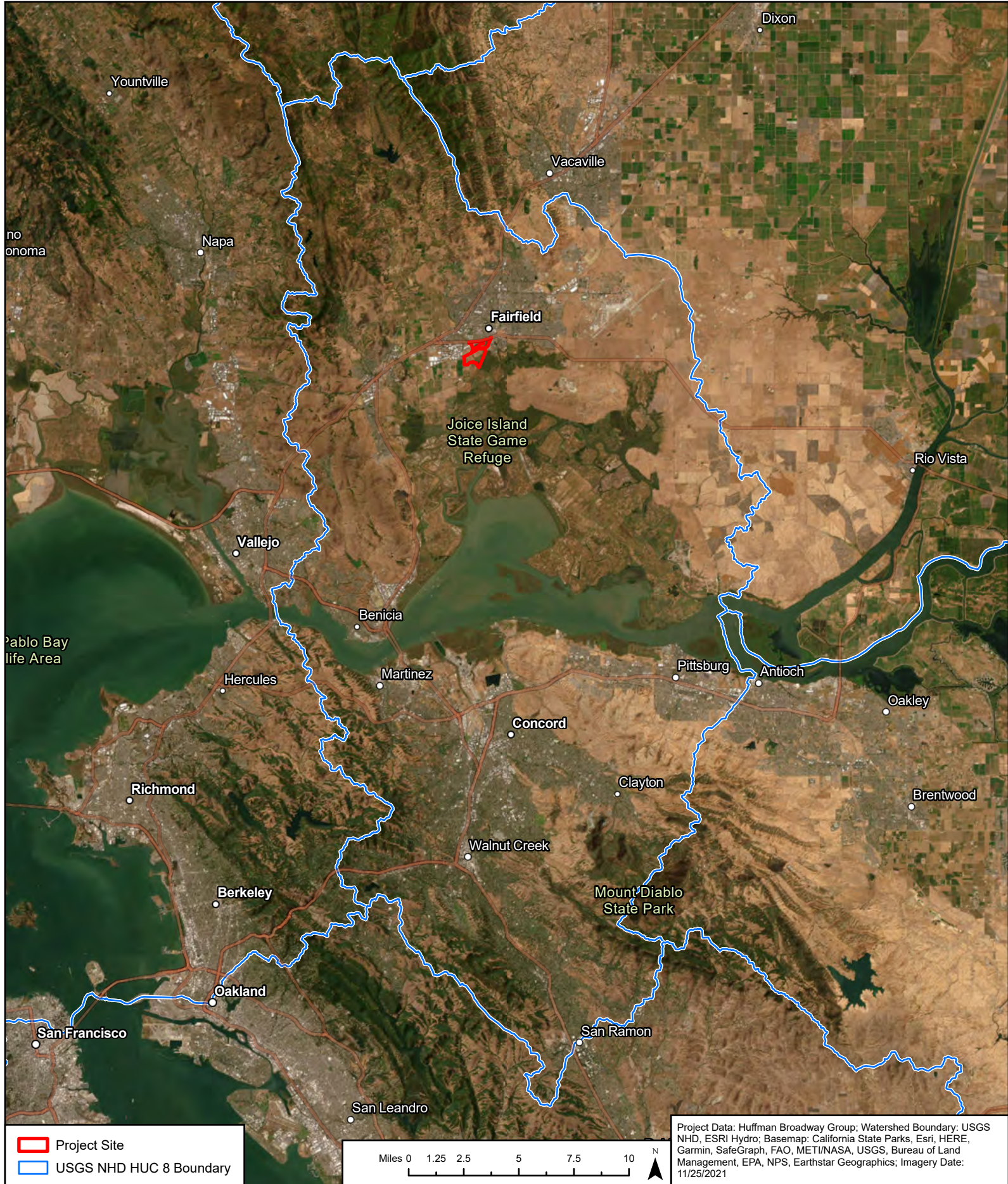


Figure 7. USGS NHD HUC 8 Map
 Highway 12 Logistics Center Project
 Solano County, California

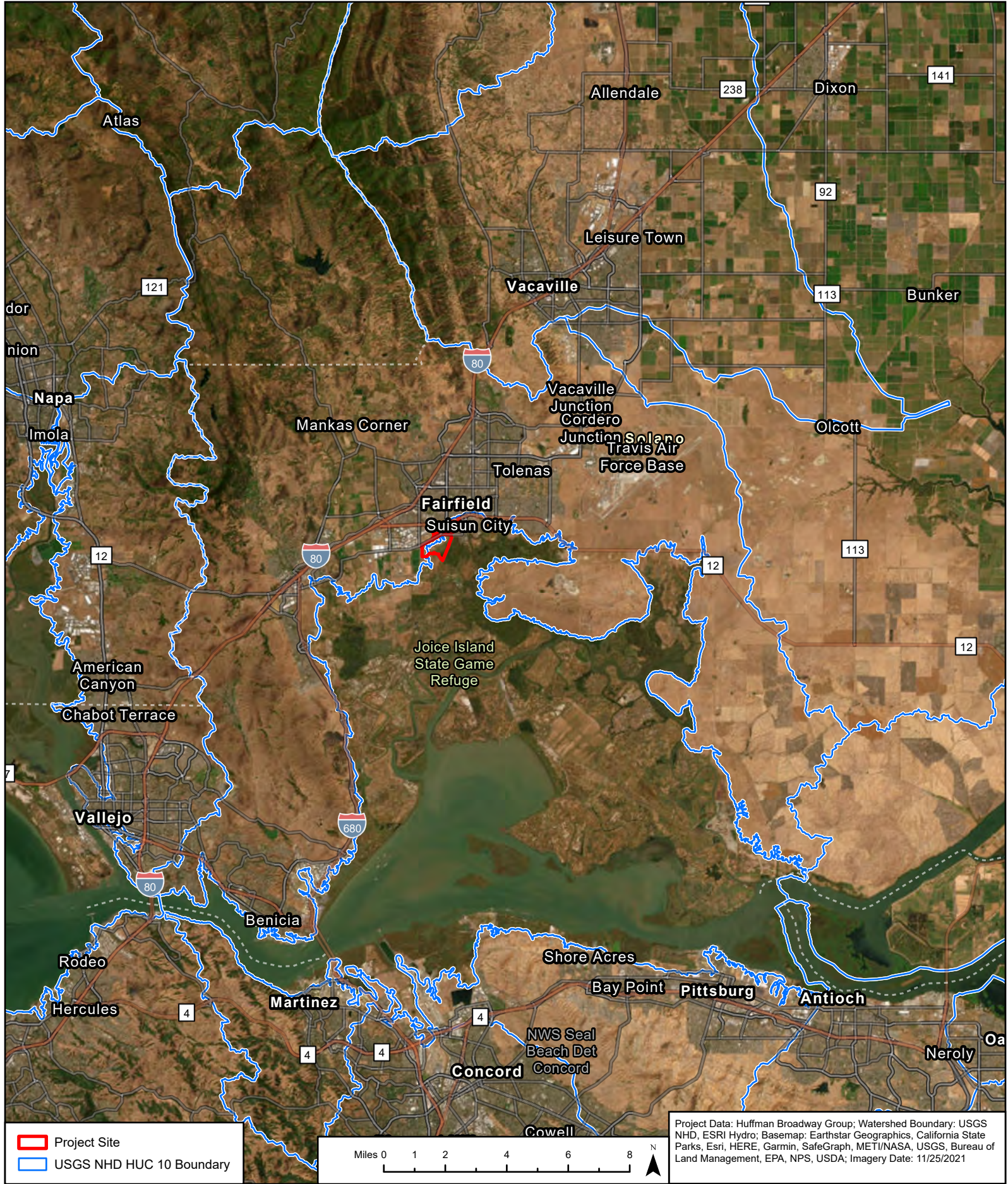


Figure 8. USGS NHD HUC 10 Map
 Highway 12 Logistics Center Project
 Solano County, California



Figure 9. USGS NHD HUC 12 Map
 Highway 12 Logistics Center Project
 Solano County, California

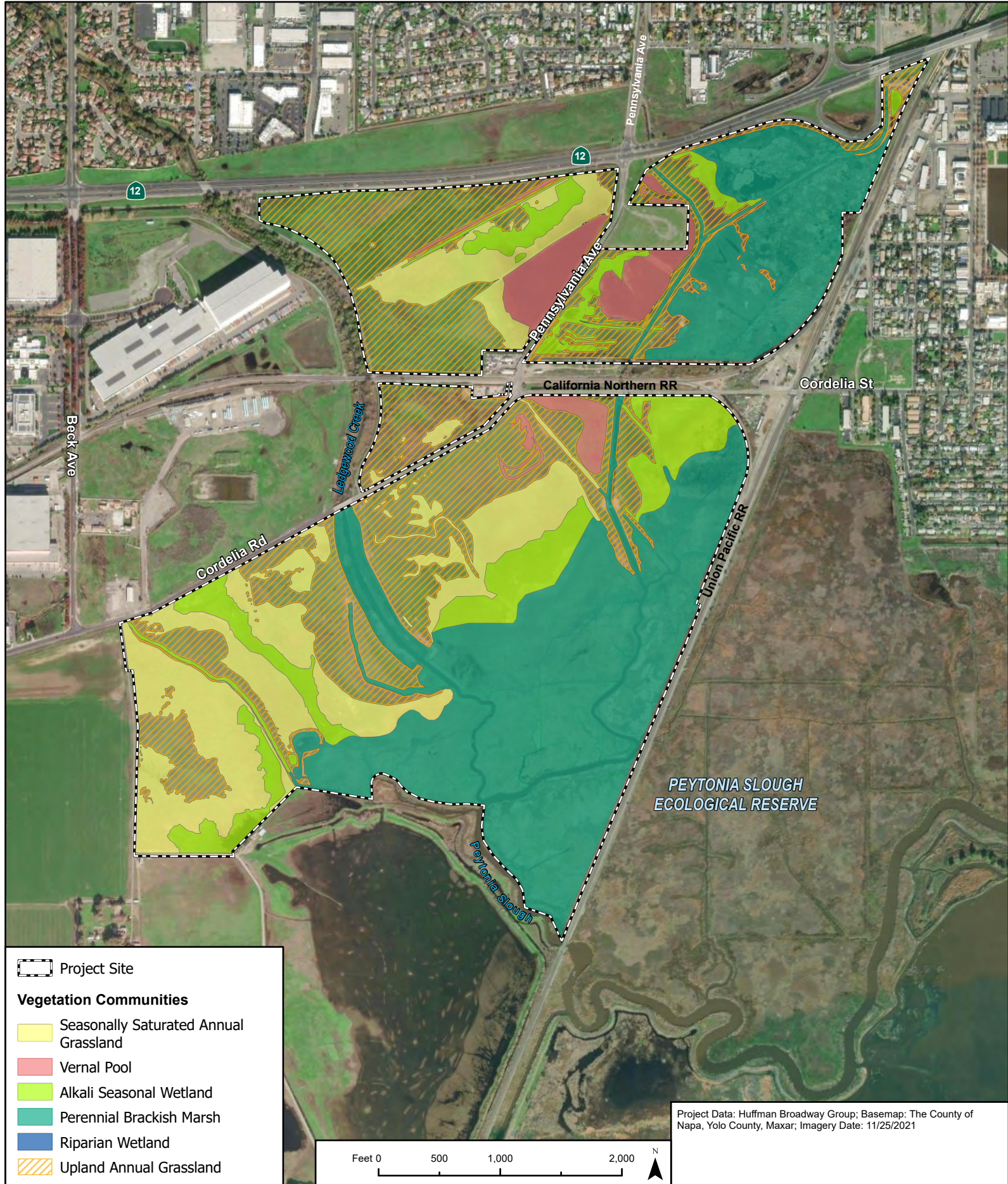


Figure 10. Vegetation Communities
 Highway 12 Logistics Center Project
 Solano County, California

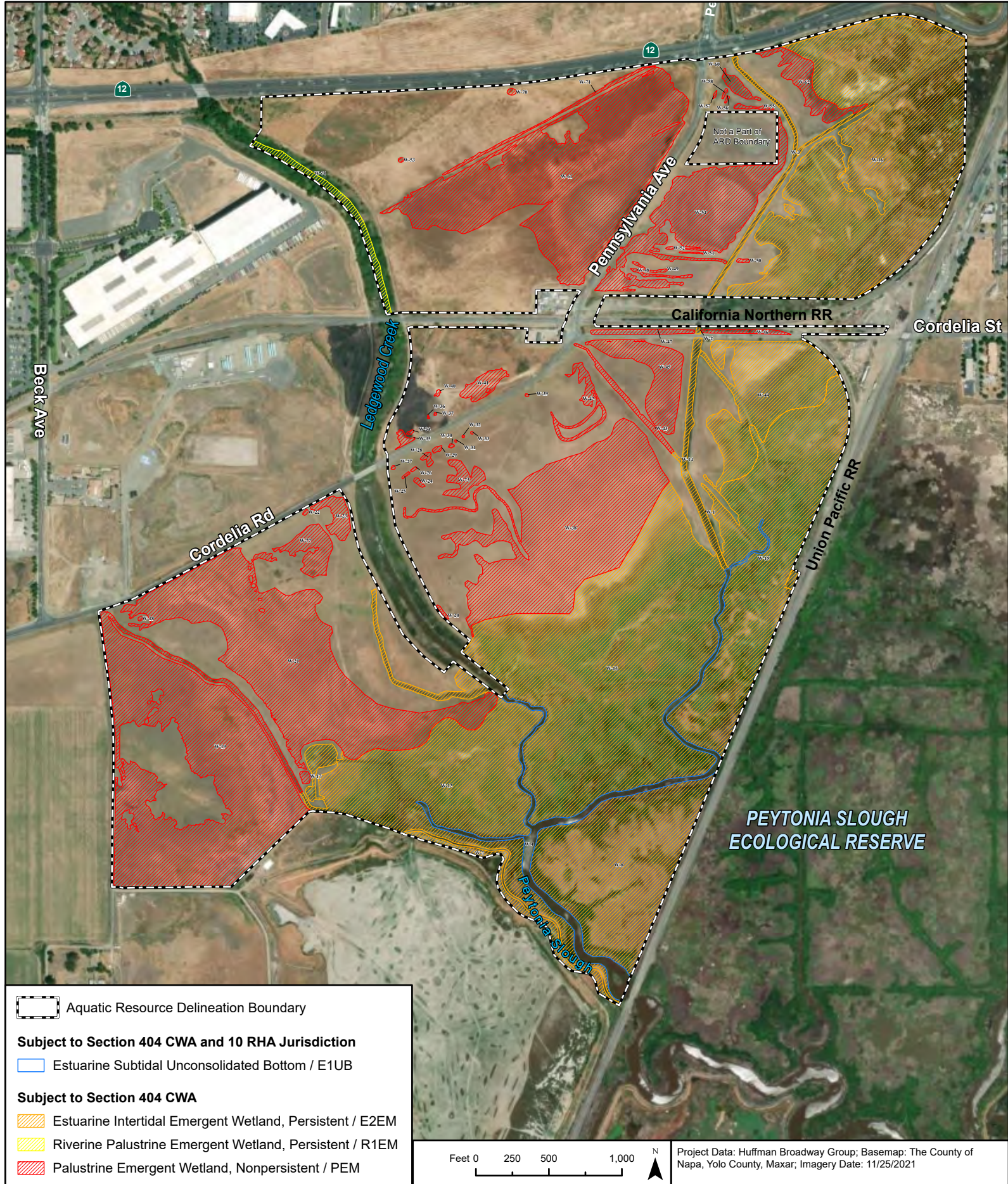






















Figure 11. USACE Verified Aquatic Resources Delineation Map
 Highway 12 Logistics Center Project
 Solano County, California

-  Plant Survey Boundary, 2021-2022
 -  Development Area
 - Plant Communities**
 -  Seasonally Saturated Annual Grassland
 -  Vernal Pool
 -  Alkali Seasonal Wetland
 -  Perennial Brackish Marsh
 -  Riparian Wetland
- Rare Plant Occurrences**
 -  Alkali Milkvetch Points
 -  Contra Costa Goldfields
 -  Delta Tule Pea
 -  Heckard's Pepper-grass
 -  Suisun Marsh Aster
 -  Long-styled Sand Spurry
 -  Saline Clover
 -  Area of Occurrence of Contra Costa Goldfields
-  Area of Occurrence of Delta Tule Pea
 -  Area of Occurrence of Heckard's Pepper-grass
 -  Area of Occurrence of Suisun Marsh aster
 -  Area of Occurrence of Alkali Milkvetch
 -  Area of Occurrence of Saline Clover

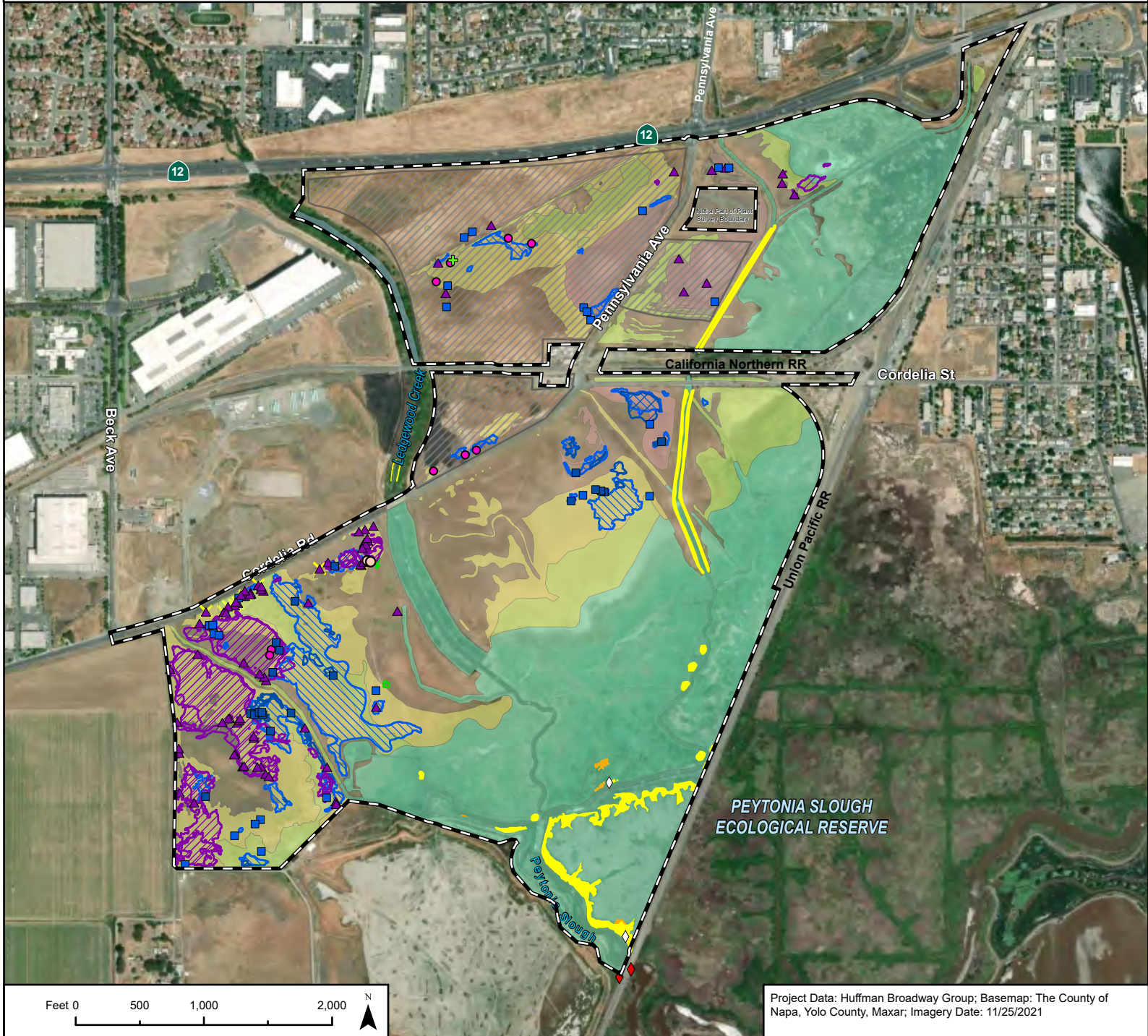
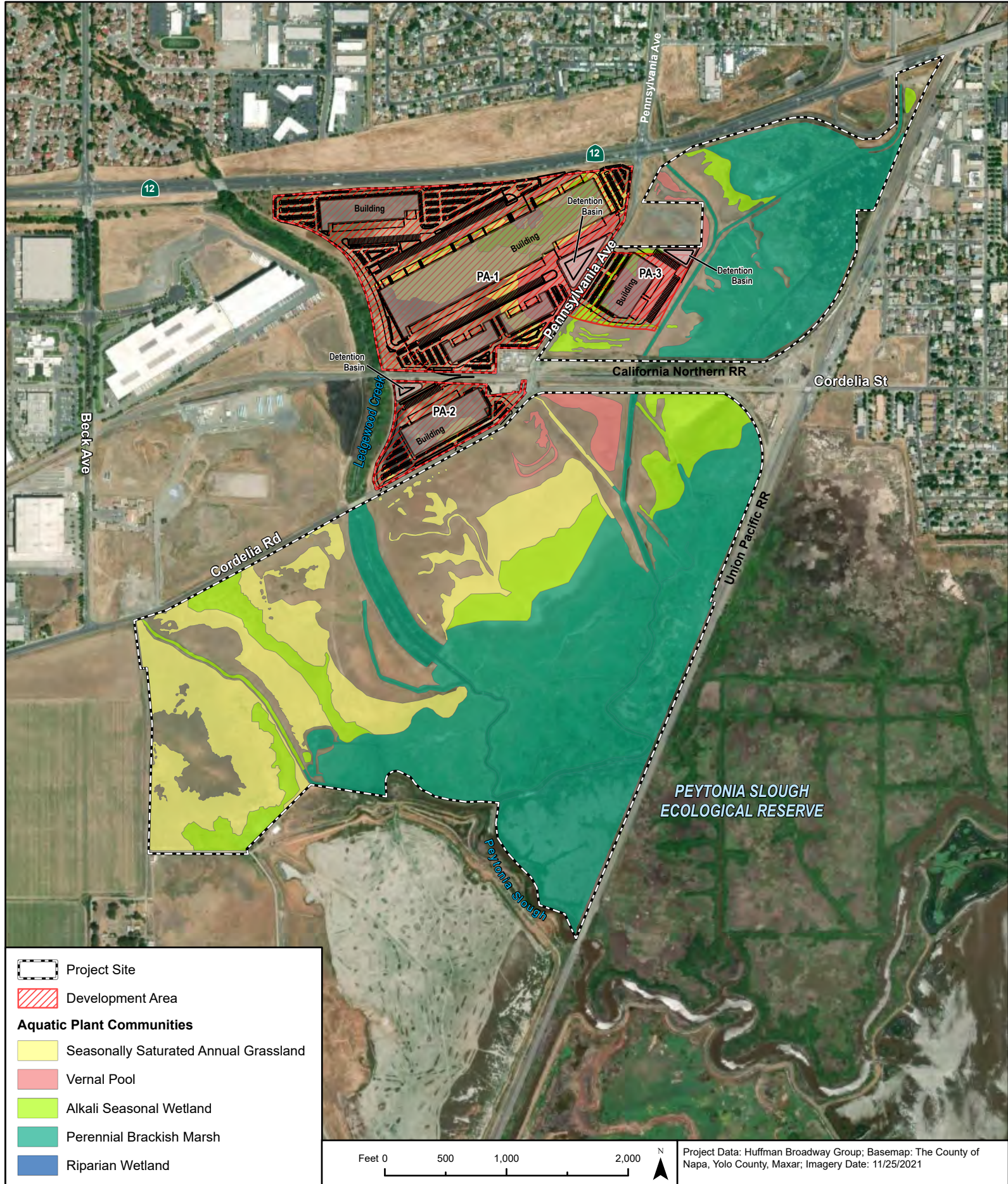
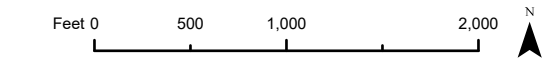


Figure 12. Special Status Plant Impact
 Highway 12 Logistics Center Project
 Solano County, California



Project Site
 Development Area
Aquatic Plant Communities
 Seasonally Saturated Annual Grassland
 Vernal Pool
 Alkali Seasonal Wetland
 Perennial Brackish Marsh
 Riparian Wetland



Project Data: Huffman Broadway Group; Basemap: The County of Napa, Yolo County, Maxar; Imagery Date: 11/25/2021

Figure 13. Aquatic Resource Impacts Subject to USACE and RWQCB Jurisdiction

Highway 12 Logistics Center Project
Solano County, California

Huffman-Broadway Group, Inc.
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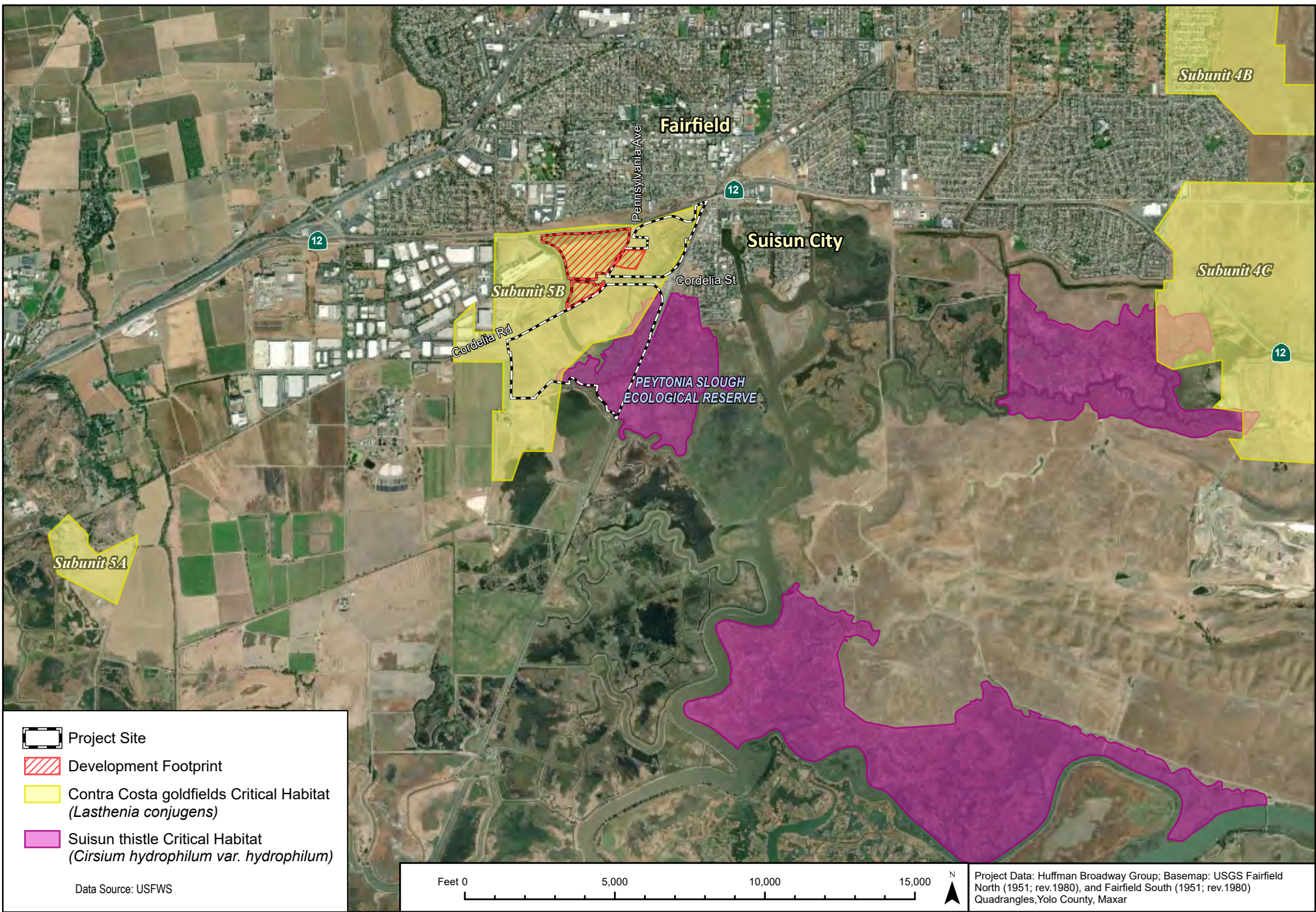


Figure 14. Contra Costa Goldfields and Suisun Thistle Critical Habitat
 Highway 12 Logistics Center Project
 Solano County, California

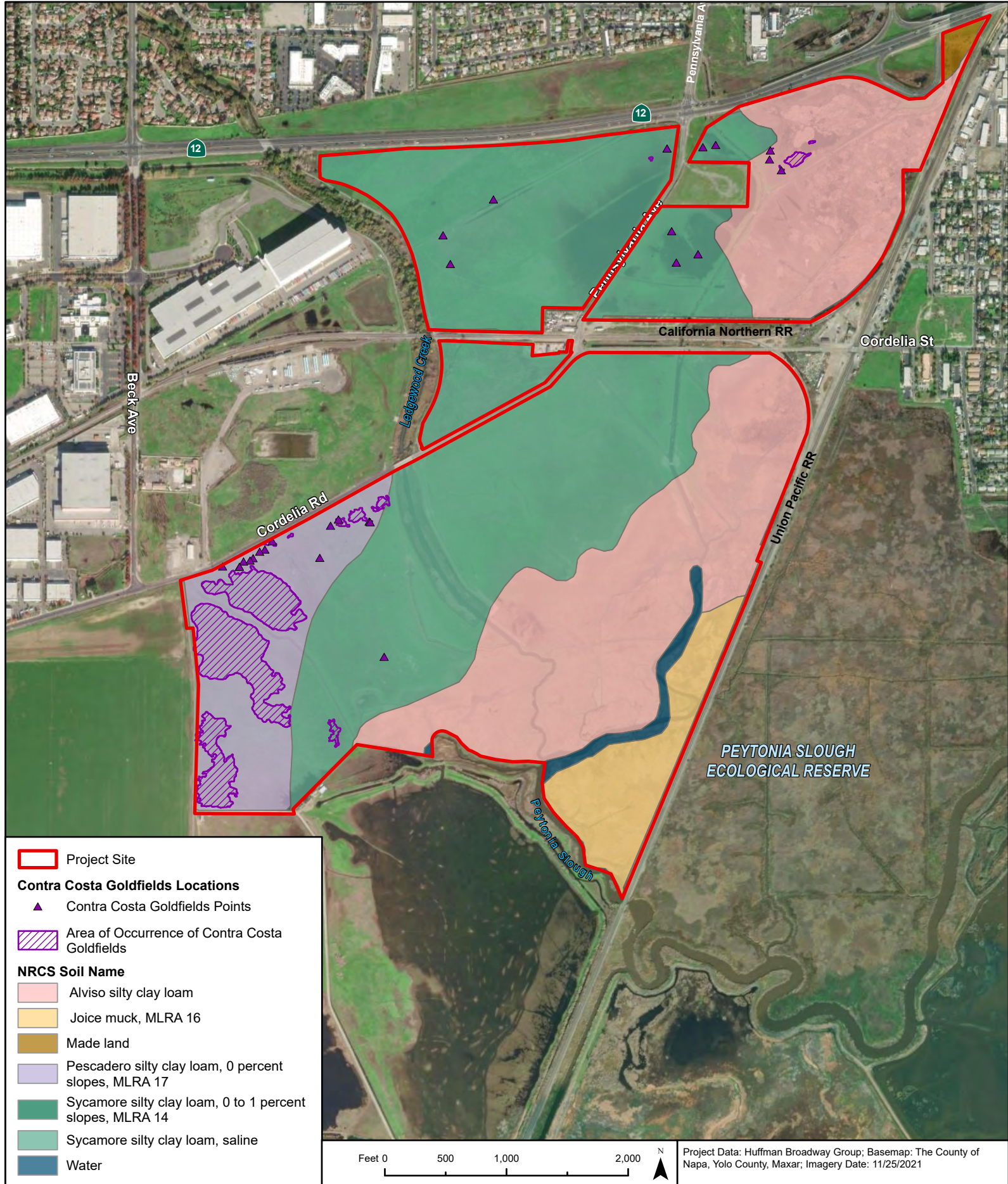


Figure 15. Contra Costa Goldfields & NRCS Soil Type
 Highway 12 Logistics Center Project
 Solano County, California

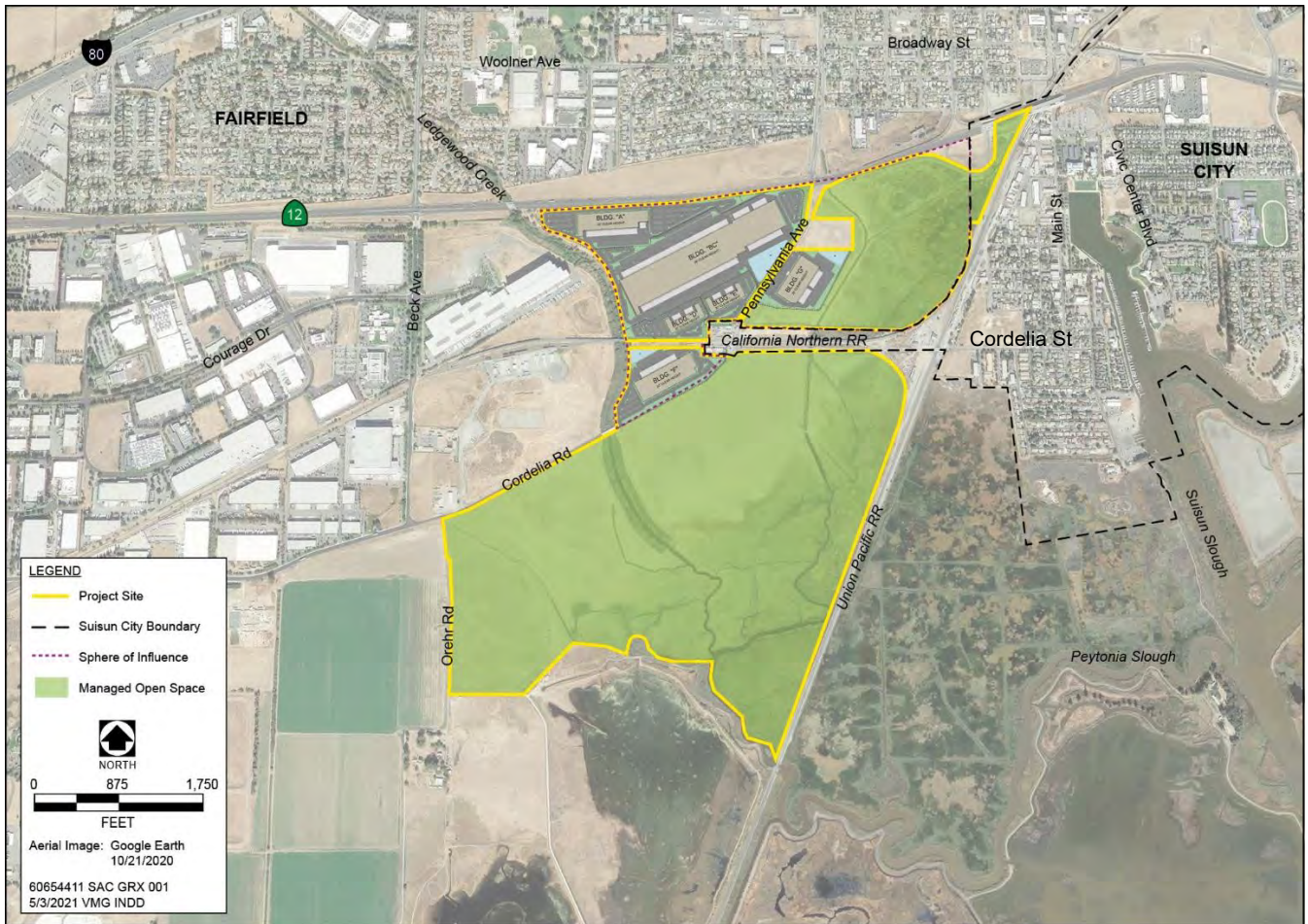


Figure 16. Managed Open Space
 Highway 12 Logistics Center Project
 Solano County, California

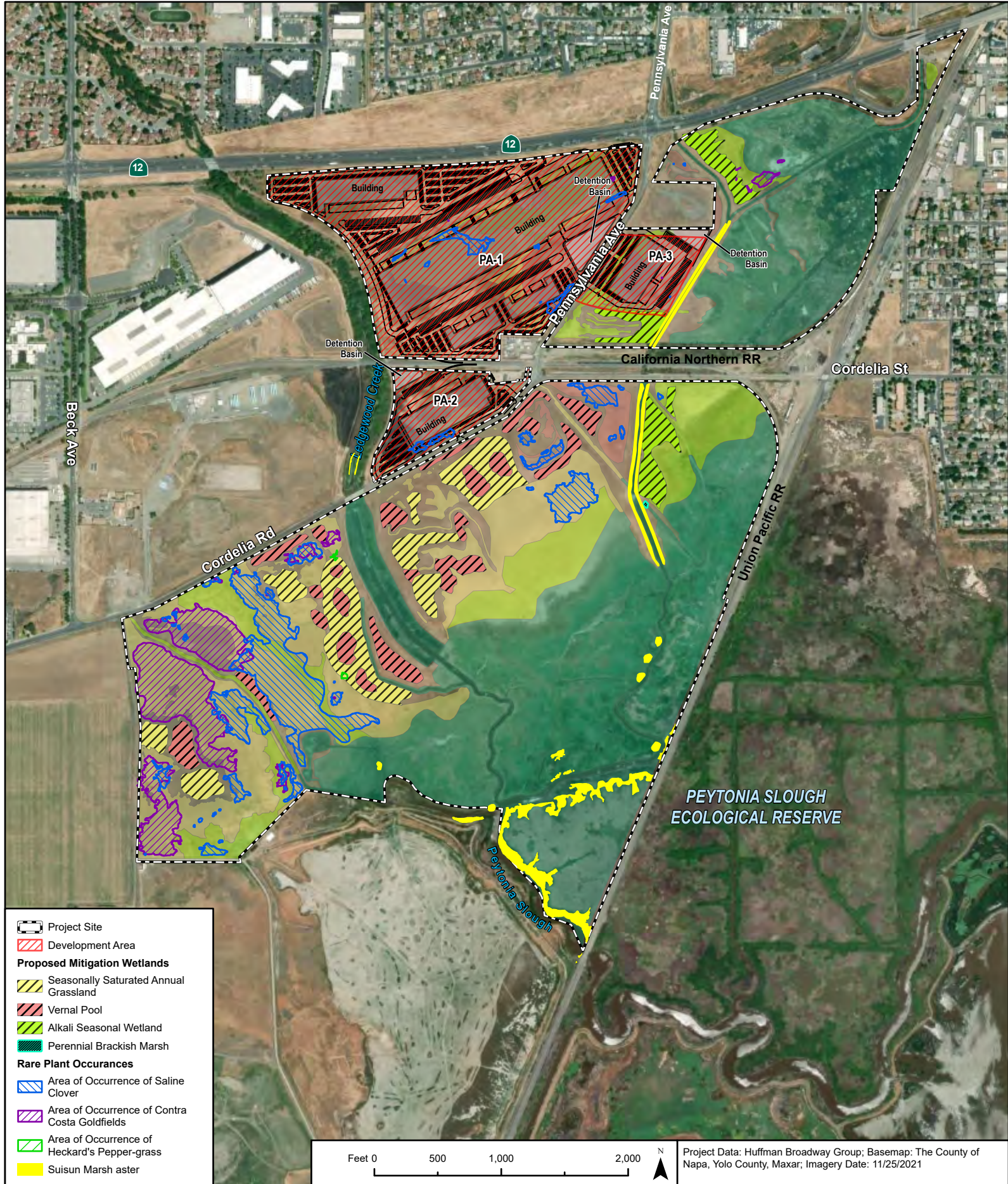


Figure 17. Wetland Establishment Mitigation Map
 Highway 12 Logistics Center Project
 Solano County, California

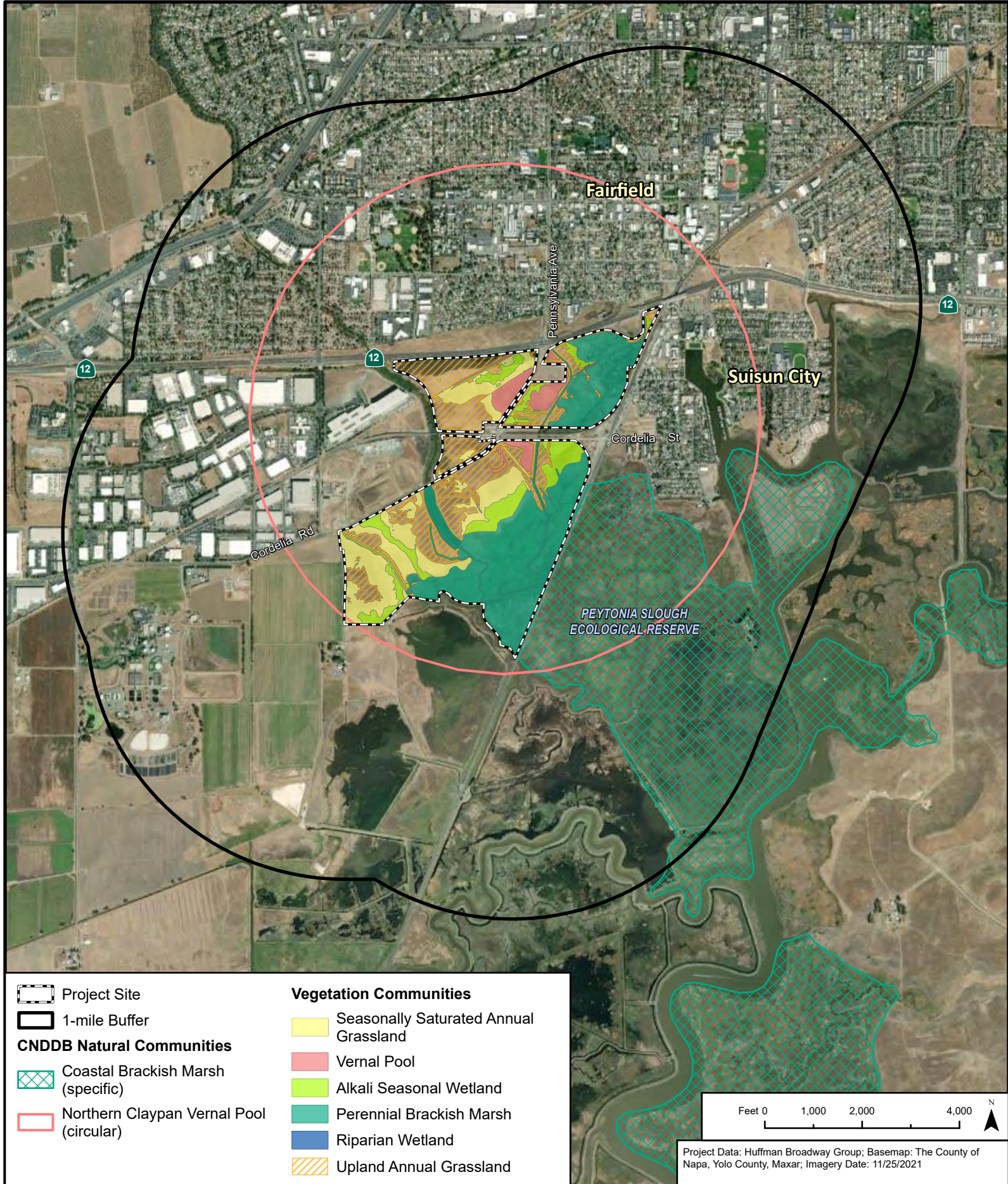
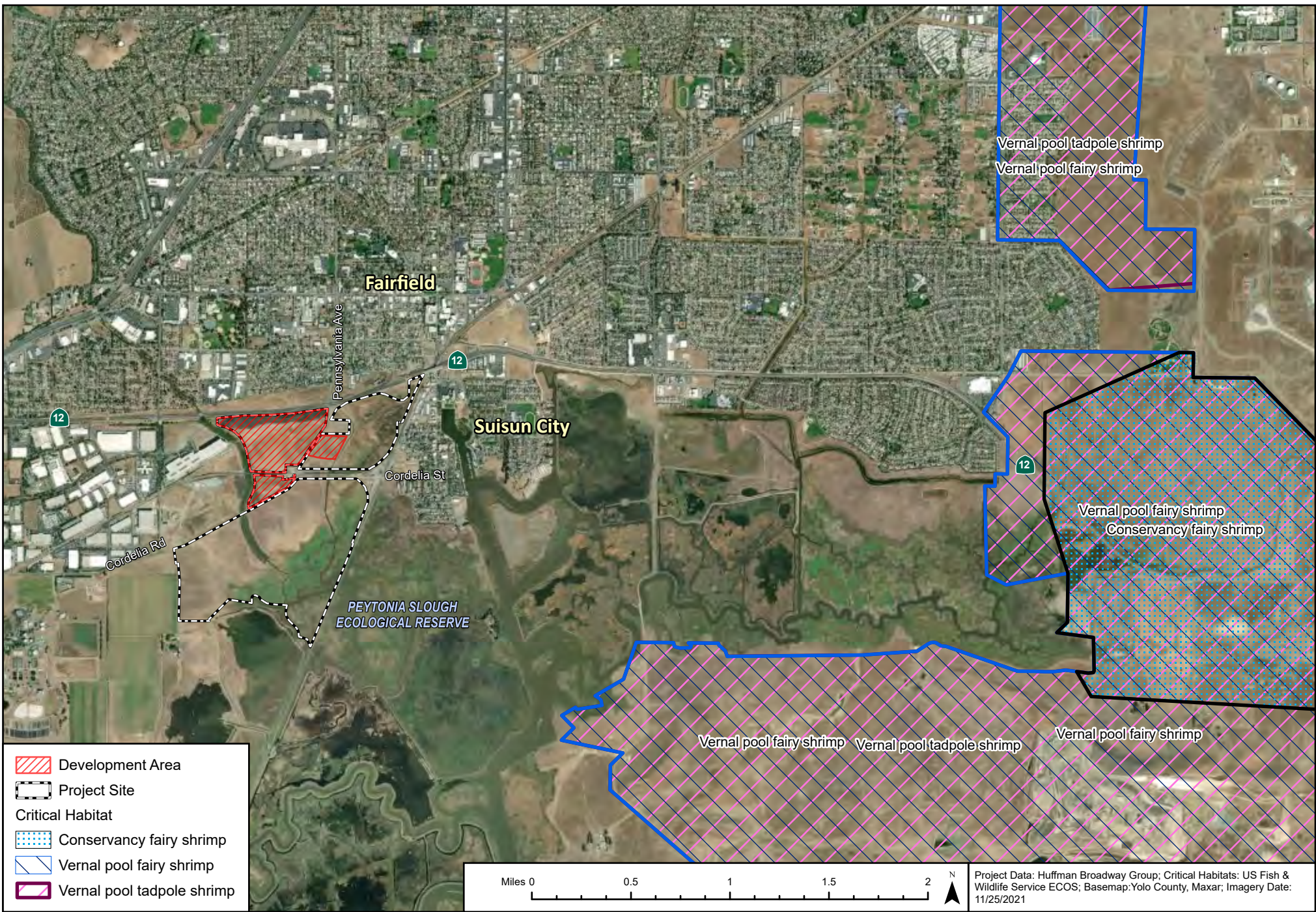


Figure 18. Sensitive Natural Communities
 Highway 12 Logistics Center Project
 Solano County, California



New Figure 19. Vernal Pool Fairy & Tadpole Shrimp and Conservancy Fairy Shrimp Critical Habitat

Highway 12 Logistics Center Project
Solano County, California

ATTACHMENT 2.

TABLES

- | | |
|----------|--|
| Table 1. | Plant Species Observed on the Project Site |
| Table 2. | Animal Species Known to Occur or Expected to Occur on the Project Site. |
| Table 3. | Special Status Plants known to Occur within a 10-Mile Radius of the Project Site |
| Table 4. | Special Status Animal Species known to Occur within a 10-Mile Radius of the Project Site |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---------------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| Trees | | | |
| <i>Fraxinus</i> sp. | Ash | FACW | |
| <i>Phoenix canariensis</i> * | Canary Island date palm | NL | L |
| <i>Prunus dulcis</i> * | Domestic almond | NL | |
| <i>Salix babylonica</i> * | Weeping willow | FAC | |
| <i>Salix gooddingii</i> | Goodding's black willow | FACW | |
| <i>Salix lasiolepis</i> | Arroyo willow | FACW | |
| <i>Quercus agrifolia</i> | Coast live oak | NL | |
| Shrubs | | | |
| <i>Baccharis glutinosa</i> | Salt marsh baccharis | FACW | |
| <i>Baccharis pilularis</i> | Coyote brush | NL | |
| <i>Tamarix</i> sp.* | Tamarisk | FACW | |
| Vines | | | |
| <i>Rosa californica</i> | California rose | FAC | |
| <i>Rosa</i> sp.* | Rose | NL | |
| <i>Rubus armeniacus</i> * | Himalayan blackberry | FAC | H |
| <i>Rubus ursinus</i> | California blackberry | FAC | |
| <i>Vitis californica</i> | California wild grape | FACU | |
| Grasses | | | |
| <i>Avena fatua</i> * | Wild oat | NL | M |
| <i>Briza minor</i> * | Little quaking grass | FAC | |
| <i>Bromus diandrus</i> * | ripgut brome | NL | M |
| <i>Bromus hordeaceus</i> * | Soft brome | FACU | L |
| <i>Cortaderia selloana</i> * | Pampas grass | FACW | H |
| <i>Crypsis vaginiflora</i> * | African prickly grass | OBL | |
| <i>Cynodon dactylon</i> * | Bermuda grass | FACU | M |
| <i>Deschampsia danthonioides</i> | Annual hairgrass | FACW | |
| <i>Distichlis spicata</i> | Inland saltgrass | FAC | |
| <i>Echinochloa crus-galli</i> * | Barnyard grass | FACW | |
| <i>Echinochloa muricata</i> * | Rough barnyard grass | FACW | |
| <i>Elymus caput-medusae</i> * | Medusa head | NL | H |
| <i>Elymus triticoides</i> | Creeping wild rye, Beardless wild rye | FAC | |
| <i>Festuca bromoides</i> * | Brome fescue | FACU | |
| <i>Festuca perennis</i> * | Italian rye grass | FAC | M |
| <i>Hainardia cylindrica</i> * | Barbgrass | FACW | |
| <i>Hordeum brachyantherum</i> | Meadow barley | FACW | |
| <i>Hordeum depressum</i> | Alkali barley | FACW | |
| <i>Hordeum marinum</i> ssp. <i>gussoneanum</i> * | Mediterranean barley | FAC | M |
| <i>Hordeum murinum</i> ssp. <i>leporinum</i> * | Hare barley | FACU | |
| <i>Parapholis incurva</i> * | Curved sicklegrass | FACU | |
| <i>Paspalum dilatatum</i> * | Dallis grass | FAC | |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Paspalum distichum</i> | Knot grass | FACW | |
| <i>Phalaris paradoxa</i> * | Hood canarygrass | FAC | |
| <i>Phragmites australis</i> | Common reed | FACW | |
| <i>Pleuropogon californicus</i> | Annual semaphoregrass | OBL | |
| <i>Poa annua</i> * | Annual blue grass | FAC | |
| <i>Polypogon monspeliensis</i> * | Rabbitsfoot grass | FACW | L |
| <i>Schismus arabicus</i> * | Arabian schismus | NL | L |
| Grasslikes | | | |
| <i>Bolboschoenus robustus</i> | Sturdy bullrush | OBL | |
| <i>Carex barbarae</i> | Santa Barbara sedge | FAC | |
| <i>Cyperus eragrostis</i> | Tall flatsedge | FACW | |
| <i>Eleocharis macrostachya</i> | Common spikerush | OBL | |
| <i>Juncus balticus</i> | Baltic rush | FACW | |
| <i>Juncus bufonius</i> | Toad rush | FACW | |
| <i>Juncus effusus</i> ssp. <i>pacificus</i> | Pacific rush | FACW | |
| <i>Juncus mexicanus</i> | Mexican rush | FACW | |
| <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | Tule | OBL | |
| <i>Schoenoplectus americanus</i> | Chairmaker's bulrush | OBL | |
| <i>Schoenoplectus californicus</i> | California bulrush | OBL | |
| <i>Triglochin concinna</i> var. <i>concinna</i> | Arrowgrass | OBL | |
| <i>Triglochin maritima</i> | Arrowgrass | OBL | |
| <i>Triglochin scilloides</i> | Flowering-quillwort | OBL | |
| <i>Typha angustifolia</i> * | Narrowleaf cattail | OBL | |
| <i>Typha latifolia</i> | Broadleaf cattail | OBL | |
| Herbs | | | |
| <i>Achyraea mollis</i> | Blow wives | FAC | |
| <i>Alisma triviale</i> | Northern water plantain | OBL | |
| <i>Ambrosia psilostachya</i> | Ragweed | FACU | |
| <i>Apium graveolens</i> * | Celery | NL | |
| <i>Artemisia douglasiana</i> | California mugwort | FAC | |
| <i>Asparagus officinalis</i> ssp. <i>officinalis</i> * | Garden asparagus | FACU | |
| <i>Astragalus tener</i> var. <i>tener</i> | Alkali milk vetch | FACW | |
| <i>Atriplex prostrata</i> * | Fat-hen | FACW | |
| <i>Bassia hyssopifolia</i> * | Five horn bassia | FACU | L |
| <i>Bellardia trixago</i> * | Mediterranean linseed | NL | L |
| <i>Bidens frondosa</i> | Devil's beggartick | FACW | |
| <i>Brodiaea minor</i> | Dwarf brodiaea | NL | |
| <i>Callitriche marginata</i> | California water starwort | OBL | |
| <i>Capsella bursa-pastoris</i> * | Shepherd's purse | FACU | |
| <i>Cardamine oligosperma</i> | Bitter cress | FAC | |
| <i>Carduus pycnocephalus</i> * | Italian thistle | NL | M |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Castilleja attenuata</i> | Narrow leaved owl's clover | NL | |
| <i>Castilleja campestris</i> ssp. <i>campestris</i> | Field owl clover | FACW | |
| <i>Centaurea calcitrapa</i> * | Purple star-thistle | NL | M |
| <i>Centaurea solstitialis</i> * | Yellow star-thistle | NL | H |
| <i>Centromadia pungens</i> | Common tarweed | FAC | |
| <i>Cerastium glomeratum</i> * | Large mouse ears | UPL | |
| <i>Chenopodium album</i> * | Lamb's quarters | FACU | |
| <i>Cirsium vulgare</i> * | Bull thistle | FACU | M |
| <i>Conium maculatum</i> * | Poison hemlock | FACW | M |
| <i>Convolvulus arvensis</i> * | Field bindweed | NL | |
| <i>Cotula coronopifolia</i> * | Brass buttons | OBL | L |
| <i>Crassula aquatica</i> | Water pygmyweed | OBL | |
| <i>Cressa truxillensis</i> | Alkali weed | FACW | |
| <i>Croton setiger</i> | Turkey-mullein | NL | |
| <i>Cynara cardunculus</i> * | Cardoon | NL | M |
| <i>Downingia pulchella</i> | Flatface downingia | OBL | |
| <i>Epilobium brachycarpum</i> | Annual fireweed | FAC | |
| <i>Epilobium cleistogamum</i> | Cleistogamous boisduvalia | OBL | |
| <i>Erigeron canadensis</i> | Canada horseweed | FACU | |
| <i>Erodium botrys</i> * | Broad leaf filaree | FACU | |
| <i>Erodium cicutarium</i> * | Red stemmed filaree | NL | L |
| <i>Erodium moschatum</i> * | Musky stork's bill | NL | |
| <i>Eryngium vaseyi</i> | Coyote thistle | FACW | |
| <i>Euthamia occidentalis</i> | Western goldenrod | FACW | |
| <i>Foeniculum vulgare</i> * | Fennel | NL | H |
| <i>Frankenia salina</i> | Alkali heath | FACW | |
| <i>Galium aparine</i> | Common bedstraw | FACU | |
| <i>Grindelia stricta</i> | Coastal gumweed | FACW | |
| <i>Geranium dissectum</i> | Cut leaved geranium | | L |
| <i>Gnaphalium palustre</i> | Lowland cudweed | FACW | |
| <i>Helminthotheca echioides</i> * | Bristly ox-tongue | FAC | L |
| <i>Hirschfeldia incana</i> * | Short podded mustard | | M |
| <i>Hydrocotyle verticillata</i> | Whorled marsh pennywort | OBL | |
| <i>Jaumea carnosa</i> | Marsh jaumea | OBL | |
| <i>Lactuca serriola</i> * | Prickly wild lettuce | FACU | |
| <i>Lasthenia californica</i> ssp. <i>californica</i> | California goldfields | FACU | |
| <i>Lasthenia conjugens</i> | Contra Costa goldfields | FACW | |
| <i>Lasthenia ferrisiae</i> | Alkali goldfields | OBL | |
| <i>Lasthenia glaberrima</i> | Smooth goldfields | OBL | |
| <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> | Delta tule pea | OBL | |
| <i>Leontodon saxatilis</i> * | Hairy hawkbit | FACU | |

Table 1. Plant Species Observed on the Project Site in 2022

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Lepidium latifolium</i> * | Broad leaved pepper grass, Perennial pepperweed | FAC | H |
| <i>Lepidium latipes</i> var. <i>heckardii</i> | Heckard's pepper grass | FACW | |
| <i>Lepidium nitidum</i> | Shining pepperweed | FAC | |
| <i>Limosella aquatica</i> | Northern mudwort | OBL | |
| <i>Lotus corniculatus</i> * | Bird's foot trefoil | FAC | |
| <i>Lupinus bicolor</i> | Miniature lupine | NL | |
| <i>Lysimachia arvensis</i> | Scarlet pimpernel | NL | |
| <i>Lythrum hyssopifolia</i> * | Hyssop loosestrife | FAC | L |
| <i>Malva neglecta</i> * | Common mallow | NL | |
| <i>Malva parviflora</i> * | Cheeseweed mallow | NL | |
| <i>Medicago polymorpha</i> * | Bur clover | FACU | L |
| <i>Melilotus albus</i> * | White sweetclover | NL | |
| <i>Melilotus indicus</i> * | Annual yellow sweetclover | FACU | |
| <i>Mentha ×piperita</i> * | Peppermint | NL | |
| <i>Microseris campestris</i> | San Joaquin microseris | NL | |
| <i>Muilla maritima</i> | Common muilla | NL | |
| <i>Myosurus minimus</i> | Common mouse tail | OBL | |
| <i>Myosurus sessilis</i> | Tiny mouse tail | FACW | |
| <i>Nasturtium officinale</i> | Watercress | OBL | |
| <i>Oenanthe sarmentosa</i> | Water parsley | OBL | |
| <i>Persicaria punctata</i> | Dotted smartweed | OBL | |
| <i>Phyla nodiflora</i> var. <i>nodiflora</i> | Common lippia | FACW | |
| <i>Plagiobothrys greenei</i> | Greene's popcornflower | FACW | |
| <i>Plagiobothrys humistratus</i> | Dwarf popcornflower | OBL | |
| <i>Plagiobothrys leptocladus</i> | Alkali popcornflower | OBL | |
| <i>Plagiobothrys stipitatus</i> var. <i>micranthus</i> | Stalked popcornflower | FACW | |
| <i>Plantago elongata</i> | Coastal plantain | FACW | |
| <i>Plantago lanceolata</i> * | English plantain | FAC | L |
| <i>Plantago major</i> * | Common plantain | FAC | |
| <i>Polygonum aviculare</i> * | Prostrate knotweed | FAC | |
| <i>Potentilla anserina</i> ssp. <i>pacifica</i> | Pacific potentilla | OBL | |
| <i>Psilocarphus brevissimus</i> var. <i>brevissimus</i> | Woolly marbles | FACW | |
| <i>Psilocarphus oregonus</i> | Oregon woolly marbles | OBL | |
| <i>Ranunculus muricatus</i> * | Buttercup | FACW | |
| <i>Ranunculus scleratus</i> | Cursed buttercup | OBL | |
| <i>Raphanus raphanistrum</i> * | Wild radish | NL | |
| <i>Rumex conglomeratus</i> * | Clustered dock | FACW | |
| <i>Rumex crispus</i> * | Curly dock | FAC | L |
| <i>Rumex pulcher</i> * | Fiddle dock | FAC | |
| <i>Salicornia pacifica</i> | Pickleweed | OBL | |
| <i>Salsola tragus</i> * | Russian thistle | FACU | L |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Senecio hydrophilus</i> | Alkali marsh ragwort | OBL | |
| <i>Senecio vulgaris</i> * | Common groundsel | FACU | |
| <i>Silene gallica</i> * | Common catchfly | NL | |
| <i>Silybum marianum</i> * | Milk thistle | NL | L |
| <i>Soliva sessilis</i> * | Field burrweed | FACU | |
| <i>Sonchus oleraceus</i> * | Sow thistle | UPL | |
| <i>Spergularia macrotheca var. longistyla</i> | Long-styled sand spurry | FAC | |
| <i>Spergularia marina</i> | Salt marsh sand spurry | OBL | |
| <i>Spergularia rubra</i> * | Purple sand spurry | FAC | |
| <i>Symphotrichum lentum</i> | Suisun Marsh aster | OBL | |
| <i>Tragopogon porrifolius</i> * | Purple salsify | NL | |
| <i>Trifolium campestre</i> * | Low hop clover | NL | |
| <i>Trifolium depauperatum var. amplexens</i> | Balloon sack clover | FAC | |
| <i>Trifolium depauperatum var. depauperatum</i> | Bladder sack clover | FAC | |
| <i>Trifolium depauperatum var. truncatum</i> | Dwarf sack clover | FAC | |
| <i>Trifolium fucatum</i> | Sour clover | FACU | |
| <i>Trifolium hirtum</i> * | Rose clover | NL | L |
| <i>Trifolium hydrophilum</i> | Saline clover | FAC | |
| <i>Trifolium repens</i> * | White clover | FACU | |
| <i>Trifolium subterraneum</i> * | Subterranean clover | NL | |
| <i>Trifolium tomentosum</i> * | Woolly clover | NL | |
| <i>Trifolium variegatum</i> | Variegated clover | FAC | |
| <i>Trifolium willdenovii</i> | Tomcat clover | FACW | |
| <i>Triphysaria eriantha</i> | Butter-and-eggs | NL | |
| <i>Triphysaria pusilla</i> | Dwarf owl's clover | NL | |
| <i>Triphysaria versicolor ssp. faucibarbata</i> | Yellow owl's clover | NL | |
| <i>Verbascum thapsus</i> * | Moth mullein | FACU | L |
| <i>Veronica peregrina ssp. xalapensis</i> | Hairy purslane speedwell | FAC | |
| <i>Vicia sativa</i> * | Spring vetch | FACU | |
| <i>Vicia villosa</i> * | Hairy vetch | NL | |
| <i>Xanthium spinosum</i> * | Spiny cocklebur | FACU | |
| <i>Xanthium strumarium</i> | Cocklebur | FAC | |

* = non native , + = observed just out side the Study Area.

| Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site | |
|--|-----------------------------------|
| Common Name | Scientific Name |
| Reptiles and Amphibians | |
| Pacific Chorus Frog | <i>Pseudacris regilla</i> |
| Bullfrog | <i>Rana catesbeiana</i> |
| Western Toad | <i>Bufo boreas</i> |
| Western Fence Lizard | <i>Sceloporus occidentalis</i> |
| Coast Horned Lizard | <i>Phrynosoma coronatum</i> |
| Gilbert's Skink | <i>Eumeces gilberti</i> |
| Western Whiptail | <i>Cnemidophorus tigris</i> |
| Southern Alligator Lizard | <i>Gerrhonotus multicarinatus</i> |
| Racer | <i>Coluber constrictor</i> |
| Coachwhip | <i>Masticophis flagellum</i> |
| Glossy Snake | <i>Arizona elegans</i> |
| Gopher Snake | <i>Pituophis melanoleucus</i> |
| Common Kingsnake | <i>Lampropeltis getulus</i> |
| Long-nosed Snake | <i>Rhinocheilus lecontei</i> |
| Common Garter Snake | <i>Thamnophis sirtalis</i> |
| Western Terrestrial Garter Snake | <i>Thamnophis elegans</i> |
| Western Rattlesnake | <i>Crotalis viridis</i> |
| Birds | |
| Pied-billed Grebe | <i>Podilymbus podiceps</i> |
| Eared Grebe | <i>Podiceps nigricollis</i> |
| Western Grebe | <i>Aechmophorus occidentalis</i> |
| Clark's Grebe | <i>Aechmophorus clarkii</i> |
| American White Pelican | <i>Pelecanus erythrorhynchos</i> |
| Double-crested Cormorant | <i>Phalacrocorax auritus</i> |
| American Bittern | <i>Botaurus lentiginosus</i> |
| Great Blue Heron | <i>Ardea herodias</i> |
| Green Heron | <i>Butorides virescens</i> |
| Black-crowned Night Heron | <i>Nycticorax nycticorax</i> |
| Great Egret | <i>Ardea albus</i> |
| Snowy Egret | <i>Egretta thula</i> |
| Cattle Egret | <i>Bubulcus ibis</i> |
| Canada Goose | <i>Branta Canadensis</i> |
| Green-Winged Teal | <i>Anas crecca</i> |
| Mallard | <i>Anas platyrhynchos</i> |
| Northern Pintail | <i>Anas acuta</i> |
| Cinnamon Teal | <i>Anas cyanoptera</i> |
| Northern Shoveler | <i>Anas clypeata</i> |

| Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site | |
|--|--------------------------------|
| Common Name | Scientific Name |
| Gadwall | <i>Anas strepera</i> |
| American Wigeon | <i>Anas americana</i> |
| Canvasback | <i>Aythya valisineria</i> |
| Redhead | <i>Aythya americana</i> |
| Ring-necked Duck | <i>Aythya collaris</i> |
| Lesser Scaup | <i>Aythya affinis</i> |
| Common Goldeneye | <i>Bucephala clangula</i> |
| Bufflehead | <i>Bucephala albeola</i> |
| Ruddy Duck | <i>Oxyura jamaicensis</i> |
| Turkey Vulture | <i>Cathartes aura</i> |
| Osprey | <i>Pandion haliaetus</i> |
| White-tailed Kite | <i>Elanus leucurus</i> |
| Northern Harrier | <i>Circus hudsonius</i> |
| Sharp-shinned Hawk | <i>Accipiter striatus</i> |
| Cooper's Hawk | <i>Accipiter cooperi</i> |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> |
| Red-shouldered Hawk | <i>Buteo lineatus</i> |
| Golden Eagle | <i>Aquila chrysaetos</i> |
| American Kestrel | <i>Falco sparverius</i> |
| Prairie Falcon | <i>Falco mexicanus</i> |
| Merlin | <i>Falco columbarius</i> |
| Ring-necked Pheasant | <i>Phasianus colchicus</i> |
| California Quail | <i>Callipepla californica</i> |
| Virginia Rail | <i>Rallus limicola</i> |
| Sora | <i>Porzana carolina</i> |
| Common Gallinule | <i>Gallinula galeata</i> |
| American Coot | <i>Fulica Americana</i> |
| Black-bellied Plover | <i>Pluvialis squatarola</i> |
| Killdeer | <i>Charadrius vociferous</i> |
| Black-necked Stilt | <i>Himantopus mexicanus</i> |
| American Avocet | <i>Recurvirostra americana</i> |
| Greater Yellowlegs | <i>Tringa melanoleuca</i> |
| Spotted Sandpiper | <i>Actitis macularia</i> |
| Long-billed Curlew | <i>Numenius americanus</i> |
| Least Sandpiper | <i>Calidris minutilla</i> |
| Western Sandpiper | <i>Calidris mauri</i> |
| Dunlin | <i>Calidris alpina</i> |
| Long-billed Dowitcher | <i>Limnodromus scolopaceus</i> |

| Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site | |
|--|------------------------------------|
| Common Name | Scientific Name |
| Wilson's Snipe | <i>Gallinago delicata</i> |
| Ring-billed Gull | <i>Larus delawarensis</i> |
| California Gull | <i>Larus californicus</i> |
| Herring Gull | <i>Larus argentatus</i> |
| Forster's Tern | <i>Sterna forsteri</i> |
| Caspian Tern | <i>Sterna caspia</i> |
| Rock Dove | <i>Columba livia</i> |
| Mourning Dove | <i>Zenaida macroura</i> |
| Barn Owl | <i>Tyto alba</i> |
| Great Horned Owl | <i>Bubo virginianus</i> |
| Burrowing Owl | <i>Athene cunicularia</i> |
| Short-eared Owl | <i>Asio flammeus</i> |
| Vaux's Swift | <i>Chaetura vauxi</i> |
| Anna's Hummingbird | <i>Calypte annas</i> |
| Belted Kingfisher | <i>Ceryle alcyon</i> |
| Northern Flicker | <i>Colaptes auratus</i> |
| Nuttall's Woodpecker | <i>Picoides nuttallii</i> |
| Downy Woodpecker | <i>Dryobates pubescens</i> |
| Black Phoebe | <i>Sayornis nigricans</i> |
| Say's Phoebe | <i>Sayornis saya</i> |
| Pacific-slope Flycatcher | <i>Empidonax difficilus</i> |
| Ash-throated Flycatcher | <i>Myiarchus cinerascens</i> |
| Western Kingbird | <i>Tyrannus verticalis</i> |
| California Horned Lark | <i>Eremophila alpestris actica</i> |
| Barn Swallow | <i>Hirundo rustica</i> |
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> |
| Tree Swallow | <i>Tachycineta bicolor</i> |
| Violet-green swallow | <i>Tachycineta thalassina</i> |
| Northern Rough-winged Swallow | <i>Stelgidopteryx serripennis</i> |
| California Scrub-jay | <i>Aphelocoma californica</i> |
| American Crow | <i>Corvus brachyrhynchos</i> |
| Common Bushtit | <i>Psaltriparus minimus</i> |
| Bewick's Wren | <i>Thryomanes bewickii</i> |
| House Wren | <i>Troglodytes aedon</i> |
| Marsh Wren | <i>Cistothorus palustris</i> |
| American Robin | <i>Turdus migratorius</i> |
| Hermit Thrush | <i>Hylocichla guttata</i> |
| Western Bluebird | <i>Sialia mexicana</i> |

| Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site | |
|--|-------------------------------------|
| Common Name | Scientific Name |
| Ruby-crowned Kinglet | <i>Regulus calendula</i> |
| Northern Mockingbird | <i>Mimus polyglottos</i> |
| American Pipit | <i>Anthus rubescens</i> |
| Cedar Waxwing | <i>Bombycilla cedrorum</i> |
| Loggerhead Shrike | <i>Lanius ludovicianus</i> |
| European Starling | <i>Sturnus vulgaris</i> |
| Warbling Vireo | <i>Vireo gilvusi</i> |
| Orange-crowned Warbler | <i>Vermivora celata</i> |
| Yellow Warbler | <i>Setophaga petechia</i> |
| Yellow-rumped Warbler | <i>Setophaga coronata</i> |
| Townsend's Warbler | <i>Setophaga townsendi</i> |
| Common Yellowthroat | <i>Geothlypis trichas</i> |
| Wilson's Warbler | <i>Cardellina pusilla</i> |
| Western Tanager | <i>Piranga ludoviciana</i> |
| Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> |
| Lazuli Bunting | <i>Passerina amoena</i> |
| Spotted Towhee | <i>Pipilo maculatus</i> |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> |
| Lark Sparrow | <i>Chondestes grammacus</i> |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> |
| Golden-crowned Sparrow | <i>Zonotrichia atricapilla</i> |
| Fox Sparrow | <i>Passerella iliaca</i> |
| Suisun Song Sparrow | <i>Melospiza melodia maxillaris</i> |
| Lincoln's Sparrow | <i>Melospiza lincolni</i> |
| Dark-eyed Junco | <i>Junco hyemalis</i> |
| Western Meadowlark | <i>Sturnella neglecta</i> |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i> |
| Tri-colored Blackbird | <i>Agelaius tricolor</i> |
| Brewer's Blackbird | <i>Euphagus cyanocephalus</i> |
| Brown-headed Cowbird | <i>Molothrus ater</i> |
| Bullock's Oriole | <i>Icterus bullockii</i> |
| Purple Finch | <i>Haemorhous purpureus</i> |
| House Finch | <i>mexicanus</i> |
| Pine Siskin | <i>Carduelis pinus</i> |
| American Goldfinch | <i>Spinus tristis</i> |
| Lesser Goldfinch | <i>Spinus psaltria</i> |
| House Sparrow | <i>Passer domesticus</i> |
| Mammals | |

| Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site | |
|--|------------------------------------|
| Common Name | Scientific Name |
| Virginia Opossum | <i>Didelphis virginiana</i> |
| Suisun Shrew | <i>Sorex ornatus sinuosus</i> |
| Broad-footed Mole | <i>Scapanus latimanus</i> |
| California Myotis | <i>Myotis californicus</i> |
| Western Pipistrelle | <i>Pipistrellus hesperus</i> |
| Big Brown Bat | <i>Eptesicus fuscus</i> |
| Red Bat | <i>Lasiurus borealis</i> |
| Pallid Bat | <i>Antrozous pallidus</i> |
| Brazilian Free-tailed Bat | <i>Tadarida brasiliensis</i> |
| Black-tailed Hare | <i>Lepus californicus</i> |
| Desert Cottontail | <i>Sylvilagus audubonii</i> |
| California Ground Squirrel | <i>Otospermophilus beecheyi</i> |
| Botta's Pocket Gopher | <i>Thomomys bottae</i> |
| Western Harvest Mouse | <i>Reithrodontomys megalotis</i> |
| Salt Marsh Harvest Mouse | <i>Reithrodontomys raviventris</i> |
| Deer Mouse | <i>Peromyscus maniculatus</i> |
| California Vole | <i>Microtus californicus</i> |
| Muskrat | <i>Ondatra zibethicus</i> |
| Norway Rat | <i>Rattus norvegicus</i> |
| House Mouse | <i>Mus musculus</i> |
| Coyote | <i>Canis latrans</i> |
| Red Fox | <i>Vulpes fulva</i> |
| Gray Fox | <i>Urocyon cinereoargenteus</i> |
| Raccoon | <i>Procyon lotor</i> |
| Long-tailed Weasel | <i>Mustela frenata</i> |
| Striped Skunk | <i>Mephitis mephitis</i> |
| Mule Deer | <i>Odocoileus hemionus</i> |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|---|
| Ferris' milk-vetch (<i>Astragalus tener</i> var. <i>ferrisae</i>) | --/--/1B.1 | Inhabits subalkaline flats on overflow land within meadows and valley and foothill grassland, usually on dry, adobe soil. Extirpated from Solano Co. 5-75m. | Not present. Some suitable habitat is present, but the species is extirpated from Solano County. |
| Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>) | --/--/1B.2 | Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m. | Present. Special status plant surveys in 2021 and 2022 and prior years indicated this species is present in central areas of the proposed development area of the project site as well as in the area south of Cordelia Road. |
| Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>) | --/--/1B.2 | Inhabits alkaline flats and scalds with sandy soils. 0-560m. | Unlikely. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Brittlescale (<i>Atriplex depressa</i>) | --/--/1B.2 | Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in alkali scalds in alkaline clay soils. Rarely in riparian marshes or vernal pools. 1-320m. | Possible. A CNDDDB element was mapped on the project site in 2002, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Vernal pool smallscale (<i>Atriplex persistens</i>) | --/--/1B.2 | Inhabits alkali vernal pools; known from scattered locations in the Delta and Central Valley basin. 10-115m. | Unlikely. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Big-scale balsamroot (<i>Balsamorhiza macrolepis</i>) | --/--/1B.2 | Chaparral, cismontane woodland, valley and foothill grassland, sometimes on serpentinite. 90-1555m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Narrow-anthered brodiaea (<i>Brodiaea leptandra</i>) | --/--/1B.2 | Broadleafed upland forest, chaparral, lower montane coniferous forest, valley and foothill grassland. 110-915m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|--|
| Mt. Diablo fairy-lantern (<i>Calochortus pulchellus</i>) | --/--/1B.2 | Found on wooded and brushy slopes within chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. 30-915 m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Lyngbye's sedge (<i>Carex lyngbyei</i>) | -/-/2B.2 | Marshes and swamps (brackish or freshwater) at sea level. | Unlikely. Suitable habitat present but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Tiburon paintbrush (<i>Castilleja affinis</i> var. <i>neglecta</i>) | FE/ST/1B.2 | Rocky serpentine sites within valley and foothill grassland. 75-400m. | Not present. Suitable habitat is not found at the site. |
| Holly-leaved ceanothus (<i>Ceanothus purpureus</i>) | --/--/1B.2 | Rocky volcanic slopes in chaparral. 120-640m. | Not present. Suitable habitat is not found at the project site |
| Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>) | --/--/1B.1 | Found in alkaline soils in valley and foothill grasslands. 1-230m. | Unlikely. Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>) | --/--/1B.2 | Found in mesic and often alkaline sites in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Hispid salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>hispidum</i>) | --/--/1B.1 | Found in meadows and seeps, playas, and valley and foothill grasslands. Alkaline soils in alkaline meadows and alkali sinks with <i>Distichlis</i> . 1-155m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Soft bird's-beak (<i>Chloropyron molle</i> ssp. <i>molle</i>) | FE/SR/1B.2 | Coastal salt marsh with <i>Distichlis</i> , <i>Salicornia</i> , <i>Frankenia</i> , etc. 0-3m. | Unlikely. According to the CNDDDB, this species was collected in 1904 along the railroad near Suisun. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|--|--|
| Bolander's water-hemlock (<i>Cicuta maculata</i> var. <i>bolanderi</i>) | --/--/2B.1 | Found in fresh or brackish water. 0-200m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Suisun thistle (<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>) | FE/--/1B.1 | Found with <i>Scirpus</i> and <i>Distichlis</i> near small watercourses within salt marsh 0-1m; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano, Co. | Unlikely. Designated Critical Habitat occurs in the southern portion of the site. Although potential habitats are found on site, the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Recurved larkspur (<i>Delphinium recurvatum</i>) | --/--/1B.2 | On alkaline soils in chenopod scrub, cismontane woodland and valley and foothill grassland. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Western leatherwood (<i>Dirca occidentalis</i>) | --/--/1B.2 | On brushy slopes and mesic sites mostly in mixed evergreen and foothill woodland communities. 30-550m. | Not present. Suitable habitat is not found on site. |
| Dwarf downingia (<i>Downingia pusilla</i>) | --/--/2B.2 | Inhabits vernal pools and vernal lake margins. 1-445m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Greene's narrow-leaved daisy (<i>Erigeron greenei</i>) | --/--/1B.2 | Serpentine and volcanic substrates in chaparral. 75-1060m. | Not present. Suitable habitat not found at the site. |
| Mt. Diablo buckwheat (<i>Eriogonum truncatum</i>) | --/--/1B.1 | On dry, exposed clay or sandy substrates in chaparral, coastal scrub and valley and foothill grasslands. 3-350m. | Not present. Suitable habitat is not found at the site. |
| Jepson's coyote-thistle (<i>Eryngium jepsonii</i>) | --/--/1B.2 | On clay soils in vernal pools and valley and foothill grassland. 3-305 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|---|
| San Joaquin spearscale (<i>Etriplex joaquiniana</i>) | --/--/1B.2 | Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with <i>Distichlis</i> , <i>Frankenia</i> , etc. 1-835m. | Unlikely. Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Fragrant fritillary (<i>Fritillaria liliaceas</i>) | --/--/1B.2 | Coastal scrub, coastal prairie and valley and foothill grasslands, often on serpentine but usually in clay. 3-410m. | Not present. Suitable habitat is not found at the project site |
| Adobe-lily (<i>Fritillaria pluriflora</i>) | --/--/1B.2 | Clay soils in valley and foothill grasslands, chaparral or cismontane woodland. 60-705m. | Not present. Suitable habitat is not found at the project site |
| Bogg's Lake hedge hyssop (<i>Gratiola heterosepala</i>) | --/SE/1B.2 | Inhabits vernal pools and margins of vernal lakes. 10-2375m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Diablo helianthella (<i>Helianthella castanea</i>) | --/--/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 found at the site. |
| Brewer's western flax (<i>Hesperolinon breweri</i>) | --/--/1B.2 | Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland at 30-885 meters. | Not present. Suitable habitat is not found at the site. |
| Sharsmith's western flax (<i>Hesperolinon sharsmithiae</i>) | --/--/1B.2 | Serpentine substrates in chaparral. 180-670 m. | Not present. Suitable habitat not found at the site. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|---|
| Woolly rose-mallow (<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>) | --/--/1B.2 | Freshwater marshes and swamps. Found on freshwater-soaked riverbanks and low peat islands in sloughs. 0-120m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Carquinez goldenbush (<i>Isocoma arguta</i>) | --/--/1B.1 | Found in valley and foothill grasslands on alkaline soils, on low benches near drainages and on the tops and sides of mounds in swale areas. 1-20m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Contra Costa goldfields (<i>Lasthenia conjugens</i>) | FE/--/1B.1 | Inhabits vernal pools, swales and low depressions in open grassy areas. Most remaining occurrences are restricted to the Fairfield region. 1-470m. | Present. Designated Critical Habitat occurs on the project site. Populations of this species were observed onsite in special status species surveys conducted in 2021 and 2022 and in prior surveys conducted in 2000, 2001, 2002 and 2005. |
| Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>) | --/--/1B.1 | Coastal salt marsh, playas, and vernal pools. Usually found on alkaline soils in in playas, sinks, and grasslands. 1-1375m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Delta tule pea (<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>) | --/--/1B.2 | Freshwater and brackish marshes with <i>Typha</i> , <i>Rosa</i> , <i>Juncus</i> , <i>Scirpus</i> etc. Usually on the marsh the slough edges. | Present onsite. Observed onsite in the southern portion of the property during special status plant surveys conducted in 2005 and again in 2021 and 2022. There are numerous known occurrences south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh. |
| Legenere (<i>Legenere limosa</i>) | --/--/1B.1 | Inhabits the beds of vernal pools. 1-880m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Heckard's pepper-grass (<i>Lepidium latipes</i> var. <i>heckardii</i>) | --/--/1B.2 | Valley and foothill grassland. In grassland or vernal pool edges on alkaline soils. 2-200 m. | Present. Although not observed during special status plant surveys conducted in 2000, 2001, 2002, 2005 or 2021, this species was found on the project site in surveys conducted in 2022. |

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| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|--|
| Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>) | --/--/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 not found at the site. |
| Mason's lilaepsis (<i>Lilaepsis masonii</i>) | --/SR/1B.1 | Found in the tidal zone in muddy or silty soils with freshwater and brackish marshes and riparian scrub. 1-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Delta mudwort (<i>Limosella australis</i>) | --/--/2B.1 | Found in riparian scrub and in freshwater and brackish marshes. On mud banks in marsh and riparian associations. Often with Mason's lilaepsis. 0-3m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Marsh microseris (<i>Microseris paludosa</i>) | --/--/1B.2 | Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Baker's navarretia (<i>Navarretia leucocephala ssp. bakeri</i>) | --/--/1B.1 | Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils at 5-1740m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Few-flowered navarretia (<i>Navarretia leucocephala ssp. pauciflora</i>) | FE/ST/1B.1 | Inhabits volcanic ash flows and volcanic substrates in vernal pools. 400-855m. | Not present. Suitable habitat not found at the site. |
| Colusa grass (<i>Neostapfia colusana</i>) | FT/SE/1B.1 | Inhabits pool bottoms in adobe soils in large vernal pools and vernal lakes. 5-200m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|--|
| San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>) | FT/SE/1B.1 | Vernal pools 15-660 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Bearded popcorn flower (<i>Plagiobothrys hystriculus</i>) | --/--/1B.1 | Vernal pools, valley and foothill grassland in wet sites. 0-275m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Marin knotweed (<i>Polygonum marinense</i>) | --/--/3.1 | Coastal salt marshes and brackish marshes. 0-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| California alkali grass (<i>Puccinellia simplex</i>) | --/--/1B.2 | Found in meadows and seeps, chenopod scrub, and vernal pools in foothill grasslands. Found in alkaline, vernal mesic sinks, flats, and lake margins. 1-915 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| California beaked-rush (<i>Rhynchospora californica</i>) | --/--/1B.1 | Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Chaparral ragwort (<i>Senecio aphanactis</i>) | --/--/2B.2 | Known from foothill woodland and chaparral habitats. | Not present. Suitable habitat is not found at the site. |
| Keck's checkerbloom (<i>Sidalcea keckii</i>) | FE/--/1B.1 | Found on grassy slopes in blue oak woodland. 75-650m. | Not present. Suitable habitat is not found at the project site |
| Long-styled sand-spurrey (<i>Spergularia macrotheca</i> var. <i>longistyla</i>) | --/--/1B.2 | Found in alkaline marshes and swamps, meadows and seeps. 0-220 m. | Present. Observed in previous surveys but not mapped as it had no listing status at the time. Observed in one location north of Cordelia Road and west of Pennsylvania Avenue during 2022 surveys. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|---|---|
| Northern slender pondweed (<i>Stuckenia filiformis</i> ssp. <i>alpina</i>) | --/--/2B.2 | Found in marshes and swamps, in shallow, clear water of lakes and drainage channels. 300-2150m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Suisun Marsh aster (<i>Symphotrichum lentum</i>) | --/--/1B.2 | Found in freshwater and brackish marshes and swamps, often along sloughs with <i>Phragmites</i> , <i>Scirpus</i> , <i>Typha</i> , etc. 0-3m. | Present. Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in the southern portion of the project site and in the eastern portion of the proposed annexation area adjacent to the perennial brackish marsh ditch. |
| Napa bluecurls (<i>Trichostema ruygtii</i>) | --/--/1B.2 | Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower montane coniferous forest. 30-590 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Two-fork clover (<i>Trifolium amoenum</i>) | FE/--/1B.1 | Open, sunny sites and swales, sometimes on serpentine soil, within valley and foothill grassland and coastal buff scrub. Recently found on an eroding cliff face on a roadside. 5-415m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Saline clover (<i>Trifolium hydrophilum</i>) | --/--/1B.2 | Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m. | Present onsite. Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in within areas proposed for development as well as the eastern portion of the annexation area, and the area south of Cordelia Road. |
| Crampton's tuctoria (<i>Tuctoria mucronata</i>) | FE/SE/1B.1 | Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|--|--|
| Oval-leaved viburnum (<i>Viburnum ellipticum</i>) | --/--/2B.3 | Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m. | Not present. Suitable habitat not found at the site. |

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Map and surrounding areas, information dated March 2023.

2. Status Codes:

- FE Federally listed Endangered.
- FT Federally listed Threatened.
- FPE Federally Proposed Endangered
- FPT Federally Proposed Threatened
- SE California State-listed Endangered
- ST California State-listed Threatened
- SR California State Rare
- SCE California State Candidate Endangered
- SCT California State Candidate Threatened

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 Ranks

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)

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Invertebrates | | | |
| Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) | FE/-- | Inhabits large vernal pools, often with turbid water; known from fewer than 15 occurrences in the Delta (Jepson Prairie) and Central Valley. | Not present. Nearest known occurrence several miles to the east (Jepson Prairie). Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) | FE/-- | Inhabits vernal pools; known from fewer than 15 occurrences along western edge of the mid Central Valley (including Contra Costa, Alameda Counties) | Not present. Nearest known occurrence approximately 50 miles to the south (west of Tracy) in pools on sandstone outcrops. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Vernal Pool fairy shrimp (<i>Branchinecta lynchi</i>) | FT/-- | Inhabits vernal pools; occurs throughout the Delta and Central Valley. | Not present. Known from sites a couple of miles north and east of the property. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Midvalley fairy shrimp (<i>Branchinecta mesovallensis</i>) | --/-- | Vernal pools, swales, and ephemeral freshwater habitat. | Not present. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large Brachiopods was conducted by Brent Helm. Results were negative. |
| Vernal Pool tadpole shrimp (<i>Lepidurus packardii</i>) | FE/-- | Inhabits vernal pools; known from scattered locations in the Delta and Central Valley. | Not present. Known CNDDDB records a couple miles east of the study site at Potrero Hill landfill and along Highway 12. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| California Linderiella (<i>Linderiella occidentalis</i>) | --/-- | Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. | Not present. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| California freshwater shrimp (<i>Syncaris pacifica</i>) | FE/SE | Found in low-elevation (less than 53-foot) and low gradient (generally less than 1%) streams. | Not present. Suitable habitat is not present at the site. Brackish waters in Ledgewood Creek would not be considered suitable habitat for California freshwater shrimp. |
| Wilbur Springs shore bug (<i>Saldula usingeri</i>) | --/-- | Found only on wet substrate of spring outflows. Requires springs/creeks with high concentrations of sodium, chlorine and lithium. | Not present. Suitable habitat not found at the site. |
| Hairy water flea (<i>Dumontia oregonensis</i>) | --/-- | Vernal pools. In California, known only from Mather Field. | Not present. Outside the range of the species. |
| Western bumble bee (<i>Bombus occidentalis</i>) | --/SCE-- | This species was once common and widespread, but the species has declined precipitously from Central California to Southern British Columbia, perhaps from disease. | This widespread and once common species could occur almost anywhere in the general area of the site and is included in the CNDDDB due to a general decline in bee populations in recent years. |
| Crotch bumble bee (<i>Bombus crotchii</i>) | --/SCE | Found in coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> and <i>Eriogonum</i> . | This species occurs primarily in California and is included in the CNDDDB due to sharp declines over the last decade. |
| Valley Elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) | FT/-- | Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills. | Not present. CNDDDB records of elderberry bushes with exit holes along creeks northwest of Fairfield. However, no blue elderberry bushes were observed on the site, therefore no potential habitat exists for this species onsite. |
| Delta Green ground beetle (<i>Elaphrus viridis</i>) | FT/-- | Inhabits the drying edges of large vernal pools; presently only known from Jepson Prairie area. They prefer barren areas | Not present. CNDDDB records at Jepson Prairie. Unlikely to occur on the study site due to a lack of suitable habitat. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| | | with an abundance of their favored prey, springtails. | Project Area boundary is not within designated critical habitat. |
| Ricksecker's water scavenger beetle (<i>Hydrochara rickseckeri</i>) | --/-- | Aquatic beetle that lives in weedy shallow, open water associated freshwater seeps, springs, farm ponds, vernal pools (playa type pools) and slow-moving stream habitats. Occurs in Jepson Prairie preserve in Solano County. | Not present. May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative. |
| Curved-foot hygrotus diving beetle (<i>Hygrotis curvipes</i>) | --/-- | Inhabits small seasonal water bodies, mostly alkaline. | Not present. No CNDDDB records in the vicinity. May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative. |
| Monarch butterfly (<i>Danaus plexippus</i>) (wintering sites) | FC/-- | Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Not present. Suitable habitat for winter roosting sites is not present onsite. |
| Callippe silverspot butterfly (<i>Speyeria callippe callippe</i>) | FE/-- | Habitat for this species is grassland, often with a significant component of native grasses including the host plant (<i>Viola pedunculata</i>) and characterized by shallow rocky soils and numerous rock outcrops. | Not present. Suitable habitat consisting of grassland with shallow rocky soils and the larvae host plant is not present onsite. |
| Fish | | | |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Western River lamprey (<i>Lampetra ayresii</i>) | --/SSC | Adult lampreys spawn in gravel bottomed streams, at the upstream end of riffle habitat, typically above suitable ammocoete habitat. River lampreys are associated with large river systems such as the Fraser, Columbia, Klamath, Eel, and Sacramento Rivers. | Not present. Suitable habitat is not present onsite. LedgeWood Creek is not characteristic of the large river systems River Lampreys are associated with. |
| Pacific lamprey (<i>Lampetra tridentata</i>) | --/SSC | Spawning takes place in low gradient sections of water, with gravel and sandy bottoms. Pacific lampreys have been historically or recently documented in many streams of the San Francisco Bay area. | Not present. Suitable habitat is not present onsite. |
| Green sturgeon, Southern DPS (<i>Acipenser medirostris</i>) | FT/-- | Green Sturgeon rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. They prefer to spawn in lower reaches of large rivers with swift currents and large cobble. They are found spawning in the Sacramento, Klamath and Rogue Rivers. | Not present. Suitable habitat is not present onsite. LedgeWood Creek is not characteristic of the large river systems Green Sturgeon are associated with. |
| Coho Salmon-Central California Coast ESU (<i>Oncorhynchus kisutch</i>) | FE/SE | Coho Salmon spawn in streams that are narrow, shallow, clear, and cold with a strong upwelling of water through the gravel. This ESU encompasses the area from Punta Gorda in northern California south to and including tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin river system. | Not present. This ESU is not known to occur east of Carquinez Strait. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Steelhead-Central California Coastal DPS (<i>Oncorhynchus mykiss irideus</i>) | FT/-- | Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the San Pablo Bay/Napa River watersheds. | Unlikely. There is the potential for this species to occur within LedgeWood Creek south of Cordelia Road. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat. |
| Steelhead-Central Valley DPS (<i>Oncorhynchus mykiss irideus</i>) | FT/-- | Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Suisun Bay/Sacramento River Delta watersheds. Waterways currently known to support breeding/rearing habitat for steelhead in Solano County include Green Valley, Suisun Valley and American Canyon Creeks. | Unlikely. There is the potential for this species to occur within LedgeWood Creek south of Cordelia Road. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat. |
| Chinook Salmon-Central Valley fall/late fall-run ESU (<i>Oncorhynchus tshawytscha</i>) | --/SSC | Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait. | Unlikely. There is the potential for this species to occur within LedgeWood Creek in the southern portion of the project site. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat. |
| Chinook Salmon Central Valley spring-run ESU (<i>Oncorhynchus tshawytscha</i>). | FT/ST | Chinook salmon choose to spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Sacramento River and its tributaries. | Unlikely. There is the potential for this species to occur within LedgeWood Creek in the southern portion of the project site. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Chinook Salmon Sacramento River winter-run ESU (<i>Oncorhynchus tshawytscha</i>) | FE/SE | Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes populations of winter-run Chinook Salmon in the Sacramento River and its tributaries. | Unlikely. There is the potential for this species to occur within Ledgewood Creek in the southern portion of the project site. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat |
| Delta smelt (<i>Hypomesus transpacificus</i>) | FT/SE | 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. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the proposed development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |
| Longfin smelt (<i>Spirinchus thaleichthys</i>) | FC/ST | In California, Longfin Smelt have been commonly collected from San Francisco Bay, Eel River, Humboldt Bay and Klamath River. As they mature in the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning probably takes place in freshwater. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Sacramento splittail (<i>Pogonichthys macrolepidotus</i>) | --/SSC | 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. Within Solano County, splittail are year-round residents of Suisun Marsh, concentrating in the dead-end sloughs that typically have small streams feeding into them. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the proposed development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |
| Amphibians | | | |
| California tiger salamander, Central California DPS (<i>Abyostoma californiense</i>) | FT/ST,WL | Found in annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water source for breeding. | Not present. Previous dip-netting surveys have all been negative for CTS. Lack of turbid water in deeper pools not conducive to breeding and lack of suitable small mammal burrows not conducive to use as upland habitat. Pools in the southern portion of the project area were too shallow to support breeding. Significant barriers to migration occur between the project area and known CTS occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies. Also, the proposed annexation area is within the 100-year floodplain as is 95% of the area south of Cordelia Road. |
| Western spadefoot toad (<i>Spea hammondi</i>) | --/SSC | Breeds in vernal pools/seasonal stock ponds in the Central Valley and southern coast. | Not present. CNDDDB records in vicinity of the property. Nearest recorded occurrences more than twenty miles to the east and south. Dip-net surveys for other species did not turn up this species. |

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|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| California red-legged frog (<i>Rana draytonii</i>) | FT/SSC | 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. The study site is considered to be outside of the current range of this species. Additionally, non-tidal wetlands onsite are seasonal and do not provide the perennial waters typically required for California red-legged frog. |
| Foothill yellow-legged frog- North Coast DPS (<i>Rana boylei</i>) | --/SSC | Partly shaded shallow streams with riffles, with a rocky substrate in a variety of habitats; needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Frogs are usually found on stream banks, especially near riffles. | Not present. No suitable habitat onsite. The brackish marsh habitat within Ledgewood Creek is not considered suitable habitat for Foothill Yellow-legged Frog. |
| Reptiles | | | |
| Western pond turtle (<i>Emys marmorata</i>) | --/SSC | Inhabits freshwater ponds and sluggish streams; occurs from WA to Baja, mostly west of the Sierra crest. | Not present. No CNDDDB records in the vicinity of the property. Unlikely to occur due to a lack of perennial freshwater. |
| Giant garter snake (<i>Thamnophis gigas</i>) | FT/ST | Utilizes marshes, sloughs, small lakes, low gradient streams, ponds, agricultural wetlands (irrigation and drainage canals) and adjacent uplands. | Not present. Not known to occur in Project Area. |
| Birds | | | |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Great egret (<i>Ardea alba</i>) (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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Snowy Egret (<i>Egretta thula</i>) [Rookery] | --/-- | Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites are situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Black-crowned night-heron (<i>Nycticorax nycticorax</i>) [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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Great blue heron (<i>Ardea herodias</i>) (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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Golden eagle (<i>Aquila chrysaetos</i>) [nesting and wintering] | --/CFP, WL | Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert. | Not present. Suitable habitat is not found at the site. |
| Ferruginous hawk (<i>Buteo reglais</i>) (wintering) | --/WL | Inhabits open country. Winters in small numbers along California coast and inland valleys. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |

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|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Swainson's hawk (nesting) <i>(Buteo swainsoni)</i> | --/ST | 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. No suitable nest trees occur at the site. CNDDDB records nesting by this as close as 1.4 miles from the project site. Use of the site for foraging is possible. Preconstruction nesting surveys are warranted. |
| Northern harrier <i>(Circus hudsonius)</i> (nesting) | BCC/SSC | Forages and nests in grasslands, marshes, and agricultural fields; occurs throughout California, concentrated in the Central Valley and coastal valleys. | Nesting possible. Observed onsite during the nesting season by HBG and Vollmar Consulting. Suitable nesting habitat may occur. Expected to use the site as a foraging area in winter. Preconstruction nesting surveys are warranted. |
| White-tailed kite <i>(Elanus leucurus)</i> (nesting) | --/CFP | Nests in dense oaks, willows, other trees; occurs in the Central Valley and adjacent low foothills. | Not present. No suitable nest trees occur at the site. No CNDDDB records in vicinity but likely to be observed foraging over the property. |
| Bald eagle <i>(Haliaeetus leucocephalus)</i> (nesting and wintering) | --/SE,CFP | In winter, may be found throughout most of California at lakes, reservoirs, rivers and some rangelands and coastal wetlands. California's breeding habitats are mainly located in mountains and foothill forests near permanent water sources. | Not present. Suitable habitat not present onsite. |
| Peregrine falcon <i>(Falco peregrinus)</i> | --/CFP | 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 found at the site. |
| Prairie falcon <i>(Falco mexicanus)</i> (Nesting) | --/WL | Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Permanent resident and migrant along inner coast and ranges. Nests on cliffs. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |

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|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Merlin (<i>Falco columbarius</i>) [wintering] | -/WL | Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |
| California black rail (<i>Laterallus jamaicensis coturniculus</i>) | --/ST,CFP | Inhabits tidal salt and brackish marsh bordering sloughs and large bays. | Not present. No suitable habitat at the proposed development area of the project site. CNDDDB records for sloughs along edge of Suisun Bay and may occur in the portions of the site nearest to Suisun Bay and within areas proposed as a Managed Open Space as part of the project. Preconstruction surveys are warranted if wetland construction must occur during the nesting season. |
| California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>) | FE/SE,CFP | Inhabits tidal salt marsh along larger sloughs and bays in the SF Bay and lower Delta. | Not present. CNDDDB records south and east of the project site. No nesting habitat for the species found at the site; the species may occasionally utilize perennial marsh in the southern portions of the site nearest to Suisun Bay as a winter foraging habitat. Generally, occurs closer to edge of Suisun Bay. |
| Yellow rail (<i>Coturnicops noveboracensis</i>) | BCC/SSC | Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County. | Not present. Suitable habitat is not found at the site. |
| Western snowy plover (<i>Charadrius alexandrinus nivosus</i>) (nesting) (coastal population) | FT/SSC | In the San Francisco Estuary, salt pond levees and exposed salt pond beds (playa-like habitat), San Francisco Bay; rare in San Pablo Bay. Typical coastal habitat is on wide, sandy beaches with scattered debris. | Not present. Suitable habitat is not found at the site. |

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|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Mountain plover (<i>Charadrius montanus</i>) (wintering) | BCC/SSC | Winters in shortgrass plains, plowed fields, arid plains, alkali sink scrub, valley sink scrub, alkali playa, burned and annual grasslands, and open sagebrush areas that are barren or have sparse vegetation. Wintering plovers found in variable elevations but generally in valley bottoms below 300 meters. | Not present. Although Mountain Plovers winter in Solano County (e.g., area around Flannery and Robinson Roads) this species has not been reported as wintering in Project Area. Habitat conditions at the site are not likely to support wintering populations of Mountain Plover. |
| Long-billed curlew (<i>Numenius americanus</i>) (nesting) | --/WL | An uncommon to fairly common breeder from April to September in wet meadow habitat in northeastern California. Uncommon to locally very common as a winter visitant along the California coast, and in the Central and Imperial Valleys. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. Large numbers remain in some localities in the Central Valley in winter. | Nesting unlikely. The Project Area is not within the nesting range of the species. Long-billed curlews observed in the proposed Managed Open Space area were likely non-breeders lingering through the summer months. |
| Black skimmer (<i>Rynchops niger</i>) (nesting colony) | BCC/SSC | Nests at Salton Sea and San Diego Bay and recently at San Francisco Bay. Nests primarily on gravel bars, low islets, and sandy beaches in unvegetated sites. | Not present. Suitable habitat is not found at the site. |
| California least tern (<i>Sterna antillarum browni</i>) (nesting colony) | FE/SE,CFP | Nests on coastal, sandy, open areas usually around bays, estuaries, and creek and river mouths. Forages in shallow estuaries and lagoons, diving head first into the water after a wide variety of small fish. | Not present. Suitable habitat for a nesting colony is not present onsite. |
| Short-eared owl (nest site) (<i>Asio flammeus</i>) | BCC/SSC | Forages and nests in perennial marsh and grassland habitat; occurs in the | Nesting possible. CNDDDB nest site records at Grizzly Island Wildlife Area. This species was not observed onsite, however, |

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|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| | | Central Valley, coast, and east Sierra regions. | the perennial brackish marsh and grasslands on the eastern portion of the study area provides potential foraging and nesting habitat for the species. Preconstruction nesting surveys are warranted. |
| Burrowing owl (<i>Athene cunicularia</i>) (burrow sites) | BCC/SSC | Nests in mammal burrows, rock cavities in grassland and scrub; occurs throughout much of mid and lower California. | Possible. Numerous CNDDDB records in vicinity including one just southwest of the property next to the Cordelia Road. This species was not observed onsite, however, nesting burrows may occur on the property along levee banks and other raised areas that do not become saturated during the winter and spring. Preconstruction surveys are warranted. |
| Loggerhead shrike (<i>Lanius ludovicianus</i>) (nesting) | --/SSC | Habitat includes open areas such as desert, grasslands, and savannah. Nests in thickly foliated trees or tall shrubs. Forages in open habitat which contains trees, fence posts, utility poles and other perches. | Possible. Observed onsite by HBG and Vollmar Consulting during the nesting season. Loggerhead shrikes use the site for foraging and perching. It is unlikely this species nests onsite due to a general lack of suitable habitat, but some nest sites are available in limited onsite riparian habitat. Preconstruction nesting surveys are warranted. |
| Bank swallow (<i>Riparia riparia</i>) (nesting) | --/ST | A migrant found primarily in riparian and other lowland habitats in California west of the deserts. 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 found at the site. |
| Saltmarsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>) | BCC/SSC | Forages and nests in dense fresh and saltwater marsh habitat in the San Francisco Bay and lower Delta. | Not present. Common yellowthroats observed on the property are most likely not of the subspecies that is designated as a species of concern. Salt marsh common yellowthroat range does not extend east of Carquinez Strait. |
| Grasshopper sparrow (<i>Ammodramus savannarum</i>) | --/SSC | Found in dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. | Possible. Non-native grasslands may provide suitable nesting habitat. Preconstruction nesting surveys are warranted. |

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|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Suisun song sparrow (<i>Melospiza melodia maxillaris</i>) | --/SSC | Forages and nests in dense marsh and scrub habitat along the margins of Suisun Bay. | Present. Observed on site by HBG and Vollmar Consulting foraging in the dense perennial marsh habitat on the eastern portions of the site (not the development area of the project site) during the nesting season. CNDDDB records south of the property along edge of Suisun Bay. May also use the site for nesting. Preconstruction nesting surveys are warranted. |
| San Pablo song sparrow (<i>Melospiza melodia samuelis</i>) | BCC/SSC | Tidal, brackish, or salt marshes, San Pablo Bay. | Not present. Site is outside the limited range of this species. |
| Tri-colored blackbird (<i>Agelaius tricolor</i>) [Nesting colony] | BCC/ST,SSC | 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. | Possible. Historic CNDDDB records several miles east of the study site. This species was not observed onsite, however, perennial marsh on the property could provide suitable habitat for a nesting colony. Preconstruction nesting surveys are warranted. |
| Mammals | | | |
| Suisun shrew (<i>Sorex ornatus sinuosus</i>) | --/SSC | Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays. | Likely. CNDDDB record immediately east of the southern portion of the property south of Cordelia Road. Likely to occur onsite within perennial marsh in the southern and eastern portions of the property proposed to be included in a Managed Open Space. Mitigation is recommended during construction and operation of the project and for potential loss of refugial habitat due to wetland creation in the proposed Open Space Management Area. |
| Townsend's big-eared bat (<i>Corynorhinus townsendii</i>) | --/SSC | Found in desert scrub and coniferous forests. Roost in caves or abandoned mines and occasionally are found to roost in buildings. | Not present. Suitable habitat is not found at the project site. |
| Hoary bat (<i>Lasivurus cinereus</i>) | --/-- | Prefers open habitats with access to trees for cover and open areas or habitat | Not present. Suitable habitat is not found at the site. |

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|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| | | edges for feeding. Roosts in dense foliage of medium to large trees. | |
| Western red bat (<i>Lasiurus blossevillii</i>) | --/SSC | Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. | Not present. Suitable habitat is not found at the site. |
| San Joaquin pocket mouse (<i>Perognathus inornatus</i>) | --/-- | Occurs in dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 meters in the Central and Salinas Valleys. Occurs in shrubby ridge tops and hillsides, characterized as being open, sandy areas with grasses and forbs. Digs burrows for cover. | Not present. Suitable habitat is not found at the project site. |
| Salt Marsh harvest mouse (<i>Reithrodontomys raviventris</i>) | FE/SE,CFP | Inhabits pickleweed salt marsh flats in the San Francisco Bay and lower Delta. | Likely. CNDDDB records an occurrence of the species in the perennial marsh habitat on eastern edge of the proposed annexation area (not the development area of the project site). Species may occur in the southern portion of the property nearest to Suisun Bay. Mitigation is recommended during construction and operation of the project and for potential loss of refugial habitat due to wetland creation in the proposed Open Space Management Area. |

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Maps and surrounding areas, information dated March 2023.
2. Status Codes:

| | |
|-----------------------------------|---------------------------------------|
| FE Federally listed Endangered | SE California State-listed Endangered |
| FT Federally listed Threatened | ST California State-listed Threatened |
| FPE Federally Proposed Endangered | SR California State Rare |

FPT Federally Proposed Threatened
FC Federal Candidate Species
BCC USFWS Bird Species of Conservation Concern

SCE California State Candidate Endangered
SCT California State Candidate Threatened
CFP California Fully Protected
SSC CDFW Species of Special Concern
WL CDFW Watch List Species

Attachment 3

USACE PJD Verification Letter, 2022



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

February 1, 2022

Regulatory Division

Subject: File No. SPN-2005-298180

Mr. Robert Perrera
Huffman-Broadway Group, Inc.
828 Mission Avenue
San Rafael, California 94901
Rperrera@h-bgroup.com

Dear Mr. Pererra:

This correspondence is in reference to your submittal of August 23, 2021, on behalf of Buzz Oates Construction and Tom Gentry California Company, requesting a preliminary jurisdictional determination of the extent of navigable waters of the United States and waters of the United States occurring on a Highway 12 Logistics Center site located near the City of Suisun City, Solano County, California; Latitude 38.2333°, Longitude -122.0541°.

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; and within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended, 33 U.S.C. § 1344 *et seq.*

All proposed structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States, typically require Department of the Army authorization and the issuance of a permit under Section 10 of the Rivers and Harbors Act of 1899, as amended, 33 U.S.C. § 403 *et seq.*

The enclosed delineation map titled "Preliminary Jurisdictional Determination pursuant to Section 404 Clean Water Act and Section 10 Rivers and Harbors Act, Highway 12 Logistics Center, Solano County, California," in one sheet and date certified January 19, 2022, depicts the extent and location of wetlands, and other waters of the United States, and navigable waters of the United States within the Study Area Boundary of the site that **may be** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. This preliminary jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of October 28, 2021, a review of available digital photographic imagery, and a review of other data included in your submittal. While this preliminary jurisdictional determination was conducted pursuant to Regulatory Guidance Letter No. 16-01, *Jurisdictional Determinations*, it may be subject to future

revision if new information or a change in field conditions becomes subsequently apparent. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form*. You are requested to sign and date this form and return it to this office within two weeks of receipt.

You are advised that the preliminary jurisdictional determination may **not** be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. pt. 331 (65 Fed. Reg. 16,486; Mar. 28, 2000). Under the provisions of 33 C.F.R Section 331.5(b)(9), non-appealable actions include preliminary jurisdictional determinations since they are considered to be only advisory in nature and make no definitive conclusions on the jurisdictional status of the water bodies in question. However, you may request this office to provide an approved jurisdictional determination that precisely identifies the scope of jurisdictional waters on the site; an approved jurisdictional determination may be appealed through the *Administrative Appeal Process*. If you anticipate requesting an approved jurisdictional determination at some future date, you are advised not to engage in any on-site grading or other construction activity in the interim to avoid potential violations and penalties under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Finally, you may provide this office new information for further consideration and request a reevaluation of this preliminary jurisdictional determination.

You may refer any questions on this matter to Bryan Matsumoto by telephone at (415) 503-6786 or by e-mail at Bryan.T.Matsumoto@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter. The San Francisco District is committed to improving service to our customers. The Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <https://www.spn.usace.army.mil/Missions/Regulatory.aspx>.

Sincerely,



Bryan Matsumoto
Senior Project Manager
Regulatory Division

Enclosures

cc (w/ encls):

RWQCB, Erin Fairley, erin.fairley@waterboards.ca.gov

Buzz Oates Construction, Joe Livaich, joelivaich@buzzoates.com

Attachment 4

Rare Plant Reports:

**Helm Biological Consulting 2022, HBG 2021 & Vollmar Consulting 2000-2002
& 2005**

Helm Biological Consulting 2022 Rare Plant Report

2022
PROTOCOL-LEVEL
SPECIAL-STATUS NATIVE PLANT SURVEYS
AT THE
HIGHWAY 12 LOGISTICS CENTER PROJECT,
SOLANO COUNTY, CALIFORNIA



Prepared for:

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March 2023



2022
PROTOCOL-LEVEL
SPECIAL-STATUS NATIVE PLANT SURVEYS
AT THE
HIGHWAY 12 LOGISTICS CENTER PROJECT,
SOLANO COUNTY, CALIFORNIA

INTRODUCTION

Helm Biological Consulting (HBC), a division of 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 Highway 12 Logistics Center Project (hereafter “Project” or “Site”), Solano County, California.

PROJECT LOCATION

The Project consists of roughly 498 acres and is situated at the north end of the Suisun Marsh, south of Highway 12, east of Beck Avenue, and west of the Southern Pacific Railroad, Suisun City, Solano County, California (Figures 1 and 2). However, only those portions of the Project that occur north of Cordelia Road (approximately 98 acres) are proposed for development (Figure 3). The remaining 400 acres of the Project south of Cordelia Road will be left intact.

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 (CDFW 2018). A sensitive community has particularly high ecological value or functions and is considered

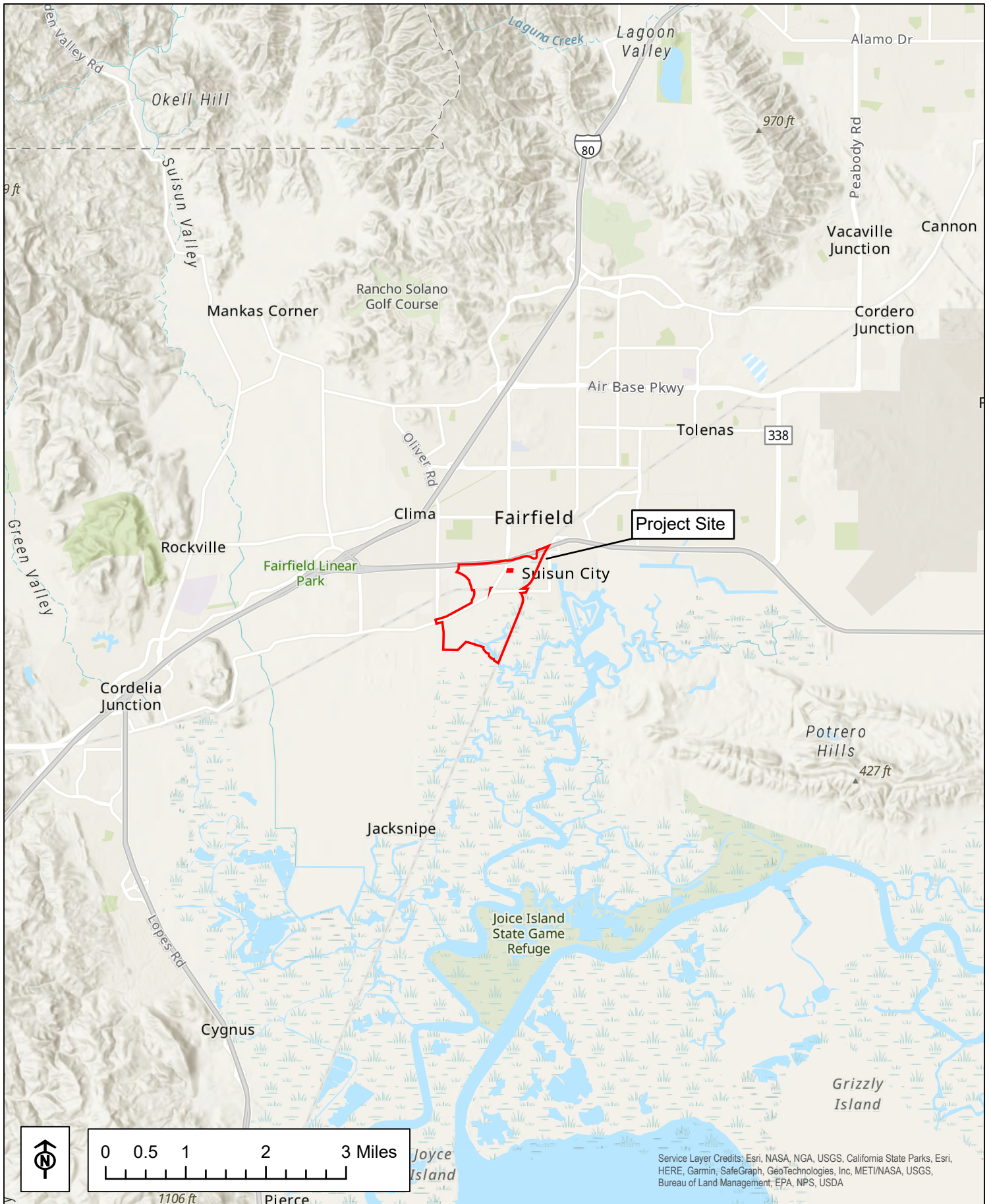


Figure 1. Regional Location Map
 Highway 12 Logistics Center Project
 Solano County, California

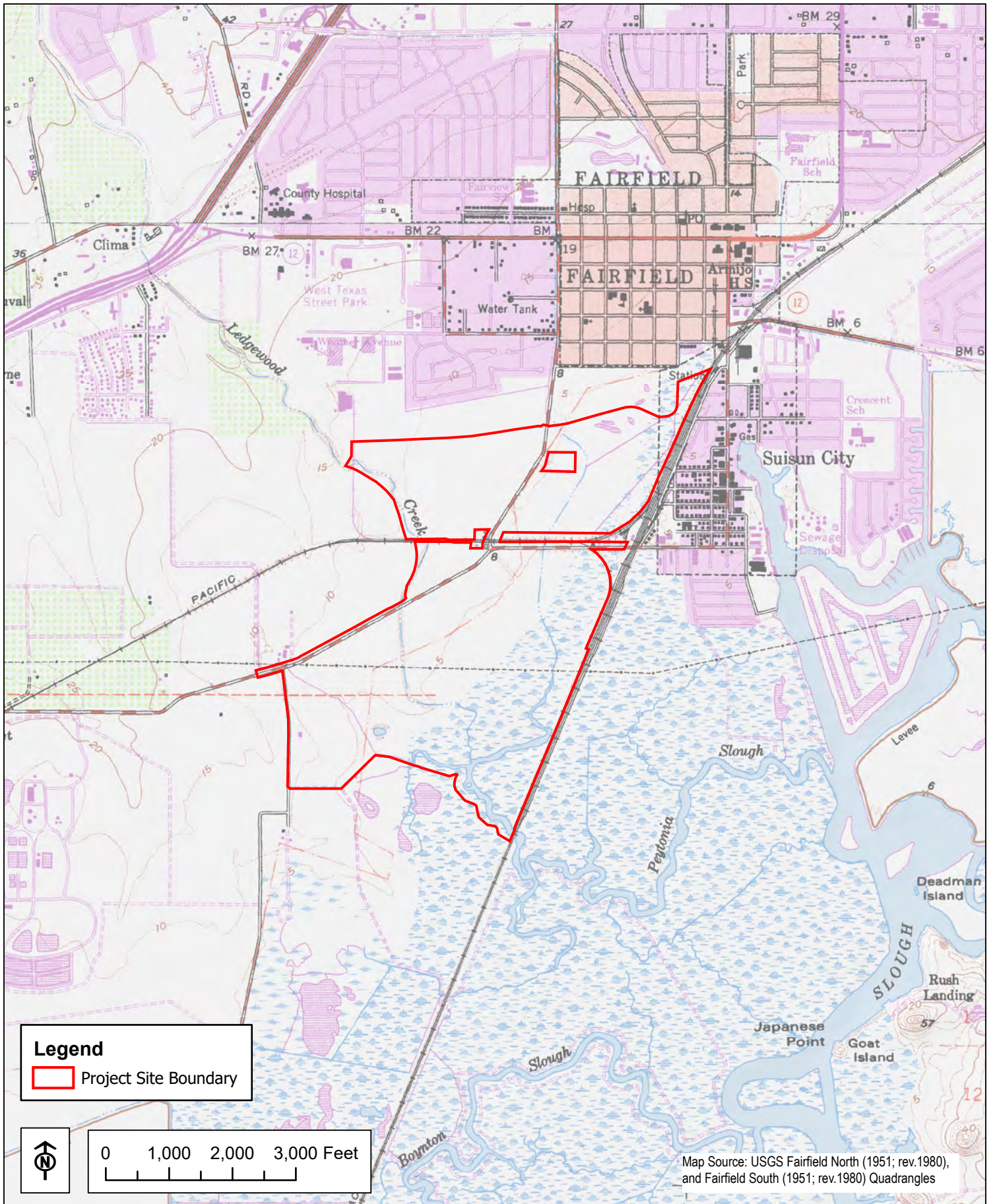


Figure 2. USGS Topographic Map
 Highway 12 Logistics Center Project
 Solano County, California



Figure 3. Aerial Imagery
Highway 12 Logistics Center Project
Solano County, California

because its 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 communities 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., nonspecial-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.

The California Department of Fish and Wildlife's Vegetation Classification and Mapping Program (VegCAMP) and the California Native Plant Society's Vegetation Program use a rank calculator to rank Natural Communities using standardized quantitative rarity and threat parameters and compute weighted scores for rarity and threats. This evaluation is done at both the Global (full natural range within and outside of California) and State (within California) levels resulting in a single G (global) and S (state) rank ranging from 1 (very rare and threatened) to 5 (demonstrably secure). The definitions of global and state rarities are the same for 1 through 5 and listed below:

- **1:** critically imperiled; at very high risk of extinction or elimination due to very restricted range, very few populations or occurrences (five or fewer known populations), very steep declines, very severe threats, or other factors
- **2:** imperiled; at high risk of extinction or elimination due to restricted range, few populations or occurrences (six to 20 extant populations), steep declines, severe threats, or other factors
- **3:** vulnerable; at moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences (21 to 100 extant populations), recent and widespread declines, threats, or other factors
- **4:** apparently secure; at fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences (100 to 1,000 known extant populations) but with possible cause for some concern as a result of local recent declines, threats, or other factors
- **5:** secure; at very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences (1,000+ extant populations], and little to no concern from declines or threats

Natural Communities with ranks of S1-S3 are considered Sensitive Natural Communities to be addressed in the environmental review processes of CEQA and its equivalents. (CDFW 2022b).

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 & Game 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 & Game 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 & Game 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 & Game Code, § 2068).
- Listed as rare under the California Native Plant Protection Act (Fish & Game Code, § 1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish & Game 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 (CNDDDB) 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 CNDDDB 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 2022 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, summer and fall of 2022. 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 CNDDDB 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 2022a and CNPS 2022). 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 2022a)
- Existing project documents provided by HBG (i.e., Special-Status Plant Survey Report [Vollmar Consulting 2005] and Rare Plant Survey Report [HBG 2021])
- US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2022)
- Project descriptions and initial project designs provided by HBG and/or Buzz Oates

FIELD SURVEY

Special-status plant species identified during the pre-survey investigation as having the potential to occur within or in the vicinity of the Project 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, Rachel Powell, and Rachel Freund of HBC on March 31, 2022, April 1, 5, 8, 12, and 26, 2022, May 13, 2022, June 16, 2022, July 7,

2022, and September 12, 2022. HBC biologists 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* spp.) encountered would have been mapped and their populations counted/estimated, but no milkweed species were encountered during field surveys. 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/or
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 lilaepsis, Delta tule pea, and California alkali grass.
- Sacramento Municipal Utilities District's Rancho Seco Conservation Bank lands for legene and dwarf downingia.
- Springtown Natural Communities Reserve for brittlescale
- Cottonwood Creek Mitigation Site for heartscale
- Goldfield Conservation Bank for Contra Costa goldfields and alkali milk-vetch

SPECIAL-STATUS SPECIES HABITAT ASSESSMENT

The habitat assessment was based on habitat suitability comparisons with reported occupied habitats (Appendix A). The following definitions were utilized:

- None – Plant species distribution is restricted by substantive habitat requirements which do not occur onsite; therefore, no further survey or study is necessary to determine likely presence or presumed absence of this species.

- Not Probable – Plant Species distribution is restricted by substantive habitat requirements which are negligible onsite and/or the species was never observed after numerous years of surveys were conducted; therefore, it is assumed that no further survey or study is necessary to determine likely presence or presumed absence of this species.
- Probable – The plant species has a probability of occurrence within the Site.
- Present – This plant species was observed onsite or historically has been documented onsite.
- Critical Habitat – The Site is located within a USFWS-designated critical habitat unit.

RESULTS

ENVIRONMENTAL 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 39 degrees Fahrenheit (°F) and average high temperature in July of 92 °F. Rainfall averages 25 inches per year, most of which falls during the winter months. On average, there are 264 sunny days per year at the Project (Bestplaces 2022).

TOPOGRAPHY AND HYDROLOGY

The Project consist of a relatively flat piece of ground sloping from west to east with the highest elevation at roughly 14 feet (ft) above mean sea level (msl) located in the northwest corner and lowest elevation in the southeast corner of roughly 0 ft above msl.

The Project occurs within the Wooden Valley Creek-Frontal Suisun Bay Estuaries watershed, Environmental Protection Agency (EPA) Hydrologic Unit Code (HUC10) 1805000101 and the Suisun Bay watershed (HUC10: 1805000104). Additionally, most of the Project occurs within the Suisun Bay Estuaries subwatershed (HUC12: 180500010401), while a small portion of the Project along the western boundary occurs in the LedgeWood Creek subwatershed (HUC12: 180500010101) and the remainder of the Project occurs within the Laurel Creek-Frontal Suisun Bay subwatershed (HUC12: 180500010108) (USGS 2022b). LedgeWood Creek drains into the Suisun Bay through the Project area (Figure 2). Direct inception of rainfall occurs within the numerous depressional areas consisting of seasonally inundated wetlands (vernal pools and seasonal wetlands). Other hydrological inputs may be derived from irrigation and storm water runoff occurring within the industrial and urban areas located to the north, west, and east of the Site.

SOILS

According to the Web Soil Survey (USDA NRCS 2022), seven soil map units are present onsite (Table 1 and Figure 4).

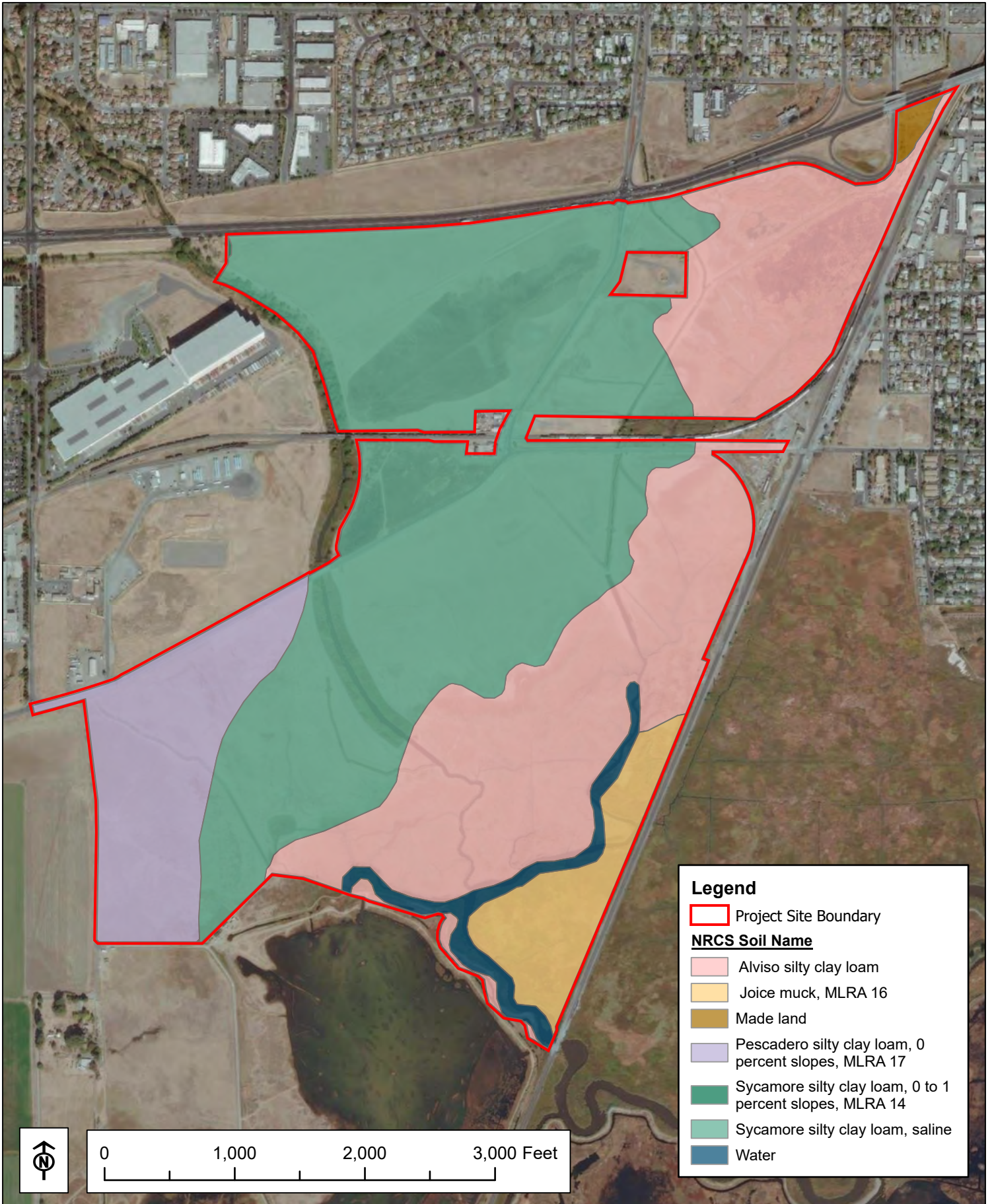


Figure 4. NRCS Soils Map
 Highway 12 Logistics Center Project
 Solano County, California

Table 1. Hydric Soil Conditions, Percent of Components and Geographic Position of Soil Mapping Units and Associated Inclusions Mapped by NRCS at the Highway 12 Logistics Center Project site, Solano County, California

| Code | Soil Mapping Unit | Major Soil Type | | | | Inclusions | | | |
|------|--|-----------------|---------|--------|---------------------|--------------------------|---------|--------|--|
| | | Name | Percent | Hydric | Geomorphic Position | Name | Percent | Hydric | Geomorphic Position |
| An | Alviso silty clay loam | Alviso | 33% | Yes | Tidal flats | Alviso | 85 | Yes | Tidal flats |
| | | | | | | Reyes | 8 | Yes | Tidal flats |
| | | | | | | Tamba | 7 | Yes | Tidal flats |
| Ja | Joice muck, MLRA 16 | Joice | 5% | Yes | Tidal marshes | Joice | 85 | Yes | Tidal marshes |
| | | | | | | Suisun | 6 | Yes | Tidal marshes |
| | | | | | | Tamba | 6 | Yes | Tidal marshes |
| | | | | | | Reyes | 3 | Yes | Tidal flats |
| Ma | Made land | Made land | 0% | No | Toeslope | Made land | 90 | No | — |
| | | | | | | Unnamed | 5 | No | — |
| | | | | | | Valdez | 5 | Yes | Alluvial fans |
| Pc | Pescadero silty clay loam, 0 percent slopes, MLRA 17 | Pescadero | 11% | No | Basin floors | Pescadero | 85 | No | Basin floors, basin floors on fan remnants |
| | | | | | | Solano | 8 | No | — |
| | | | | | | Willows | 7 | Yes | Basin floors |
| Sr | Sycamore silty clay loam, 0 to 1 percent slopes, MLRA 14 | Sycamore | 0% | No | Alluvial fans | Sycamore | 85 | No | Alluvial fans |
| | | | | | | Yolo | 10 | No | — |
| | | | | | | Unnamed | 5 | No | — |
| St | Sycamore silty clay loam, saline | Sycamore | 48% | No | Alluvial fans | Sycamore | 85 | No | Alluvial fans |
| | | | | | | Alviso | 8 | Yes | Alluvial fans |
| | | | | | | Sycamore-Silty clay loam | 7 | No | — |
| W | Water | — | 2% | — | — | Water | 100 | — | — |

VEGETATION COMMUNITIES

The combination of the Project's climate, hydrology, soils, and disturbance regime (draining and disking) supports community types typical of the North Suisun Bay Area. The majority of the Project consists of perennial brackish marsh and non-native annual grassland; portions of the annual grasslands are seasonally saturated. The Project also supports alkali seasonal wetland, vernal pool, and riparian wetland communities. (See Figure 5 for Vegetation Communities map).

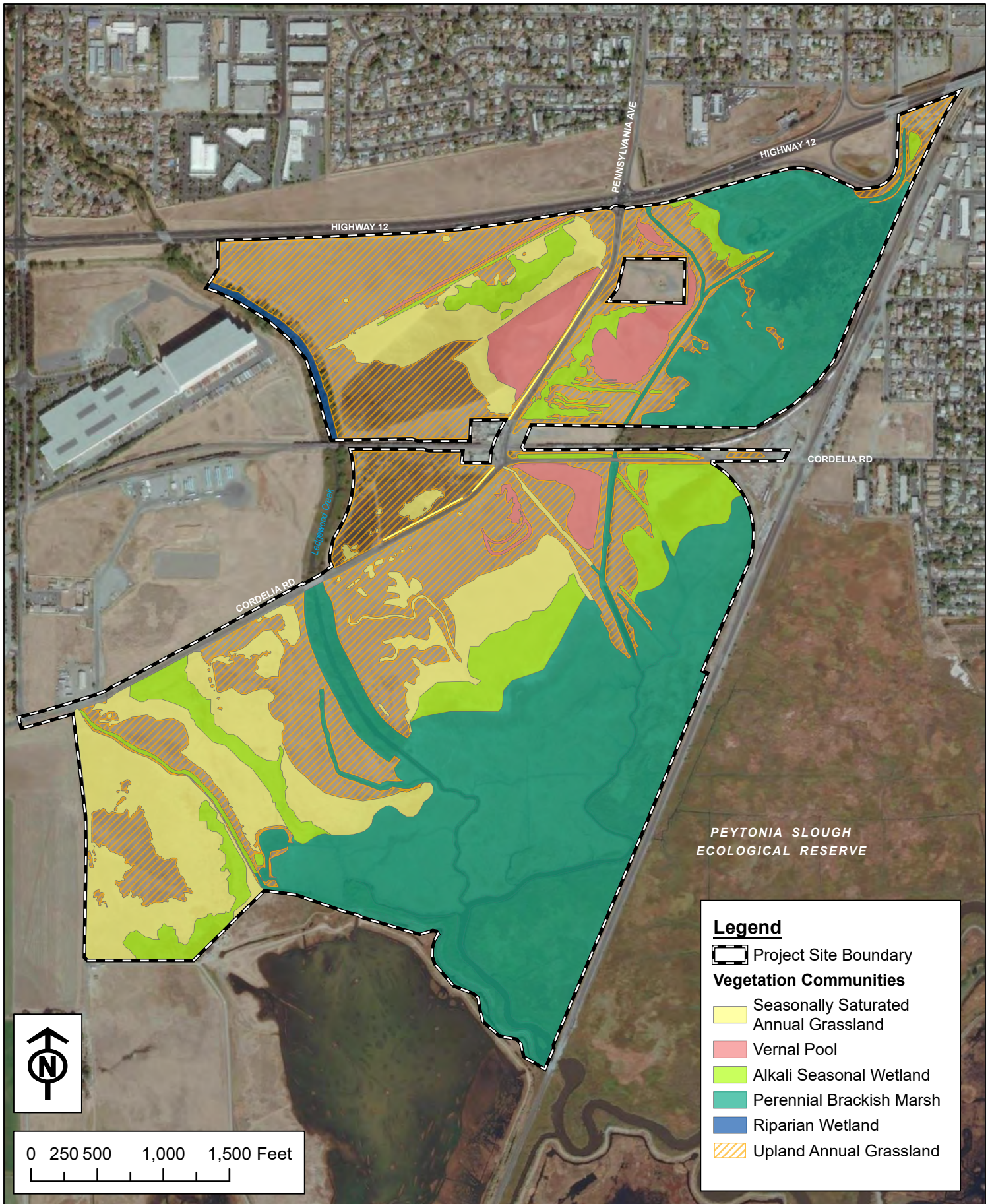


Figure 5. Vegetation Communities

Highway 12 Logistics Center Project
 Solano County, California

A description of each of the six community/habitat types including dominant vegetation is provided below.

Annual Grassland. The annual grassland habitat consists of mostly thatchy nonnative annual grass species including medusa-head grass (*Elymus caput-medusae*), Italian rye grass (*Festuca perennis*), soft chess (*Bromus hordeaceus*), riggut brome (*Bromus diandrus*), and hare barley (*Hordeum murinum* ssp. *leporinum*), with some meadow barley (*Hordeum brachyantherum*) representing native perennial grasses.

Subdominant grasses include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and annual blue grass (*Poa annua*), especially when this habitat transitions to the wetlands onsite. Forbs present in the drier areas of the annual grassland include red stemmed filaree (*Erodium cicutarium*), purple star-thistle (*Centaurea calcitrapa*), wild radish (*Raphanus raphanistrum*), hairy vetch (*Vicia villosa*), and field bindweed (*Convolvulus arvensis*).

Seasonally Saturated Annual Grassland. A large portion of the annual grasslands at the Project have saturated soils during the wet season and support vegetation adapted to this seasonal saturation, but do not pond water. The gently sloping topography creates a broad transitional area between the upland grasslands and the perennial marsh at the Project. This unusual habitat type is dominated in some areas by alkali barley (*Hordeum depressum*), Italian rye grass (*Festuca perennis*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), but is also characterized by a higher proportion of forbs. In some areas the dominant species are California goldfields (*Lasthenia californica* ssp. *californica*) and small stipitate popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), while other areas are dominated by sack clovers (*Trifolium depauperatum* varieties) or bur-clover (*Medicago polymorpha*). Other common forbs include bird's-foot trefoil (*Lotus corniculatus*), San Joaquin microseris (*Microseris campestris*), common tarweed (*Centromadia pungens*), and common muilla (*Muilla maritima*).

Annual grassland habitat onsite generally occurred at the highest elevations located in the northern portions of the Project (Figure 5).

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 CNDDDB.

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* spp., *Lasthenia* spp., *Eryngium* spp., *Plagiobothrys* spp., *Psilocarphus* spp., 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 are dominated by small stipitate popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), flatfaced downingia (*Downingia pulchella*), and smooth goldfields (*Lasthenia glaberrima*). Other subdominant species included annual semaphoregrass (*Pleuropogon californicus*), coyote thistle (*Eryngium vaseyi*) and Oregon wooly marbles (*Psilocarphus oregonus*), as well as some alkaline species (alkali weed [*Cressa truxillensis*], alkali heath [*Frankenia salina*]). Contra Costa goldfields (*Lasthenia conjugens*) and saline clover (*Trifolium hydrophilum*) were occasionally found on slightly higher ground at edges of pools.

Vernal pool habitat onsite was concentrated in the center of the northern portion of the Project (Figure 5).

Alkali Seasonal Wetland. The alkali seasonal wetlands on site represent a transitional area between the seasonally saturated annual grasslands and the perennial brackish marsh. It supports vegetation tolerant of alkaline and saline soils, and is dominated by pickleweed (*Salicornia pacifica*), brass buttons (*Cotula coronopifolia*), and inland saltgrass (*Distichlis spicata*). Alkali heath (*Frankenia salina*), alkali weed (*Cressa truxillensis*), alkali barley (*Hordeum depressum*), rabbitsfoot grass (*Polypogon monspeliensis*), and coastal plantain (*Plantago elongata*) are common as well. The alkali seasonal wetlands generally lack vernal pool indicator species (e.g., *Plagiobothrys* spp., *Downingia* spp.).

The Alkali Seasonal Wetland habitat generally occurred in the lowest depressions within the annual grasslands or along the upper edge of the Perennial Brackish Marsh habitat (Figure 5).

Perennial Brackish Marsh. The perennial brackish marsh onsite is characterized by frequent inundation from the tides and supports a dense cover of salt-tolerant plant species such as pickleweed (*Salicornia pacifica*), marsh jaumea (*Jaumea carnosa*), and inland saltgrass (*Distichlis spicata*) at its upland edges. The tidal slough channels are lined with brass buttons (*Cotula coronopifolia*), rushes (*Juncus* spp.), tule (*Schoenoplectus acutus* var. *occidentalis*), and cattails (*Typha* spp.). Thickets of California rose (*Rosa californica*) and Himalayan blackberry (*Rubus armeniacus*) are interspersed with poison hemlock (*Conium maculatum*), Suisun marsh aster (*Symphyotrichum lentum*), and Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) at the south end of the Project.

The Perennial Brackish Marsh habitat occurred within the lowest topographic elevations and hydrology supported by the tidal action of Peytonia Slough and its unnamed tributaries (Figures 2 and 5).

Riparian Wetland. Riparian habitats are those floodplain, bottomland, and streambank communities that occur along inland waterways, entirely within the 100-year floodplain of streams and rivers. Riparian communities occur in transition zones between aquatic and upland communities, and in their undisturbed condition are characterized by dominant vegetation types that are tolerant of, and adapted to, relatively high soil moisture content. Undisturbed riparian woodlands can be thought of having three somewhat distinct layers: overstory, midstory, and understory. However, the small portion of riparian wetland in the Project area is heavily altered by human disturbance, and as such is fragmented and in places is missing one or more of the distinct vegetation layers listed above.

The riparian overstory at the project is dominated by weeping willow (*Salix babylonica*), with a midstory of arroyo willow (*Salix lasiolepis*) and the occasional coast live oak (*Quercus agrifolia*). Himalayan blackberry (*Rubus armeniacus*) dominated the understory, with fennel (*Foeniculum vulgare*) and common reed (*Phragmites australis*) at the edges of the canopy.

The riparian wetland habitat is represented onsite by a narrow band of woody vegetation occurring along the east side of Ledgewood Creek in the northwest corner of the Project (Figures 2 and 5).

SPECIAL-STATUS PLANTS

The search of the CNNDDB and CNPS On-line Inventory of Rare and Endangered Plants revealed a total of 44 special-status plants that are known to occur on or within a 10-mile radius of the Project (Figure 6, Exhibit A). Eight of these plants have been documented within the Project:

- Alkali milkvetch (*Astragalus tener* var. *tener*)
- Contra Costa Goldfields (*Lasthenia conjugens*)
- Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- Saline clover (*Trifolium hydrophilum*)
- Suisun Marsh aster (*Symphyotrichum lentum*)
- Soft salty bird's-beak (*Chloropyron molle* ssp. *molle*)(CNDDDB 2022) (Figure 6).
- Brittlescale (*Atriplex depressa*) (CNDDDB 2022)
- Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*) (Vollmar Consulting 2005)

The remaining 36 special-status plants are known to occur outside of the Project (Exhibit A). However, of these 36 plants, nine are considered to have no potential to occur since they inhabit plant communities (i.e., chaparral, cismontane woodland, coastal scrub, coast bluff shrub, and lower montane coniferous forest) that are not present onsite. Of the 27 remaining species, 25 are considered “not probable” for occurrence, one has critical habitat designated onsite (Suisun thistle [*Cirsium hydrophilum* var. *hydrophilum*]), and one occurred onsite (Heckard’s pepper grass [*Lepidium latipes* var. *heckardii*])(Appendix A).

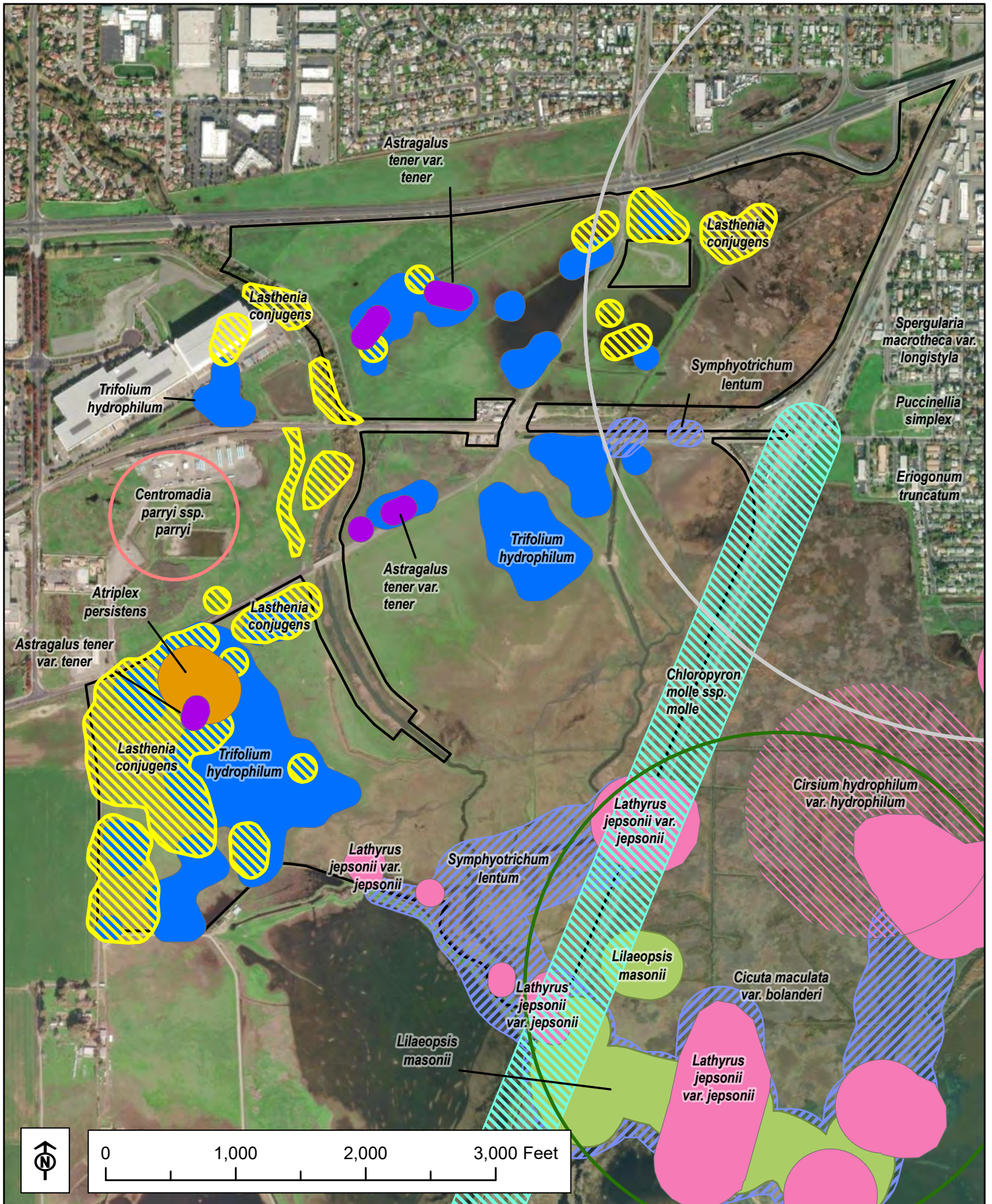


Figure 6. CNDDDB Element Occurrences at Project Site

Highway 12 Logistics Center Project
Solano County, California

Of the nine special-status species presumed present onsite (Appendix A) only seven were observed during surveys:

- Alkali milkvetch
- Contra Costa goldfields
- Delta tule pea
- Saline clover
- Suisun Marsh aster
- Long-styled sand spurrey
- Heckard's pepper grass (Appendix A, Exhibit B)

Soft salty bird's-beak and brittlescale were not observed (Appendix A). Additionally, no populations of milkweed (*Asclepias* sp.) were observed. Each of the seven special-status plant taxa found at the Project is described in more detail below, along with their distribution, population size, habitat, and associates at the Project (See Exhibit B for a Special-Status Plant Population Map).

Alkali Milkvetch. The alkali milkvetch is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It is found in alkali vernal pools, playas, and mesic areas within valley grasslands in the San Francisco Bay Area and Central Valley and is known from approximately 65 element occurrences (CNDDDB 2022).

One population of approximately 300 individuals was observed in 2022 within the Project (CNDDDB occurrence #65). The alkali milkvetch occurring at the Project grows in the seasonally saturated annual grassland plant community and is associated with California goldfields (*Lasthenia californica* ssp. *californica*), Contra Costa goldfields (*Lasthenia conjugens*), soft brome (*Bromus hordeaceus*), and sack clovers (*Trifolium depauperatum* varieties). It is located south of Cordelia Road and west of Ledgewood Creek.

Contra Costa Goldfields. Contra Costa goldfields is federally listed as Endangered and ranked 1B.1 in the CNPS Rare Plant Inventory. It is found in vernal pools and swales in valley and foothill grasslands of the San Francisco Bay Area and is known from approximately 20 element occurrences (CNDDDB 2022).

A known population of Contra Costa goldfields occurs at the Project and has been documented extensively in previous surveys (Vollmar Consulting 2005, LSA 2010, HBG 2021). Contra Costa goldfields predominately grows in the seasonally saturated annual grassland plant community, with some populations occurring in upland annual grasslands, alkali seasonal wetlands, and vernal pools. It is associated primarily with California goldfields (*Lasthenia californica* ssp. *californica*), along with Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), buttercup (*Ranunculus muricatus*), rabbitsfoot grass (*Polypogon monspeliensis*), soft brome (*Bromus hordeaceus*), smooth goldfields (*Lasthenia glaberrima*), and coastal plantain (*Plantago elongata*). In 2022, an

estimated 115,000 individuals of Contra Costa goldfields were observed at the Project, predominately in the southwestern portion of the site, west of Ledgewood Creek and south of Cordelia Road. Two small populations were observed north of Cordelia Road as well; one population of 54 plants southwest of the intersection of Pennsylvania Ave and Highway 12, and a population of 17 plants east of Pennsylvania Ave midway between Highway 12 and Cordelia Road.

Delta Tule Pea. Delta tule pea is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It grows in brackish and freshwater tidal marshes of the Sacramento-San Joaquin River Delta and is known from approximately 133 element occurrences (CNDDDB 2022).

The Delta tule pea was observed during 2022 surveys in the southern portion of the site, growing with the Suisun Marsh aster (*Symphotrichum lentum*), California rose (*Rosa californicus*), coastal gumweed (*Grindelia stricta*), tule (*Schoenoplectus* spp.), brass buttons (*Cotula coronopifolia*), wild radish (*Raphanus raphanistrum*), and perennial pepperweed (*Lepidium latifolium*) in the perennial brackish marsh plant community bordering slough banks. Most of the Delta tule pea populations at the Project were inaccessible at the time of the survey, bounded by thick vegetation and deep tidal channels, and therefore were surveyed from a distance using binoculars. An estimated population of 1,350 plants was observed within the Project in 2022.

Heckard's Pepper-Grass. Heckard's pepper-grass is no longer recognized as a distinct variety in the current edition of the Jepson Manual (Baldwin *et al* 2012), but is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It grows in grasslands and alkaline flats in the Central Valley and is known from approximately 14 element occurrences (CNDDDB 2022).

Heckard's pepper-grass was observed during 2022 surveys in two small populations in the southern portion of the site, growing in the annual grassland just west of Ledgewood Creek and south of Cordelia Road. It is associated primarily with hare barley (*Hordeum murinum*), buttercup (*Ranunculus muricatus*), bur clover (*Medicago polymorpha*), brome fescue (*Festuca bromoides*), red stemmed filaree (*Erodium cicutarium*), and San Joaquin microseris (*Microseris campestris*). An estimated population of 280 plants was observed within the Project in 2022.

Long-styled Sand Spurrey. The long-styled sand spurrey is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It grows in alkaline seeps and meadows, and is known from approximately 22 element occurrences (CNDDDB 2022).

Long-styled sand spurrey was only observed in one location in the project in 2022, growing in the seasonally saturated annual grassland north of Cordelia Road and west of Pennsylvania Avenue with Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and soft brome (*Bromus hordeaceus*). Only a few plants were observed in 2022.

Saline Clover. Saline clover is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It grows in mesic, alkaline grasslands and vernal pools, and is known from approximately 56 element occurrences (CNDDDB 2022).

The saline clover at the Project predominately grows in the seasonally saturated annual grassland plant community, with some populations occurring in upland annual grasslands, alkali seasonal wetlands, and vernal pools. It is associated primarily with variegated clover (*Trifolium variegatum*), bladder sack clover (*Trifolium depauperatum* var. *depauperatum*), buttercup (*Ranunculus muricatus*), bur clover (*Medicago polymorpha*), Italian rye grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and alkali health (*Frankenia salina*). In 2022, an estimated 22,000 individuals of saline clover were observed at the Project, predominately in the central and southwest portions of the site, south of Cordelia Road.

Suisun Marsh Aster. The Suisun Marsh aster is ranked 1B.2 in the CNPS Rare Plant Inventory and has no federal or state listing status. It grows in brackish and freshwater tidal marshes of the Sacramento-San Joaquin River Delta, and is known from approximately 175 element occurrences (CNDDDB 2022).

The Suisun Marsh aster is located in the southeast portion of the site in the perennial brackish marsh. Its associates include delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), California rose (*Rosa californica*), tule (*Schoenoplectus* spp.), Himalayan blackberry (*Rubus armeniacus*), perennial pepperweed (*Lepidium latifolium*), fennel (*Foeniculum vulgare*), wild radish (*Raphanus raphanistrum*), and water parsley (*Oenanthe sarmentosa*). Some of the Suisun Marsh aster populations at the Project were inaccessible at the time of the survey, bounded by thick vegetation and deep tidal channels, and therefore were surveyed from a distance using binoculars. In 2022, an estimated population of 23,000 plants were observed within the Project.

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.

SENSITIVE COMMUNITIES/HABITATS

WATERS OF THE U.S. AND STATE, INCLUDING WETLANDS

In general, any Waters of the U.S. and State, including wetlands, such as the vernal pool, riparian wetland, alkali seasonal wetland, seasonally saturated annual grassland, and perennial brackish marsh habitats occurring on site are considered sensitive habitats.

Additionally, some of the natural communities present on site are classified as sensitive if their vegetation classification at the association level has a state ranking of S1-S3 (CDFW 2022). The sensitive natural communities observed at the Project in 2022 are described below.

VERNAL POOLS

Some of the vernal pool habitats on site could be classified as a *Downingia pulchella* – *Cressa truxillensis* association, under the *Lasthenia fremontii* – *Distichlis spicata* alliance. Others fit better in the *Lasthenia glaberrima* – *Pleuropogon californicus* association or the *Lasthenia glaberrima* *Trifolium variegatum* association, both under the *Lasthenia glaberrima* alliance (Sawyer *et al.* 2009). Both the *Lasthenia fremontii* – *Distichlis spicata* alliance and the *Lasthenia glaberrima* alliance have a global and state rarity ranking of 2 (G2 and S2) and therefore are considered sensitive natural communities regardless of their wetland status.

DISCUSSION

The 2021-2022 wet season had below average rainfall, concentrated early in the season (UCIPM 2022). This likely resulted in a shorter growing season and reduced abundance of native forbs than in years with a more typical rainfall pattern of heavy rains in December and January. Overall, the distribution and abundance of special-status plants in the Project area was reduced from the 2000-2002 and 2005 surveys (Vollmar Consulting 2005). However, in a wet year more populations of the special-status plants known to be present onsite may be relocated or discovered, particularly in the northern half of the Project, which was generally drier, more thatchy, and more heavily dominated by non-native annuals.

ALKALI MILKVETCH

The alkali milkvetch was only observed in one location during 2022 surveys, co-occurring with the largest Contra Costa goldfields population as well as small populations of the saline clover. The population size of ~300 individuals in 2022 was consistent with that of previous years' (~250 reported by Vollmar Consulting 2005). The smaller populations previously reported in the seasonally saturated annual grassland north of Cordelia Road and west of Pennsylvania Avenue could not be relocated in 2022, possibly due to poor conditions or natural variability from year to year.

CONTRA COSTA GOLDFIELDS

The larger populations of Contra Costa goldfields west of Ledgewood Creek and south of Cordelia Road were all successfully relocated during 2022 surveys, though some had lower densities of plants than in previous years. Contra Costa goldfields often grew interspersed with California goldfields in the larger polygons, and generally preferred small swales and depressions. Fifteen small populations were observed north of Cordelia Road by Vollmar Consulting in 2005 but only two could be relocated in 2022. The population west of Pennsylvania Avenue was about the same size as in 2005 (54 plants, compared to ~50 reported by Vollmar Consulting 2005), while the population east of Pennsylvania Avenue had dropped to 17 plants (~100 reported by Vollmar Consulting 2005). Some of the previously recorded populations north of Cordelia Road may have not germinated this year due to poor conditions, but would likely be visible in a wetter year.

DELTA TULE PEA

The single population of Delta tule pea observed in 2000 and 2021 at the southern tip of the Project was successfully relocated in 2022 (Vollmar Consulting 2005, HBG 2021). However, five additional populations were discovered in the Project, as well as one just offsite in 2022. These additional populations were generally made up of plants emerging from the tops of California rose thickets bordering slough edges. A few were inaccessible but could be spotted with binoculars from a distance at peak phenology. Some portions of the perennial brackish marsh, particularly

between the major slough channels and the Southern Pacific Railroad, were very difficult to access, and there may still be additional populations in these areas yet to be documented.

HECKARD'S PEPPER-GRASS

Heckard's pepper-grass has not been previously documented on site. The closest CNDDDB occurrence of this plant is mapped 17 miles away, at Haas Slough (CNDDDB 2022). More populations of Heckard's pepper-grass may exist in the seasonally-saturated grasslands on site, especially during seasons of normal to higher rainfall than that of 2022.

LONG-STYLED SAND SPURREY

Long-styled sand spurrey was observed on site in 2000-2002 and 2005 rare plant surveys, but was not mapped as it presumably had no listing status at the time (Vollmar Consulting 2005). The closest CNDDDB occurrence of this plant is mapped just offsite, based on a 1953 specimen collected in "Suisun" (CNDDDB 2022). More populations of long-styled sand spurrey may exist in the seasonally-saturated grasslands on site, especially during seasons of normal to higher rainfall than that of 2022.

SALINE CLOVER

The area occupied by saline clover was greatly reduced from previous years, and some of the largest populations seemed to be represented by only a few scattered patches of clover in 2022. The abundance and distribution of saline clover appears to be quite variable from year to year in response to rainfall and grazing patterns (Vollmar Consulting 2005). None of the populations previously documented by Vollmar Consulting north of Cordelia Road could be relocated. This could be due to competition from the dense cover of tall annual grasses or low rainfall. When present, it appeared in small, low-growing patches with very small flowers, possibly in response to grazing pressure.

SUISUN MARSH ASTER

The Suisun Marsh aster was previously found in several populations bordering sloughs on site, as well as lining both sides of a drainage canal in the northeastern portion of the Project, for 0.25 mile north and south of Cordelia Road (Vollmar Consulting 2005). In 2022, only the southernmost two populations could be relocated, but additional extensive populations were documented in the southern portion of the site. Grazing pressure may have played a role in the changed distribution of Suisun Marsh aster. The slough banks where the aster was absent were closely grazed and visibly disturbed by cattle, while the relocated and new populations were almost all on the far sides of deep tidal channels, making the area inaccessible to cattle. The few populations that were in grazed pastures persisted around thickets of California rose, which seemed to provide some protection from herbivory.



In summary, six years of rare plant surveys have been conducted onsite (2000, 2001, 2002, and 2005 by Vollmar Consulting, 2021 by HBG, and 2022 by Helm Biological Consulting) to date. In general, with the exception of Heckard's pepper-grass, no additional special-status species have been observed, although some special-status species population numbers and extents (areas) have fluctuated over the years. Furthermore, given the number of surveys performed to date, it is unlikely that new special-status species would occur in the proposed development areas, since these areas are accessible and easy to survey, unlike the tidal marsh areas in the southern edge of the Project.

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EXHIBIT A.
CNDDDB 10-MILE RADIUS MAP

Legend

- Study Area
- 10-mile Buffer
- County Boundaries
- Topo Map Boundaries
- Plant (non-specific)
- Plant (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

Symbology

- Plant (80m)
- Plant (specific)

Plants

- 1 - Astragalus tener var. tener (alkali milk-vetch)
- 2 - Atriplex cordulata var. cordulata (heartscale)
- 3 - Atriplex depressa (brittlescale)
- 4 - Atriplex persistens (vernal pool smallscale)
- 5 - Balsamorhiza macrolepis (big-scale balsamroot)
- 6 - Brodiaea leptandra (narrow-anthered brodiaea)
- 7 - Carex lyngbyei (Lyngbye's sedge)
- 8 - Castilleja affinis var. neglecta (Tiburon paintbrush)
- 9 - Ceanothus purpureus (holly-leaved ceanothus)
- 10 - Centromadia parryi ssp. congdonii (Congdon's tarplant)
- 11 - Centromadia parryi ssp. parryi (pappose tarplant)
- 12 - Chloropyron molle ssp. hispidum (hispid salty bird's-beak)
- 13 - Chloropyron molle ssp. molle (soft salty bird's-beak)
- 14 - Cicuta maculata var. bolanderi (Bolander's water-hemlock)
- 15 - Cirsium hydrophilum var. hydrophilum (Suisun thistle)
- 16 - Delphinium recurvatum (recurved larkspur)
- 17 - Downingia pusilla (dwarf downingia)
- 18 - Erigeron greenii (Greene's narrow-leaved daisy)
- 19 - Eriogonum truncatum (Mt. Diablo buckwheat)
- 20 - Eryngium jepsonii (Jepson's coyote-thistle)
- 21 - Extriplex joaquinana (San Joaquin spearscale)
- 22 - Fritillaria pluriflora (adobe-lily)
- 23 - Hesperolinon breweri (Brewer's western flax)
- 24 - Isocoma arguta (Carquinez goldenbush)
- 25 - Lasthenia conjugens (Contra Costa goldfields)
- 26 - Lasthenia glabrata ssp. coulteri (Coulter's goldfields)
- 27 - Lathyrus jepsonii var. jepsonii (Delta tule pea)
- 28 - Legenere limosa (legenere)
- 29 - Lepidium latipes var. heckardii (Heckard's pepper-grass)
- 30 - Leptosiphon jepsonii (Jepson's leptosiphon)
- 31 - Lilaopsis masonii (Mason's lilaopsis)
- 32 - Limosella australis (Delta mudwort)
- 33 - Microseris paludosa (marsh microseris)
- 34 - Navarretia leucocephala ssp. bakeri (Baker's navarretia)
- 35 - Neostapfia colusana (Colusa grass)
- 36 - Orcuttia inaequalis (San Joaquin Valley Orcutt grass)
- 37 - Plagiobothrys hystriculus (bearded popcornflower)
- 38 - Puccinellia simplex (California alkali grass)
- 39 - Sidalcea keckii (Keck's checkerbloom)
- 40 - Spargularia macrotheca var. longistyla (long-styled sand-spurrey)
- 41 - Stuckenia filiformis ssp. alpina (northern slender pondweed)
- 42 - Symphyotrichum lentum (Suisun Marsh aster)
- 43 - Trichostema ruygii (Napa bluecurls)
- 44 - Trifolium amoenum (two-fork clover)
- 45 - Trifolium hydrophilum (saline clover)
- 46 - Tuctoria mucronata (Crampton's tuctoria or Solano grass)
- 47 - Viburnum ellipticum (oval-leaved viburnum)



Source: CNDDDB updated Jan 2022;
 CAL FIRE California County
 Boundaries; USGS TNM 2021;
 ESRI Light Grey Basemap

Exhibit A. CNDDDB Map
 Highway 12 Logistics Center Project
 Solano County, California

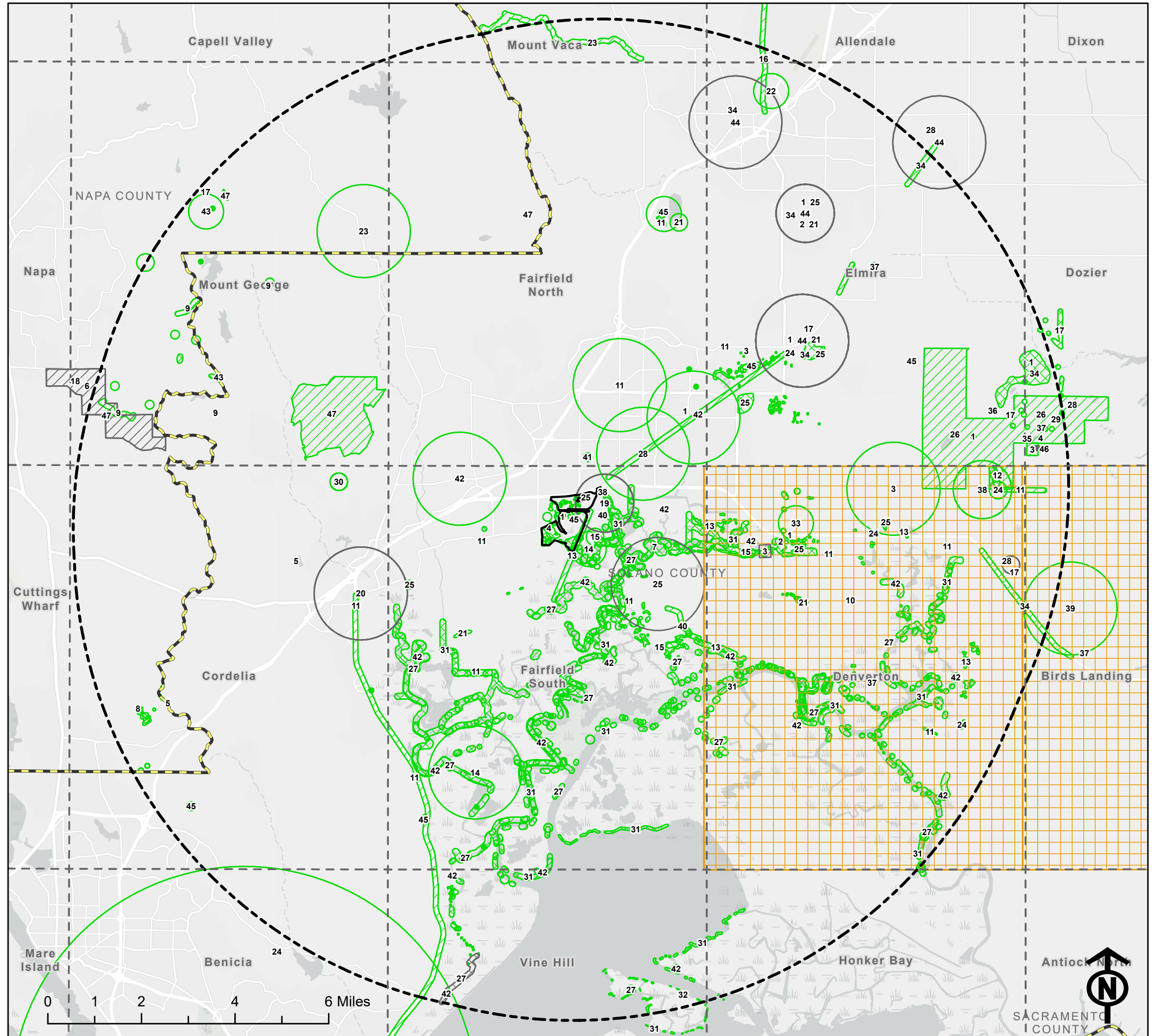











EXHIBIT B.
SPECIAL STATUS PLANTS OCCURRING
WITHIN THE PROJECT

Legend




 Project Site Boundary





Rare Plant Points

-  Contra Costa goldfields (*Lasthenia conjugens*)
-  Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)

-  Long-styled sand spurrey (*Spergularia macrotheca* var. *longistyla*)
-  Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
-  Suisun Marsh aster (*Symphotrichum lentum*)
-  Saline clover (*Trifolium hydrophilum*)

Rare Plant Polygons

-  Alkali milkvetch (*Astragalus tener* var. *tener*)
-  Contra Costa goldfields (*Lasthenia conjugens*)
-  Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)

-  Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
-  Delta tule pea & Suisun Marsh aster
-  Suisun Marsh aster (*Symphotrichum lentum*)
-  Saline clover (*Trifolium hydrophilum*)

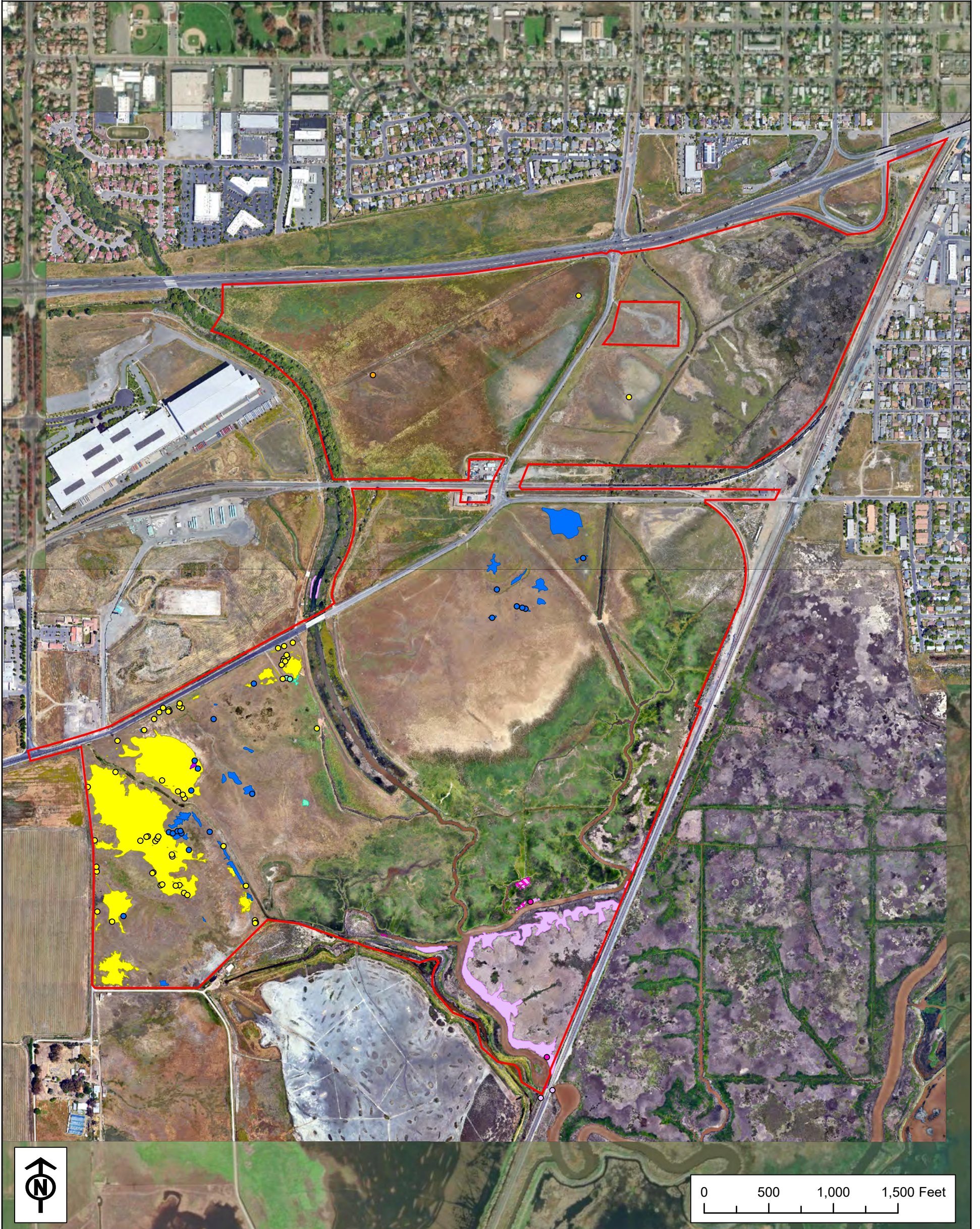


Exhibit B. Special Status Plants Observed in 2022

Highway 12 Logistics Center Project
Solano County, California



APPENDIX A.
SPECIAL-STATUS PLANT SPECIES ORIGINALLY TARGETED
FOR SURVEYS AT THE
HIGHWAY 12 LOGISTICS CENTER PROJECT

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Gentry Logistics Center Project

| Common Name | Scientific Name | Plant Family | Lifeform | Blooming Period | Special-Status Listings and Ranks | | | | | General Habitat | Potential To Occur Onsite |
|--------------------------|---|----------------|--------------------------------|-----------------|-----------------------------------|------------|-------------|------------|--------------------|--|--|
| | | | | | Fed List | State List | Global Rank | State Rank | Ca Rare Plant Rank | | |
| alkali milk-vetch | <i>Astragalus tener</i> var. <i>tener</i> | Fabaceae | annual herb | Mar-Jun | None | None | G2T1 | S1 | 1B.2 | Playas, Valley and foothill grassland, Vernal pools | Present. Species observed during 2022 surveys. |
| heartscale | <i>Atriplex cordulata</i> var. <i>cordulata</i> | Chenopodiaceae | annual herb | Apr-Oct | None | None | G3T2 | S2 | 1B.2 | Chenopod scrub, meadows and seeps, sandy grasslands, sometimes in saline or alkaline soils | Not Probable. Although alkaline habitat exists onsite, this species was not observed during 2022 surveys or past surveys (2000, 2001, 2002, 2005, and 2021). |
| brittlescale | <i>Atriplex depressa</i> | Chenopodiaceae | annual herb | Apr-Oct | None | None | G2 | S2 | 1B.2 | Chenopod scrub, meadows and seeps, playas, grasslands, vernal pools, in clay or alkaline soils | Present? A 2002 CNDDB element occurrence is mapped within Project area but the species could not be relocated during 2022 surveys. |
| vernal pool smallscale | <i>Atriplex persistens</i> | Chenopodiaceae | annual herb | Jun-Oct | None | None | G2 | S2 | 1B.2 | Alkaline vernal pools | Not Probable. Although alkaline habitat exists onsite, this species was not observed during 2022 surveys or past surveys. |
| big-scale balsamroot | <i>Balsamorhiza macrolepis</i> | Asteraceae | perennial herb | Mar-Jun | None | None | G2 | S2 | 1B.2 | Chaparral, Cismontane woodland, Valley and foothill grassland | Not Probable. No <i>Balsamorhiza</i> species were observed onsite. This species is perennial and would have been present and visible during surveys. |
| narrow-anthered brodiaea | <i>Brodiaea leptandra</i> | Themidaceae | perennial bulbiferous herb | May-Jul | None | None | G3? | S3? | 1B.2 | Broad-leaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland | Not Probable. Although foothill grasslands habitat (annual grassland) occurs on site, this species generally inhabits more well-drained soils than those occurring onsite. This species has not been observed during 2022 or previous surveys. |
| Lyngbye's sedge | <i>Carex lyngbyei</i> | Cyperaceae | perennial rhizomatous herb | Apr-Aug | None | None | G5 | S3 | 2B.2 | Silty rather than sandy soils within brakish and saltwater marshes and swamps. Generally a colonizer of tidal mudflats. | Not Probable. Although suitable habitat exists onsite for this species, especially along the edges of tidal channels (many of which are only accessible by small boat during high tide), this species was not observed during 2022 nor during past surveys. |
| Tiburon paintbrush | <i>Castilleja affinis</i> var. <i>neglecta</i> | Orobanchaceae | perennial herb (hemiparasitic) | Apr-Jun | FE | ST | G4G5T1 T2 | S1S2 | 1B.2 | Serpentine bunchgrass communities, typically on west or north-facing slopes within Valley and foothill grassland | None. This species has a very limited distribution and is associated with serpentine soils which are not present onsite. |
| holly-leaved ceanothus | <i>Ceanothus purpureus</i> | Rhamnaceae | perennial evergreen shrub | Feb-Jun | None | None | G2 | S2 | 1B.2 | Chaparral, cismontane woodland, rocky volcanic soils. | None. No <i>Ceanothus</i> species were observed on site. This species is a perennial shrub and would have been visible during surveys, if present. |
| Congdon's tarplant | <i>Centromadia parryi</i> ssp. <i>congdonii</i> | Asteraceae | annual herb | May-Oct(Nov) | None | None | G3T1T2 | S1S2 | 1B.1 | Valley and foothill grassland | Not Probable. Although this species is wetland dependent and its presence could be affected by the below average annual rainfall that occurred in 2020/2021 wet-season, it was not observed during the 2022 surveys nor any of the past surveys. |

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Gentry Logistics Center Project

| Common Name | Scientific Name | Plant Family | Lifeform | Blooming Period | Special-Status Listings and Ranks | | | | | General Habitat | Potential To Occur Onsite |
|------------------------------|--|---------------|-----------------------------|-------------------|-----------------------------------|------------|-------------|------------|--------------------|--|--|
| | | | | | Fed List | State List | Global Rank | State Rank | Ca Rare Plant Rank | | |
| pappose tarplant | <i>Centromadia parryi</i> ssp. <i>parryi</i> | 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 Probable. Although this species is wetland dependent and its presence could be affected by the below average annual rainfall that occurred in 2020/2021 wet-season, it was not observed during the 2022 surveys nor any of the past surveys. |
| hispid salty bird's-beak | <i>Chloropyron molle</i> ssp. <i>hispidum</i> | Orobanchaceae | annual herb (hemiparasitic) | Jun-Sep | None | None | G2T1 | S1 | 1B.1 | Alkaline playas, meadows and seeps in valley and foothill grassland. | Not Probable. Although suitable habitat exists onsite, no <i>Chloropyron</i> species were observed during the 2022 surveys or past surveys (2000, 2001, 2002, 2005, and 2021). |
| soft salty bird's-beak | <i>Chloropyron molle</i> ssp. <i>molle</i> | Orobanchaceae | annual herb (hemiparasitic) | Jun-Nov | FE | SR | G2T1 | S1 | 1B.2 | Coastal salt marshes and swamps | Present? According to CNDDDB (2022), this species was collected in 1904 along the railroad near Suisun. However, no <i>Chloropyron</i> species were observed during the 2022 surveys or past surveys. |
| Bolander's water-hemlock | <i>Cicuta maculata</i> var. <i>bolanderi</i> | Apiaceae | perennial herb | Jul-Sep | None | None | G5T4T5 | S2? | 2B.1 | Marshes and swamps | Not Probable. Although suitable habitat exists onsite, this species is generally large and easily identifiable, and would have been observed during surveys, if present. In addition, this species was not observed during past surveys . |
| Suisun thistle | <i>Cirsium hydrophilum</i> var. <i>hydrophilum</i> | Asteraceae | perennial herb | Jun-Sep | FE | None | G2T1 | S1 | 1B.1 | Salt marshes and swamps. | Critical Habitat. Although suitable tidal marsh habitat exists at the south end of Project, thick tules make it difficult to thoroughly survey, and the species has not been detected during the 2022 surveys or prior surveys. The perennial brackish marsh in the southern portion of the property is designated Critical Habitat for this species. |
| recurved larkspur | <i>Delphinium recurvatum</i> | Ranunculaceae | perennial herb | Mar-Jun | None | None | G2? | S2? | 1B.2 | Chenopod scrub, cismontane woodland, valley and foothill grassland. Alkaline soils. | Not Probable. Although suitable habitat exists onsite, this species was not observed during the 2022 survey or past surveys (2000, 2001, 2002, 2005, and 2021). |
| dwarf downingia | <i>Downingia pusilla</i> | Campanulaceae | annual herb | Mar-May | None | None | GU | S2 | 2B.2 | Valley and foothill grassland, Vernal pools | Not Probable. Although suitable habitat exists onsite (in large vernal pool), this species was not observed during the 2022 surveys or past surveys. |
| Greene's narrow-leaved daisy | <i>Erigeron greenei</i> | Asteraceae | perennial herb | May-Sep | None | None | G3 | S3 | 1B.2 | Chaparral. Serpentine or volcanic soils. | None. No suitable habitat (serpentine chaparral) present on site. |
| Mt. Diablo buckwheat | <i>Eriogonum truncatum</i> | Polygonaceae | annual herb | Apr-Sep (Nov-Dec) | None | None | G1 | S1 | 1B.1 | Chaparral, coastal scrub, valley and foothill grassland. | None. Only known from one extant location on Mt. Diablo. Suitable habitat does not exist on site. |
| Jepson's coyote-thistle | <i>Eryngium jepsonii</i> | Apiaceae | perennial herb | Apr-Aug | None | None | G2 | S2 | 1B.2 | Valley and foothill grassland, Vernal pools | Not Probable. Although this species is wetland dependent and its presence could be affected by the below average annual rainfall that occurred in 2020/2021 wet-season, it was not observed during the 2022 surveys nor any of the past surveys. |

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Gentry Logistics Center Project

| Common Name | Scientific Name | Plant Family | Lifeform | Blooming Period | Special-Status Listings and Ranks | | | | | General Habitat | Potential To Occur Onsite |
|-------------------------|--|----------------|----------------------------|-------------------|-----------------------------------|------------|-------------|------------|--------------------|---|---|
| | | | | | Fed List | State List | Global Rank | State Rank | Ca Rare Plant Rank | | |
| San Joaquin spearscale | <i>Extriplex joaquinana</i> | Chenopodiaceae | annual herb | Apr-Oct | None | None | G2 | S2 | 1B.2 | Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland | Not Probable. Although alkaline habitat exists onsite, no <i>Extriplex</i> species were observed during 2022 surveys nor was this species observed during past surveys. |
| adobe-lily | <i>Fritillaria pluriflora</i> | Liliaceae | perennial bulbiferous herb | Feb-Apr | None | None | G2G3 | S2S3 | 1B.2 | Chaparral, cismontane woodland, valley and foothill grassland. | Not Probable. No <i>Fritillaria</i> species were observed onsite. Although low quality habitat (disturbed annual grassland) does exist onsite, this species is generally associated with heavy clay soils (adobe) that are lacking onsite. In addition, no <i>Fritillaria</i> species were observed during past surveys. |
| Brewer's western flax | <i>Hesperolinon breweri</i> | Linaceae | annual herb | May-Jul | None | None | G2 | S2 | 1B.2 | Chaparral, cismontane woodland, valley and foothill grassland. Usually on serpentine. | None. No suitable habitat (serpentine chaparral and grassland) present on site. |
| Carquinez goldenbush | <i>Isocoma arguta</i> | Asteraceae | perennial shrub | Aug-Dec | None | None | G1 | S1 | 1B.1 | Valley and foothill grassland | None. No <i>Isocoma</i> species were observed onsite. This species is a perennial shrub and would have been visible during surveys, if present. |
| Contra Costa goldfields | <i>Lasthenia conjugens</i> | Asteraceae | annual herb | Mar-Jun | FE | None | G1 | S1 | 1B.1 | Vernal pools within Cismontane woodland, Playas, Valley and foothill grassland | Present. Species observed during 2022 surveys. The entire property, with the exception of the perennial brackish marsh in the southern portion of the site, is designated Critical Habitat for this species. |
| Coulter's goldfields | <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> | Asteraceae | annual herb | Feb-Jun | None | None | G4T2 | S2 | 1B.1 | Coastal salt marshes and swamps, playas, vernal pools. | Not Probable. Although suitable habitat exists onsite this species was not observed during 2022 surveys or past surveys. |
| Delta tule pea | <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> | Fabaceae | perennial herb | May-Jul (Aug-Sep) | None | None | G5T2 | S2 | 1B.2 | Marshes and swamps | Present. Species observed during 2022 surveys. |
| legenere | <i>Legenere limosa</i> | Campanulaceae | annual herb | Apr-Jun | None | None | G2 | S2 | 1B.1 | Vernal pools | Not Probable. Although this species is wetland dependent and its presence could be affected by the below average annual rainfall that occurred in 2020/2021 wet-season, it was not observed during the 2022 surveys nor any of the past surveys. |
| Heckard's pepper grass | <i>Lepidium latipes</i> var. <i>heckardii</i> | Brassicaceae | annual herb | Mar-May | None | None | G4T1 | S1 | 1B.2 | Alkaline flats, valley and foothill grassland. | Present. Species observed during 2022 surveys. |
| Jepson's leptosiphon | <i>Leptosiphon jepsonii</i> | Polemoniaceae | annual herb | Mar-May | None | None | G2G3 | S2S3 | 1B.2 | Chaparral, Cismontane woodland, Valley and foothill grassland | Not Probable. Although low quality habitat (disturbed annual grassland) exists onsite, no <i>Leptosiphon</i> species were observed during 2022 surveys or past surveys. |
| Mason's lilaepsis | <i>Lilaeopsis masonii</i> | Apiaceae | perennial rhizomatous herb | Apr-Nov | None | SR | G2 | S2 | 1B.1 | Mudflats within marshes and swamps, Riparian scrub | None. This species is generally associated with tidally influenced perennial waterways. This species was present and highly visible at the chosen Reference Site. Therefore, this species would have been observed onsite, if present. |

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Gentry Logistics Center Project

| Common Name | Scientific Name | Plant Family | Lifeform | Blooming Period | Special-Status Listings and Ranks | | | | | General Habitat | Potential To Occur Onsite |
|---------------------------------|--|------------------|--------------------------------------|-----------------|-----------------------------------|------------|-------------|------------|--------------------|--|--|
| | | | | | Fed List | State List | Global Rank | State Rank | Ca Rare Plant Rank | | |
| marsh microseris | <i>Microseris paludosa</i> | Asteraceae | perennial herb | Apr-Jun (Jul) | None | None | G2 | S2 | 1B.2 | Closed-cone pine forest, cismontane woodland, coastal scrub, valley and foothill grassland. | Not Probable. Although low quality habitat (disturbed annual grassland) exists onsite, this species was not observed during 2022 surveys or past surveys. |
| Baker's navarretia | <i>Navarretia leucocephala</i> ssp. <i>bakeri</i> | Polemoniaceae | annual herb | Apr-Jul | None | None | G4T2 | S2 | 1B.1 | Mesic areas in cismontane woodland, lower montane coniferous forest, meadows and seeps, vernal pools, grassland. | Not Probable. Although suitable habitat (vernal pools and annual grasslands) exists onsite, this species was not observed during 2022 surveys or past surveys. |
| San Joaquin Valley Orcutt grass | <i>Orcuttia inaequalis</i> | Poaceae | annual herb | Apr-Sep | FT | SE | G1 | S1 | 1B.1 | Vernal pools | Not Probable. Limited habitat (large deep turbid vernal pools) exists onsite and this species was not observed during 2022 surveys or past surveys. |
| bearded popcornflower | <i>Plagiobothrys hystriculus</i> | Boraginaceae | annual herb | Apr-May | None | None | G2 | S2 | 1B.1 | Vernal pool margins, vernal swales. | Not Probable. Although suitable habitat (vernal pools) exists onsite, this species was not observed during 2022 surveys or past surveys. |
| California alkali grass | <i>Puccinellia simplex</i> | Poaceae | annual herb | Mar-May | None | None | G3 | S2 | 1B.2 | Chenopod scrub, alkaline sinks and flats, meadows and seeps, vernal pools. | Not Probable. Although suitable habitat (alkaline vernal pools and grasslands) exists onsite, this species was not observed during 2022 surveys or past surveys. |
| Keck's checkerbloom | <i>Sidalcea keckii</i> | Malvaceae | annual herb | Apr-May (Jun) | FE | None | G2 | S2 | 1B.1 | Cismontane woodland, valley and foothill grassland. On clay and serpentine soils. | Not Probable. This species is associated with heavy clay soils or serpentine soils in grasslands that are generally lacking on site. In addition, this species was not observed during 2022 surveys or past surveys. |
| long-styled sand-spurrey | <i>Spergularia macrotheca</i> var. <i>longistyla</i> | Caryophyllaceae | perennial herb | Feb-May | None | None | G5T2 | S2 | 1B.2 | Meadows and seeps. Alkaline marshes and swamps. | Present. Species observed during 2022 surveys. |
| northern slender pondweed | <i>Stuckenia filiformis</i> ssp. <i>alpina</i> | Potamogetonaceae | perennial rhizomatous herb (aquatic) | May-Jul | None | None | G5T5 | S2S3 | 2B.2 | Shallow freshwater marshes and swamps. | None. Suitable habitat does not exist on site. |
| Suisun Marsh aster | <i>Symphotrichum lentum</i> | Asteraceae | perennial rhizomatous herb | (Apr) May-Nov | None | None | G2 | S2 | 1B.2 | Marshes and swamps | Present. Species observed during 2022 surveys. |
| Napa bluecurls | <i>Trichostema ruygtii</i> | 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 Probable. Although low quality habitat (disturbed annual grassland and vernal pools) exist onsite, no <i>Trichostema</i> species were observed onsite during 2022 surveys or past surveys. |
| two-fork clover | <i>Trifolium amoenum</i> | Fabaceae | annual herb | Apr-Jun | FE | None | G1 | S1 | 1B.1 | Coastal bluff scrub, Valley and foothill grassland | Not Probable. Although this species is wetland dependent and its presence could be affected by the below average annual rainfall that occurred in 2020/2021 wet-season, it was not observed during the 2022 surveys nor any of the past surveys (2000, 2001, 2002, 2005, and 2021). |

Appendix A. Special-Status Plant Species Originally Targeted for Surveys at the Gentry Logistics Center Project

| Common Name | Scientific Name | Plant Family | Lifeform | Blooming Period | Special-Status Listings and Ranks | | | | | General Habitat | Potential To Occur Onsite |
|----------------------|------------------------------|--------------|---------------------------|-----------------|-----------------------------------|------------|-------------|------------|--------------------|---|---|
| | | | | | Fed List | State List | Global Rank | State Rank | Ca Rare Plant Rank | | |
| saline clover | <i>Trifolium hydrophilum</i> | Fabaceae | annual herb | Apr-Jun | None | None | G2 | S2 | 1B.2 | Marshes and swamps, Valley and foothill grassland, Vernal pools | Present. Species observed during 2022 surveys. |
| oval-leaved viburnum | <i>Viburnum ellipticum</i> | Viburnaceae | perennial deciduous shrub | May-Jun | None | None | G4G5 | S3? | 2B.3 | Chaparral, cismontane woodland, lower montane forest. | None. Suitable habitat does not exist on site. |

Federal

Definition

- FE Federally Endangered (listed as Endangered under Federal Endangered Species Act [ESA])
- FT Listed as threatened under the ESA

State

Definition

- SE Listed as endangered under California Endangered Species Act (CESA)
- SR Listed as rare under the 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# Intraspecific 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.

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.

California Rare Plant Rank

Definition

- 1B.1 Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
- 1B.2 Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
- 2B.2 Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
- 3.2 Plants about which we need more information; fairly threatened in California



APPENDIX B.
LIST OF ALL VASCULAR PLANT SPECIES OBSERVED

| Plant Species Names | | Wetland Indicator Status | Cal-IPC Rating |
|--|---------------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| Trees | | | |
| <i>Fraxinus</i> sp. | Ash | FACW | |
| <i>Phoenix canariensis</i> * | Canary Island date palm | NL | L |
| <i>Prunus dulcis</i> * | Domestic almond | NL | |
| <i>Salix babylonica</i> * | Weeping willow | FAC | |
| <i>Salix gooddingii</i> | Goodding's black willow | FACW | |
| <i>Salix lasiolepis</i> | Arroyo willow | FACW | |
| <i>Quercus agrifolia</i> | Coast live oak | NL | |
| Shrubs | | | |
| <i>Baccharis glutinosa</i> | Salt marsh baccharis | FACW | |
| <i>Baccharis pilularis</i> | Coyote brush | NL | |
| <i>Tamarix</i> sp.* | Tamarisk | FACW | |
| Vines | | | |
| <i>Rosa californica</i> | California rose | FAC | |
| <i>Rosa</i> sp.* | Rose | NL | |
| <i>Rubus armeniacus</i> * | Himalayan blackberry | FAC | H |
| <i>Rubus ursinus</i> | California blackberry | FAC | |
| <i>Vitis californica</i> | California wild grape | FACU | |
| Grasses | | | |
| <i>Avena fatua</i> * | Wild oat | NL | M |
| <i>Briza minor</i> * | Little quaking grass | FAC | |
| <i>Bromus diandrus</i> * | ripgut brome | NL | M |
| <i>Bromus hordeaceus</i> * | Soft brome | FACU | L |
| <i>Cortaderia selloana</i> * | Pampas grass | FACW | H |
| <i>Crypsis vaginiflora</i> * | African prickly grass | OBL | |
| <i>Cynodon dactylon</i> * | Bermuda grass | FACU | M |
| <i>Deschampsia danthonioides</i> | Annual hairgrass | FACW | |
| <i>Distichlis spicata</i> | Inland saltgrass | FAC | |
| <i>Echinochloa crus-galli</i> * | Barnyard grass | FACW | |
| <i>Echinochloa muricata</i> * | Rough barnyard grass | FACW | |
| <i>Elymus caput-medusae</i> * | Medusa head | NL | H |
| <i>Elymus triticoides</i> | Creeping wild rye, Beardless wild rye | FAC | |
| <i>Festuca bromoides</i> * | Brome fescue | FACU | |
| <i>Festuca perennis</i> * | Italian rye grass | FAC | M |
| <i>Hainardia cylindrica</i> * | Barbgrass | FACW | |
| <i>Hordeum brachyantherum</i> | Meadow barley | FACW | |
| <i>Hordeum depressum</i> | Alkali barley | FACW | |
| <i>Hordeum marinum</i> ssp. <i>gussoneanum</i> * | Mediterranean barley | FAC | M |
| <i>Hordeum murinum</i> ssp. <i>leporinum</i> * | Hare barley | FACU | |
| <i>Parapholis incurva</i> * | Curved sicklegrass | FACU | |

| Plant Species Names | | Wetland Indicator Status | Cal-IPC Rating |
|--|---------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Paspalum dilatatum</i> * | Dallis grass | FAC | |
| <i>Paspalum distichum</i> | Knot grass | FACW | |
| <i>Phalaris paradoxa</i> * | Hood canarygrass | FAC | |
| <i>Phragmites australis</i> | Common reed | FACW | |
| <i>Pleuropogon californicus</i> | Annual semaphoregrass | OBL | |
| <i>Poa annua</i> * | Annual blue grass | FAC | |
| <i>Polypogon monspeliensis</i> * | Rabbitsfoot grass | FACW | L |
| <i>Schismus arabicus</i> * | Arabian schismus | NL | L |
| Grasslikes | | | |
| <i>Bolboschoenus robustus</i> | Sturdy bullrush | OBL | |
| <i>Carex barbarae</i> | Santa Barbara sedge | FAC | |
| <i>Cyperus eragrostis</i> | Tall flatsedge | FACW | |
| <i>Eleocharis macrostachya</i> | Common spikerush | OBL | |
| <i>Juncus balticus</i> | Baltic rush | FACW | |
| <i>Juncus bufonius</i> | Toad rush | FACW | |
| <i>Juncus effusus</i> ssp. <i>pacificus</i> | Pacific rush | FACW | |
| <i>Juncus mexicanus</i> | Mexican rush | FACW | |
| <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | Tule | OBL | |
| <i>Schoenoplectus americanus</i> | Chairmaker's bulrush | OBL | |
| <i>Schoenoplectus californicus</i> | California bulrush | OBL | |
| <i>Triglochin concinna</i> var. <i>concinna</i> | Arrowgrass | OBL | |
| <i>Triglochin maritima</i> | Arrowgrass | OBL | |
| <i>Triglochin scilloides</i> | Flowering-quillwort | OBL | |
| <i>Typha angustifolia</i> * | Narrowleaf cattail | OBL | |
| <i>Typha latifolia</i> | Broadleaf cattail | OBL | |
| Herbs | | | |
| <i>Achyraea mollis</i> | Blow wifes | FAC | |
| <i>Alisma triviale</i> | Northern water plantain | OBL | |
| <i>Ambrosia psilostachya</i> | Ragweed | FACU | |
| <i>Apium graveolens</i> * | Celery | NL | |
| <i>Artemisia douglasiana</i> | California mugwort | FAC | |
| <i>Asparagus officinalis</i> ssp. <i>officinalis</i> * | Garden asparagus | FACU | |
| <i>Astragalus tener</i> var. <i>tener</i> | Alkali milk vetch | FACW | |
| <i>Atriplex prostrata</i> * | Fat-hen | FACW | |
| <i>Bassia hyssopifolia</i> * | Five horn bassia | FACU | L |
| <i>Bellardia trixago</i> * | Mediterranean lineseed | NL | L |
| <i>Bidens frondosa</i> | Devil's beggartick | FACW | |
| <i>Brodiaea minor</i> | Dwarf brodiaea | NL | |
| <i>Callitriche marginata</i> | California water starwort | OBL | |
| <i>Capsella bursa-pastoris</i> * | Shepherd's purse | FACU | |

| Plant Species Names | | Wetland Indicator Status | Cal-IPC Rating |
|--|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Cardamine oligosperma</i> | Bitter cress | FAC | |
| <i>Carduus pycnocephalus</i> * | Italian thistle | NL | M |
| <i>Castilleja attenuata</i> | Narrow leaved owl's clover | NL | |
| <i>Castilleja campestris</i> ssp. <i>campestris</i> | Field owl clover | FACW | |
| <i>Centaurea calcitrapa</i> * | Purple star-thistle | NL | M |
| <i>Centaurea solstitialis</i> * | Yellow star-thistle | NL | H |
| <i>Centromadia pungens</i> | Common tarweed | FAC | |
| <i>Cerastium glomeratum</i> * | Large mouse ears | UPL | |
| <i>Chenopodium album</i> * | Lamb's quarters | FACU | |
| <i>Cirsium vulgare</i> * | Bull thistle | FACU | M |
| <i>Conium maculatum</i> * | Poison hemlock | FACW | M |
| <i>Convolvulus arvensis</i> * | Field bindweed | NL | |
| <i>Cotula coronopifolia</i> * | Brass buttons | OBL | L |
| <i>Crassula aquatica</i> | Water pygmyweed | OBL | |
| <i>Cressa truxillensis</i> | Alkali weed | FACW | |
| <i>Croton setiger</i> | Turkey-mullein | NL | |
| <i>Cynara cardunculus</i> * | Cardoon | NL | M |
| <i>Downingia pulchella</i> | Flatface downingia | OBL | |
| <i>Epilobium brachycarpum</i> | Annual fireweed | FAC | |
| <i>Epilobium cleistogamum</i> | Cleistogamous boisduvalia | OBL | |
| <i>Erigeron canadensis</i> | Canada horseweed | FACU | |
| <i>Erodium botrys</i> * | Broad leaf filaree | FACU | |
| <i>Erodium cicutarium</i> * | Red stemmed filaree | NL | L |
| <i>Erodium moschatum</i> * | Musky stork's bill | NL | |
| <i>Eryngium vaseyi</i> | Coyote thistle | FACW | |
| <i>Euthamia occidentalis</i> | Western goldenrod | FACW | |
| <i>Foeniculum vulgare</i> * | Fennel | NL | H |
| <i>Frankenia salina</i> | Alkali heath | FACW | |
| <i>Galium aparine</i> | Common bedstraw | FACU | |
| <i>Grindelia stricta</i> | Coastal gumweed | FACW | |
| <i>Geranium dissectum</i> | Cut leaved geranium | | L |
| <i>Gnaphalium palustre</i> | Lowland cudweed | FACW | |
| <i>Helminthotheca echioides</i> * | Bristly ox-tongue | FAC | L |
| <i>Hirschfeldia incana</i> * | Short podded mustard | | M |
| <i>Hydrocotyle verticillata</i> | Whorled marsh pennywort | OBL | |
| <i>Jaumea carnosa</i> | Marsh jaumea | OBL | |
| <i>Lactuca serriola</i> * | Prickly wild lettuce | FACU | |
| <i>Lasthenia californica</i> ssp. <i>californica</i> | California goldfields | FACU | |
| <i>Lasthenia conjugens</i> | Contra Costa goldfields | FACW | |
| <i>Lasthenia ferrisiae</i> | Alkali goldfields | OBL | |

| Plant Species Names | | Wetland Indicator Status | Cal-IPC Rating |
|---|---|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Lasthenia glaberrima</i> | Smooth goldfields | OBL | |
| <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> | Delta tule pea | OBL | |
| <i>Leontodon saxatilis</i> * | Hairy hawkbit | FACU | |
| <i>Lepidium latifolium</i> * | Broad leaved pepper grass, Perennial pepperweed | FAC | H |
| <i>Lepidium latipes</i> var. <i>heckardii</i> | Heckard's pepper grass | FACW | |
| <i>Lepidium nitidum</i> | Shining pepperweed | FAC | |
| <i>Limosella aquatica</i> | Northern mudwort | OBL | |
| <i>Lotus corniculatus</i> * | Bird's foot trefoil | FAC | |
| <i>Lupinus bicolor</i> | Miniature lupine | NL | |
| <i>Lysimachia arvensis</i> | Scarlet pimpernel | NL | |
| <i>Lythrum hyssopifolia</i> * | Hyssop loosestrife | FAC | L |
| <i>Malva neglecta</i> * | Common mallow | NL | |
| <i>Malva parviflora</i> * | Cheeseweed mallow | NL | |
| <i>Medicago polymorpha</i> * | Bur clover | FACU | L |
| <i>Melilotus albus</i> * | White sweetclover | NL | |
| <i>Melilotus indicus</i> * | Annual yellow sweetclover | FACU | |
| <i>Mentha ×piperita</i> * | Peppermint | NL | |
| <i>Microseris campestris</i> | San Joaquin microseris | NL | |
| <i>Muilla maritima</i> | Common muilla | NL | |
| <i>Myosurus minimus</i> | Common mouse tail | OBL | |
| <i>Myosurus sessilis</i> | Tiny mouse tail | FACW | |
| <i>Nasturtium officinale</i> | Watercress | OBL | |
| <i>Oenanthe sarmentosa</i> | Water parsley | OBL | |
| <i>Persicaria punctata</i> | Dotted smartweed | OBL | |
| <i>Phyla nodiflora</i> var. <i>nodiflora</i> | Common lippia | FACW | |
| <i>Plagiobothrys greenei</i> | Greene's popcornflower | FACW | |
| <i>Plagiobothrys humistratus</i> | Dwarf popcornflower | OBL | |
| <i>Plagiobothrys leptocladus</i> | Alkali popcornflower | OBL | |
| <i>Plagiobothrys stipitatus</i> var. <i>micranthus</i> | Stalked popcornflower | FACW | |
| <i>Plantago elongata</i> | Coastal plantain | FACW | |
| <i>Plantago lanceolata</i> * | English plantain | FAC | L |
| <i>Plantago major</i> * | Common plantain | FAC | |
| <i>Polygonum aviculare</i> * | Prostrate knotweed | FAC | |
| <i>Potentilla anserina</i> ssp. <i>pacifica</i> | Pacific potentilla | OBL | |
| <i>Psilocarphus brevissimus</i> var. <i>brevissimus</i> | Woolly marbles | FACW | |
| <i>Psilocarphus oregonus</i> | Oregon woolly marbles | OBL | |
| <i>Ranunculus muricatus</i> * | Buttercup | FACW | |
| <i>Ranunculus scleratus</i> | Cursed buttercup | OBL | |
| <i>Raphanus raphanistrum</i> * | Wild radish | NL | |
| <i>Rumex conglomeratus</i> * | Clustered dock | FACW | |

| Plant Species Names | | Wetland Indicator Status | Cal-IPC Rating |
|--|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Rumex crispus</i> * | Curly dock | FAC | L |
| <i>Rumex pulcher</i> * | Fiddle dock | FAC | |
| <i>Salicornia pacifica</i> | Pickleweed | OBL | |
| <i>Salsola tragus</i> * | Russian thistle | FACU | L |
| <i>Senecio hydrophilus</i> | Alkali marsh ragwort | OBL | |
| <i>Senecio vulgaris</i> * | Common groundsel | FACU | |
| <i>Silene gallica</i> * | Common catchfly | NL | |
| <i>Silybum marianum</i> * | Milk thistle | NL | L |
| <i>Soliva sessilis</i> * | Field burrweed | FACU | |
| <i>Sonchus oleraceus</i> * | Sow thistle | UPL | |
| <i>Spergularia macrotheca var. longistyla</i> | Long-styled sand spurry | FAC | |
| <i>Spergularia marina</i> | Salt marsh sand spurry | OBL | |
| <i>Spergularia rubra</i> * | Purple sand spurry | FAC | |
| <i>Symphotrichum lentum</i> | Suisun Marsh aster | OBL | |
| <i>Tragopogon porrifolius</i> * | Purple salsify | NL | |
| <i>Trifolium campestre</i> * | Low hop clover | NL | |
| <i>Trifolium depauperatum var. amplexans</i> | Balloon sack clover | FAC | |
| <i>Trifolium depauperatum var. depauperatum</i> | Bladder sack clover | FAC | |
| <i>Trifolium depauperatum var. truncatum</i> | Dwarf sack clover | FAC | |
| <i>Trifolium fucatum</i> | Sour clover | FACU | |
| <i>Trifolium hirtum</i> * | Rose clover | NL | L |
| <i>Trifolium hydrophilum</i> | Saline clover | FAC | |
| <i>Trifolium repens</i> * | White clover | FACU | |
| <i>Trifolium subterraneum</i> * | Subterranean clover | NL | |
| <i>Trifolium tomentosum</i> * | Woolly clover | NL | |
| <i>Trifolium variegatum</i> | Variegated clover | FAC | |
| <i>Trifolium willdenovii</i> | Tomcat clover | FACW | |
| <i>Triphysaria eriantha</i> | Butter-and-eggs | NL | |
| <i>Triphysaria pusilla</i> | Dwarf owl's clover | NL | |
| <i>Triphysaria versicolor ssp. faucibarbata</i> | Yellow owl's clover | NL | |
| <i>Verbascum thapsus</i> * | Moth mullein | FACU | L |
| <i>Veronica peregrina ssp. xalapensis</i> | Hairy purslane speedwell | FAC | |
| <i>Vicia sativa</i> * | Spring vetch | FACU | |
| <i>Vicia villosa</i> * | Hairy vetch | NL | |
| <i>Xanthium spinosum</i> * | Spiny cocklebur | FACU | |
| <i>Xanthium strumarium</i> | Cocklebur | FAC | |

* = non native , + = observed just out side the Study Area.



APPENDIX C.
REPRESENTATIVE PHOTOGRAPHS



Photograph of seasonally saturated annual grassland habitat for Contra Costa goldfields (*Lasthenia conjugens*) at the Project, taken on April 1, 2022.



Photograph of perennial brackish marsh habitat along lower portion of Ledgewood Creek, facing south. Photo taken on April 8, 2022.



Photograph of slough edge with cow punch taken on May 13, 2022.



Photograph of grazed slough edge in perennial brackish marsh, taken on May 13, 2022.



Photograph of vernal pool habitat at the Project, taken on April 5, 2022.



Photograph of alkali seasonal wetland habitat at the Project, taken on March 31, 2022.



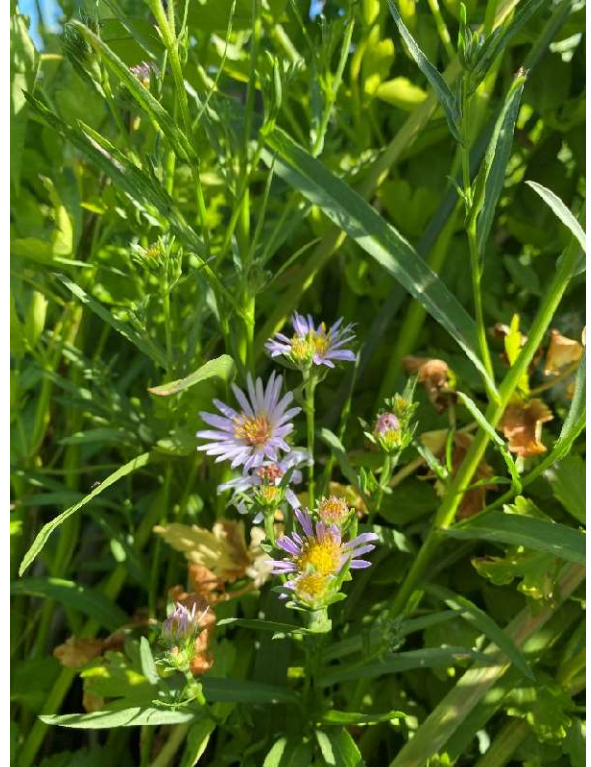
Photograph of saline clover (*Trifolium hydrophilum*) taken on April 5, 2022.



Photograph of saline clover (*Trifolium hydrophilum*) taken on March 31, 2022.



Photograph of Suisun Marsh aster (*Symphyotrichum lentum*) taken on May 13, 2022.



Photograph of Suisun Marsh aster (*Symphyotrichum lentum*) taken on May 13, 2022.



Photograph of Heckard's pepper-grass (*Lepidium latipes* ssp. *heckardi*) taken on March 31, 2022.



Photograph of delta tule pea (*Lathyrus jepsonii* var. *jepsonii*) taken on May 13, 2022.



Photograph of alkali milkvetch (*Astragalus tener* ssp. *tener*) taken on April 1, 2022.



Photograph of Contra Costa goldfields (*Lasthenia conjugens*) taken on April 5, 2022.

HBG 2021 Rare Plant Report

**2021 Plant Survey
for
Highway 12 Logistics Center Project
Solano County, California**

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Appendix 5 Special-Status Plant Species Known to Occur or With Potential to Occur in the Vicinity of the Gentry Logistics Project Area

Citation: Huffman-Broadway Group, Inc. 2021. *2021 Plant Survey for the Highway 12 Logistics Center Project, Solano County, California*. Prepared for Buzz Oates Construction and Tom Gentry California Company. 13 pages plus Figures and Appendices. December.

1.0 INTRODUCTION

At the request of Buzz Oates Construction, in support of the Highway 12 Logistics Center Project, protocol surveys for special status plant species and sensitive natural communities were conducted by Huffman-Broadway Group, Inc. (HBG) during the spring and summer of 2021 within an approximately 481-acre Study Area in an unincorporated area of Solano County bound by Highway 12 and Suisun City where the Project will be located. Special status plant species and sensitive natural communities are defined as those listed by the:

1. Federal Endangered Species Act (as administered by the U.S. Fish and Wildlife Service (USFWS) as endangered, threatened, or proposed or a candidate for listing.
2. California Endangered Species Act as endangered, threatened, rare, or proposed for listing, under the California Endangered Species Act of 1970.
3. California Native Plant Protection Act as rare.
4. California Department of Fish and Wildlife (CDFW) as a Species of Special Concern.
5. California Native Plant Society in Rank Categories 1A, 1B, or 2.
6. California Fish and Game Code (§1901) designated as endangered or rare, pursuant to the Code.
7. California Fish and Game Code (§3511, §4700, or §5050), designated as fully protected, pursuant to the Code.

Section 2.0 provides a project description, location and biological setting, Section 3.0 discusses survey methodology, Section 4.0 describes survey results, and Section 5.0 provides an assessment of potential project impacts to special status species and sensitive natural communities.

2.0 STUDY AREA LOCATION AND DESCRIPTION

2.1 Study Area Description

The Study Area encompasses approximately 481 acres located between Highway 12 and Cordelia Road at Pennsylvania Avenue near Suisun City (Figures 1, 2, and 3). Ledgewood Creek abuts the northwestern boundary and splits the southern boundary once Ledgewood Creek crosses Cordelia Road. Ledgewood Creek enters Peytonia Slough at the southernmost portion of the Study Area. The Union Pacific railroad (UPRR) tracks intersect the northern and southern halves of the Study Area, and along the eastern boundary the tracks separate the Study Area from the Peytonia Slough Ecological Reserve, a California Department of Fish and Game ecological reserve. Peytonia Slough enters the southern half of the Study Area through a culvert under the UPRR, resulting in a muted tidal cycle. The objective of protocol plant surveys is to identify the presence, or lack thereof, of special status plant species and sensitive natural communities for environmental impact assessment purposes.

2.2 Study Area Location

The latitude and longitude of the center of the Study Area is at approximately 38.235321 North and 122.052096 West, and the Study Area encompasses portions of the U.S. Geological Survey (USGS) 7.5 min Fairfield North and Fairfield South quadrangles (Figure 2).

2.3 Biological Setting

2.3.1 Land Use

The majority of the Study Area is actively being used for cattle grazing (Figure 3). The parcel bound by Ledgewood Creek, Cordelia Road and the UPRR had been occupied by a large homeless encampment comprised of temporarily built shelters, an RV, and a few personal vehicles. During the summer of 2019, the Solano County Sheriff's department removed the encampment, and the County cleared the garbage and debris left behind. The fences along Ledgewood Creek and Cordelia Road have been repaired. Also, in 2019 and 2020, grass fires emanated from the homeless area which scorched major areas within the northwestern portions of the Study Area.

2.3.2 Topographic Relief

Figure 2 is a USGS topographic map of the site. The topographic relief on the majority of the site is flat with slopes ranging from 2-3% with elevations ranging from 15 feet to 0 feet mean sea level (MSL)¹.

2.3.3 Climate

HBG acquired USDA NRCS historical precipitation and temperature data for the Study Area using the Climate Analysis for Wetlands Tables² (WETS Tables) station for Fairfield (Appendix 1). Based on the Fairfield WETS station the average annual precipitation from January 1971

¹ Sourced from the Biological Assessment prepared by HBG dated 2006.

² National Resources Conservation Service, 2000

2.0 Study Area Location and Description

through December 2021 was 23.07 inches of rain and no snowfall. The wettest month is January which averaged 4.53 inches of rainfall with the lowest average amount occurring in July with 0.02 inches of rainfall. Recorded data also indicates that the annual average mean temperature is 60.9° F. Average high and low temperatures range between 73.7° F and 48.1° F with the coldest months occurring in January and December, both with a mean temperature of 47.2° F and hottest months being in July where mean temperature is 73.1° F.

2.3.4 Soils

A review of the Natural Resources Conservation Service (NRCS) Soil Survey maps for Solano County³ shows five soil types occurring in the Study Area. A soils map of the Study Area is shown in Figure 4.

Field investigations confirmed that the NRCS soils mapping is reasonably accurate throughout the Study Area. Pertinent soil characteristics are summarized in the table below:

| Pertinent Characteristics of Soils Mapped within the Study Area | | | | | | |
|---|------------------------------|------------------------------|-------|-------------------------|----------------------|-------------------------------|
| Map Unit Symbol and Unit Name | Landform / Landform Position | Depth to Restrictive Feature | Slope | Drainage Class | Depth to Water Table | Frequency of Flooding/Ponding |
| St - Sycamore silty clay loam, saline | Alluvial Fans | 36 inches | 0-2% | Somewhat poorly drained | 36 to 60 inches | None / None |
| Pc - Pescadero silty clay loam, 0 percent slopes, MLRA 17 | Basin Floors | 4 inches | 0% | Somewhat poorly drained | 4 to 85 inches | None-Rare / Frequent |
| An - Alviso silty clay loam | Tidal Flats | 80+ inches | 0-2% | Poorly drained | 24 to 36 inches | Rare / None |
| Ja - Joice muck, MLRA 16 | Tidal Flats | 80+ inches | 0-2% | Very poorly drained | 24 to 36 inches | Frequent to None / Frequent |
| W-Water | NA | NA | NA | NA | NA | NA |

2.3.5 Hydrology

Figures 5, 6, and 7 identify US Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) watershed and subwatersheds encompassing the Study Area. According to the USGS National Hydrography Dataset (NHD), the Study Area is in the HUC 8 Suisun Bay subbasin (HUC 18050001); the HUC 10 Suisun Bay (HUC 1805000104) and Wooden Valley Creek-Frontal Suisun Bay Estuaries (HUC 10 1805000101) watersheds; and the HUC 12 Suisun Bay Estuaries (HUC 180500010401), Laurel Creek-Frontal Suisun Bay (HUC 180500010108), and Ledgewood Creek (HUC 180500010101) subwatersheds.

³ US Department of Agriculture, 2019

2.3.6 Vegetation

The Estuarine Intertidal Emergent Wetland⁴ are dominated by dense stands of narrow-leaved cattail (*Typha angustifolia*) and broad-leaved cattail (*Typha latifolia*), California bulrush (*Schoeneoplectus californicus*), pickleweed (*Salicornia pacifica*), alkali sea-heath (*Frankenia salina*), and coastal salt grass (*Distichlis spicata*). The Palustrine Emergent and Riverine Emergent Wetlands are dominated by halophytes such as pickleweed, alkali sea-heath (*Frankenia salina*), coastal salt grass (*Distichlis spicata*), brass button (*Cotula coronopifolia*) and annual grasses typically found in less alkaline influenced soils such as rabbit's-foot grass (*Polypogon monspeliensis*), Italian rye grass (*Festuca perennis*), and seaside barley (*Hordeum marinum*).

The upland portions of the Study Area support mostly introduced annual grassland dominated by Italian rye grass, soft chess brome (*Bromus hordeaceus*), riggut brome (*Bromus diandrus*), and alkali ryegrass (*Elymus triticoides*). This habitat also supports a variety of flowering herbaceous plants such as butter-and-eggs (*Triphysaria eriantha ssp. eriantha*), valley tassels (*Castilleja attenuata*), miniature lupine (*Lupinus bicolor*), bur-clover (*Medicago polymorpha*), big heron bill (*Erodium botrys*), purple star-thistle (*Centaurea calcitrapa*) and common spikeweed (*Centromadia pungens*).

Refer to Appendix 2 for a complete list of plants observed during site visits and plant surveys over the last 20 years.

⁴ Aquatic resources named following the US Fish and Wildlife Service's Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979).

3.0 SURVEY METHODOLOGY

This section describes the methodology used for the 2021 protocol botanical surveys within the Study Area.

3.1 Special Status Plant and Habitat Surveys

3.1.1 Special-Status Plant Surveys

Surveys were performed on April 23, May 19, and June 18, 2021 in accordance with state and federal plant survey protocols (CDFG 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. A reference site and references to *Calflora Calphotos* and *Calflora What Plant Grows Here*, and the Jepson Herbarium Collection were viewed prior to and during the survey period. Plant inventory lists of species observed during plant surveys is also required. The description of the methodology below follows the requirements listed in the above-referenced 2018 CDFW survey methodology.

3.1.2 Special-Status Habitat Surveys

An aquatic resources delineation was conducted within the Study Area by HBG Senior Wetland Scientist, Robert Perrera, during July 15, and September 1-3, 2020; February 5, 2021, July 17, 2021, April 17-18, 2021, and April 23, 2021 following the methodology described in the Corps of Engineers' (Corps) 1987 *Wetlands Delineation Manual*; the Corps' 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*; supporting Corps and US EPA guidance documents. Robert Perrera also followed the State Water Resources Control Board (SWRCB) April 2, 2019 *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board, 2019) and current CDFW guidance regarding identification and delineation of lake and streambed boundaries to determine if the aquatic resources identified may also be subject to regulation by these two agencies.

3.1.3 Timing of Botanical Surveys

Both the USFWS and CDFW require two years of surveys to determine absence of ESA and CESA listed plant species. Survey protocol requires that botanical surveys be conducted at times of the year when plants are flowering or fruiting (i.e., when plants will be both evident and identifiable). Survey field visits are required to be spaced throughout the growing season to include early-, mid-, and late-season surveys to best capture the floristic diversity at a level to determine if special status plants are present. The timing of the 2021 protocol field surveys was based on consideration of both the blooming period for the special status species which were identified as having a potential to occur within the habitat type or types in the Study Area (see Appendix 5) and soil moisture conditions which allow for adequate plant growth.

3.1.4 Use of Existing Botanical Field Surveys

HBG reviewed the following reports prior to conducting the plant survey:

Huffman-Broadway Group, Inc. 2006. *Biological Assessment, Gentry-Suisun Project, City of Suisun City, Solano County, California*. January. San Rafael, California. Prepared for Tom Gentry California Company, Honolulu, HI. 83 pp. plus attachments.

Department of the Interior. US Fish and Wildlife Service. 2006. 50 CFR Part 17. RIN 1018–AU44. *Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the *Cirsium hydrophilum* var. *hydrophilum* (Suisun thistle) and *Cordylanthus mollis* ssp. *mollis* (soft bird’s-beak)*. Federal Register Vol. 71, No. 69, Tuesday, April 11, 2006, Proposed Rules. Page 18456.

Vollmar Consulting. 2003 (November 11). Special-Status Species Survey and Wetland Delineation Report for the Barnfield Property, Suisun, Solano County, California.

Vollmar Consulting. 2003 (January 27)). Final Wetland Delineation and Special-Status Species Survey Report for the Gentry and Tooby Properties, Suisun, Solano County, California.

Vollmar Consulting. 2005 (June 23). Gentry, Tooby and Barnfield Properties Special-Status Plant Survey Report 2000 – 2002, & 2005 Field Seasons.

The above reports provided useful information about the property, descriptions of plant communities and plant species present, and information regarding special status plant species and sensitive natural communities.

3.1.5 Botanical Survey References

References used during this survey are as follows:

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. *The Jepson Manual. Vascular Plants of California, Second Edition*, Thoroughly Revised and Expanded. University of California Press, Berkeley, California.

Calflora. 2021. *Calflora, the on-line gateway to information about native and introduced wild plants in California*. Internet database available at <http://calflora.org/> .

California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. March 20. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>

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California Department of Fish and Wildlife, 2020b. *California's Plants and Animals*. Habitat Conservation Planning Branch, California Department of Fish and Wildlife, Sacramento, California.

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California Native Plant Society, Rare Plant Program. 2021. *Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39)*. Website accessed February 2021.

<http://www.rareplants.cnps.org>.

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<https://www.ecfr.gov/cgi-bin/text-idx?node=pt33.3.328&rgn=div5>

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Publication No. FWS/OBS-79/31. US Fish and Wildlife Service, Office of Biological Services. Washington, DC.

<https://www.fws.gov/wetlands/documents/classwet/index.html>

Hartman, Adam. 2021. *U.S. Drought Monitor*. National Oceanic and Atmospheric Administration. Accessed July 2021. <https://droughtmonitor.unl.edu/About/ContactUs.aspx>

Holland, R. F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. State of California, The Resources Agency, Department of Fish and Game, Sacramento, California.

State Water Resources Control Board. 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Adopted April 2, 2019.

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Stuart, J. D., and J. O. Sawyer. 2001. *Trees and Shrubs of California*. California Natural History Guides. University of California Press, Berkeley, California. 467 pp.

United States Department of Agriculture, Natural Resources Conservation Service. 2021. Web Soil Survey (WSS). <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

University of California at Berkeley. 2020a. *Jepson Online Interchange for California Floristics. Jepson Flora Project.*

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3.2 HBG Botanical Field Surveyor and Surveyor Qualifications

HBG's botanical field surveys were conducted by Terry Huffman, PhD. Based on his 47 years of experience conducting botanical and wetland surveys, including 36 years conducting such surveys in California, Dr. Huffman meets the criteria required by the Survey Protocol (CDFW 2018). His resume is in Appendix 3. His qualifications and experience are explained in detail below.

3.2.1 Knowledge of Plant Taxonomy and Natural Community Ecology

Terry is a professionally trained botanist. He has a bachelor's degree in both Biology and Education from Henderson State University, Arkadelphia, Arkansas, and Master's (MS) and Doctorate (PhD) degrees in Botany from the University of Arkansas, Fayetteville. All three degrees included course work and research in the field of plant taxonomy. In addition to defending his doctoral thesis and prior to receiving his PhD, Terry was tested regarding his knowledge in five separate botanical disciplines – plant anatomy; plant physiology; phycology; plant ecology, and plant taxonomy. His research studies for both his MS and PhD theses focused on plant ecology studies related to wetland systems. His botanical training and research led to his development in 1976 of the definition of wetlands that is used by the Corps and USEPA in their Section 404 Clean Water Act Regulatory Program and the multiparameter approach methodology used to delineate the geographical extent of wetland boundaries (combined use of wetland vegetation, soil, and hydrology indicators), a methodology that was

peer reviewed by the National Academy of Sciences and has been in use throughout the United States since 1987 (Corps 1987 Delineation Methodology).

3.2.2 Familiarity with Plants of the Region, Including Special Status Plants

Terry was first introduced to the vegetation of the Bay Area in 1976 while working as a research botanist for the Corps. In 1981 he became a private biological consultant specializing in wetlands consulting. Over the years he has become familiar with California vegetation including both wetland and associated adjacent upland plant species. This familiarity includes frequently working with vegetation in Solano County. Consulting wetland scientist work in Solano County has resulted in Terry's familiarity with special status species such Contra Costa Goldfields and other species found within the area. Terry has become an avid California botanist and is a lifetime member of the Jepson Herbarium. He also teaches an annual workshop course on wetlands and other waters jurisdictional delineation methodology, which includes plant identification, and periodically takes Jepson workshop courses on various botanical subjects.

3.2.3 Familiarity with Natural Communities of the Region, Including Sensitive Natural Communities

Terry is familiar with the natural communities, including sensitive natural communities, of the region. Specific recent project experience in Solano County is discussed below. Dr. Huffman is the Land Manager of the Goldfields Conservation Bank, botanical surveys on the proposed Mallard Farms Conservation Bank, and multiple development projects within the Fairfield area. He is also a Solano Land Trust Director and teaches a Jepson Herbarium Workshop wetland identification and delineation course within the Rush Ranch and Suisun Marsh area.

3.2.4 Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards

Terry is familiar with the publicly accessible databases and reports associated with CDFW's CNDDDB and BIOS (and use of BIOS Viewer), and California Vegetation Classification and Mapping Standards. He utilizes information from these databases, on-line Calflora and the Jepson Herbarium in conducting botanical surveys and preparing biological assessment reports, including those surveys and impact studies for the local projects described below. An on-line generated USFWS species list (IPaC Trust Resources Report) was also referenced during this survey.

3.2.5 Experience Conducting Such Botanical Field Surveys under the Direction of an Experienced Botanical Field Surveyor

Terry has conducted botanical field surveys to develop plant lists, presence / absence determinations for special status species, and vegetation mapping since the early-1970s. Terry was trained to conduct floristic plant surveys by botanists Drs. Daniel Marsh and Elizabeth Brinkley, Henderson State University, Arkadelphia, Arkansas, and Drs. Delzie Demaree, Dwight M. Moore, Edward B. Smith, Gary E. Tucker, and Edward E. Dale, University of Arkansas, Fayetteville.

3.2.6 Experience Conducting Floristic Botanical Field Surveys as Described in This Document

Dr. Huffman began conducting plant surveys in the San Francisco Bay area in 1977 while working for the U.S. Army Corps of Engineers as an Army Officer and wetland research scientist, then settled in California in 1981, first in the San Diego area, and then moved in 1983 to the San Francisco Bay area where he began conducting floristic plant surveys as a private consultant.

With respect to regional experience in Solano County, Dr. Huffman has conducted botanical surveys on the proposed Mallard Farms Conservation Bank, the Goldfields Conservation Bank, Discovery Builders Permittee Responsible Mitigation Sites (Gibson Canyon Creek and Hay / Dally Roads), and the Burke Ranch Mitigation Bank site (Hay Road / Burke Lane).

3.2.7 Familiarity with Federal, State, and Local Statutes and Regulations Related to Plants and Plant Collecting

Having worked as a biologist within his consulting practice over 36 years, Terry is familiar with the federal Endangered Species Act; National Environmental Policy Act; California Endangered Species Act; Native Plant Protection Act; California Environmental Quality Act; Natural Community Conservation Planning Act; California Desert Native Plants Act; and tree protection ordinances within the County.

3.2.8 Experience Analyzing the Impacts of Projects on Native Plant Species and Sensitive Natural Communities

Terry has prepared or assisted in the preparation of ESA biological assessments and CEQA biological surveys that included assessment of potential project impacts on native plant species and sensitive natural communities. Recent regional experience includes impact assessments made in association with the plant surveys conducted in Solano County described Subsection 3.2.6, above.

3.3 Survey Preparation

Prior to conducting the field surveys the California Natural Diversity Data Base (CNDDDB), the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Study Area.

3.4 Special Status Plants with a Potential to Occur in the Region

A 10-mile radius CNDDDB search for special status plants documented as occurring within the vicinity of the Study Area is provided in Appendix 4. In addition, an informal on-line USFWS consultation was made using the IPaC Trust Resource Report System (<https://ecos.fws.gov/ipac/>) which generates lists of federal special status species using regional and watershed information but does not provide site specific information as compared to the CNDDDB.

The CNDDDB and USFWS database search indicates that federal ESA, state CESA listed species and CEQA special-status species have been documented to occur within a 10-mile radius of the

Study Area (Figure 8). Review of general and microhabitat site conditions indicate that several of these plant species have the potential to be present within the Study Area (Appendix 5).

3.5 Sensitive Natural Communities with a Potential to Occur in the Region

A Sensitive Natural Community is either unique or has relatively limited distribution in the region, or is of particularly high wildlife value, but may not necessarily contain special status species. Sensitive natural communities are typically identified in local or regional plans, state or federal agency policies and regulations, state, and federal data bases (i.e., CDFW (CNDDDB), and USFWS (IPaC Trust Resource Report System)). Sensitive natural communities within a 10-mile radius of the Study Area include Palustrine, Riverine, and Estuarine wetlands and deep water habitats.

3.6 Area Surveyed

Given the size of the Study Area it was divided into survey grid areas where Dr. Huffman conducted pedestrian surveys within each survey grid to allow for thorough visual ground observations to be made throughout the various plant communities within entire 481-acre Study Area (Figures 2 and 3).

3.7 Description of Reference Site

Reference site surveys were conducted at sites having known populations of endangered plant species prior to and concurrently within the Study Area. The purpose of the reference site surveys was to determine whether known local populations of the target species were flowering during the property survey period. For HBG's surveys, Terry Huffman used the Goldfields Conservation Bank located in Fairfield bound between Walters Road and Airbase Parkway, and known mapped sensitive species occurrences within the Study Area (Figure 9). The Jepson herbarium collection was also consulted.

3.8 Voucher Specimens

No voucher specimens were collected.

3.9 Survey Dates and Person-Hours

Protocol rare plant surveys within the Study Area were conducted by Terry Huffman, PhD, of Huffman-Broadway Group, Inc. in the spring and summer of 2021 during the flowering periods of target special status species when they would be identifiable. HBG botanist Dr. Huffman conducted three separate surveys on April 23, May 19, and June 18, 2021, spending a total of over 17 person hours on the surveys, including the reference site surveys described below.

4.0 RESULTS

4.1 Plant Species Observed

Appendix 2 is a list of plants observed by Huffman-Broadway Group, Inc., botanist Terry Huffman, PhD, during his 2021 surveys.

4.2 Special Status Plant and Sensitive Natural Community Observations

4.2.1 Special Status Plant Observations

Special Status Plant Species were found during the April 23, May 19, and June 18, 2021, botanical field surveys. The following plants were found in flower or their remnant plant parts following flowering were found in previously mapped area within the Study Area (Figure 9) on April 23, May 19, and June 18, 2021: Suisun Marsh aster (*Aster lentus*), Alkali milk-vetch (*Astragalus tener* var. *tener*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Contra Costa goldfields (*Lasthenia conjugens*), and Saline clover (*Trifolium depauperatum* var. *hydrophilum*). It should be noted that these same status plant species / plant populations were found in relatively the same locations during the biological survey work conducted by Vollmar Consulting during plant surveys conducted from 2003 and 2005. This provides indication that the special status species populations found within the Study Area are stable and self-sustaining and have not been adversely affected by the recent drought or changing climatic conditions. No organized form of conservation oriented land management exists within the Study Area.

4.2.2 Reference Site Observations

Contra Costa Goldfields was found in flower at the Goldfields Conservation Bank site on April 23, 2021. The following plants were found in flower or their remnant plant parts following flowering were found in previously mapped area within the Study Area (Figure 9) on April 23, May 19, and June 18, 2021: Suisun Marsh aster, Alkali milk-vetch, Delta tule pea, Contra Costa goldfields, and Saline clover.

4.2.3 Sensitive Natural Community Observations

The Palustrine, Riverine, and Estuarine wetlands found within the Study Area are potentially subject to both the Corps and USEPA regulatory jurisdiction under Section 404 of the Clean Water Act (Code of Federal Regulations, Title 33, Part 328) and the North Coast Regional Water Quality Control Board's (RWQCB) jurisdiction under their Section 401 CWA and Porter Cologne Act regulatory programs (State Water Resources Control Board, 2019). The drainage channels found onsite are considered stream habitats by the CDFW and are potentially subject to CDFW jurisdiction under their Lake and Streambed Alteration Agreement Program (*California Fish and Game Code §1601 – 1607*). The drainages are also potentially subject to RWQCB jurisdiction as Waters of the State. The above agencies consider these aquatic plant communities to be important in terms of providing ecological functions in terms of flood control, water storage, water quality improvement, conversion of toxic to nontoxic chemical constituents, carbon sequestration, wildlife habitat, and value to society.

4.3 Potential for a False Negative Botanical Field Survey

Some plant species may not produce seedlings for many years until conditions are appropriate, thus resulting in the potential for false negative plant survey results. Sites with suitable habitat for false negative surveys are those sites where flowering has not been observed during seasonal botanical surveys, but which may have viable seeds in the soil and additional biological, hydrological, and topographic attributes necessary to support the species.

Given extreme drought conditions present during the 2021 survey, there is the potential for a false negative biological survey. However, this is unlikely within the Palustrine, Riverine, and Estuarine wetland habitats given that (1) wetland field indicators observed on the land surface, as part of the aquatic resources survey, provided indication that the wetlands and excavated channel areas had saturated to wet soil conditions during the 2020-2021 rainy season; (2) flowering plants were observed within the reference site; (3) the extent and location of rare plants mapped in previous years was similar to this 2021 survey; and (4) underlying soils within upland grassland habitats within the Study area are poorly-drained and despite drought conditions it is unlikely that the special status plant species identified in Appendix 5 as occurring in this type of habitat would be significantly impacted by the drought given the poorly-drained soil conditions.

4.4 Potential Effect of Climatic Conditions on the Botanical Field Survey Results

The Study Area is in the Sacramento Valley geographic subregion of the California Floristic Province (Baldwin et al. 2012). This region is described as having a Mediterranean-type climate, characterized by distinct seasons of hot, dry summers and wet, moderately cold winters. The precipitation pattern has shifted in Solano County over the past several years ranging from extreme to exceptional drought conditions (Hartman, 2021). Overtime changing climatic patterns due to global warming may affect the soil moisture characteristics of the site, especially the small, shallow seasonal wetlands within the Study Area which are solely dependent on seasonal precipitation. However, based on our findings it does not appear the shifting climate patterns has adversely affected the extent and location of rare plants within the Study Area.

FIGURES

| | |
|-----------|---|
| Figure 1 | Study Area Location |
| Figure 2 | USGS Topographic Map |
| Figure 3 | Aerial Imagery |
| Figure 4 | Soils Map |
| Figure 5 | USGS NHD HUC 8 Map |
| Figure 6 | USGS NHD HUC 10 Map |
| Figure 7 | USGS NHD HUC 12 Map |
| Figure 8 | Study Area With 10-Mile Radius CNDDDB Plant Occurrences |
| Figure 9 | 2021 Special Status Plant Locations |
| Figure 10 | Aquatic Resource Delineation Map |
| Figure 11 | Primary and Secondary Suisun Marsh Management Areas |

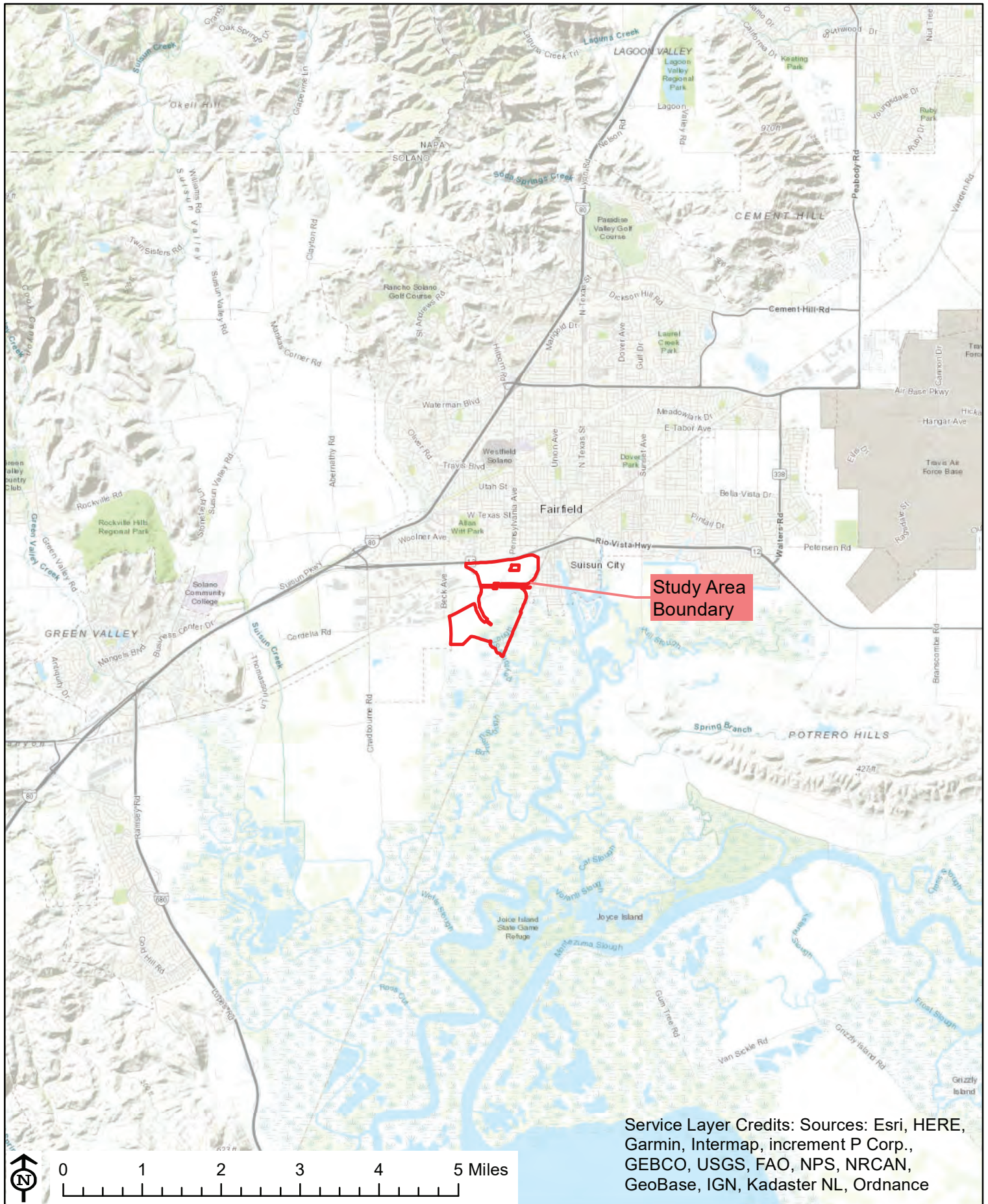


Figure 1. Study Area Location
 Highway 12 Logistics Center Project
 Solano County, California

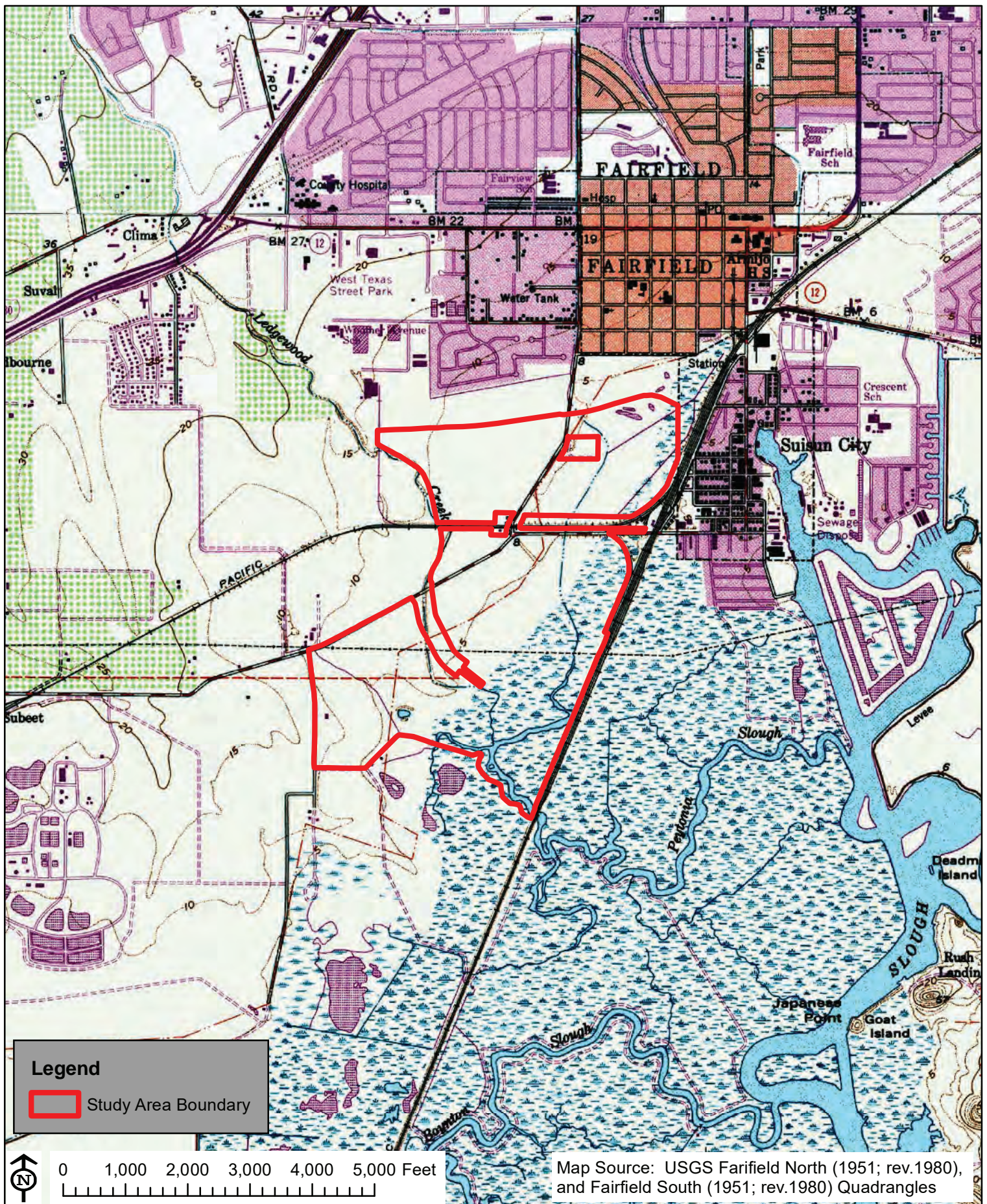



Figure 2. USGS Topographic Map

Highway 12 Logistics Center Project
Solano County, California



Legend

 Study Area Boundary

Aerial Imagery: 2019, Solano County

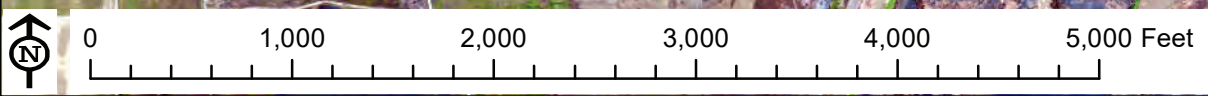


Figure 3. Aerial Imagery
Highway 12 Logistics Center Project
Solano County, California

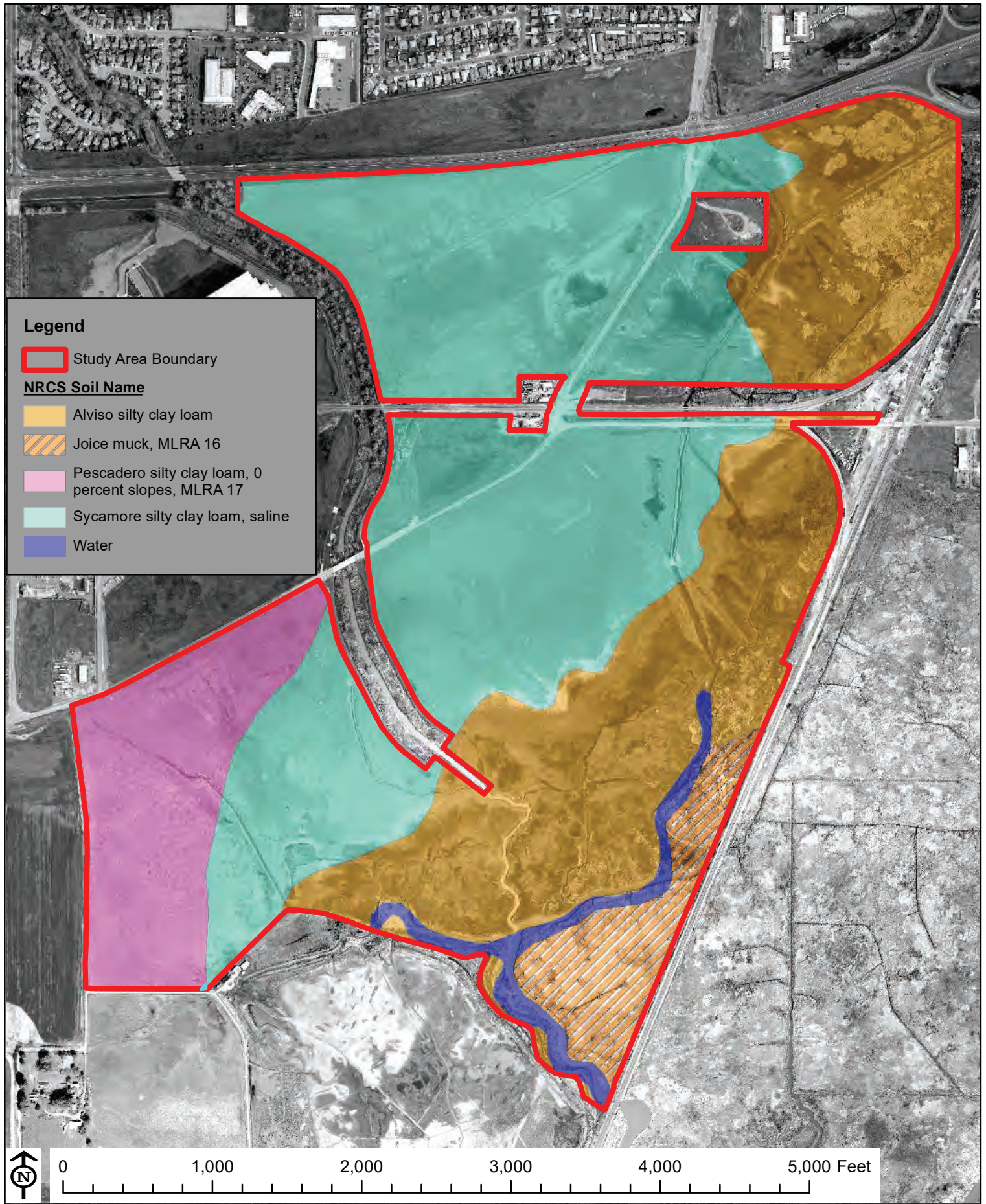


Figure 4. Soils Map

Highway 12 Logistics Center Project
 Solano County, California

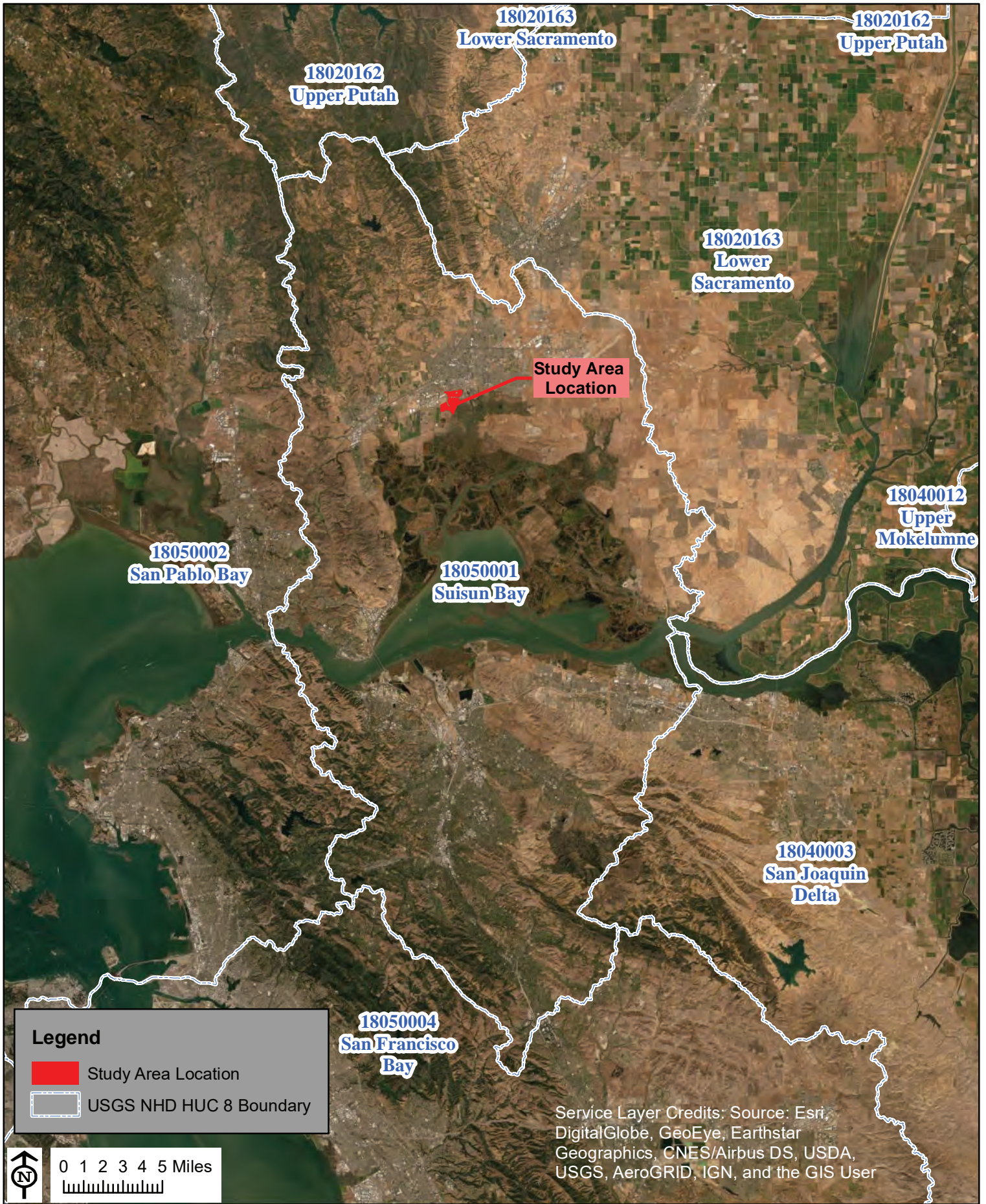


Figure 5. USGS NHD HUC 8 Map
 Highway 12 Logistics Center Project
 Solano County, California

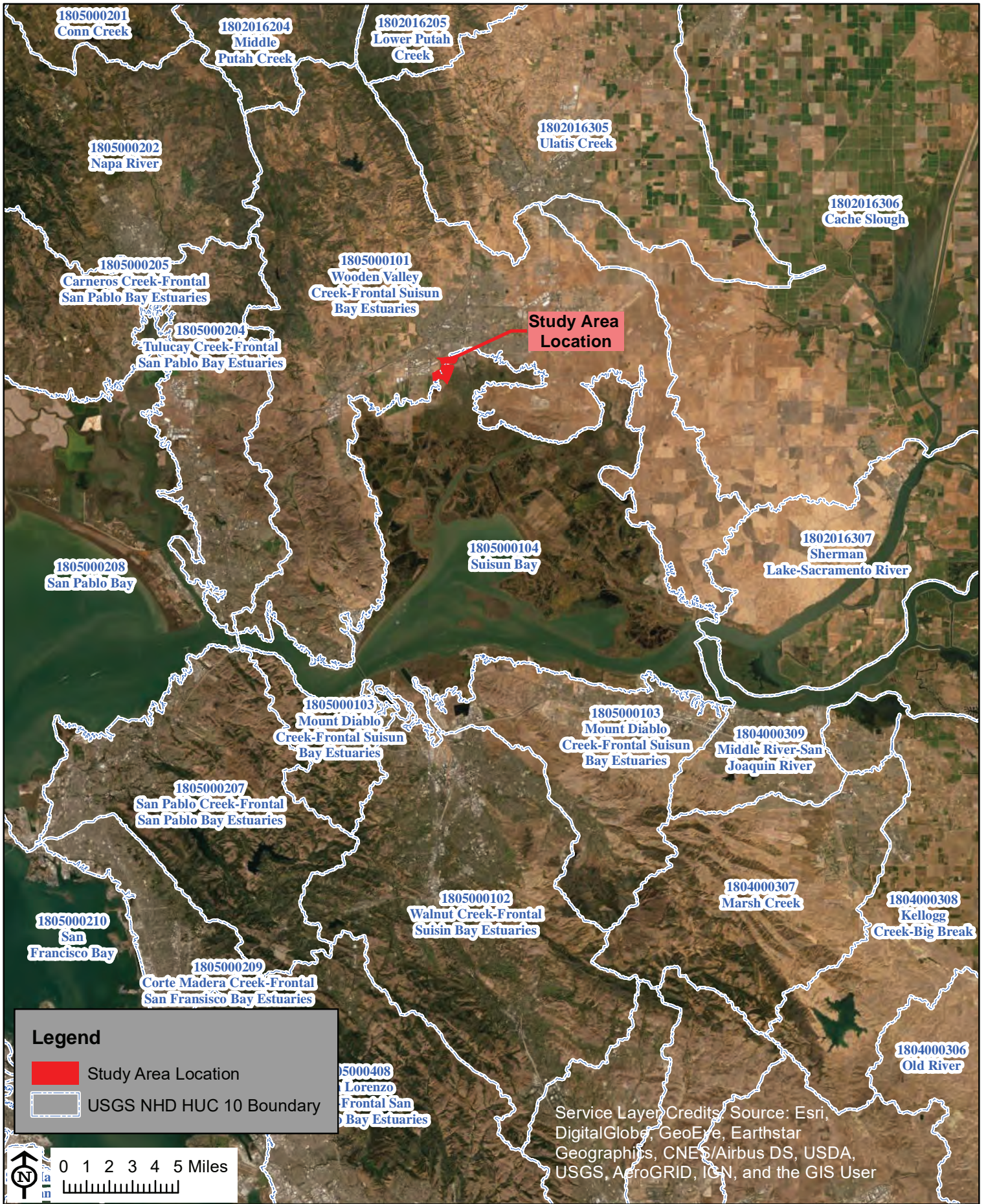


Figure 6. USGS NHD HUC 10 Map
 Highway 12 Logistics Center Project
 Solano County, California

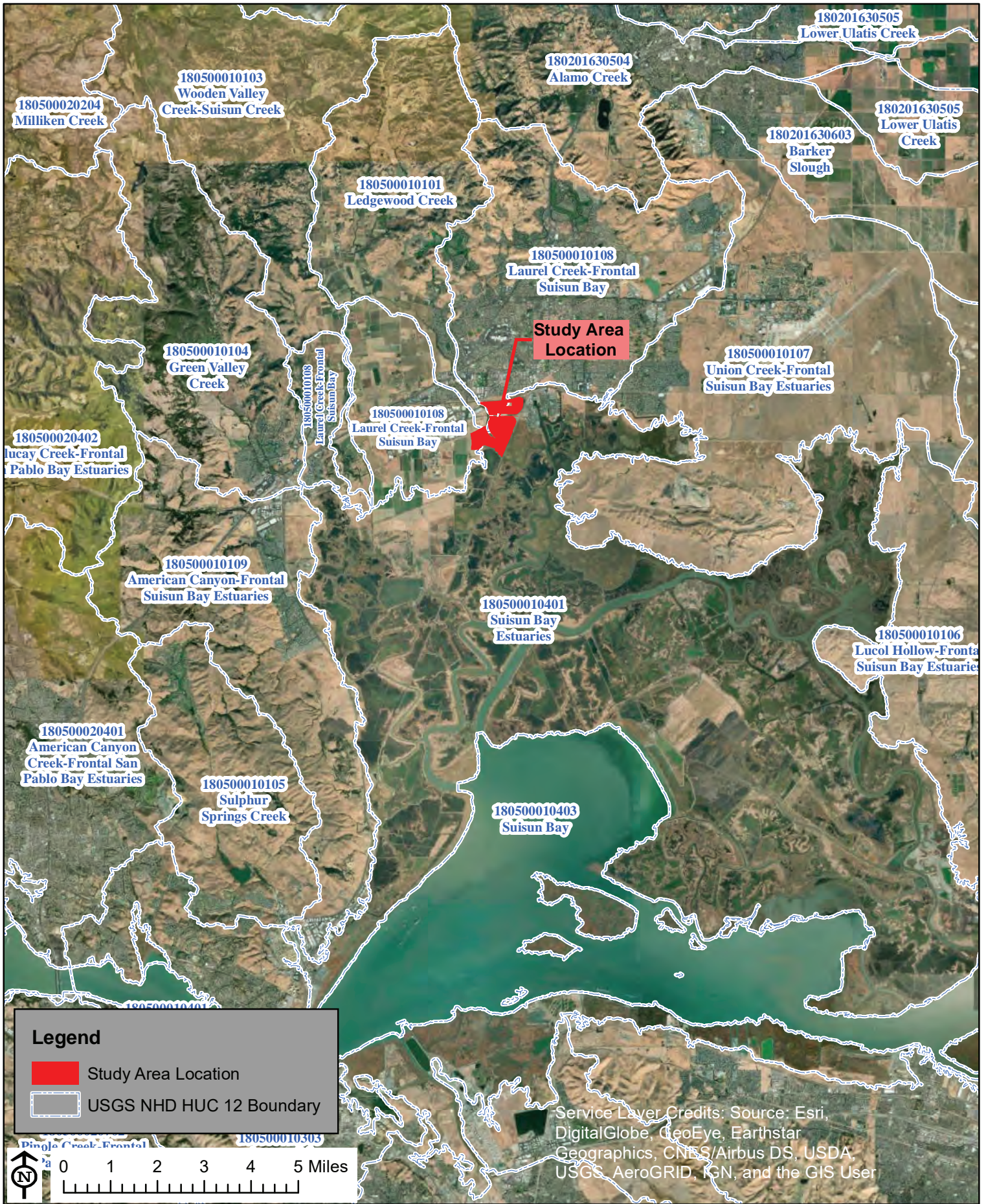


Figure 7. USGS NHD HUC 12 Map

Highway 12 Logistics Center Project
 Sonoma County, California

Legend

10 Mile Radius from Project Highway 12 Logistics Center Project

CNDDDB

Symbology

| | | |
|-----------------------|----------------------------------|--|
| Plant (80m) | Terrestrial Comm. (80m) | Multiple (80m) |
| Plant (specific) | Terrestrial Comm. (specific) | Multiple (specific) |
| Plant (non-specific) | Terrestrial Comm. (non-specific) | Multiple (non-specific) |
| Plant (circular) | Terrestrial Comm. (circular) | Multiple (circular) |
| Animal (80m) | Aquatic Comm. (80m) | Sensitive EO's (Commercial only) |
| Animal (specific) | Aquatic Comm. (specific) | Commercial EO Quads within 10 mile radius contain the following species: American peregrine falcon, California red-legged frog, California poppyflower, Plains Marsh Wren, prairie falcon, two-bark cover, western pond turtle. |
| Animal (non-specific) | Aquatic Comm. (non-specific) | |
| Animal (circular) | Aquatic Comm. (circular) | |

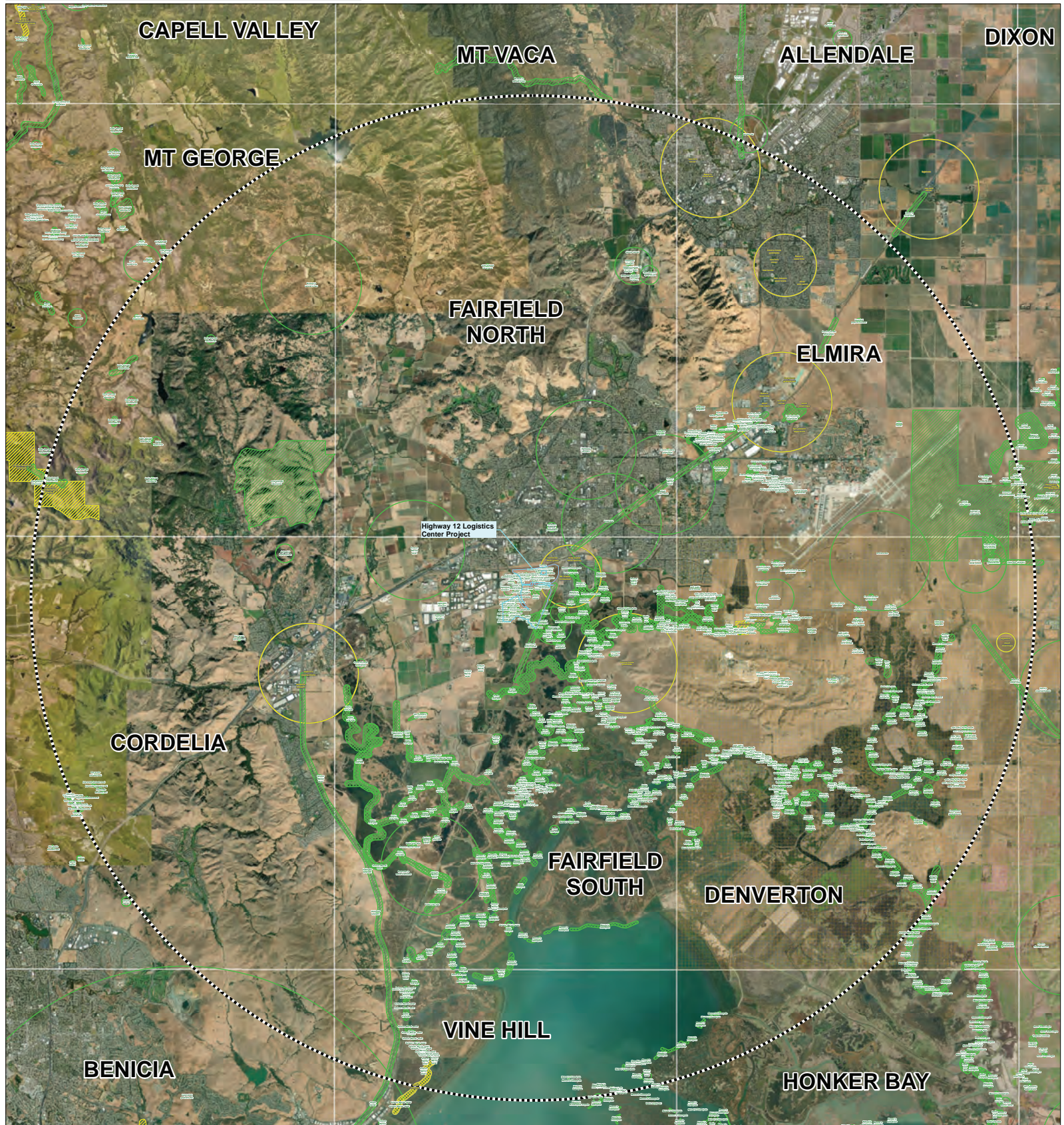
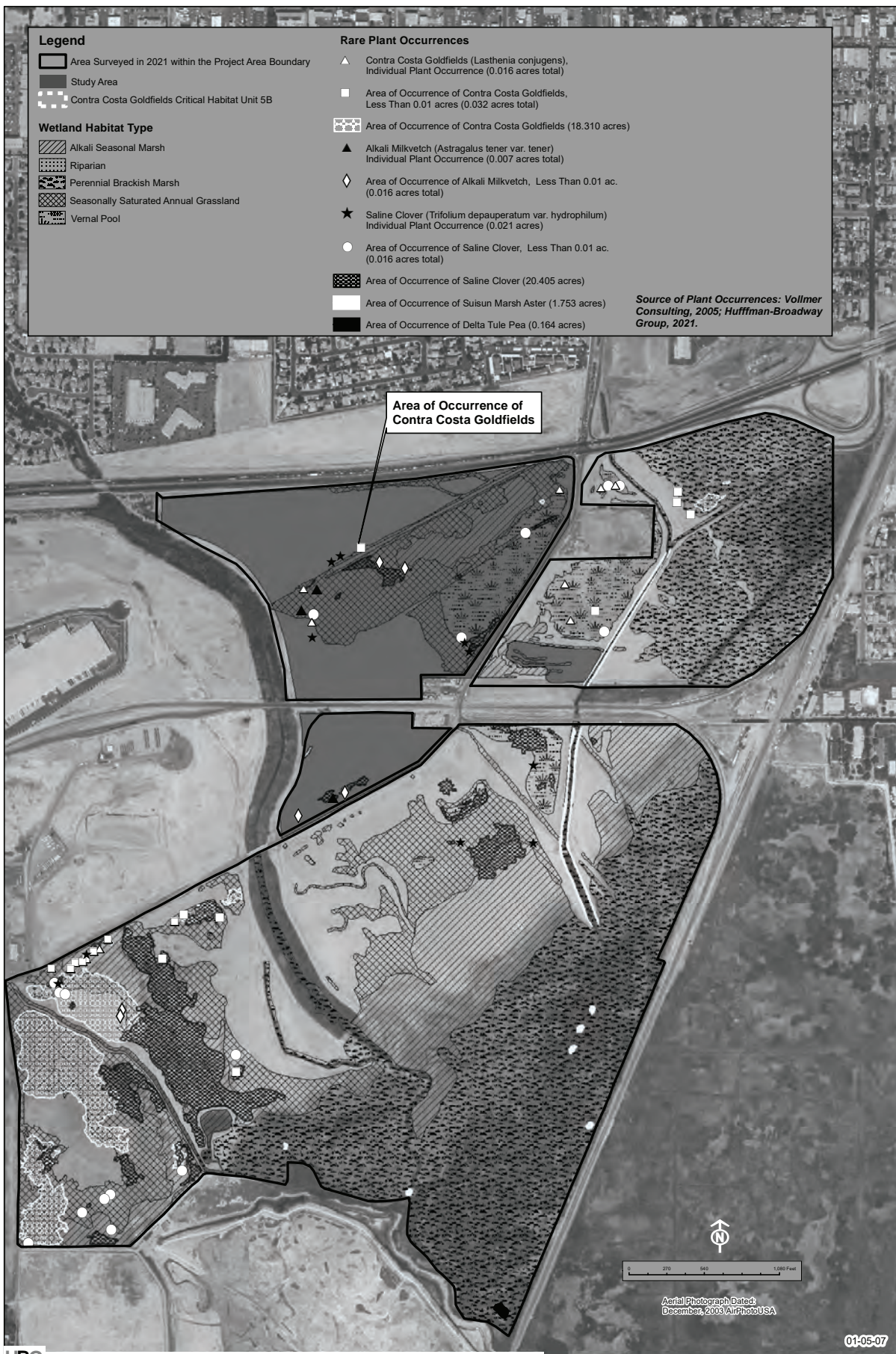


Figure 8. Study Area With 10-Mile Radius CNDDDB Plant Occurrences
 Highway 12 Logistics Center Project, Solano County, California

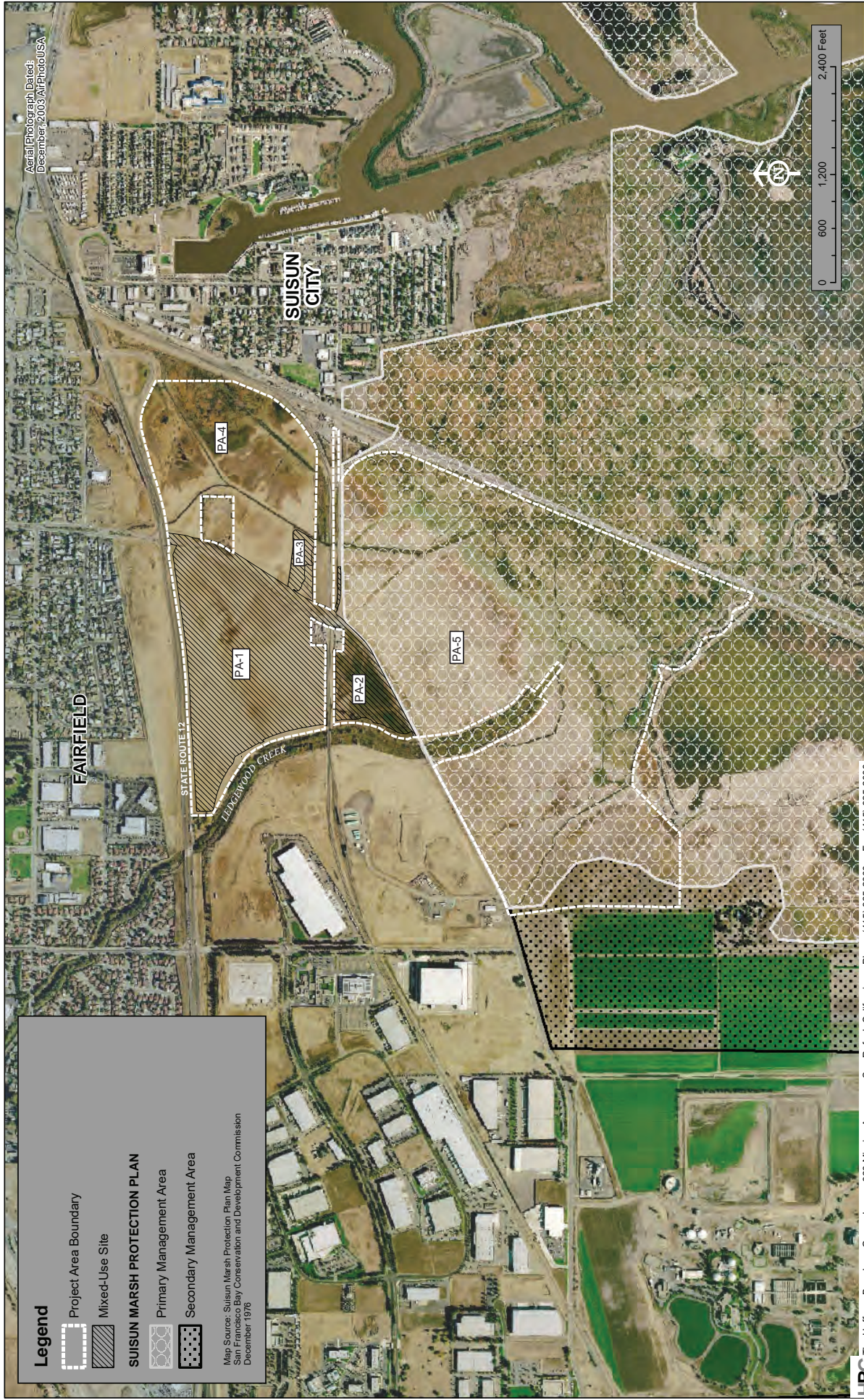


**Figure 9. 2021 Special Status Plant Locations
Highway 12 Logistics Center Project, Solano County, California**



Figure 10. Aquatic Resource Delineation Map

Highway 12 Logistics Center Project
Solano County, California



Aerial Photograph, Dated:
December 2003, AirPhotoUSA

Legend

Project Area Boundary

Mixed-Use Site

SUISUN MARSH PROTECTION PLAN

Primary Management Area

Secondary Management Area

Map Source: Suisun Marsh Protection Plan Map
San Francisco Bay Conservation and Development Commission
December 1976

HBG The Huffman-Broadway Group, Inc. · 828 Mission Avenue · San Rafael, California · Phone (415) 925-2000 · Fax (415) 925-2006

**Figure 11. Primary and Secondary Suisun Marsh Management Areas
Highway 12 Logistics Center Project, Solano County, California**

APPENDIX 1

**NRCS WETS Temperature and
Precipitation Data**

**Precipitation Data Summary, January 2020– December 2020,
and
Comparison with Normal Precipitation Range
WETS Station FAIRFIELD, CA
Gentry Logistics Project
Solano County, California**

| Month / Year | Total Precipitation (inches) | WETS Average precipitation for month (inches) 1971 – 2021 | WETS Normal precipitation range (inches)* 1971 – 2021 | Within WETS normal precipitation range? |
|---------------------|---|--|--|--|
| January 2020 | 1.56 | 4.53 | 1.66 - 5.46 | < Normal |
| February 2020 | 0.00 | 4.44 | 1.74 - 5.30 | < Normal |
| March 2020 | 1.84 | 3.39 | 1.50 - 4.14 | Normal |
| April 2020 | 0.83 | 1.32 | 0.47 - 1.59 | Normal |
| May 2020 | 0.71 | 0.58 | 0.13 - 0.52 | > Normal |
| June 2020 | 0.00 | 0.12 | 0.00 - 0.06 | Normal |
| July 2020 | 0.00 | 0.02 | 0.00 - 0.00 | Normal |
| August 2020 | 0.00 | 0.04 | 0.00 - 0.00 | Normal |
| September 2020 | 0.00 | 0.20 | 0.00 - 0.14 | Normal |
| October 2020 | 0.00 | 1.30 | 0.41 - 1.39 | < Normal |
| November 2020 | 1.35 | 2.77 | 1.17 - 3.37 | Normal |
| December 2020 | 2.03 | 4.56 | 1.95 - 5.48 | Normal |

All precipitation data from WETS Station Fairfield, CA.

* 30 percent chance precipitation will be less than the lower value or greater than the higher value.

M = Missing

WETS Table

WETS Station: FAIRFIELD,
CA

Requested years: 1971 -
2021

| Month | Avg Max Temp | Avg Min Temp | Avg Mean Temp | Avg Precip | 30% chance precip less than | 30% chance precip more than | Avg number days precip 0.10 or more | Avg Snowfall |
|---------|--------------|--------------|---------------|------------|-----------------------------|-----------------------------|-------------------------------------|--------------|
| Jan | 56.0 | 38.5 | 47.2 | 4.53 | 1.66 | 5.46 | 7 | 0.0 |
| Feb | 61.8 | 41.5 | 51.6 | 4.44 | 1.74 | 5.30 | 7 | 0.0 |
| Mar | 66.1 | 44.2 | 55.2 | 3.39 | 1.50 | 4.14 | 7 | 0.0 |
| Apr | 71.5 | 46.6 | 59.1 | 1.32 | 0.47 | 1.59 | 3 | 0.0 |
| May | 78.3 | 50.9 | 64.6 | 0.58 | 0.13 | 0.52 | 2 | 0.0 |
| Jun | 85.5 | 54.7 | 70.1 | 0.12 | 0.00 | 0.06 | 0 | 0.0 |
| Jul | 89.5 | 56.7 | 73.1 | 0.02 | 0.00 | 0.00 | 0 | 0.0 |
| Aug | 88.9 | 56.6 | 72.8 | 0.04 | 0.00 | 0.00 | 0 | 0.0 |
| Sep | 86.7 | 55.1 | 70.9 | 0.21 | 0.00 | 0.14 | 1 | 0.0 |
| Oct | 78.2 | 50.6 | 64.4 | 1.16 | 0.40 | 1.26 | 2 | 0.0 |
| Nov | 65.3 | 43.6 | 54.4 | 2.79 | 1.17 | 3.39 | 5 | 0.0 |
| Dec | 56.2 | 38.2 | 47.2 | 4.48 | 1.90 | 5.38 | 7 | 0.0 |
| Annual: | | | | | 18.38 | 27.13 | | |
| Average | 73.7 | 48.1 | 60.9 | - | - | - | - | - |
| Total | - | - | - | 23.07 | | | 41 | 0.0 |

GROWING SEASON DATES

| | | | |
|---------------------------|----------------|----------------|-------------------------|
| Years with missing data: | 24 deg = 12 | 28 deg = 14 | 32 deg = 8 |
| Years with no occurrence: | 24 deg = 36 | 28 deg = 20 | 32 deg = 4 |
| Data years used: | 24 deg = 39 | 28 deg = 37 | 32 deg = 43 |
| Probability | 24 F or higher | 28 F or higher | 32 F or higher |
| 50 percent * | No occurrence | No occurrence | 2/5 to 12/10: 308 days |
| 70 percent * | No occurrence | No occurrence | 1/21 to 12/26: 339 days |

* Percent chance of the growing season occurring between the Beginning and Ending dates.

| STATS TABLE - total precipitation (inches) | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Yr | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annl |
| 1950 | | | | | | | | | | | | M3.86 | 3.86 |
| 1951 | 3.40 | 2.10 | 2.19 | 0.98 | M0.83 | 0.00 | 0.00 | 0.00 | MT | M1.28 | 4.84 | 8.25 | 23.87 |
| 1952 | 9.00 | M1.31 | 2.68 | 0.77 | 0.27 | 0.40 | M0.00 | T | M0.00 | M0.00 | M2.08 | M7.79 | 24.30 |
| 1953 | 4.31 | T | M2.26 | M2.58 | M0.35 | M0.38 | 0.00 | 0.04 | M0.00 | M0.00 | M2.93 | 0.72 | 13.57 |
| 1954 | M3.02 | 2.94 | M2.76 | 1.97 | 0.17 | M0.00 | M0.00 | M0.00 | 0.00 | M0.00 | M0.00 | M4.96 | 15.82 |
| 1955 | 3.16 | M1.61 | 0.53 | 2.21 | 0.32 | M0.00 | M0.00 | 0.00 | 0.28 | M0.05 | 2.06 | 13.66 | 23.88 |
| 1956 | 7.89 | 2.11 | M0.32 | 1.10 | M0.08 | 0.04 | 0.00 | 0.00 | 0.55 | M0.41 | 0.12 | M0.33 | 12.95 |
| 1957 | M2.48 | 4.46 | M1.69 | 1.61 | M0.73 | 0.00 | M0.00 | M0.00 | M0.41 | 3.66 | 0.37 | 2.73 | 18.14 |

| | | | | | | | | | | | | | |
|------|-------|-------|-------|------|------|-------|------|------|------|-------|-------|-------|-------|
| 1958 | M4.22 | 9.55 | 6.02 | 4.33 | 0.64 | 0.33 | 0.15 | 0.07 | 0.04 | 0.13 | 0.08 | 1.10 | 26.66 |
| 1959 | 5.19 | 5.59 | 1.05 | 0.19 | T | 0.00 | 0.00 | T | 2.49 | 0.00 | T | 2.34 | 16.85 |
| 1960 | 3.11 | 4.79 | 2.21 | 1.05 | 0.74 | 0.00 | T | 0.00 | 0.00 | 0.13 | M3.01 | 1.55 | 16.59 |
| 1961 | 4.06 | 0.96 | 1.92 | 0.71 | 0.20 | 0.04 | 0.00 | 0.05 | 0.15 | M0.18 | 4.01 | 2.34 | 14.62 |
| 1962 | 0.80 | 6.25 | 3.05 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | T | 7.85 | 0.16 | 2.58 | 20.91 |
| 1963 | 5.32 | 2.67 | 3.59 | 5.49 | 0.45 | 0.09 | 0.00 | T | 0.40 | 1.77 | 2.80 | 0.48 | 23.06 |
| 1964 | 3.22 | 0.00 | 1.91 | 0.12 | 0.22 | 0.93 | 0.04 | 0.05 | 0.00 | 2.23 | 2.85 | 5.01 | 16.58 |
| 1965 | 4.34 | 0.00 | 1.35 | 2.94 | 0.12 | 0.00 | 0.00 | 0.43 | 0.00 | 0.00 | 4.94 | M2.63 | 16.75 |
| 1966 | 4.46 | 2.49 | 0.26 | 0.34 | 0.45 | 0.00 | 0.08 | 0.18 | 0.37 | 0.00 | 5.68 | 4.39 | 18.70 |
| 1967 | 9.90 | 0.31 | 4.17 | 4.78 | 0.12 | 1.45 | T | T | 0.05 | 0.36 | 1.36 | 1.75 | 24.25 |
| 1968 | 4.93 | 3.11 | 2.31 | 0.29 | 0.40 | 0.00 | 0.00 | 1.18 | 0.00 | 0.75 | 3.55 | 4.44 | 20.96 |
| 1969 | 9.80 | 7.04 | 1.95 | 1.25 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 2.12 | 0.46 | 6.16 | 28.88 |
| 1970 | 11.75 | 1.36 | 1.86 | 0.16 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.76 | 5.94 | 6.00 | 28.22 |
| 1971 | 1.86 | 0.26 | 2.72 | 0.22 | 0.69 | 0.00 | 0.00 | 0.00 | 0.15 | 0.06 | 2.20 | 4.16 | 12.32 |
| 1972 | 1.30 | 1.54 | 0.19 | 1.00 | 0.02 | 0.20 | 0.00 | 0.00 | 0.98 | 4.60 | 6.73 | 1.67 | 18.23 |
| 1973 | 11.54 | 5.62 | 2.71 | 0.19 | 0.14 | 0.00 | 0.00 | 0.00 | 0.35 | 1.66 | 7.20 | 4.73 | 34.14 |
| 1974 | 3.64 | 1.06 | 4.61 | 1.80 | 0.11 | 0.00 | 0.60 | 0.00 | 0.00 | 1.29 | 0.88 | 3.79 | 17.78 |
| 1975 | 1.16 | 7.03 | 5.58 | 1.13 | 0.07 | 0.10 | 0.06 | 0.14 | 0.03 | 3.50 | 0.44 | 0.30 | 19.54 |
| 1976 | 0.52 | 1.31 | 1.89 | 0.86 | 0.00 | 0.01 | 0.00 | 0.66 | | 0.33 | 1.02 | 1.26 | 7.86 |
| 1977 | 1.89 | 1.06 | 2.13 | 0.14 | 0.81 | T | 0.00 | 0.00 | 1.08 | 0.42 | 5.44 | 5.51 | 18.48 |
| 1978 | 9.73 | 5.25 | 5.12 | 2.02 | 0.05 | 0.05 | 0.00 | 0.00 | 0.23 | 0.00 | 1.67 | 0.84 | 24.96 |
| 1979 | 9.13 | 4.31 | 1.93 | 1.19 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 2.38 | 2.47 | 6.58 | 28.58 |
| 1980 | 6.94 | 10.33 | 3.58 | 1.24 | 0.34 | 0.01 | 0.13 | 0.00 | 0.00 | 0.20 | 0.08 | M2.67 | 25.52 |
| 1981 | M5.14 | 1.11 | 3.74 | 0.36 | 0.04 | 0.00 | 0.00 | 0.00 | 0.19 | 1.40 | 5.91 | 5.72 | 23.61 |
| 1982 | 8.12 | 3.82 | 6.14 | 5.05 | 0.00 | 0.01 | T | 0.00 | 1.11 | 2.79 | 4.32 | 2.51 | 33.87 |
| 1983 | 5.78 | 8.72 | 10.89 | 3.06 | 0.79 | M0.00 | 0.00 | 0.01 | 0.74 | 0.30 | 6.51 | 7.48 | 44.28 |
| 1984 | 0.30 | 1.49 | 1.17 | 0.80 | T | 0.08 | 0.00 | 0.17 | 0.10 | 1.96 | 6.52 | 1.26 | 13.85 |
| 1985 | 0.68 | 1.95 | 4.14 | 0.06 | 0.06 | 0.02 | 0.00 | 0.00 | 0.30 | 0.65 | 4.32 | 3.05 | 15.23 |
| 1986 | 4.57 | 11.30 | 5.61 | 0.99 | 0.19 | 0.00 | 0.00 | 0.00 | 1.09 | 0.38 | 0.10 | 1.14 | 25.37 |
| 1987 | 3.02 | 4.12 | 3.14 | 0.08 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.95 | 2.97 | 5.63 | 19.98 |
| 1988 | 5.62 | 0.39 | 0.26 | 1.49 | 0.68 | 0.36 | 0.00 | T | 0.00 | 0.17 | 3.86 | 3.93 | 16.76 |
| 1989 | 1.05 | 1.82 | 5.23 | 0.37 | 0.01 | 0.21 | 0.00 | 0.00 | 1.37 | 1.59 | 1.66 | 0.00 | 13.31 |
| 1990 | 4.26 | 2.44 | 0.80 | 0.24 | 3.25 | 0.00 | 0.00 | 0.00 | 0.26 | 0.23 | 0.35 | 1.00 | 12.83 |
| 1991 | 0.47 | 3.21 | 9.17 | 0.31 | 0.09 | 0.02 | 0.00 | 0.02 | 0.00 | 1.99 | 0.67 | 2.42 | 18.37 |

| | | | | | | | | | | | | | |
|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| 1992 | 2.18 | 7.09 | 4.14 | 0.63 | 0.00 | 0.49 | 0.00 | 0.00 | 0.00 | 0.317 | 0.26 | 9.55 | 27.51 |
| 1993 | 10.57 | 5.79 | 3.54 | M0.55 | M0.86 | M0.96 | 0.00 | 0.00 | 0.00 | 0.059 | 2.65 | 2.39 | 27.90 |
| 1994 | 2.71 | 4.48 | 0.14 | M1.19 | 1.26 | 0.00 | 0.00 | 0.00 | 0.02 | 0.28 | 5.30 | 4.49 | 19.87 |
| 1995 | 12.47 | 0.14 | 9.21 | 0.88 | 1.21 | 1.83 | 0.00 | 0.00 | 0.00 | 0.07 | 0.01 | 10.02 | 35.84 |
| 1996 | 8.65 | 8.34 | 2.32 | 2.18 | M3.03 | 0.00 | 0.00 | 0.00 | 0.00 | 1.61 | 3.58 | 11.67 | 41.38 |
| 1997 | 11.07 | 0.28 | 0.52 | 0.20 | M0.47 | 0.27 | 0.00 | 0.41 | 0.00 | 0.81 | 6.73 | 2.30 | 23.06 |
| 1998 | 8.95 | 14.71 | 2.35 | 2.30 | 3.29 | 0.00 | 0.00 | 0.00 | 0.34 | 0.71 | 4.29 | 1.57 | 38.51 |
| 1999 | 2.11 | 6.97 | 2.85 | 1.73 | 0.03 | 0.00 | 0.00 | 0.00 | 0.04 | 0.56 | 2.91 | 0.52 | 17.72 |
| 2000 | 5.98 | 11.25 | 2.87 | 1.29 | 0.98 | 0.17 | 0.00 | 0.00 | 0.08 | 2.54 | 1.15 | 1.13 | 27.44 |
| 2001 | 3.36 | 6.35 | 1.37 | 0.62 | 0.00 | 0.08 | 0.00 | 0.00 | 0.20 | 0.50 | 4.47 | 10.23 | 27.18 |
| 2002 | 3.10 | 1.37 | 1.95 | 0.10 | 1.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.80 | 13.86 | 25.51 |
| 2003 | 2.42 | 1.53 | 2.00 | 2.92 | 1.02 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 1.08 | 6.72 | 18.02 |
| 2004 | 2.84 | 7.68 | 0.91 | 0.16 | 0.05 | 0.00 | 0.00 | 0.00 | 0.04 | 2.30 | 3.30 | 6.66 | 23.94 |
| 2005 | 5.52 | 4.24 | 4.28 | 1.43 | 1.46 | 0.28 | 0.00 | 0.00 | 0.01 | 0.24 | 2.16 | 16.69 | 36.31 |
| 2006 | 4.13 | 4.02 | 8.87 | 4.96 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 2.55 | 3.41 | 28.66 |
| 2007 | 0.20 | 4.38 | 0.11 | 2.05 | 0.55 | 0.00 | 0.00 | 0.00 | 0.38 | 2.22 | 0.92 | 4.35 | 15.16 |
| 2008 | 7.80 | 3.96 | 0.46 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 2.67 | 2.87 | 18.26 |
| 2009 | 1.55 | 9.31 | 2.39 | 1.10 | 1.13 | 0.00 | 0.00 | 0.00 | 0.04 | 5.71 | 0.69 | 2.13 | 24.05 |
| 2010 | 8.29 | 4.14 | 1.66 | 3.43 | 0.98 | 0.00 | 0.00 | 0.00 | 0.03 | 2.38 | 2.50 | 7.13 | 30.54 |
| 2011 | 0.55 | 4.26 | 5.05 | 0.39 | 0.96 | 1.21 | 0.00 | 0.00 | 0.00 | 1.65 | 1.25 | 0.23 | 15.55 |
| 2012 | 0.55 | 1.04 | 6.77 | M2.31 | M0.04 | 0.03 | M0.00 | M0.00 | 0.00 | 1.48 | M4.75 | 7.73 | 24.70 |
| 2013 | 0.60 | M0.11 | 1.07 | 1.41 | M0.37 | M0.00 | M0.00 | M0.00 | M1.10 | M0.00 | M1.28 | 0.74 | 6.68 |
| 2014 | M0.26 | 9.58 | 2.66 | M2.39 | 0.00 | 0.00 | 0.00 | 0.05 | 0.82 | 0.78 | 2.29 | M10.44 | 29.27 |
| 2015 | 0.01 | 1.99 | 0.16 | 1.26 | 0.00 | 0.16 | 0.04 | 0.00 | M0.00 | 0.12 | 2.08 | 4.01 | 9.83 |
| 2016 | 9.25 | 0.59 | 6.92 | 0.59 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 2.65 | 2.29 | 5.12 | 27.76 |
| 2017 | 13.87 | 11.47 | 3.49 | 3.40 | 0.00 | 0.32 | 0.00 | 0.00 | 0.02 | 0.14 | 2.69 | 0.03 | 35.43 |
| 2018 | 3.43 | 0.32 | 4.79 | 3.32 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 4.52 | 2.87 | 19.36 |
| 2019 | 6.29 | 10.43 | 5.57 | 0.36 | 2.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | M0.57 | 7.37 | 33.42 |
| 2020 | 1.56 | 0.00 | 1.84 | 0.83 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.35 | 2.03 | 8.32 |
| 2021 | 4.02 | 2.55 | 1.91 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | 8.50 |

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2021-10-01

Climatological Data for FAIRFIELD, CA - January 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-01-01 | 64 | 41 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-02 | 64 | 42 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-03 | 57 | 35 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-04 | 61 | 43 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-01-05 | 61 | 44 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-06 | 56 | 40 | 48.0 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-07 | 56 | 34 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-08 | 56 | 34 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-09 | 53 | 46 | 49.5 | 10 | 0 | 0.42 | 0.0 | 0 |
| 2020-01-10 | 56 | 37 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-11 | 58 | 45 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-01-12 | 54 | 39 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-13 | 56 | 39 | 47.5 | 8 | 0 | 0.06 | 0.0 | 0 |
| 2020-01-14 | 55 | 43 | 49.0 | 9 | 0 | 0.18 | 0.0 | 0 |
| 2020-01-15 | 51 | 36 | 43.5 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-16 | 49 | 40 | 44.5 | 5 | 0 | 0.67 | 0.0 | 0 |
| 2020-01-17 | 50 | 37 | 43.5 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-18 | 55 | 35 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-19 | 49 | 37 | 43.0 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-20 | 52 | 36 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-21 | 54 | 42 | 48.0 | 8 | 0 | 0.21 | 0.0 | 0 |
| 2020-01-22 | 61 | 44 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-23 | 57 | 42 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-24 | 65 | 44 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-01-25 | 62 | 50 | 56.0 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2020-01-26 | 64 | 54 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-01-27 | 62 | 46 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-01-28 | 62 | 48 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-01-29 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-01-30 | 65 | 46 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-01-31 | 66 | 45 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| Average Sum | 58.1 | 41.6 | 49.8 | 313 | 65 | 1.56 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - February 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-02-01 | 65 | 44 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-02 | 58 | 48 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-02-03 | 55 | 35 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-02-04 | 58 | 40 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-02-05 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-06 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-07 | 66 | 38 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-02-08 | 63 | 40 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-02-09 | 63 | 50 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-02-10 | 76 | 54 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-02-11 | 77 | 51 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-02-12 | 70 | 40 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-13 | 60 | 42 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-14 | 65 | 40 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-02-15 | 66 | 43 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-16 | 68 | 47 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-17 | 73 | 45 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-02-18 | 67 | 48 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-19 | 67 | 42 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-20 | 67 | 41 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-02-21 | 74 | 45 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-02-22 | 67 | 47 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-02-23 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-02-24 | 76 | 41 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-02-25 | 77 | 48 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-02-26 | 73 | 43 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-27 | 76 | 46 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-02-28 | 74 | 48 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-02-29 | 66 | 47 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| Average Sum | 67.6 | 43.8 | 55.7 | 462 | 178 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - March 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-03-01 | 60 | 44 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-03-02 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-03-03 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-03-04 | 77 | 44 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-03-05 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-03-06 | 60 | 50 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-03-07 | 58 | 46 | 52.0 | 12 | 2 | 0.16 | 0.0 | 0 |
| 2020-03-08 | 58 | 38 | 48.0 | 8 | 0 | 0.02 | 0.0 | 0 |
| 2020-03-09 | 66 | 47 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-03-10 | 76 | 44 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-11 | 73 | 47 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-12 | 77 | 47 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-03-13 | 73 | 46 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-14 | 55 | 46 | 50.5 | 11 | 1 | 0.41 | 0.0 | 0 |
| 2020-03-15 | 54 | 44 | 49.0 | 9 | 0 | 0.51 | 0.0 | 0 |
| 2020-03-16 | 49 | 39 | 44.0 | 4 | 0 | 0.17 | 0.0 | 0 |
| 2020-03-17 | 57 | 41 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-03-18 | 55 | 45 | 50.0 | 10 | 0 | 0.05 | 0.0 | 0 |
| 2020-03-19 | 62 | 40 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-03-20 | 63 | 39 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-03-21 | 66 | 42 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-03-22 | 68 | 43 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-03-23 | 69 | 40 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-03-24 | 61 | 43 | 52.0 | 12 | 2 | 0.09 | 0.0 | 0 |
| 2020-03-25 | 58 | 37 | 47.5 | 8 | 0 | 0.12 | 0.0 | 0 |
| 2020-03-26 | 59 | 38 | 48.5 | 9 | 0 | 0.15 | 0.0 | 0 |
| 2020-03-27 | 61 | 37 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-03-28 | 57 | 43 | 50.0 | 10 | 0 | 0.06 | 0.0 | 0 |
| 2020-03-29 | 61 | 46 | 53.5 | 14 | 4 | 0.10 | 0.0 | 0 |
| 2020-03-30 | 65 | 47 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-03-31 | 70 | 50 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| Average Sum | 64.2 | 43.8 | 54.0 | 438 | 142 | 1.84 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - April 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-04-01 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-04-02 | 69 | 43 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-04-03 | 67 | 40 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-04-04 | 62 | 44 | 53.0 | 13 | 3 | 0.26 | 0.0 | 0 |
| 2020-04-05 | 55 | 48 | 51.5 | 12 | 2 | 0.52 | 0.0 | 0 |
| 2020-04-06 | 58 | 39 | 48.5 | 9 | 0 | 0.05 | 0.0 | 0 |
| 2020-04-07 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-04-08 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-04-09 | 62 | 52 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-04-10 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-04-11 | 66 | 49 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-04-12 | 71 | 51 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-04-13 | 76 | 49 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-04-14 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-15 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-16 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-04-17 | 64 | 51 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-04-18 | 66 | 53 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-19 | 66 | 46 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-04-20 | 67 | 52 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-21 | 75 | 45 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-22 | 82 | 49 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-23 | 83 | 57 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-04-24 | 88 | 65 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-04-25 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-04-26 | 82 | 55 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-04-27 | 83 | 54 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-04-28 | 87 | 58 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-04-29 | 77 | 56 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2020-04-30 | 78 | 53 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| Average Sum | 72.6 | 49.8 | 61.2 | 644 | 345 | 0.83 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - May 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-05-01 | 79 | 46 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-05-02 | 72 | 52 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-03 | 76 | 50 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-05-04 | 82 | 47 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-05 | 80 | 50 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-06 | 87 | 50 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-05-07 | 92 | 52 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-05-08 | 95 | 56 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-05-09 | M | 53 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-05-10 | 76 | 52 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-05-11 | 67 | 53 | 60.0 | 20 | 10 | 0.10 | 0.0 | 0 |
| 2020-05-12 | 68 | 54 | 61.0 | 21 | 11 | 0.12 | 0.0 | 0 |
| 2020-05-13 | 64 | 49 | 56.5 | 17 | 7 | 0.02 | 0.0 | 0 |
| 2020-05-14 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-05-15 | 79 | 51 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-16 | 77 | 55 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-05-17 | 73 | 58 | 65.5 | 26 | 16 | 0.28 | 0.0 | 0 |
| 2020-05-18 | 69 | 51 | 60.0 | 20 | 10 | 0.19 | 0.0 | 0 |
| 2020-05-19 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-20 | 76 | 48 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-21 | 82 | 53 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-05-22 | 79 | 51 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-23 | 87 | 53 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-05-24 | 92 | 53 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-05-25 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-05-26 | 101 | 64 | 82.5 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2020-05-27 | 99 | 67 | 83.0 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2020-05-28 | 96 | 58 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-05-29 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-05-30 | 77 | 61 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-05-31 | 76 | 56 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| Average Sum | 81.0 | 53.7 | 67.4 | 826 | 526 | 0.71 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - June 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-06-01 | 86 | 57 | 71.5 | 32 | 22 | 0.00 | M | M |
| 2020-06-02 | 95 | 61 | 78.0 | 38 | 28 | 0.00 | M | M |
| 2020-06-03 | 101 | 64 | 82.5 | 43 | 33 | 0.00 | M | M |
| 2020-06-04 | 100 | 61 | 80.5 | 41 | 31 | 0.00 | M | M |
| 2020-06-05 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | M | M |
| 2020-06-06 | M | 53 | M | M | M | 0.00 | M | M |
| 2020-06-07 | M | 52 | M | M | M | 0.00 | M | M |
| 2020-06-08 | 84 | 55 | 69.5 | 30 | 20 | 0.00 | M | M |
| 2020-06-09 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | M | M |
| 2020-06-10 | 96 | 58 | 77.0 | 37 | 27 | 0.00 | M | M |
| 2020-06-11 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | M | M |
| 2020-06-12 | 85 | 57 | 71.0 | 31 | 21 | 0.00 | M | M |
| 2020-06-13 | 76 | 54 | 65.0 | 25 | 15 | 0.00 | M | M |
| 2020-06-14 | 83 | 56 | 69.5 | 30 | 20 | 0.00 | M | M |
| 2020-06-15 | 82 | 59 | 70.5 | 31 | 21 | 0.00 | M | M |
| 2020-06-16 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | M | M |
| 2020-06-17 | 91 | 60 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-18 | 97 | 59 | 78.0 | 38 | 28 | 0.00 | M | M |
| 2020-06-19 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-20 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | M | M |
| 2020-06-21 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-22 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | M | M |
| 2020-06-23 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-24 | 93 | 58 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-25 | 91 | 59 | 75.0 | 35 | 25 | 0.00 | M | M |
| 2020-06-26 | 94 | 57 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-27 | M | 57 | M | M | M | 0.00 | M | M |
| 2020-06-28 | 79 | 55 | 67.0 | 27 | 17 | 0.00 | M | M |
| 2020-06-29 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | M | M |
| 2020-06-30 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | M | M |
| Average Sum | 90.0 | 57.5 | 73.9 | 924 | 654 | 0.00 | M | M |

Climatological Data for FAIRFIELD, CA - July 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-07-01 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-02 | M | 55 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-07-03 | 85 | 55 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-07-04 | 95 | 55 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-05 | 93 | 61 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-07-06 | 87 | 61 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-07-07 | 89 | 54 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-07-08 | 92 | 59 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-09 | 96 | 56 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-10 | 97 | 61 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-07-11 | 103 | 59 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-07-12 | 101 | 60 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-07-13 | 95 | 60 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-07-14 | 95 | 56 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-15 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-16 | 85 | 58 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-07-17 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-18 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-19 | M | 59 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-07-20 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-07-21 | 84 | 57 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-22 | 81 | 57 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-07-23 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-24 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-25 | 91 | 55 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-26 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-27 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-07-28 | 93 | 57 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-29 | 97 | 55 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-30 | 93 | 56 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-31 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| Average Sum | 90.4 | 57.2 | 73.8 | 988 | 698 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - August 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-08-01 | 92 | 59 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-02 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-08-03 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-04 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-05 | 78 | 57 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-08-06 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-07 | 89 | 58 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-08-08 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-09 | 97 | 61 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-10 | 92 | 62 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-08-11 | 83 | 60 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-12 | 96 | 57 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-08-13 | 101 | 60 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-08-14 | 106 | 72 | 89.0 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-15 | 107 | 73 | 90.0 | 50 | 40 | 0.00 | 0.0 | 0 |
| 2020-08-16 | 104 | 76 | 90.0 | 50 | 40 | 0.00 | 0.0 | 0 |
| 2020-08-17 | 103 | 74 | 88.5 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-18 | 105 | 72 | 88.5 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-19 | 102 | 71 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2020-08-20 | 96 | 61 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-21 | 99 | 61 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-08-22 | 99 | 63 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-08-23 | M | 62 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-08-24 | 90 | 62 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-25 | 91 | 69 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-08-26 | 88 | 62 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-08-27 | 85 | 58 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-28 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-08-29 | 90 | 56 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-30 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-31 | 89 | 56 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| Average Sum | 93.5 | 62.4 | 78.0 | 1146 | 846 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - September 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-09-01 | 82 | 59 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-02 | 83 | 59 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-03 | 86 | 57 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-04 | 96 | 56 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-09-05 | 103 | 67 | 85.0 | 45 | 35 | 0.00 | 0.0 | 0 |
| 2020-09-06 | 110 | 71 | 90.5 | 51 | 41 | 0.00 | 0.0 | 0 |
| 2020-09-07 | 111 | 73 | 92.0 | 52 | 42 | 0.00 | 0.0 | 0 |
| 2020-09-08 | 103 | 69 | 86.0 | 46 | 36 | 0.00 | 0.0 | 0 |
| 2020-09-09 | 83 | 64 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-10 | 74 | 56 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-09-11 | 87 | 54 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-12 | 92 | 57 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-09-13 | M | 56 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-09-14 | 83 | 53 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-09-15 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-16 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-17 | 88 | 59 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-18 | 80 | 60 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-09-19 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-20 | 91 | 60 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-09-21 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-09-22 | 84 | 59 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-23 | 87 | 58 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-09-24 | 86 | 60 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-09-25 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-26 | 91 | 62 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-09-27 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-09-28 | 101 | 75 | 88.0 | 48 | 38 | 0.00 | 0.0 | 0 |
| 2020-09-29 | 95 | 63 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-09-30 | 98 | 58 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| Average Sum | 90.9 | 60.3 | 75.6 | 1041 | 751 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - October 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-10-01 | 93 | 68 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-10-02 | 92 | 64 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-10-03 | 92 | 63 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-10-04 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-05 | 95 | 55 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-06 | 93 | 56 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-07 | 90 | 53 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-10-08 | 71 | 56 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-10-09 | 76 | 53 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-10-10 | 72 | 57 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-10-11 | 83 | 54 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-10-12 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-10-13 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-10-14 | 97 | 62 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-10-15 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-10-16 | 97 | 65 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-10-17 | 95 | 59 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-18 | 92 | 62 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-19 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-20 | 89 | 56 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-10-21 | 89 | 58 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-10-22 | 84 | 56 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-10-23 | 76 | 45 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-10-24 | 67 | 51 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-10-25 | 74 | 54 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-10-26 | 77 | 58 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-10-27 | 76 | 49 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-28 | 76 | 45 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-10-29 | 78 | 47 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-30 | 79 | 46 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-31 | 81 | 48 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| Average Sum | 85.2 | 55.9 | 70.5 | 957 | 647 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - November 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-11-01 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-11-02 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-11-03 | 78 | 49 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-11-04 | 78 | 49 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-11-05 | 82 | 52 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2020-11-06 | 69 | 52 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-11-07 | 63 | 43 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-11-08 | 59 | 43 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-09 | 61 | 40 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-10 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-11 | 59 | 49 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-12 | 63 | 35 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-11-13 | 59 | 45 | 52.0 | 12 | 2 | 0.53 | 0.0 | 0 |
| 2020-11-14 | 62 | 41 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-11-15 | 70 | 40 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-11-16 | 70 | 43 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-11-17 | 65 | 48 | 56.5 | 17 | 7 | 0.34 | 0.0 | 0 |
| 2020-11-18 | 64 | 48 | 56.0 | 16 | 6 | 0.48 | 0.0 | 0 |
| 2020-11-19 | 64 | 44 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-20 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-11-21 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-22 | 64 | 39 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-11-23 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-24 | 68 | 41 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-11-25 | 63 | 45 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-26 | 64 | 44 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-27 | 63 | 39 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-28 | 65 | 36 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-29 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-30 | 62 | 37 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| Average Sum | 66.7 | 43.2 | 55.0 | 456 | 157 | 1.35 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - December 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-12-01 | 65 | 40 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-12-02 | 66 | 37 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-03 | 65 | 38 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-04 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-12-05 | 64 | 39 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-06 | 65 | 41 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-12-07 | 74 | M | M | M | M | 0.00 | 0.0 | 0 |
| 2020-12-08 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-12-09 | 69 | 38 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-12-10 | 68 | 41 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-12-11 | 55 | 40 | 47.5 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-12 | 57 | 46 | 51.5 | 12 | 2 | 0.33 | 0.0 | 0 |
| 2020-12-13 | 55 | 45 | 50.0 | 10 | 0 | 0.92 | 0.0 | 0 |
| 2020-12-14 | 58 | 44 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-12-15 | 55 | 39 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-16 | 55 | 37 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-17 | 59 | 48 | 53.5 | 14 | 4 | 0.48 | 0.0 | 0 |
| 2020-12-18 | 61 | 38 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-19 | 58 | 34 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-20 | 60 | 36 | 48.0 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-21 | M | 32 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-12-22 | 59 | 32 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-23 | 54 | 31 | 42.5 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-24 | 55 | 36 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-25 | 53 | 39 | 46.0 | 6 | 0 | 0.07 | 0.0 | 0 |
| 2020-12-26 | 60 | 49 | 54.5 | 15 | 5 | 0.11 | 0.0 | 0 |
| 2020-12-27 | 57 | 41 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-28 | 56 | 45 | 50.5 | 11 | 1 | 0.08 | 0.0 | 0 |
| 2020-12-29 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-12-30 | 58 | 35 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-31 | 62 | 41 | 51.5 | 12 | 2 | 0.04 | 0.0 | 0 |
| Average Sum | 60.7 | 39.4 | 50.0 | 298 | 46 | 2.03 | 0.0 | 0.0 |

**Precipitation Data Summary, January 2021– December 2021,
and
Comparison with Normal Precipitation Range
WETS Station FAIRFIELD, CA
Gentry Logistics Project
Solano County, California**

| Month / Year | Total Precipitation (inches) | WETS Average precipitation for month (inches) 1971 – 2021 | WETS Normal precipitation range (inches)* 1971 – 2021 | Within WETS normal precipitation range? |
|---------------------|---|--|--|--|
| January 2021 | 4.02 | 4.53 | 1.66 - 5.46 | < Normal |
| February 2021 | 2.55 | 4.44 | 1.74 - 5.30 | < Normal |
| March 2021 | 1.91 | 3.39 | 1.50 - 4.14 | Normal |
| April 2021 | 0.02 | 1.32 | 0.47 - 1.59 | Normal |
| May 2021 | 0.00 | 0.58 | 0.13 - 0.52 | < Normal |
| June 2021 | 0.00 | 0.12 | 0.00 - 0.06 | Normal |
| July 2021 | 0.00 | 0.02 | 0.00 - 0.00 | Normal |
| August 2021 | 0.00 | 0.04 | 0.00 - 0.00 | Normal |
| September 2021 | 0.00 | 0.20 | 0.00 - 0.14 | Normal |
| October 2021 | 8.45 | 1.30 | 0.41 - 1.39 | > Normal |
| November 2021 | 1.86 | 2.77 | 1.17 - 3.37 | Normal |
| December 2021 | 8.89 | 4.56 | 1.95 - 5.48 | > Normal |

All precipitation data from WETS Station Fairfield, CA.

* 30 percent chance precipitation will be less than the lower value or greater than the higher value.

M = Missing

Climatological Data for FAIRFIELD, CA - January 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|-------------------|----------------|------------|
| 2021-01-01 | 64 | 5. | 37 8 | 7 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-02 | 64 | 5. | 37 8 | 7 | 0 | 0 0 . | 0 0 | 0 |
| 2021-01-05 | 40 | 35 | 61 8 | 12 | 2 | 0 0 0 | 0 0 | 0 |
| 2021-01-03 | 69 | 30 | 39 8 | 10 | 0 | 0 0 27 | 0 0 | 0 |
| 2021-01-06 | 69 | 59 | 39 8 | 9 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-04 | 66 | 30 | 37 8 | . | 0 | 0 0 7 | 0 0 | 0 |
| 2021-01-07 | 69 | 35 | 61 8 | 11 | 1 | 0 0 0 | 0 0 | 0 |
| 2021-01-0. | 43 | 32 | 65 8 | 15 | 5 | 0 0 0 | 0 0 | 0 |
| 2021-01-09 | 41 | 54 | 3. 8 | 9 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-10 | 63 | 57 | 36 8 | 4 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-11 | 69 | 50 | 33 8 | 6 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-12 | 40 | 35 | 61 8 | 12 | 2 | 0 0 0 | 0 0 | 0 |
| 2021-01-15 | 44 | 3. | 67 8 | 17 | 7 | 0 0 0 | 0 0 | 0 |
| 2021-01-13 | 44 | 34 | 64 8 | 14 | 4 | 0 0 0 | 0 0 | 0 |
| 2021-01-16 | 44 | 30 | 65 8 | 15 | 5 | 0 0 0 | 0 0 | 0 |
| 2021-01-14 | 75 | 34 | 69 8 | 20 | 10 | 0 0 0 | 0 0 | 0 |
| 2021-01-17 | 72 | 37 | 69 8 | 20 | 10 | 0 0 0 | 0 0 | 0 |
| 2021-01-1. | 7. | 62 | 46 8 | 26 | 16 | 0 0 0 | 0 0 | 0 |
| 2021-01-19 | 71 | 65 | 42 8 | 22 | 12 | 0 0 0 | 0 0 | 0 |
| 2021-01-20 | 4. | 36 | 64 8 | 17 | 7 | 0 0 0 | 0 0 | 0 |
| 2021-01-21 | 45 | 5. | 60 8 | 11 | 1 | 0 0 0 | 0 0 | 0 |
| 2021-01-22 | 63 | 35 | 3. 8 | 9 | 0 | 0 0 3 | 0 0 | 0 |
| 2021-01-25 | 69 | 59 | 39 8 | 9 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-23 | 64 | 5. | 37 8 | 7 | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-26 | 66 | 30 | 37 8 | . | 0 | 0 0 0 | 0 0 | 0 |
| 2021-01-24 | 61 | 50 | 30 8 | 1 | 0 | 0 0 2 | 0 0 | 0 |
| 2021-01-27 | 39 | 31 | 36 8 | 6 | 0 | 1 0 0 | 0 0 | 0 |
| 2021-01-2. | 65 | 33 | 3. 8 | 9 | 0 | 0 0 7 | 0 0 | 0 |
| 2021-01-29 | 66 | 33 | 39 8 | 10 | 0 | 0 0 27 | 0 0 | 0 |
| 2021-01-50 | 69 | 32 | 60 8 | 11 | 1 | 0 0 0 | 0 0 | 0 |
| 2021-01-51 | 43 | 36 | 63 8 | 16 | 6 | 0 0 0 | 0 0 | 0 |
| Average Sum | 60.6 | 41.6 | 51.1 | 354 | 85 | 4.02 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - February 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-02-01 | 63 | 43 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-02 | 62 | 52 | 57.0 | 17 | 7 | 0.44 | 0.0 | 0 |
| 2021-02-03 | 56 | 39 | 47.5 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2021-02-04 | 67 | 39 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-05 | 67 | 41 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-06 | 67 | 40 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-07 | 63 | 40 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-02-08 | 64 | 50 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-09 | 66 | 44 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-02-10 | 66 | 44 | 55.0 | 15 | 5 | 0.62 | 0.0 | 0 |
| 2021-02-11 | M | M | M | M | M | 0.62 | 0.0 | 0 |
| 2021-02-12 | M | M | M | M | M | 0.32 | 0.0 | 0 |
| 2021-02-13 | 64 | 50 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-14 | 64 | M | M | M | M | 0.05 | 0.0 | 0 |
| 2021-02-15 | 61 | 47 | 54.0 | 14 | 4 | 0.35 | 0.0 | 0 |
| 2021-02-16 | 61 | 40 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-02-17 | 63 | 42 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-18 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-02-19 | 60 | 47 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-20 | 60 | 41 | 50.5 | 11 | 1 | 0.15 | 0.0 | 0 |
| 2021-02-21 | 68 | 45 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-22 | 69 | 45 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-23 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-02-24 | 70 | 48 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-02-25 | 68 | 44 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-02-26 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-27 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-28 | 66 | 43 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| Average Sum | 65.1 | 43.6 | 54.4 | 364 | 116 | 2.55 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - March 2023

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2023-01-03 | 64 | 15 | .27 | 31 | 1 | 0.00 | 0.0 | 0 |
| 2023-01-02 | 43 | 93 | .60 | 36 | 6 | 0.00 | 0.0 | 0 |
| 2023-01-01 | 64 | 99 | .7 | 36 | 6 | 0.00 | 0.0 | 0 |
| 2023-01-09 | 62 | 18 | .07 | 33 | 3 | 0.00 | 0.0 | 0 |
| 2023-01-0. | 64 | 18 | .10 | 31 | 1 | 0.00 | 0.0 | 0 |
| 2023-01-06 | 61 | 18 | .30 | 33 | 3 | 0.39 | 0.0 | 0 |
| 2023-01-04 | 66 | 18 | .27 | 31 | 1 | 0.00 | 0.0 | 0 |
| 2023-01-05 | .5 | 91 | .07 | 33 | 3 | 0.00 | 0.0 | 0 |
| 2023-01-08 | .4 | 92 | .987 | 30 | 0 | 0.31 | 0.0 | 0 |
| 2023-01-30 | .6 | 92 | .980 | 8 | 0 | 0.16 | 0.0 | 0 |
| 2023-01-33 | 60 | 18 | .987 | 30 | 0 | 0.02 | 0.0 | 0 |
| 2023-01-32 | 68 | 18 | .90 | 39 | 9 | 0.00 | 0.0 | 0 |
| 2023-01-31 | 68 | 18 | .90 | 39 | 9 | 0.00 | 0.0 | 0 |
| 2023-01-39 | 68 | 18 | .90 | 39 | 9 | 0.31 | 0.0 | 0 |
| 2023-01-3. | .1 | 90 | .967 | 4 | 0 | 0.22 | 0.0 | 0 |
| 2023-01-36 | 63 | 1. | .950 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2023-01-34 | .4 | 14 | .940 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2023-01-35 | .9 | 94 | .07 | 33 | 3 | 0.66 | 0.0 | 0 |
| 2023-01-38 | M | M | M | M | M | 0.2. | 0.0 | 0 |
| 2023-01-20 | 69 | 91 | .17 | 39 | 9 | 0.00 | 0.0 | 0 |
| 2023-01-23 | 68 | 99 | .67 | 34 | 4 | 0.00 | 0.0 | 0 |
| 2023-01-22 | 64 | 92 | .97 | 3. | . | 0.00 | 0.0 | 0 |
| 2023-01-21 | 66 | 98 | .47 | 35 | 5 | 0.00 | 0.0 | 0 |
| 2023-01-29 | 42 | 98 | .607 | 23 | 33 | 0.00 | 0.0 | 0 |
| 2023-01-2. | 64 | 96 | .67 | 34 | 4 | 0.00 | 0.0 | 0 |
| 2023-01-26 | 49 | 94 | .607 | 23 | 33 | 0.00 | 0.0 | 0 |
| 2023-01-24 | 44 | 99 | .607 | 23 | 33 | 0.00 | 0.0 | 0 |
| 2023-01-25 | 48 | 99 | .637 | 22 | 32 | 0.00 | 0.0 | 0 |
| 2023-01-28 | 44 | 9. | .630 | 23 | 33 | 0.00 | 0.0 | 0 |
| 2023-01-10 | 44 | 9. | .630 | 23 | 33 | 0.00 | 0.0 | 0 |
| 2023-01-13 | 50 | 94 | .617 | 29 | 39 | 0.00 | 0.0 | 0 |
| Average Sum | 66.5 | 42.2 | 54.4 | 440 | 149 | 1.91 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - April 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-04-01 | 85 | 49 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-04-02 | 85 | 48 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-04-03 | 71 | 46 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-04 | M | 45 | M | M | M | 0.00 | 0.0 | 0 |
| 2021-04-05 | 65 | 46 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-04-06 | 72 | 44 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-07 | 68 | 46 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-04-08 | 74 | 42 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-09 | 71 | 46 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-10 | 75 | 43 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-11 | 80 | 46 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-04-12 | 80 | 44 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-13 | 76 | 47 | 61.5 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-14 | 71 | 43 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-04-15 | 73 | 42 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-16 | 75 | 42 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-17 | 86 | 45 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-04-18 | 89 | 48 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-04-19 | 80 | 52 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-04-20 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-21 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-22 | 73 | 49 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-04-23 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-04-24 | 71 | 49 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-04-25 | 62 | 50 | 56.0 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2021-04-26 | 66 | 39 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-04-27 | 79 | 49 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-04-28 | 86 | 49 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-04-29 | 88 | 52 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-04-30 | 82 | 52 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| Average Sum | 752 | 462 | 682 | 616 | 336 | 021 | 02 | 02 |

Climatological Data for FAIRFIELD, CA - May 2025

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2025-01-05 | 79 | 10 | 46.0 | 26 | 56 | 0.00 | 0.0 | 0 |
| 2025-01-02 | 91 | 15 | 49.0 | 29 | 59 | 0.00 | 0.0 | 0 |
| 2025-01-03 | 85 | 19 | 76.1 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2025-01-06 | 80 | 18 | 76.1 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2025-01-01 | 82 | 11 | 73.1 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2025-01-04 | 95 | 10 | 41.1 | 24 | 54 | 0.00 | 0.0 | 0 |
| 2025-01-07 | 79 | 15 | 46.1 | 21 | 51 | 0.00 | 0.0 | 0 |
| 2025-01-09 | 98 | 40 | 76.1 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2025-01-08 | 99 | 19 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2025-01-50 | 83 | 16 | 73.1 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2025-01-55 | 82 | 11 | 73.1 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2025-01-52 | 98 | 13 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2025-01-53 | 93 | 68 | 44.0 | 24 | 54 | 0.00 | 0.0 | 0 |
| 2025-01-56 | 74 | 10 | 43.0 | 23 | 53 | 0.00 | 0.0 | 0 |
| 2025-01-51 | 48 | 15 | 40.0 | 20 | 50 | 0.00 | 0.0 | 0 |
| 2025-01-54 | 48 | 15 | 40.0 | 20 | 50 | 0.00 | 0.0 | 0 |
| 2025-01-57 | 75 | 68 | 40.0 | 20 | 50 | 0.00 | 0.0 | 0 |
| 2025-01-59 | 95 | 10 | 41.1 | 24 | 54 | 0.00 | 0.0 | 0 |
| 2025-01-58 | 76 | 69 | 45.0 | 25 | 55 | 0.00 | 0.0 | 0 |
| 2025-01-20 | 75 | 10 | 40.1 | 25 | 55 | 0.00 | 0.0 | 0 |
| 2025-01-25 | 71 | 13 | 46.0 | 26 | 56 | 0.00 | 0.0 | 0 |
| 2025-01-22 | 74 | 67 | 45.1 | 22 | 52 | 0.00 | 0.0 | 0 |
| 2025-01-23 | 71 | 10 | 42.1 | 23 | 53 | 0.00 | 0.0 | 0 |
| 2025-01-26 | 96 | 12 | 49.0 | 29 | 59 | 0.00 | 0.0 | 0 |
| 2025-01-21 | 90 | 18 | 48.1 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2025-01-24 | 94 | 12 | 48.0 | 28 | 58 | 0.00 | 0.0 | 0 |
| 2025-01-27 | 93 | 15 | 47.0 | 27 | 57 | 0.00 | 0.0 | 0 |
| 2025-01-29 | 93 | 14 | 48.1 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2025-01-28 | 78 | 12 | 41.1 | 24 | 54 | 0.00 | 0.0 | 0 |
| 2025-01-30 | 83 | 15 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2025-01-35 | 500 | 19 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| Average Sum | 82.4 | 52.7 | 67.5 | 861 | 551 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - June 2026

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2026-01-06 | 81 | 15 | 78.3 | 10 | 50 | 0.00 | 0.0 | 0 |
| 2026-01-02 | 99 | 35 | 70.3 | 56 | 26 | 0.00 | 0.0 | 0 |
| 2026-01-05 | 82 | 33 | 75.3 | 5M | 2M | 0.00 | 0.0 | 0 |
| 2026-01-0M | 99 | 38 | 75.3 | 5M | 2M | 0.00 | 0.0 | 0 |
| 2026-01-03 | 99 | 33 | 76.3 | 52 | 22 | 0.00 | 0.0 | 0 |
| 2026-01-01 | 9M | 31 | 70.0 | 50 | 20 | 0.00 | 0.0 | 0 |
| 2026-01-07 | 90 | 35 | 11.3 | 27 | 67 | 0.00 | 0.0 | 0 |
| 2026-01-09 | 76 | 30 | 10.3 | 26 | 66 | 0.00 | 0.0 | 0 |
| 2026-01-08 | 4 | 15 | 4 | 4 | 4 | 0.00 | 0.0 | 0 |
| 2026-01-60 | 71 | M | 16.0 | 26 | 66 | 0.00 | 0.0 | 0 |
| 2026-01-66 | 78 | 32 | 13.3 | 21 | 61 | 0.00 | 0.0 | 0 |
| 2026-01-62 | 98 | 32 | 70.3 | 56 | 26 | 0.00 | 0.0 | 0 |
| 2026-01-65 | 9M | 10 | 72.0 | 52 | 22 | 0.00 | 0.0 | 0 |
| 2026-01-6M | 96 | 15 | 72.0 | 52 | 22 | 0.00 | 0.0 | 0 |
| 2026-01-63 | 99 | 32 | 70.0 | 50 | 20 | 0.00 | 0.0 | 0 |
| 2026-01-61 | 89 | 10 | 78.0 | 58 | 28 | 0.00 | 0.0 | 0 |
| 2026-01-67 | 607 | 13 | 91.0 | M | 51 | 0.00 | 0.0 | 0 |
| 2026-01-69 | 607 | 17 | 97.0 | M | 57 | 0.00 | 0.0 | 0 |
| 2026-01-68 | 83 | 1M | 78.3 | 10 | 50 | 0.00 | 0.0 | 0 |
| 2026-01-20 | 8M | 37 | 73.3 | 51 | 21 | 0.00 | 0.0 | 0 |
| 2026-01-26 | 91 | 37 | 76.3 | 52 | 22 | 0.00 | 0.0 | 0 |
| 2026-01-22 | 78 | 39 | 19.3 | 28 | 68 | 0.00 | 0.0 | 0 |
| 2026-01-25 | 92 | 37 | 18.3 | 50 | 20 | 0.00 | 0.0 | 0 |
| 2026-01-2M | 95 | 31 | 18.3 | 50 | 20 | 0.00 | 0.0 | 0 |
| 2026-01-23 | 98 | 33 | 72.0 | 52 | 22 | 0.00 | 0.0 | 0 |
| 2026-01-21 | 85 | 31 | 7M3 | 53 | 23 | 0.00 | 0.0 | 0 |
| 2026-01-27 | 98 | 37 | 75.0 | 55 | 25 | 0.00 | 0.0 | 0 |
| 2026-01-29 | 99 | 39 | 75.0 | 55 | 25 | 0.00 | 0.0 | 0 |
| 2026-01-28 | 82 | 10 | 71.0 | 51 | 21 | 0.00 | 0.0 | 0 |
| 2026-01-50 | 9M | 38 | 76.3 | 52 | 22 | 0.00 | 0.0 | 0 |
| Average Sum | 87.9 | 57.3 | 72.5 | 951 | 661 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - July 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-07-01 | 80 | 58 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-07-02 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-03 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-04 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-05 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-06 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-07 | 88 | 55 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-08 | 101 | 56 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-09 | 104 | 69 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2021-07-10 | 107 | 62 | 84.5 | 45 | 35 | 0.00 | 0.0 | 0 |
| 2021-07-11 | 102 | 60 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-07-12 | 85 | 55 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-07-13 | 78 | 55 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-07-14 | 82 | 54 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-07-15 | 80 | 55 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-07-16 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-17 | 94 | 55 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-07-18 | 98 | 60 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-19 | 94 | 62 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-07-20 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-21 | 91 | 58 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-07-22 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-23 | 96 | 55 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-07-24 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-07-25 | 92 | 56 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-26 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-07-27 | 98 | 62 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-07-28 | 98 | 61 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-07-29 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-07-30 | 98 | 60 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-31 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| Average Sum | 91.4 | 57.9 | 74.6 | 1082 | 772 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - August 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-08-01 | 89 | 59 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-02 | 93 | 58 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-03 | 97 | 55 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-04 | 93 | 57 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-08-05 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-06 | 94 | 57 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-07 | 89 | 61 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-08-08 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-08-09 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-10 | 98 | 57 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-08-11 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-08-12 | 94 | 61 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-08-13 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-08-14 | 97 | 63 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-08-15 | 97 | 62 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-08-16 | 96 | 62 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-08-17 | 90 | 61 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-18 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-19 | 83 | 60 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-08-20 | 83 | 55 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-21 | 72 | 59 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-08-22 | 82 | 55 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-23 | 79 | 56 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-08-24 | 81 | 51 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-08-25 | 85 | 54 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-08-26 | 94 | 54 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-27 | 100 | 61 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-08-28 | 102 | 64 | 83.0 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2021-08-29 | 101 | 62 | 81.5 | 42 | 32 | 0.00 | 0.0 | 0 |
| 2021-08-30 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-08-31 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| Average Sum | 90.1 | 58.4 | 74.3 | 1070 | 760 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - September 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-09-01 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-02 | 78 | 53 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-03 | 88 | 51 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-09-04 | 94 | 52 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-09-05 | 99 | 55 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-06 | 102 | 59 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-09-07 | 99 | 64 | 81.5 | 42 | 32 | 0.00 | 0.0 | 0 |
| 2021-09-08 | 106 | 67 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2021-09-09 | 94 | 65 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-09-10 | 85 | 61 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-09-11 | 91 | 58 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-09-12 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-13 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-14 | 96 | 59 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-09-15 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-16 | 75 | 55 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-09-17 | 79 | 53 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-18 | 73 | 56 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-09-19 | 83 | 55 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-09-20 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-09-21 | 94 | 58 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-09-22 | 94 | 63 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-09-23 | 97 | 54 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-09-24 | 95 | 61 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-09-25 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-26 | 77 | 55 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-27 | 77 | 56 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-09-28 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-09-29 | 83 | 50 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-09-30 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| Average Sum | 89.0 | 56.9 | 73.0 | 997 | 697 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - October 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-10-01 | 88 | 55 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-10-02 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-10-03 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-10-04 | 92 | 57 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-10-05 | 88 | 54 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-10-06 | 74 | 56 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-07 | 71 | 53 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-08 | 69 | 50 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-10-09 | 76 | 48 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-10 | 80 | 50 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-11 | 75 | 55 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-12 | 72 | 54 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-10-13 | 72 | 46 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-10-14 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-10-15 | 81 | 49 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-16 | 83 | 49 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-17 | 78 | 54 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-18 | 65 | 43 | 54.0 | 14 | 4 | 0.03 | 0.0 | 0 |
| 2021-10-19 | 67 | 42 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-10-20 | 64 | 51 | 57.5 | 18 | 8 | 0.18 | 0.0 | 0 |
| 2021-10-21 | 66 | 56 | 61.0 | 21 | 11 | 0.51 | 0.0 | 0 |
| 2021-10-22 | 66 | 55 | 60.5 | 21 | 11 | 0.19 | 0.0 | 0 |
| 2021-10-23 | 64 | 51 | 57.5 | 18 | 8 | 0.01 | 0.0 | 0 |
| 2021-10-24 | 61 | 56 | 58.5 | 19 | 9 | 6.10 | 0.0 | 0 |
| 2021-10-25 | 64 | 53 | 58.5 | 19 | 9 | 1.43 | 0.0 | 0 |
| 2021-10-26 | 67 | 49 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-10-27 | 74 | 53 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-10-28 | 77 | 54 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-29 | 74 | 53 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-10-30 | 68 | 56 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-31 | 65 | 53 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| Average Sum | 74.3 | 52.2 | 63.2 | 726 | 416 | 8.45 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - November 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-11-01 | 61 | 56 | 58.5 | 19 | 9 | 0.25 | 0.0 | 0 |
| 2021-11-02 | 68 | 54 | 61.0 | 21 | 11 | 0.07 | 0.0 | 0 |
| 2021-11-03 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-11-04 | 69 | 58 | 63.5 | 24 | 14 | 0.04 | 0.0 | 0 |
| 2021-11-05 | 65 | 48 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-11-06 | 65 | 52 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-07 | 63 | 47 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-08 | 62 | 41 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-09 | 58 | 50 | 54.0 | 14 | 4 | 1.48 | 0.0 | 0 |
| 2021-11-10 | 66 | 51 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-11 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-11-12 | 63 | 47 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-13 | 60 | 49 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-14 | 60 | 51 | 55.5 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2021-11-15 | 56 | 51 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-16 | 67 | 50 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-17 | 64 | 42 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-11-18 | 58 | 46 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-19 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-20 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-21 | 69 | 40 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-22 | 65 | 39 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-23 | 63 | 41 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-24 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-25 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-11-26 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-27 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-28 | 67 | 44 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-11-29 | 69 | 47 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-30 | 69 | 45 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| Average Sum | 64.9 | 47.0 | 55.9 | 487 | 187 | 1.86 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - December 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-12-01 | 69 | 42 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-12-02 | 67 | 44 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-12-03 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-12-04 | M | M | M | M | M | 0.00 | 0.0 | 0 |
| 2021-12-05 | 50 | 43 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-06 | 49 | 44 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-07 | 59 | 47 | 53.0 | 13 | 3 | 0.05 | 0.0 | 0 |
| 2021-12-08 | 53 | 45 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-09 | 59 | 47 | 53.0 | 13 | 3 | 0.02 | 0.0 | 0 |
| 2021-12-10 | 57 | 37 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-11 | 56 | 35 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-12 | 50 | 45 | 47.5 | 8 | 0 | 0.85 | 0.0 | 0 |
| 2021-12-13 | 55 | 48 | 51.5 | 12 | 2 | 3.30 | 0.0 | 0 |
| 2021-12-14 | 51 | 37 | 44.0 | 4 | 0 | 0.51 | 0.0 | 0 |
| 2021-12-15 | 52 | 36 | 44.0 | 4 | 0 | 0.04 | 0.0 | 0 |
| 2021-12-16 | 55 | 45 | 50.0 | 10 | 0 | 0.80 | 0.0 | 0 |
| 2021-12-17 | 54 | 35 | 44.5 | 5 | 0 | 0.02 | 0.0 | 0 |
| 2021-12-18 | 46 | 31 | 38.5 | 0 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-19 | 46 | 39 | 42.5 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-20 | 47 | 41 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-21 | 47 | 38 | 42.5 | 3 | 0 | 0.08 | 0.0 | 0 |
| 2021-12-22 | 47 | 42 | 44.5 | 5 | 0 | 0.06 | 0.0 | 0 |
| 2021-12-23 | 58 | 46 | 52.0 | 12 | 2 | 0.92 | 0.0 | 0 |
| 2021-12-24 | 55 | 48 | 51.5 | 12 | 2 | 0.10 | 0.0 | 0 |
| 2021-12-25 | 55 | 46 | 50.5 | 11 | 1 | 0.86 | 0.0 | 0 |
| 2021-12-26 | 48 | 35 | 41.5 | 2 | 0 | 0.05 | 0.0 | 0 |
| 2021-12-27 | 51 | 44 | 47.5 | 8 | 0 | 0.65 | 0.0 | 0 |
| 2021-12-28 | 45 | 37 | 41.0 | 1 | 0 | 0.05 | 0.0 | 0 |
| 2021-12-29 | 44 | 41 | 42.5 | 3 | 0 | 0.50 | 0.0 | 0 |
| 2021-12-30 | 54 | 42 | 48.0 | 8 | 0 | 0.03 | 0.0 | 0 |
| 2021-12-31 | 55 | 33 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| Average Sum | 53.5 | 41.5 | 47.5 | 236 | 38 | 8.89 | 0.0 | 0.0 |

APPENDIX 2

Plant Species Observed on the Gentry Logistics Property and Tooby and Barnfield Properties, Solano County, California

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|---------------------|--|--------------------------------|-----------------------------------|---------------------------|
| Alismataceae | <i>Alisma plantago aquatica</i> | Water-plantain | Y | |
| Apiaceae | <i>Eryngium vaseyi</i> | Vasey's coyote-thistle | Y | |
| | <i>Foeniculum vulgare</i> | Fennel | N | Moderate |
| | <i>Hydrocotyle verticillata</i> | Whorled marsh pennywort | Y | |
| | <i>Oenanthe sarmentosa</i> | Water parsley | Y | |
| Asteraceae | <i>Achyrachaena mollis</i> | Blow wives | Y | |
| | <i>Ambrosia psilostachya</i> | Ragweed | Y | |
| | <i>Artemisia douglasiana</i> | California Mugwort | Y | |
| | <i>+Aster lentus</i> | Suisun marsh aster | Y | |
| | <i>Symphyotrichum subulatum</i> | Eastern annual saltmarsh aster | Y | |
| | <i>Baccharis douglasii</i> | Saltmarsh baccharis | Y | |
| | <i>Baccharis pilularis</i> | Coyote brush | Y | |
| | <i>Bidens sp.</i> | Beggar ticks | Y | |
| | <i>Carduus pycnocephalus</i> | Italian thistle | N | Moderate |
| | <i>Centaurea solstitialis</i> | Yellow star thistle | N | High |
| | <i>Centaurea calcitrapa</i> | Purple star thistle | N | Moderate |
| | <i>Cichorium intybus</i> | Chicory | N | - |
| | <i>Cirsium vulgare</i> | Bull thistle | N | Moderate |
| | <i>Erigeron canadensis</i> | Canada horseweed | Y | |
| | <i>Cotula coronopifolia</i> | Brass buttons | N | Limited |
| | <i>Euthamia occidentalis</i> | Western goldenrod | Y | |
| | <i>Gnaphalium palustre</i> | Lowland cudweed | Y | |
| | <i>Centromadia pungens</i> | Common spikeweed | Y | |
| | <i>Holocarpha virgota ssp. Virgata</i> | Narrow tarplant | Y | |
| | <i>Hypochaeris glabra</i> | Smooth cat's-ear | N | Limited |
| | <i>Jaumea carnosa</i> | Marsh jaumea | Y | |
| | <i>Lactuca serriola</i> | Prickly Lettuice | N | - |
| | <i>Lasthenia californica</i> | California goldfields | Y | |
| | <i>+Lasthenia conjugens</i> | Contra Costa goldfields | Y | |
| | <i>Lasthenia ferrisiae</i> | Ferris' goldfields | Y | |

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|------------------------|--|----------------------------|-----------------------------------|---------------------------|
| | <i>Lasthenia glaberrima</i> | Smooth lasthenia | Y | |
| | <i>Leontodon saxatilis</i> | Hawkbit | N | - |
| | <i>Microseris campestris</i> | San joaquin microseris | Y | |
| | <i>Helminthotheca echioides</i> | Bristly ox-tongue | N | Limited |
| | <i>Psilocarphus brevissimus var. brevissimus</i> | Woolly heads | Y | |
| | <i>Psilocarphus oregonus</i> | Woolly marbles | Y | |
| | <i>Senecio vulgaris</i> | Common groundsel | N | - |
| | <i>Sonchus oleraceus</i> | Sow thistle | N | - |
| | <i>Xanthium spinosum</i> | Spiny cocklebur | N | - |
| | <i>Xanthium strumarium</i> | Cocklebur | Y | - |
| Boraginaceae | <i>Plagiobothrys austiniiae</i> | Rebecca austin's allocarya | Y | |
| | <i>Plagiobothrys humistratus</i> | Dwarf allocarya | Y | |
| | <i>Plagiobothrys leptocladus</i> | Alkali plagiobothrys | Y | |
| | <i>Plagiobothrys stipitatus var. micranthus</i> | Vernal pool allocarya | Y | |
| Brassicaceae | <i>Lepidium latifolium</i> | Perennial pepperweed | N | High |
| | <i>Lepidium nitidum var. nitidum</i> | Shining peppergrass | Y | |
| | <i>Hirschfeldia incana</i> | Field mustard | N | Moderate |
| | <i>Raphanus sativus</i> | Wild radish | N | Limited |
| | <i>Rorippa nasturtium-aquaticum</i> | Water cress | Y | |
| Callitrichaceae | <i>Callitriche marginata</i> | Water-starwort | Y | |
| Campanulaceae | <i>Downingia pulchella</i> | Flat-faced downingia | Y | |
| Carophyllaceae | <i>Cerastium glomeratum</i> | Mouse-eared chickweed | N | - |
| | <i>Silene gallica</i> | Windmill pink | N | |
| | <i>Spergularia marina</i> | Saltmarsh sand spurry | Y | |
| | <i>Spergularia macrotheca</i> | Large-flowered sand spurry | Y | |
| Chenopodiaceae | <i>Atriplex prostrata</i> | Fat-hen | N | - |
| | <i>Chenopodium album</i> | Lamb's quarters | N | - |
| | <i>Salicornia pacifica</i> | Pickleweed | Y | |
| Convolvulaceae | <i>Calystegia sepium spp. Limnophila</i> | Hedge bindweed | Y | |

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|----------------------|--|----------------------|-----------------------------------|---------------------------|
| | <i>Convolvulus arvensis</i> | Field bindweed | Y | |
| | <i>Cressa truxillensis</i> | Alkali weed | Y | |
| Crassulaceae | <i>Crassula aquatica</i> | Pygmy-weed | Y | |
| Cyperaceae | <i>Carex rostrata</i> | Beaked sedge | Y | |
| | <i>Cyperus</i> | Tall nutsedge | Y | |
| | <i>Eragrostis</i> | Pale spikerush | Y | |
| | <i>Eleocharis macrostachya</i> | Common spikerush | Y | |
| | <i>Schoenoplectus acutus var. occidentalis</i> | Tule | Y | |
| | <i>Schoenoplectus californicus</i> | Olney's bulrush | Y | |
| | <i>Schoenoplectus americanus</i> | Chairmaker's bulrush | Y | |
| Euphorbiaceae | <i>Eremocarpus setigerius</i> | Dove weed | Y | |
| Fabaceae | + <i>Astragalus tener var. tener</i> | Alkali milkvetch | Y | |
| | + <i>Lathyrus jepsonii var. jepsonii</i> | Delta tule pea | Y | |
| | <i>Lotus corniculatus</i> | Bird's-foot trefoil | N | - |
| | <i>Lupinus bicolor</i> | Miniature lupine | Y | |
| | <i>Medicago polymorpha</i> | Bur-clover | N | Limited |
| | <i>Melilotus albus</i> | White sweetclover | N | - |
| | <i>Melilotus indica</i> | Yellow sweetclover | N | - |
| | <i>Trifolium barbigerum</i> | Bearded clover | Y | |
| | <i>Trifolium campestre</i> | Hop clover | Y | |
| | <i>Trifolium depauperatum var. amplexens</i> | Pale sack clover | Y | |
| | <i>Trifolium depauperatum var. depauperatum</i> | Dwarf bladder clover | Y | |
| | + <i>Trifolium depauperatum var. hydrophilum</i> | Saline clover | Y | |
| | <i>Trifolium fucatum</i> | Sour clover | Y | |
| | <i>Trifolium microcephalum</i> | Small-headed clover | Y | |
| | <i>Trifolium subterraneum</i> | Subterranean clover | Y | |
| | <i>Trifolium variegatum</i> | White-tipped clover | Y | |
| | <i>Trifolium willdenovii</i> | Tomcat clover | Y | |
| | <i>Vicia sativa</i> | Spring Vetch | N | - |
| | <i>Vicia villosa</i> | Hairy vetch | N | - |
| Frankeniaceae | <i>Frankenia salina</i> | Alkali heath | | |
| Geraniaceae | <i>Erodium botrys</i> | Big heron bill | N | - |
| | <i>Erodium cicutarium</i> | Filaree | N | Limited |
| | <i>Geranium carolinianum</i> | Carolina geranium | Y | |
| Juncaceae | <i>Juncus balticus</i> | Baltic rush | Y | |

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|-----------------------|--|------------------------------|-----------------------------------|---------------------------|
| | <i>Juncus bufonius</i> | Toad rush | Y | |
| | <i>Juncus effusus var. pacificus</i> | Soft rush | Y | |
| | <i>Juncus mexicanus</i> | Mexican rush | Y | |
| Juncaginaceae | <i>Lillaea scilloides</i> | Flowering quillwort | Y | |
| | <i>Triglochin concinna var. concinna</i> | Arrow-grass seaside | Y | |
| | <i>Triglochin maritima</i> | Arrow-grass | Y | |
| Lamiaceae | <i>Mentha x piperita</i> | Spearmint | N | - |
| Lilaeaceae | <i>Asparagus officinalis</i> | Asparagus | N | - |
| | <i>Brodiaea minor</i> | Dwarf brodiaea | Y | |
| | <i>Dipterostemon capitatus</i> | Blue dicks | Y | |
| | <i>Muilla maritima</i> | Common muilla | Y | |
| | <i>Triteleia hyacinthina</i> | White triteleia | Y | |
| Lythraceae | <i>Lythrum hyssopifolium</i> | Hyssop loosestrife | N | Moderate |
| Malvaceae | <i>Malva neglecta</i> | Dwarf mallow | N | - |
| | <i>Malvella leprosa</i> | Alkali mallow | Y | |
| Onagraceae | <i>Epilobium brachycarpum</i> | Panicked willow herb | Y | |
| | <i>Epilobium cleistogamum</i> | Cleistogamous spike-primrose | Y | |
| Plantaginaceae | <i>Plantago elongata</i> | Slender plantain | Y | |
| | <i>Plantago lanceolata</i> | English plantain | N | Limited |
| | <i>Plantago major</i> | Common plantain | N | - |
| Primulaceae | <i>Lysimachia arvensis</i> | Scarlet pimpernel | N | - |
| Poaceae | <i>Avena fatua</i> | Wild oats | N | Moderate |
| | <i>Briza minor</i> | Little quaking grass | N | - |
| | <i>Bromus diandrus</i> | Ripgut brome | N | Moderate |
| | <i>Bromus hordeaceus</i> | Soft chess | N | Limited |
| | <i>Crypsis vaginiflora</i> | Prickle grass | Y | |
| | <i>Deschampsia danthonioides</i> | Annual hairgrass | Y | |
| | <i>Distichlis spicata</i> | Saltgrass | Y | |
| | <i>Echinochloa muricata</i> | Barnyard grass | N | - |
| | <i>Hainardia cylindrica</i> | Thintail | N | - |
| | <i>Hordeum branchyantherum</i> | Meadow barley | Y | |
| | <i>Hordeum depressum</i> | Alkali barley | Y | |
| | <i>Hordeum marinum ssp. Gussoneanum</i> | Mediterranean Barley | N | Moderate |
| | <i>Hordeum murinum</i> | Foxtail barley | N | Moderate |
| | <i>Elymus triticoides</i> | Perennial | Y | |

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|-------------------------|---|----------------------------|-----------------------------------|---------------------------|
| | | ryegrass | | |
| | <i>Festuca perennis</i> | Italian ryegrass | N | Moderate |
| | <i>Parapholis incurva</i> | Sickle grass | N | - |
| | <i>Paspalum dilatatum</i> | Dallis grass | N | - |
| | <i>Paspalum distichum</i> | Joint Paspalum | Y | |
| | <i>Phalaris paradoxa</i> | Paradox canary grass | N | - |
| | <i>Pleuropogon californicus</i> | California semaphore grass | Y | |
| | <i>Poa annua</i> | Annual bluegrass | N | - |
| | <i>Polypogon monspeliensis</i> | Rabbit's-foot grass | N | Limited |
| | <i>Schismus arabicus</i> | Mediterranean grass | N | Limited |
| | <i>Elymus caput-medusae</i> | Medusa head | N | High |
| | <i>Festuca bromoides</i> | Brome fescue | N | |
| | <i>Festuca myuros</i> | Rattail fescue | N | Moderate |
| Polygonaceae | <i>Persicaria punctata</i> | Dotted smartweed | Y | |
| | <i>Rumex crispus</i> | Curly dock | N | Limited |
| | <i>Rumex conglomeratus</i> | Clustered dock | N | - |
| Ranunculaceae | <i>Myosurus minimus</i> | Little mouse tail | Y | |
| | <i>Myosurus sessilis</i> | Mouse tail | Y | |
| | <i>Ranunculus sceleratus</i> | Prickle-pod buttercup | Y | |
| | <i>Ranunculus muricatus</i> | Celery-leaf buttercup | N | - |
| Rosaceae | <i>Potentilla anserina ssp.</i> | Pacific silverweed | Y | |
| | <i>Pacifica Rosa californica</i> | California rose | Y | |
| | <i>Rubus armeniacus</i> | Himalayan blackberry | N | High |
| | <i>Rubus ursinus</i> | California blackberry | Y | |
| Scrophulariaceae | <i>Bellardia trixago</i> | Bellardia | N | Limited |
| | <i>Castilleja attenuata</i> | Valley tassels | Y | |
| | <i>Limosella aquatica</i> | Mudwort | Y | |
| | <i>Triphysaria eriantha ssp. eriantha</i> | Butter-and-eggs | Y | |
| | <i>Triphysaria versicolor ssp. faucibarbata</i> | Yellow owl's-clover | Y | |
| | <i>Triphysaria pusilla</i> | Dwarf owl's-clover | Y | |
| | <i>Verbascum thapsus</i> | Woolly mullein | N | Limited |
| | <i>Veronica peregrina ssp. xalapensis</i> | Purslane speedwell | Y | |
| Salicaceae | <i>Salix gooddingii</i> | Gooding's | Y | |

Appendix 2. Plant species observed on the Gentry Logistics Property, Tooby and Barnfield Properties, Solano County, CA *

| FAMILY | SCIENTIFIC NAME | COMMON NAME | California Native? (Y / N) | Invasive Status ** |
|--------------------|---------------------------------------|-----------------------|-----------------------------------|---------------------------|
| | | black willow | | |
| | <i>Salix lasiolepis</i> | Arroyo willow | Y | |
| Typhaceae | <i>Typha angustifolia</i> | Narrow-leaved cattail | N | - |
| | <i>Typha latifolia</i> | Broad-leaved cattail | Y | |
| Verbenaceae | <i>Phyla nodiflora var. nodiflora</i> | Common frog fruit | Y | |

* Plant species observed on the Gentry Logistics Project site based on surveys conducted spring and summer, 2000, 2001, and 2002, and spring, 2005 and summer of 2019 and summer/fall of 2020 and Spring of 2021.

+ **State or Federal Special status species.**

** **Invasive Species.** An inventory with ranking of invasives (High, Moderate, and Limited) can be found at <https://www.cal-ipc.org/>

Invasive Plant Rating Terminology:

High. These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate. These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited. High risk of becoming invasive. These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

APPENDIX 3

Terry Huffman, PhD, Resume



RESUME: TERRY HUFFMAN, PhD
Wetland Regulatory Scientist
Lead Scientist / Project Manager

Terry has a unique combination of in-depth experience with both ecological research and with the environmental regulatory process. Prior to starting Huffman-Broadway Group, Inc., he was the US Army Corps of Engineers' (Corps) Chief Wetlands Scientist at the Corps' Environmental Laboratory in Vicksburg Mississippi, where he developed the wetlands definition used by the Corps and the US Environmental Protection Agency (US EPA). He pioneered the combined use of multiple environmental factors of wetland vegetation, soil and hydrology conditions and their identification using field indicators to determine the presence or absence of wetlands subject to regulation under the Clean Water Act. This seminal work led to the development of the wetland delineation methodology in use by the Corps and EPA today. As noted in the preface to the Corps' 1987 *Wetlands Delineation Manual*, Part II of the Manual is based on Terry's 1980 paper entitled "Multiple Parameter Approach to the Field Identification and Delineation of Wetlands." The Corps 1987 Manual was adopted for official use by the Corps within all divisions and districts in 1987. In September 1992, Congress authorized the National Academy of Science to conduct a study of the methods used to identify and delineate wetlands. The National Academy of Sciences study confirmed the validity of the multiple parameter approach. As a lead technical representative for the Corps, Terry also played a major role in developing the language pertaining to wetlands in the EPA 404(b)(1) Guidelines for the discharge of dredged or fill material into waters of the US, including wetlands.

His work as a Corps employee (6 years) and as a private consultant (30 +years) has provided Terry with extensive onsite experience with virtually all types of aquatic and wetland environments and a unique understanding of the environmental permitting and compliance process throughout the US. In California, he participated as a contributing member of the California State Water Resources Control Board (RWQCB) Technical Advisory Team on wetland, stream, and riparian definitions. He provides government, NGO, and private sector training in the identification and delineation of wetland and other aquatic resource jurisdictional boundaries as defined by the environmental regulatory programs of the Corps / EPA, RWQCB, California Department of Fish and Wildlife (CDFW), San Francisco Bay Conservation and Development Commission (BCDC), California Coastal Commission (CCC), California Department of Water Resources (DWR), and California State Lands Commission (SLC) through the UC Berkeley Jepson Herbarium Workshop Program and the RWQCB's training academy.

Terry has obtained numerous authorizations over his career with the above mentioned agencies involving both surface and groundwater projects to include:

| Agency | Type of Authorization |
|--------|---|
| Corps | Individual and Nationwide permits and Letters of permission |
| USEPA | 401 Water Quality Certification |
| RWQCBs | 401 Water Quality Certification, Waste Discharge Requirements, and Ground Water Recharge Permitting |
| CDFW | Lake and Streambed Alteration Agreements and Incidental Take Permits |
| BCDC | San Francisco Bay Development Permit |
| CCC | Coastal Development Permit |
| DWR | Encroachment Permits |
| SLC | Encroachment Permits |

Based on Dr. Huffman's broad experience he is often called on during pre-project planning / due diligence to perform gap and fatal flaw analysis regarding project feasibility.

EDUCATION

- PhD, 1976. Botany/Wetland Community Ecology, University of Arkansas, Fayetteville
- First Lieutenant. 1976. US Army Engineer's Officer Basic Combat Engineering Course, Ft. Belvoir, VA
- MS, 1974. Botany/Plant Ecology, University of Arkansas, Fayetteville
- BSE, 1971. Dual Major: General Biology & Education, Henderson State University, Arkadelphia, AR

PROFESSIONAL AFFILIATIONS

- Association of State Wetland Managers
- Ecological Society of America
- Environmental Law Institute
- Director, Solano Land Trust
- Jepson Herbarium (Lifetime Member)
- Society of American Military Engineers
- Society of Wetland Scientists (Lifetime Member)

APPENDIX 4

CNDDDB Listed Plant Species Within a 10-Mile Radius of the Study Area



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



| Name (Scientific/Common) | CNDDB Ranks | Listing Status (Fed/State) | Other Lists | Elev. Range (ft.) | Total EO's | Element Occ. Ranks | | | | | | Population Status | | Presence | | |
|---|------------------|----------------------------|--|-------------------|------------|--------------------|---|---|---|---|----|-------------------|-----------------|----------|---------------|---------|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extirp. | Extirp. |
| <i>Castilleja affinis</i> var. <i>neglecta</i> Tiburon paintbrush | G4G5T1T2 S1S2 | Endangered Threatened | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-JC Botanical Garden at Berkeley | 580 580 | 7 S:1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| <i>Ceanothus purpureus</i> holly-leaved ceanothus | G2 S2 | None None | Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden | 700 2,200 | 43 S:19 | 4 | 1 | 0 | 0 | 0 | 14 | 12 | 7 | 19 | 0 | 0 |
| <i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant | G3T1T2 S1S2 | None None | Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 5 200 | 98 S:5 | 1 | 1 | 0 | 2 | 1 | 0 | 1 | 4 | 4 | 0 | 1 |
| <i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant | G3T2 S2 | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive | 6 215 | 39 S:20 | 1 | 4 | 2 | 2 | 0 | 11 | 7 | 13 | 20 | 0 | 0 |
| <i>Chloropyron molle</i> ssp. <i>hispidum</i> hispid salty bird's-beak | G2T1 S1 | None None | Rare Plant Rank - 1B.1 | 30 30 | 35 S:1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| <i>Chloropyron molle</i> ssp. <i>molle</i> soft salty bird's-beak | G2T1 S1 | Endangered Rare | Rare Plant Rank - 1B.2 | 0 15 | 27 S:18 | 2 | 7 | 2 | 0 | 3 | 4 | 9 | 9 | 15 | 2 | 1 |
| <i>Cicuta maculata</i> var. <i>bolanderi</i> Bolander's water-hemlock | G5T4T5 S2? | None None | Rare Plant Rank - 2B.1 | 0 1 | 17 S:7 | 0 | 0 | 1 | 0 | 0 | 6 | 6 | 1 | 7 | 0 | 0 |
| <i>Cirsium hydrophilum</i> var. <i>hydrophilum</i> Suisun thistle | G2T1 S1 | Endangered None | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 0 0 | 3 S:3 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 3 | 0 | 0 |
| <i>Delphinium recurvatum</i> recurved larkspur | G2? S2? | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden | | 119 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| <i>Dirca occidentalis</i> western leatherwood | G2 S2 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 300 500 | 90 S:3 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 3 | 3 | 0 | 0 |



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California Natural Diversity Database



| Name (Scientific/Common) | CNDDB Ranks | Listing Status (Fed/State) | Other Lists | Elev. Range (ft.) | Total EO's | Element Occ. Ranks | | | | | | Population Status | | Presence | | | | |
|---|--------------|----------------------------|--|-------------------|-------------|--------------------|----|---|---|---|---|-------------------|-----------------|----------|---------------|---------|---|---|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extrtp. | Extrtp. | | |
| <i>Downingia pusilla</i> dwarf downingia | GU S2 | None None | Rare Plant Rank - 2B.2 | 5 1,550 | 132 S:24 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 6 | 19 | 5 | 24 | 0 | 0 |
| <i>Erigeron greenii</i> Greene's narrow-leaved daisy | G3 S3 | None None | Rare Plant Rank - 1B.2 | 800 1,500 | 20 S:4 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 4 | 0 | 0 |
| <i>Eriogonum truncatum</i> Mt. Diablo buckwheat | G1 S1 | None None | Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley | | 7 S:1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| <i>Eryngium jepsonii</i> Jepson's coyote-thistle | G2 S2 | None None | Rare Plant Rank - 1B.2 | 200 600 | 19 S:5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 3 | 5 | 0 | 0 | 0 |
| <i>Erysimum capitatum</i> var. <i>angustatum</i> Contra Costa wallflower | G5T1 S1 | Endangered Endangered | Rare Plant Rank - 1B.1 SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden | | 4 S:1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| <i>Extriplex joaquinana</i> San Joaquin spearscale | G2 S2 | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden | 2 220 | 127 S:9 | 0 | 2 | 2 | 0 | 1 | 4 | 6 | 3 | 3 | 8 | 1 | 0 | 0 |
| <i>Fritillaria liliacea</i> fragrant fritillary | G2 S2 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive | 15 30 | 82 S:5 | 1 | 2 | 0 | 0 | 0 | 2 | 4 | 1 | 4 | 5 | 0 | 0 | 0 |
| <i>Fritillaria pluriflora</i> adobe-lily | G2G3 S2S3 | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley | 180 180 | 114 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| <i>Griatiola heterosepala</i> Boggs Lake hedge-hyssop | G2 S2 | None Endangered | Rare Plant Rank - 1B.2 BLM_S-Sensitive | 15 30 | 99 S:6 | 0 | 4 | 0 | 1 | 0 | 1 | 4 | 2 | 4 | 6 | 0 | 0 | 0 |
| <i>Helianthella castanea</i> Diablo helianthella | G2 S2 | None None | Rare Plant Rank - 1B.2 | 150 540 | 107 S:5 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 5 | 0 | 0 | 0 |



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



| Name (Scientific/Common) | CNDDB Ranks | Listing Status (Fed/State) | Other Lists | Elev. Range (ft.) | Total EO's | Element Occ. Ranks | | | | | | Population Status | | Presence | | |
|---|-------------|----------------------------|--|-------------------|-------------|--------------------|---|---|---|---|----|-------------------|-----------------|----------|---------------|---------|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extirp. | Extirp. |
| <i>Hesperolinon breweri</i> Brewer's western flax | G2 S2 | None None | Rare Plant Rank - 1B.2 | 1,650 1,650 | 29 S:4 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 |
| <i>Hibiscus lasiocarpus var. occidentalis</i> woolly rose-mallow | G5T3 S3 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley | 5 5 | 173 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| <i>Isocoma arguta</i> Carquinez goldenbush | G1 S1 | None None | Rare Plant Rank - 1B.1 | 5 160 | 14 S:14 | 0 | 3 | 2 | 0 | 0 | 9 | 12 | 14 | 0 | 0 | 0 |
| <i>Lasthenia chrysantha</i> alkali-sink goldfields | G2 S2 | None None | Rare Plant Rank - 1B.1 | 15 30 | 55 S:3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 3 | 0 | 0 | 0 |
| <i>Lasthenia conjugens</i> Contra Costa goldfields | G1 S1 | Endangered None | Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley | 10 100 | 36 S:16 | 1 | 6 | 0 | 0 | 2 | 7 | 6 | 14 | 2 | 0 | 0 |
| <i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields | G4T2 S2 | None None | Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden | 35 35 | 111 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| <i>Lathyrus jepsonii var. jepsonii</i> Delta tulle pea | G5T2 S2 | None None | Rare Plant Rank - 1B.2 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 0 7 | 133 S:65 | 4 | 9 | 3 | 5 | 0 | 44 | 50 | 65 | 0 | 0 | 0 |
| <i>Legenere limosa</i> legenere | G2 S2 | None None | Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley | 8 70 | 83 S:12 | 0 | 6 | 1 | 0 | 2 | 3 | 9 | 10 | 0 | 0 | 2 |
| <i>Lepidium latipes var. heckardii</i> Heckard's pepper-grass | G4T1 S1 | None None | Rare Plant Rank - 1B.2 | 10 35 | 14 S:2 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 |



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California Natural Diversity Database



| Name (Scientific/Common) | CNDDB Ranks | Listing Status (Fed/State) | Other Lists | Elev. Range (ft.) | Total EO's | Element Occ. Ranks | | | | | | Population Status | | Presence | | |
|---|--------------|----------------------------|--|-------------------|-------------|--------------------|---|---|---|---|----|-------------------|-----------------|----------|---------------|---------|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extirp. | Extirp. |
| <i>Leptosiphon jepsonii</i> Jepson's leptosiphon | G2G3 S2S3 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture | 430 430 | 51 S:1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| <i>Lilaeopsis masonii</i> Mason's lilaeopsis | G2 S2 | None Rare | Rare Plant Rank - 1B.1 | 0 10 | 198 S:39 | 1 | 9 | 4 | 0 | 0 | 25 | 27 | 12 | 39 | 0 | 0 |
| <i>Limosella australis</i> Delta mudwort | G4G5 S2 | None None | Rare Plant Rank - 2B.1 | 0 1 | 59 S:3 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 |
| <i>Microseris paludosa</i> marsh microseris | G2 S2 | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz | 10 10 | 38 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| <i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia | G4T2 S2 | None None | Rare Plant Rank - 1B.1 | 10 175 | 64 S:11 | 1 | 1 | 0 | 0 | 2 | 7 | 5 | 6 | 9 | 2 | 0 |
| <i>Neostapfia colusana</i> Colusa grass | G1 S1 | Threatened Endangered | Rare Plant Rank - 1B.1 | 18 35 | 66 S:4 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 3 | 4 | 0 | 0 |
| <i>Oenothera deltooides ssp. howellii</i> Antioch Dunes evening-primrose | G5T1 S1 | Endangered Endangered | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley | | 10 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| <i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass | G1 S1 | Threatened Endangered | Rare Plant Rank - 1B.1 | 40 40 | 47 S:1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| <i>Plagiobothrys hystriculus</i> bearded popcornflower | G2 S2 | None None | Rare Plant Rank - 1B.1 | 5 170 | 15 S:12 | 3 | 2 | 1 | 0 | 0 | 6 | 3 | 9 | 12 | 0 | 0 |
| <i>Polygonum marinense</i> Marin knotweed | G2Q S2 | None None | Rare Plant Rank - 3.1 | 5 5 | 32 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |



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California Natural Diversity Database



| Name (Scientific/Common) | CNDDB Ranks | Listing Status (Fed/State) | Other Lists | Elev. Range (ft.) | Total EO's | Element Occ. Ranks | | | | | | | Population Status | | Presence | |
|---|--------------|----------------------------|---|-------------------|-------------|--------------------|---|---|---|---|----|------------------|-------------------|--------|---------------|---------|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extirp. | Extirp. |
| <i>Puccinellia simplex</i> California alkali grass | G3 S2 | None None | Rare Plant Rank - 1B.2 BLM_S-Sensitive | 15 30 | 80 S:3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 |
| <i>Rhynchospora californica</i> California beaked-rush | G1 S1 | None None | Rare Plant Rank - 1B.1 | 875 875 | 9 S:1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| <i>Senecio aphanactis</i> chapparal ragwort | G3 S2 | None None | Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo_CRES Native Gene Seed Bank | 200 200 | 98 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| <i>Sidalcea hickmanii ssp. napensis</i> Napa checkerbloom | G3T1 S1 | None None | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 1,380 1,380 | 2 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| <i>Sidalcea keckii</i> Keck's checkerbloom | G2 S2 | Endangered None | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 155 155 | 50 S:3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 3 | 0 | 0 |
| <i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey | G5T2 S2 | None None | Rare Plant Rank - 1B.2 | 20 200 | 22 S:3 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 3 | 0 | 0 |
| <i>Stuckenia filiformis ssp. alpina</i> northern slender pondweed | G5T5 S2S3 | None None | Rare Plant Rank - 2B.2 | 20 20 | 21 S:1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| <i>Symphotrichum lentum</i> Suisun Marsh aster | G2 S2 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture | 0 50 | 175 S:50 | 3 | 6 | 2 | 0 | 0 | 39 | 39 | 11 | 50 | 0 | 0 |
| <i>Trichostema ruygii</i> Napa bluecurls | G1G2 S1S2 | None None | Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 215 1,625 | 19 S:5 | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 3 | 4 | 0 | 1 |



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California Natural Diversity Database



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|--|-------------|----------------------------|--|-------------------|------------|--------------------|---|---|---|---|---|-------------------|-----------------|----------|---------------|---------|---|
| | | | | | | A | B | C | D | X | U | Historic > 20 yr | Recent <= 20 yr | Extant | Poss. Extirp. | Extirp. | |
| <i>Trifolium amoenum</i> two-fork clover | G1 S1 | Endangered None | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US Dept of Agriculture | 65 65 | 26 S:5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | |
| <i>Trifolium hydrophilum</i> saline clover | G2 S2 | None None | Rare Plant Rank - 1B.2 | 10 775 | 56 S:10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 10 | 0 | 0 |
| <i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass | G1 S1 | Endangered Endangered | Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | 15 35 | 4 S:2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 |
| <i>Viburnum ellipticum</i> oval-leaved viburnum | G4G5 S3? | None None | Rare Plant Rank - 2B.3 | 600 1,480 | 39 S:4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 3 | 4 | 0 | 0 |

APPENDIX 5

Special Status Plant Species Known to Occur or with Potential to Occur in the Vicinity of the Gentry Logistics Project Area

**Appendix 5. Special-Status Plant Species Known to Occur or With Potential to Occur
in the Vicinity of the Gentry Logistics Project Area, Solano County, CA ¹**

| COMMON & SCIENTIFIC NAME | Status ¹ | | HABITAT/RANGE | ANALYSIS IF POTENTIAL FOR OCCURRENCE AND SURVEY RESULTS |
|--|---------------------|-------|--|---|
| | Federal | State | | |
| Adobe-lily (<i>Fritillaria pluriflora</i>) | - | - | 1B Inhabits adobe soils in grasslands and chaparral; occurs in the Delta, north Central Valley, and North San Francisco Bay Area. | Low potential to occur. There is a historic CNPS record northeast of the property (Elmira quad). No CNDDDB records in vicinity. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>) | - | - | 1B Inhabits subalkaline vernal pools and clay flats in grasslands; known from scattered locations in the Delta, Central Valley, and north San Francisco Bay Area. | Present onsite. There are CNDDDB records north and east of the property and CNPS records in Fairfield South quad. Special status plant surveys indicated this species is present in central areas of the Gentry parcel north of the Union Pacific Railroad and on the Gentry Parcel near Cordelia Road, as well as on the Barnfield Parcel. HBG 2021 found the same special status plant species at locations previously identified by Vollmar Consulting. |
| Alkali-sink goldfields (<i>Lasthenia chrysantha</i>) | - | - | 1B Grows in vernal pools and alkali flats in the California Central Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>Howellii</i>) | E | E | 1B Coastal strand, Sandy bluffs, dunes in San Francisco Bay Area. | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Baker's navarretia (<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>) | - | - | 1B Vernal pools and swales; adobe or alkaline soils at 5-950 meters elevation in San Francisco Bay Area and Sacramento Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Bearded popcorn flower (<i>Plagiobothrys hystriculus</i>) | - | - | 1A Wet grassland, vernal pool margins in the Sacramento Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Big-scale (California) balsamroot (<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>) | - | - | 1B Open grassy or rocky slopes, valleys in San Francisco Bay Area and Sacramento Valley. | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Big tarplant (<i>Blepharizonia plumosa</i>) | - | - | 1B Inhabits dry slopes in grassland San Joaquin Valley and San Francisco Bay Area. | Low potential. There are CNPS records several miles east of the property; no CNDDDB records in the vicinity. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. |

**Appendix 5. Special-Status Plant Species Known to Occur or With Potential to Occur
in the Vicinity of the Gentry Logistics Project Area, Solano County, CA ¹**

| COMMON & SCIENTIFIC NAME | Status ¹ | | HABITAT/RANGE | ANALYSIS IF POTENTIAL FOR OCCURRENCE AND SURVEY RESULTS |
|--|---------------------|-------|--|--|
| | Federal | State | | |
| | | | | Not observed during special status plant surveys conducted in 2021 by HBG. |
| Bogg's Lake hedge hyssop (<i>Gratiola heterosepala</i>) | - | E | 1B Inhabits vernal pools and margins of vernal lakes; known from scattered locations in the Delta, Central Valley, and north SF Bay. | Low potential. There are CNPS records several miles east of the property; no CNDDDB records in the vicinity. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Brewer's western flax (<i>Hesperolinon breweri</i>) | - | - | 1B Chaparral, cismontane woodland, valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland at 30-885 meters. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Brittlescale (<i>Atriplex depressa</i>) | - | - | 1B Inhabits alkali scrub, clay soils in mesic grasslands in the Delta, Central Valley basin. | Moderate potential to occur. There is a recorded CNDDDB occurrence 5 miles east of the property near Potrero Hills Landfill (Denver-ton quad). Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| California alkali grass (<i>Puccinellia simplex</i>) | - | - | 1B Inhabits saline flats, mineral springs in the San Joaquin Valley, Sacramento Valley, and San Francisco Bay Area. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| California beaked-rush (<i>Rhynchospora californica</i>) | - | - | 1B Known to occupy freshwater marshes, bogs, and seeps along the Central Coast and Outer North Coast Ranges. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Carquinez goldenbush (<i>Isocoma arguta</i>) | - | - | 1B Inhabits alkaline flats, low benches and sides of mounds in swale areas; restricted to Solano and Contra Costa Counties. | Low potential. There are three CNDDDB records several miles east of the property (Denver-ton quad: Dozier vernal pools, near Creed Road, near Highway 12). Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Holly-leaved ceanothus (<i>Ceanothus purpureus</i>) | - | - | 1B Inhabits volcanic substrates, slopes, chaparral within Inner North Coast Ranges and San Francisco Bay Area. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Colusa grass | T | E | 1B Inhabits large vernal pools and vernal lakes, | Not likely. Suitable habitat not present onsite. Known population in |

**Appendix 5. Special-Status Plant Species Known to Occur or With Potential to Occur
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| COMMON & SCIENTIFIC NAME | Status ¹ | | | HABITAT/RANGE | ANALYSIS IF POTENTIAL FOR OCCURRENCE AND SURVEY RESULTS |
|--|---------------------|-------|------|--|--|
| | Federal | State | CNPS | | |
| | | | | | |
| <i>(Neostapfia colusana)</i> | | | | occasionally stock ponds; known from fewer than 50 occurrences in the Delta, and southern Central Valley. | Olcott Lake (Jepson Prairie). Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Congdon's tarplant <i>(Centromadia parryi</i> <i>ssp. Congdonii)</i> | - | - | 1B | Found on seasonal wetlands on heavy clay, saline, or alkaline soils in grasslands and disturbed sites in the San Francisco Bay Area and Central Coast. | Moderate potential to occur. There is a recorded CNDDDB occurrence 10 miles east of the property near Potrero Hills Landfill (Denverton quad). Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Contra Costa goldfields <i>(Lasthenia conjugens)</i> | E | - | 1B | Inhabits vernal pools and vernal mesic grasslands; most remaining occurrences restricted to the Fairfield region. | Present onsite. Observed onsite in special status species surveys conducted by Vollmar consulting in 2000, 2001, 2002 and 2005. HBG 2021 found the same special status plant species at locations previously identified by Vollmar Consulting. |
| Contra Costa wallflower <i>(Erysimum capitatum</i> <i>var. angustatum)</i> | E | E | 1B | Common on hillsides, open slopes, valley bottoms, alpine areas, deserts, woodlands, sandy mesas, chaparral clearings in the San Joaquin Valley, Sacramento Valley, and San Francisco Bay Area. | Not likely to occur on the property due to a lack of suitable habitat. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Coulter's goldfields <i>(Lasthenia glabrata ssp.</i> <i>Coulteri)</i> | - | - | 1B | Inhabits saline places, vernal pools in the San Joaquin Valley, Sacramento Valley, Central Coast, and San Francisco Bay Area. | Possible. However, this species was not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Crampton's tuctoria <i>(Tuctoria mucronata)</i> | E | E | 1B | Inhabits large vernal pools and vernal lakes; known from only three occurrences in Solano and Yolo Counties. | Unlikely. There are two populations in and adjacent to Jepson Prairie. Not likely to occur on the property due to a lack of suitable habitat. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Delta tulle pea <i>(Lathyrus jepsonii</i> var. <i>Jepsonii)</i> | - | - | 1B | Inhabits the banks of sloughs and bays in the Suisun Bay and Delta. | Present onsite. Observed onsite on the Barnfield property during Vollmar Consulting special status plant surveys conducted in 2000. This species was not located on the Gentry or Tooby properties during this survey. It is not expected to occur on the Gentry property due to a lack of perennial brackish marsh habitat. The occurrence on the Barnfield property is located at the far southern tip along the eastern bank of Peytonia Slough and is estimated to include 400 plants. This area is outside the Project development footprint. Also, there are numerous known occurrences |

**Appendix 5. Special-Status Plant Species Known to Occur or With Potential to Occur
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| COMMON & SCIENTIFIC NAME | Status ¹ | | HABITAT/RANGE | ANALYSIS IF POTENTIAL FOR OCCURRENCE AND SURVEY RESULTS |
|--|---------------------|-------|--|---|
| | Federal | State | | |
| | | | | |
| Diablo helianthella (<i>Helianthella castanea</i>) | - | - | 1B Found associated with open, grassy sites in Central Coast and San Francisco Bay Area. | south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh. HBG 2021 found the same special status plant species at locations previously identified by Vollmar Consulting. Possible. There is a CNDDDB record 10-miles from the Study Area. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Ferris' milk-vetch (<i>Astragalus tener</i> var. <i>ferrisae</i>) | - | - | 1B Inhabits subalkaline vernal pools and grassland clay flats in the Delta and north Central Valley basin; extirpated from Solano Co. | Unlikely. There is a historic CNPS record several miles to the east of the property (Dozier quad). Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Fragrant fritillary (<i>Fritillaria liliacea</i>) | - | - | 1B Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentine; elevation 3-410 meters. | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting, Not observed during special status plant surveys conducted in 2021 by HBG. |
| Gairdner's yampah (<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>) | T | E | 4 Broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools/mesic; elevation 0-365 meters. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Greene's narrow-leaved daisy (Erigeron greenei) | - | - | 1B Generally, on serpentine, sometimes rocky alluvium, chaparral, woodland, conifer forest in Outer North Coast Ranges. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Heartscale (<i>Atriplex cordulata</i>) | - | - | 1B Inhabits alkali flats with sandy soils in the Delta and Central Valley basin. | Unlikely. There is a historic CNDDDB record several miles north of the property and several CNPS records several miles north and east of the property. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Heckard's pepper-grass (<i>Lepidium latipes</i> var. <i>heckardii</i>) | - | - | 1B Alkaline soils, vernal pool margins, salt marsh edges, pastures in the San Joaquin Valley, Sacramento Valley, San Francisco Bay Area, and Central Coast. | Unlikely. Suitable habitat not present onsite. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Hispid salty bird's-beak (<i>Chloropyron molle</i> ssp.) | - | - | 1B Inhabits alkali vernal mesic grasslands; known from scattered locations in the Delta, | Moderate potential to occur. There is a CNDDDB record 5 miles east northeast of the property at Dozier vernal pools (Denver-ton quadrangle). |

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|---|---------------------|-------|---|---|
| | Federal | State | | |
| <i>hispidum</i> aka (<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>) | | | southern Central Valley basin. | Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Jepson's coyote-thistle (<i>Eryngium jepsonii</i>) | - | - | Inhabits moist clay soil, grasslands with clay or serpentine soils, dry roadsides in Inner North Coast Ranges, San Joaquin Valley, Sacramento Valley, and San Francisco Bay Area. | Possible. There is a CNDDDB record 10-miles from the Study Area. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>) | - | - | Open or partially shaded grassy slopes North Coast Ranges. | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Keck's checkerbloom (<i>Sidalcea keckii</i>) | E | - | Inhabits grassy slopes within Inner Coast Ranges | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Legenere (<i>Legenere limosa</i>) | - | - | Inhabits vernal pools; known from scattered occurrences in the Delta, north Central Valley, and north SF Bay. | Not present. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. However, there is a moderate potential for this species to occur. CNDDDB records occurrences east of the property. CNPS records in Denverton and Elmira quads. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Long-styled sand-spurrey (<i>Spergularia macrotheca</i> var. <i>longistyla</i>) | - | - | Alkaline marshes, mud flats, meadows, hot springs in the Inner North Coast Ranges, San Joaquin Valley, and Sacramento Valley. | Possible. There is a CNDDDB record 10-miles from the Study Area. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Marsh microseris (<i>Microseris paludosa</i>) | - | - | Found in moist grassland, open woodland in the San Francisco Bay area. | Possible. There is a CNDDDB record 10-miles from the Study Area. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Mason's illaeopsis (<i>Lilaeopsis masonii</i>) | - | R | Inhabits the edges of mudflats in brackish marsh and riparian scrub in the Delta. | Possible. There are CNDDDB records southeast of the property along Montezuma Slough, Grizzly Island and CNPS records in Fairfield South quad. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |

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| COMMON & SCIENTIFIC NAME | Status ¹ | | HABITAT/RANGE | ANALYSIS IF POTENTIAL FOR OCCURRENCE AND SURVEY RESULTS | |
|--|---------------------|-------|---------------|---|---|
| | Federal | State | | | CNPS |
| Mt. Diablo buckwheat (<i>Eriogonum truncatum</i>) | - | - | 1B | Chaparral, coastal scrub, valley and foothill grasslands in dry exposed clay or sandy substrates at 100-600 meters elevation in the Sacramento Valley and San Francisco Bay Area. | Unlikely. Suitable habitat is not present on the site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Mt. Diablo fairy-lantern (<i>Calochortus pulchellus</i>) | - | - | 1B | Inhabits wooded slopes, rarely chaparral, generally northern aspect in the San Francisco Bay area. | Unlikely. Suitable habitat is not present on the Project Site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Narrow-anthered brodiaea (<i>Brodiaea leptandra</i>) | - | - | 1B | Inhabits open mixed-evergreen forest, chaparral, gravely soil in the Inner North Coast Ranges. | Unlikely. Suitable habitat is not present on the Project Site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Napa bluecurls (<i>Trichostema ruygtii</i>) | - | - | 1B | Occurs in open areas, generally thin clay soils, possibly seasonally saturated in the Inner and Outer North Coast Ranges. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Napa checkerbloom (<i>Sidalcea hickmanii</i> ssp. <i>Napensis</i>) | - | - | 1B | Found in chamise chaparral, rocky rhyolitic volcanic soil in the Inner North Coast Ranges. | Unlikely. Suitable habitat is not present on the Project Site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>) | - | - | 1B | Found in grasslands, coastal salt marshes, alkaline springs, seeps in the Sacramento Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Bearded popcornflower (<i>Plagiobothrys hystriculus</i>) | - | - | 1B | Inhabits wet grassland, vernal pool margins in the Sacramento Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Recurved larkspur (<i>Delphinium recurvatum</i>) | - | - | 1B | Inhabits alkali scrub and vernal mesic grasslands in the Delta and southern Central Valley basin. | Not likely to occur. There are historic CNDDDB record (1902) near Vacaville. No CNPS records near the property. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Saline clover (<i>Trifolium depauperatum</i> var. | - | - | 1B | Inhabits subalkaline vernally mesic grasslands and edges of vernal pools; restricted to the Delta and Central Coast. | Present onsite. A total of 49 occurrences of saline clover were located on the three properties during the 2005 surveys. Fourteen occurrences were located on the Gentry property, three occurrences were located on the |

**Appendix 5. Special-Status Plant Species Known to Occur or With Potential to Occur
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|--|---------------------|-------|------|---|--|
| | Federal | State | CNPS | | |
| <i>hydrophilum</i>) aka (<i>Trifolium hydrophilum</i>) | | | | | Tooby Property, and 32 occurrences were located on the Barnfield Property. HBG 2021 found the same special status plant species at locations previously identified by Vollmar Consulting. |
| San Joaquin Valley orcutt (<i>Orcuttia inaequalis</i>) | T | E | 1B | Vernal pools in San Joaquin Valley. | Possible. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| San Joaquin spearscale (<i>Atriplex joaquiniana</i>) [aka <i>Extriplex joaquiniana</i>] | - | - | 1B | Inhabits alkali scrub and mesic grasslands in the Delta and Central Valley basin. | Moderate potential to occur. There are CNDDDB records at Travis AFB, and Potrero Hills Landfill and CNPS occurrence in Fairfield South quad. Not observed during special status plant surveys conducted by Vollmar Consulting in 2000, 2001, 2002 and 2005. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Showy Indian clover (<i>Trifolium amoenum</i>) | E | - | 1B | Inhabits moist clay grassland soils; known from one extant occurrence in Marin County. | Unlikely. Historic records in Solano County (type locality), 4 miles northeast of the property. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Soft salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>mole</i>) aka (<i>Cordylanthus mollis</i> ssp. <i>mollis</i>) | E | R | 1B | Inhabits brackish tidal marsh and seasonal alkali marsh; known from fewer than 20 populations in Contra Costa, Napa, and Solano Counties. | Moderate potential to occur. CNDDDB records along Suisun Slough and Hwy 12 (5 miles east of the property). CNPS records in Fairfield South quad on the property. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Suisun Marsh aster (<i>Symphotrichum lentum</i> aka (<i>Aster lentus</i>)) | - | - | 1B | Inhabits banks of sloughs and bays in the Suisun Bay and the mid Central Valley basin. | Present onsite. There are several CNDDDB records east and south of the property along sloughs draining to Suisun Bay and CNPS has records in the Fairfield South quad. Special status plant surveys indicated this species is present on the Barnfield property in several locations on the eastern portion of the property and on the Barnfield and Tooby properties adjacent to a perennial brackish marsh ditch (Vollmar Consulting, 2005). HBG 2021 found the same special status plant species at locations previously identified by Vollmar Consulting. |
| Suisun thistle (<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>) | E | - | 1B | Inhabits the edges of brackish sloughs; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano | High potential to occur. Excellent potential habitat near southern tip of the Barnfield property along Peytonia Slough. Study Area contains locations adjacent to Peytonia Slough that have been designated by the |

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|---|---------------------|-------|---|---|
| | Federal | State | | |
| | | | County. | USFWS under the Endangered Species Act as critical habitat for the Suisun thistle. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Tiburon paintbrush (<i>Castilleja affinis</i> var. <i>neglecta</i>) | E | T | 1B Found on open serpentine slopes in San Francisco Bay Area including Solano County. | Unlikely. Suitable habitat is not present on the Project Site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Vernal pool smallscale (<i>Atriplex persistens</i>) | - | - | 1B Inhabits alkali vernal pools, flats, and swales; known from scattered locations in the Delta and Central Valley basin. | Unlikely. No CNDDDB records in immediate vicinity of the property. CNPS records in Dozier quad several miles to the east. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Western leatherwood (<i>Dirca occidentalis</i>) | - | - | 1B Generally north or northeast facing slopes, mixed-evergreen forest to chaparral, generally in fog belt in San Francisco Bay Area including Solano County. | Unlikely. Suitable habitat is not present on the Project Site. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |
| Woolly rose-mallow (<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>) | - | - | 1B Freshwater wetlands, wet banks, marshes in the San Joaquin Valley, Sacramento Valley, and Cascade Range Foothills. | Low potential. There are CNDDDB record 10-miles from the Study Area. Not observed during special status plant surveys conducted in 2000, 2001, 2002 and 2005 by Vollmar Consulting. Not observed during special status plant surveys conducted in 2021 by HBG. |

Vollmar Consulting 2000-2002 & 2005 Rare Plant Reports

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GENTRY, TOOBY & BARNFIELD PROPERTIES

SPECIAL-STATUS PLANT SURVEY REPORT 2000-2002, & 2005 FIELD SEASONS

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1.0 INTRODUCTION

This report summarizes the methods and results of special-status plant surveys conducted by Vollmar Consulting in April 2005, on the Gentry project site in Solano County, California, owned by the Tom Gentry California Company. The project site is composed of three properties, referred to as the Gentry Property (80 acres), the Tooby Property (73 acres), and the Barnfield Property (331 acres). Together the three properties total 484 acres. This report also incorporates the results from previous special-status plant surveys conducted by Vollmar Consulting on the three Gentry properties during the spring and summer of 2000, the spring of 2001, and the spring of 2002. The purpose of the report is to document the sensitive botanical resources occurring on the property for use in future planning by the property owner. The landowner intends to develop portions of the Gentry Property and possibly the Tooby Property. The undeveloped portions of the Gentry and Tooby Properties, and the Barnfield Property, may be used for mitigation.

1.0 BACKGROUND INFORMATION

2.1 Site Location

The three properties are all located west of the city of Suisun and south of the city of Fairfield, in Solano County, California. The Gentry Property is located west of Pennsylvania Avenue, south of Highway 12, east of Ledgewood Creek and north of Cordelia Road. The Union Pacific Railroad bisects the property east-west, creating a larger northern unit and a smaller southern unit. The Tooby Property is located east of Pennsylvania Avenue and south of Highway 12, and west of the Union Pacific Railroad, and north of Cordelia Road. The Barnfield Property is located south of the Gentry and Tooby properties and south of Cordelia Road, and is bordered on the west by Orehr Road, on the east by the Southern Pacific Railroad, and on the south by the upper Suisun Marsh.

2.2 Project Team

Staff from Vollmar Consulting conducted all project work including background review, field surveys and reporting. John Vollmar served as project manager. During spring, 2005, Ms. Gretchen Vos, a senior biologist, supervised and conducted field surveys. Staff biologists Ms. Shannon Hickey, Mr. Vir McCoy, and Ms. Wendy Renz all assisted with field surveys. Ms. Vos prepared the survey report and Mr. Jake Schweitzer, a GIS specialist, prepared all report maps. Previous biological work was conducted by Vollmar Consulting on the project site in 2000, 2001 and 2002. Survey work in 2000 through 2002 was conducted by Mr. John Vollmar and Mr. Vir McCoy.

2.3 General Environmental Setting

2.3.1 Gentry Property

The Gentry Property consists of nearly level, grazed annual grasslands, seasonally saturated annual grasslands, alkali seasonal marsh, seasonal wetlands and vernal pools. The annual grasslands and seasonally saturated annual grasslands are dominated by introduced annual grass

species. Within the seasonally saturated grassland habitat, there are several small seasonal wetlands and vernal pools, typically less than a quarter acre in size. On the eastern edge of the property is a large prominent artificially-created vernal pool. This large shallow vernal pool is approximately eighteen acres in size. Many of the wetlands on the property appear to be man-made or enhanced due to the presence of road berms, buried utility line berms, and ditches. There is a small remnant slough channel in the southern portion of the site that supports willows (*Salix* sp.) and other riparian vegetation. Elevation within the site ranges from 5 to 10 feet above sea level. The region of the Gentry Property located south of the Union Pacific Railroad line and north of Cordelia Road is best described as a ruderal pasture. The area is currently not grazed and is dominated by introduced annual grasses.

2.3.2 Tooby Property

The Tooby Property is dominated by a mix of wetland and upland habitats. A drainage canal runs north to south through the western portion of the site. This canal flows directly to a slough feeding into Suisun Bay and is subject to tidal fluctuation. To the west of the canal, there are several medium to large seasonal wetlands including both vernal pools and alkali seasonal marshes. These are not tidally influenced but excess storm water from this area does drain into the canal through a culvert. To the east of the canal, most of the site supports perennial brackish marsh with dense stands of cattail (*Typha* sp.), California bulrush (*Scirpus californicus*), and pickleweed (*Salicornia virginica*). These wetlands receive tidal flow from the canal which is open to this portion of the site. The limited upland areas on the site support introduced annual grassland. There is an approximately six-acre parcel along the western edge of the property that is owned by another party. This parcel is currently being used as a dumpsite for construction debris such as broken concrete and excavated soil.

2.3.3 Barnfield Property

The Barnfield Property is located along the upper edge of Suisun Marsh, a large estuarine marsh formed along the northern shore of Grizzly Bay and the larger Suisun Bay near the confluence of the Sacramento and San Joaquin Rivers. The property consists of nearly level terrain with a gentle slope trending south-southeast toward Suisun Marsh. Elevation ranges from approximately ten to zero feet above sea level. The higher areas in the northern and northwestern portions of the property support introduced nearly level, grazed, upland annual grasslands with interspersed seasonal wetlands including vernal pools, seasonal alkali marsh, and seasonally saturated annual grasslands. Lower areas in the south and southeast are dominated by perennial brackish marsh associated with Suisun Marsh.

Peytonia Slough and several smaller unnamed sloughs cut through the perennial marsh habitat. These sloughs are subject to tidal fluctuations and are hydrologically connected to Grizzly Bay via Suisun Slough. There are a few freshwater drainages which flow across the property from the northwest and drain into Peytonia Slough. Ledgewood Creek, which originates in the Gordon Valley several miles to the northwest, traverses through the center of the property. There are two canals on the property. One traverses the eastern portion of the property. This canal carries storm water runoff from the City of Fairfield, and may also convey run-off from natural drainages north of Fairfield. The second canal is adjacent to and confluent with

Ledgewood Creek. This canal may be a remnant of the original channel of Ledgewood Creek before it was straightened and diked. Ledgewood Creek and the two canals are subject to tidal fluctuations and support bankside stands of perennial brackish marsh vegetation. The eastern canal has a flap gate located a few hundred yards south of Cordelia Road that is intended to prevent tidal backflow. In addition to these drainages, there are two smaller excavated ditches, one that joins the eastern canal, and one that traverses the western portion of the property. These ditches appear to convey local storm water run-off. These ditches do not appear to be subject to tidal flow except for the lower half of the western ditch.

2.4 Habitat Types

Six distinct habitat types were identified on the three properties, including:

- Upland Annual Grassland
- Vernal Pools
- Alkali Seasonal Marsh
- Seasonally Saturated Annual Grasslands
- Perennial Brackish Marsh
- Riparian Wetland

Each of these habitats is described below. The habitat types are mapped on Figures 1 through 4.

2.4.1 Upland Annual Grasslands

The upland portions of the properties support introduced annual grassland. This habitat is dominated by several species of introduced annual grasses such as soft chess (*Bromus hordeaceus*), ripgut (*Bromus diandrus*), and barley (*Hordeum murinum*). A variety of native and non-native herbs also occur within the grasslands such as butter-and-eggs (*Triphysaria eriantha* ssp. *eriantha*), valley tassels (*Castilleja attenuata*), miniature lupine (*Lupinus bicolor*), bur-clover (*Medicago polymorpha*), and filaree (*Erodium botrys*). In low-lying areas and areas bordering wetlands, species composition shifts to include some marginal wetland indicator species such as Italian ryegrass (*Lolium multiflorum*) and Mediterranean barley (*Hordeum marinum* var. *gussoneanum*). In general, there is a very low occurrence of noxious weeds within the grasslands such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Taeniatherum caput-medusae*).

2.4.2 Vernal Pools

Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater from the pool basins. They are inundated throughout the winter and gradually dry during the spring and summer through evaporation and plant transpiration. The vernal pools then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools support a unique assemblage of plants and animals, including many rare species, specifically adapted to their unique hydrologic regime. They are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

The vernal pools on the properties are concentrated in the center and eastern portions of the Gentry Property, in the western portion of the Tooby Property, and in the northern and northwestern portions of the Barnfield Property. Many of the pools appear man-made or enhanced due to the presence of berms and ditches on the site that collect and block the flow of water across the landscape. This is especially true in the Gentry and Tooby Properties. The largest, deepest vernal pool (a man-made vernal pool) occurs in the Gentry Property. Dominant species within the pools on the three properties include a mix of classic vernal pool indicator species such as Vasey's coyote-thistle (*Eryngium vaseyi*), California semaphore grass (*Pleuropogon californica*), flat-faced downingia (*Downingia pulchella*), smooth goldfields (*Lasthenia glaberrima*), hyssop-leaved loosestrife (*Lythrum hyssopifolia*), and stipitate popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), as well as a low cover of some alkali-tolerant species (halophytes) such as alkali heath (*Frankenia salina*), pickleweed (*Salicornia virginica*), and alkali weed (*Cressa truxillensis*).

2.4.3 Alkali Seasonal Marsh

The alkali seasonal marsh forms in low-lying basins and clay flats. They become seasonally inundated or saturated during the rainy season and gradually dry through the spring and early summer. The salinity comes from residual salts concentrated in a buried silty clay loam soil horizon within the predominant soil type (Sycamore silty clay, saline).

Alkali seasonal marshes on the three Gentry properties are located in the northeastern portion of the Gentry Property, the southwestern portion of the Tooby Property, and the northern and northwestern portions of the Barnfield Property. Dominant plant species within these wetlands include several halophytes (salt-loving plants) including sickle grass (*Parapholis incurva*), alkali weed, and alkali heath. Slightly lower areas within the wetlands are dominated by pickleweed (*Salicornia virginica*). The alkali seasonal marsh generally lacks vernal pool indicator species.

2.4.4 Seasonally Saturated Annual Grasslands

Given the very flat topography across the three Gentry properties, there are broad transitional wetland areas between the low-lying seasonal wetlands (vernal pools and alkali seasonal marsh) and the surrounding upland annual grasslands. These transitional areas have prolonged periods of surface and subsurface saturation but are rarely inundated. The dominant plants include a mix of facultative wetland species associated with both the annual grasslands and alkali seasonal marsh. Common species include Italian ryegrass, Mediterranean barley, alkali weed, and alkali heath. Seasonally saturated annual grasslands, (often referred to as "moist grasslands" in the scientific literature), are thought to play an integral role in providing connectivity between bayland habitats and surrounding upland habitats, and are often associated with vernal pool habitat. A substantial decrease in the historical seasonally saturated annual grassland habitat of the Suisun Marsh region has been documented (Goals Project, 1999). The seasonally saturated annual grasslands within the three Gentry properties represent a significant portion of the remaining high quality seasonally saturated annual grassland habitat in the region.

2.4.5 Perennial Brackish Marsh

Perennial brackish marsh occurs throughout the southern and southeastern portions of the Barnfield Property and dominates the eastern portion of the Tooby Property. This habitat occurs in estuarine environments where there is a mixing of fresh and salt waters such as occurs in the Delta region. The soils are perennially inundated or saturated and are generally subject to some level of tidal fluctuation. The perennial brackish marsh habitat in the Tooby and Barnfield Properties is subject to tidal fluctuations that extend from Suisun Bay, up tidal sloughs, and into drainage canals that traverses the properties. The canal within the Tooby site has one branch that extends northeast and provides water to the marsh habitat. In addition, water levels become elevated during the rainy season and gradually lower through the spring through evaporation, transpiration, and drainage. This is especially true for the northern portion of the marsh (north of the Tooby Property canal branch). Alkalinity within the marsh habitat comes from residual salts in the silty clay soils.

Within the Tooby Property, the deepest areas within the marsh (concentrated along the eastern portion of this property) are dominated by a mix of dense, tall-growing perennial marsh species including tule (*Scirpus acutus* var. *occidentalis*), Olney's bulrush (*Scirpus americanus*), California bulrush (*Scirpus californicus*), saltmarsh bulrush (*Scirpus maritimus*), broad-leaved cattail (*Typha latifolia*), and narrow-leaved cattail (*Typha angustifolia*). Slightly higher areas are dominated by low-growing species, especially pickleweed (*Salicornia virginica*) and brass buttons (*Cotula coronopifolia*). The upper perimeter of the marsh includes additional low-growing species such as saltgrass (*Distichlis spicata*), saltmarsh sand-spurrey (*Spergularia marina*), sicklegrass, and annual beard grass.

Dominant plant species within perennial brackish marsh on the Barnfield Property include a broad range of perennial emergent monocots and herbaceous and woody dicots often occurring in a mosaic dependent on local soil condition, hydrologic regime, and micro-elevation. Low-lying areas and the lower banks of sloughs are dominated by a tall, dense emergent monocots including tule (*Scirpus acutus* var. *occidentalis*), Olney's bulrush (*Scirpus americanus*), California bulrush (*Scirpus californicus*), saltmarsh bulrush (*Scirpus maritimus*), broad-leaved cattail (*Typha latifolia*), and narrow-leaved cattail (*Typha angustifolia*). Upper slough banks are dominated by a mix of woody dicots such as annual saltmarsh aster (*Aster subulatus* var. *ligulatus*), Douglas' false-willow (*Baccharis douglasii*), western goldenrod (*Euthamnia occidentalis*), and mugwort (*Artemisia douglasiana*). The special-status plants Delta tule pea and Suisun Marsh aster occur in scattered locations along the upper slough banks. Open areas along some of the smaller slough channels support some interesting native herbs such as water-parsley (*Oenanthe sarmentosa*) and whorled pennywort (*Hydrocotyl verticillata*). There are also dense stands of pickleweed and saltgrass in some low-lying areas away from the slough channels

2.4.6 Riparian Wetland

There is a small section of riparian wetland in a remnant channel in the southern portion of the Gentry Property. Dominant tree species include arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*). California blackberry (*Rubus ursinus*) and mugwort (*Artemisia douglasiana*) are the understory dominants.

3.0 SURVEY METHODS

3.1 Development of Target Special-Status Plant Species List

Prior to conducting field surveys, a brief site visit and a background review were conducted to identify the special-status plant species with potential to occur on the site. The three properties have potential to support special-status species associated with vernal pools and other seasonal wetlands, seasonally saturated annual grasslands, alkali seasonal marsh, perennial brackish marsh, and riparian wetland.

Table 1 is a list of the special-status species identified as having potential to occur on the project site. For the purposes of this report, special-status species include:

- Species listed as endangered, threatened, or rare under the provisions of either the Federal or State Endangered Species Acts (50 CFR 17.12 and 14 CCR 670.5, respectively);
- Species recognized as species of concern by the U.S. Fish and Wildlife Service (USFWS) or species of special concern by the California Department of Fish and Game (CDFG);
- Species listed as rare, endangered, or a species of concern by the California Native Plant Society (CNPS) (Lists 1-4); and
- Species that are defined as rare, threatened, or endangered under CEQA (State CEQA Guidelines, Section 15380)

Sources used to develop this list included regional special-status species occurrence records maintained by CDFG's California Natural Diversity Data Base (CNDDDB 2003) and the CNPS's Inventory of Rare and Endangered Plants of California (CNPS 2003).

3.2 Field Surveys

Plant surveys during 2000-2002 were part of a broader biological survey and wetland delineation. During all surveys, each of the three properties was walked, with the survey effort focused on specialized habitats with high potential to support special-status plant species. All plant species observed were identified and recorded. Those specimens that could not be readily identified in the field were collected and identified later. Locations of special-status plants were mapped onto enlarged (1:3,600) aerial photo base maps of the three properties obtained from WAC Corporation in Eugene, Oregon. The aerial photos were taken in spring 1999.

Surveys during 2005 focused on special-status plant species only. The surveys included complete coverage of each of the three properties, with special focus on specialized habitats with high potential to support special-status plant species. During these surveys, any new species were identified and recorded. Locations of special-status plants were mapped using a GPS unit with sub-meter accuracy (Trimble GeoXT). At each occurrence of a special-status plant, the number and density of plants, the associated species, and basic habitat information were recorded. The number of plants was determined by visual estimate. Appendix A includes a list of all plant species identified on the three Gentry properties. Scientific plant names used throughout the report correspond to Hickman (1993). Common plant names are from Hickman (1993), Abrams (1940), and Reed (1988). Survey methods and dates are described below by survey year.

Table 1. Special-status plant species known to occur or with potential to occur in the vicinity of the Gentry, Tooby and Barnfield Properties, Solano County, California. Sources of information included California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994; electronic update 1999), CDFG's California Natural Diversity Data Base (CNDDDB 1999), and special-status species lists and technical reports prepared by Vollmar Consulting for other projects in the vicinity.

| SCIENTIFIC NAME | STATUS ¹ | HABITAT/RANGE | OCCURRENCE |
|---|---------------------|--|--|
| Suisun marsh aster (<i>Aster lentus</i>) | FSC CNPS 1B | Inhabits banks of sloughs and bays in the Suisun Bay and the mid Central Valley basin. | Several CNDDDB records east and south of the property along sloughs draining to Suisun Bay. CNPS records in Fairfield South quad. High potential to occur on the property. |
| Ferris' milk-vetch (<i>Astragalus tener</i> var. <i>ferrisae</i>) | FSC CNPS 1B | Inhabits subalkaline vernal pools and grassland clay flats in the Delta and north Central Valley basin; extirpated from Solano Co. | Historic CNPS record several miles to the east of the property (Dozier quad). Not likely to occur on the property. |
| Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>) | FCS CNPS 1B | Inhabits subalkaline vernal pools and clay flats in grasslands; known from scattered locations in the Delta, Central Valley, and north SF Bay. | CNDDDB records north and east of the property. CNPS records in Fairfield South quad. High potential to occur on the property. |
| Heartscale (<i>Atriplex cordulata</i>) | FSC CNPS 1B | Inhabits alkali flats with sandy soils in the Delta and Central Valley basin. | Historic CNDDDB record several miles north of the property. Several CNPS records several miles north and east of the property. Unlikely to occur on the property. |
| Brittlescale (<i>Atriplex depressa</i>) | FSC CNPS 1B | Inhabits alkali scrub, clay soils in mesic grasslands in the Delta, Central Valley basin. | CNDDDB occurrence 5 miles east of the property near Potrero Hills Landfill (Denverton quad). Moderate potential to occur on the property. |
| San Joaquin spearscale (<i>Atriplex joaquiniana</i>) | FSC CNPS 1B | Inhabits alkali scrub and mesic grasslands in the Delta and Central Valley basin. | CNDDDB records at Travis AFB, Potrero Hills Landfill. CNPS occurrence in Fairfield South quad. Moderate potential to occur on the property. |
| Persistent-fruited saltscale (<i>Atriplex persistens</i>) | CNPS 1B | Inhabits alkali vernal pools, flats, and swales; known from scattered locations in the Delta and Central Valley basin. | No CNDDDB records in immediate vicinity of the property. CNPS records in Dozier quad several miles to the east. Not likely to occur on property. |
| Suisun thistle (<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>) | FE CNPS 1B | Inhabits the edges of brackish sloughs; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano, Co. | Excellent potential habitat near southern tip of the property along Peytonia Slough. |
| Hispid bird's-beak (<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>) | FSC CNPS 1B | Inhabits alkali vernal mesic grasslands; known from scattered locations in the Delta, southern Central Valley basin. | CNDDDB record 5 miles ENE of the property at Dozier vernal pools (Denverton quad). Moderate potential to occur on the property. |
| Soft bird's-beak (<i>Cordylanthus mollis</i> ssp. <i>mollis</i>) | FE/CR CNPS 1B | Inhabits brackish tidal marsh and seasonal alkali marsh; known from fewer than 20 populations in Contra Costa, Napa, and Solano Counties. | CNDDDB records along Suisun Slough and Hwy 12 (5 miles east of the property). CNPS records in Fairfield South quad. Moderate potential to occur on the property. |
| Recurved larkspur (<i>Delphinium recurvatum</i>) | FSC CNPS 1B | Inhabits alkali scrub and vernal mesic grasslands in the Delta and southern Central Valley basin. | Historic CNDDDB record (1902) near Vacaville. No CNPS records near the property. Not likely to occur. |
| Dwarf downingia (<i>Downingia pusilla</i>) | CNPS 2 | Inhabits vernal pools in the Delta and Central Valley. | No CNDDDB records in the vicinity of the property. CNPS occurrence in Denverton quad. Moderate potential to occur on the property. |

| SCIENTIFIC NAME | STATUS ¹ | HABITAT/RANGE | OCCURRENCE |
|--|---------------------|---|--|
| Adobe-lily (<i>Fritillaria pluriflora</i>) | FSC CNPS 1B | Inhabits adobe soils in grasslands and chaparral; occurs in the Delta, north Central Valley, and North SF Bay | Historic CNPS record NE of property (Elmira quad). No CNDDDB records in vicinity. Low potential to occur on the property. |
| Bogg's Lake hedge hyssop (<i>Gratiola heterosepala</i>) | CE CNPS 1B | Inhabits vernal pools and margins of vernal lakes; known from scattered locations in the Delta, Central Valley, and north SF Bay. | CNPS records several miles east of the property, no CNDDDB records in the vicinity. Low potential to occur on the property. |
| Carquinez goldenbush (<i>Isocoma arguta</i>) | FSC CNPS 1B | Inhabits alkaline flats, low benches and sides of mounds in swale areas; restricted to Solano and Contra Costa Counties. | Three CNDDDB records several miles east of the property (Denverton quad: Dozier vernal pools, near Creed Road, near Highway 12). Low potential to occur on the property. |
| Delta tule pea (<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>) | FSC CNPS 1B | Inhabits the banks of sloughs and bays in the Suisun Bay and Delta. | Numerous known occurrences south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh. High potential to occur on the property |
| Contra Costa goldfields (<i>Lasthenia conjugens</i>) | FE CNPS 1B | Inhabits vernal pools and vernal mesic grasslands; most remaining occurrences restricted to the Fairfield region. | Known to occur on and adjacent to the property. |
| Legenere (<i>Legenere limosa</i>) | FSC CNPS 1B | Inhabits vernal pools; known from scattered occurrences in the Delta, north Central Valley, and north SF Bay. | CNDDDB records east of the property. CNPS records in Denverton and Elmira quads. Moderate potential to occur on the property. |
| Mason's lilaeopsis (<i>Lilaeopsis masonii</i>) | FSC/CR CNPS 1B | Inhabits the edges of mudflats in brackish marsh and riparian scrub in the Delta. | CNDDDB records SE of the property along Montezuma Slough, Grizzly Island. CNPS records in Fairfield South quad. Low potential to occur on the property. |
| Little mousetail (<i>Myosurus minimus</i> ssp. <i>apus</i>) | FSC CNPS 3 | Inhabits alkaline vernal pools in the Delta, Central Valley, and South Coast. | CNPS records several miles east of the property, no CNDDDB occurrences in vicinity. Low potential to occur on the property. |
| Colusa grass (<i>Neostapfia colusana</i>) | FT/CE CNPS 1B | Inhabits large vernal pools and vernal lakes, occasionally stock ponds; known from fewer than 50 occurrences in the Delta, and southern Central Valley. | Known population in Olcott Lake (Jepson Prairie). Not likely to occur on the property due to a lack of suitable habitat. |
| Showy Indian clover (<i>Trifolium amoenum</i>) | FE CNPS 1B | Inhabits moist clay grassland soils; known from one extant occurrence in Marin County. | Historic records in Solano County (type locality), 4 miles northeast of the property. Not likely to occur on the property. |
| Saline clover (<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>) | CNPS 1B | Inhabits subalkaline vernal mesic grasslands and edges of vernal pools; restricted to the Delta and Central Coast. | No CNDDDB records in vicinity. CNPS records in Fairfield North quad. Known occurrence on properties to the north. High potential to occur on the property. |
| Crampton's tuctoria (<i>Tuctoria mucronata</i>) | FE/CE CNPS 1B | Inhabits large vernal pools and vernal lakes; known from only three occurrences in Solano and Yolo Counties. | Two populations in and adjacent to Jepson Prairie. Not likely to occur on the property due to a lack of suitable habitat. |

1. Federal Status: FE = Federal Endangered; FT = Federal Threatened; FC = Federal Candidate for listing; FSC = Federal Species of Concern; State Status: CE = California Endangered; CSSC = California Species of Special Concern; CFP = California Fully Protected Species; California Native Plant Society (CNPS) Lists: CNPS 1B = plants rare, threatened or endangered over entire range; CNPS 2 = plants rare, threatened or endangered in California but more common elsewhere; CNPS 3 = need more information to determine rarity/endangerment status.

3.2.1 2000-2002 Surveys

Mr. John Vollmar and Mr. Vir McCoy of Vollmar Consulting conducted special-status plant surveys on the Gentry and Tooby Properties during spring and summer, 2000. Mr. Vollmar conducted an additional special-status plant surveys during spring 2001. Gentry and Tooby Property spring field surveys were conducted May 3 and 4, 2000 with an additional summer survey conducted on August 15, 2000. The second spring survey was conducted on April 26, 2001.

Mr. John Vollmar and Mr. Vir McCoy of Vollmar Consulting conducted special-status plant surveys on the Barnfield Property during spring and summer, 2000. Mr. Vollmar conducted additional targeted surveys during spring 2001 and 2002, focusing on vernal pool, seasonal alkali marsh, and seasonally saturated annual grassland habitats. Barnfield Property spring surveys were conducted on May 3 and 4, 2000, with an additional summer survey conducted on August 15, 2000. The additional spring surveys of 2001 and 2002 were conducted in late April and early May.

Spring surveys conducted between 2000 and 2002 on all three Gentry properties targeted special-status plant species associated with vernal pool, annual grassland and seasonally saturated grassland habitats. Spring surveys were timed to coincide with peak blooms spring periods, which typically occurs during mid-spring. The summer surveys of 2000 targeted special-status plant species associated with alkali seasonal marsh and perennial marsh habitats. The summer surveys were timed to coincide with the peak summer bloom period, which typically occur during mid-summer.

3.2.2 2005 Surveys

Ms. Gretchen Vos, Mr. Vir McCoy, Ms. Shannon Hickey and Ms. Wendy Renz conducted special-status plant surveys on the Gentry, Tooby and Barnfield Properties on April 6, 7, 8, 11, 12, 13, and 15, 2005. The surveys targeted special-status plant species associated with vernal pool, annual grassland, alkaline seasonal marsh, and seasonally saturated grassland habitats. The surveys were timed to coincide with peak spring bloom. An additional survey will be conducted in mid-summer, 2005. This late survey will focus on the alkali seasonal marsh and perennial brackish marsh habitats associated with the upper Suisun March and will be timed, to coincide with the peak summer bloom period. Results from the mid-summer, 2005 survey will be incorporated later into an amended report.

4.0 RESULTS

Five special-status plant species were observed on the three Gentry properties: Contra Costa goldfields (*Lasthenia conjugens*), alkali milk-vetch (*Astragalus tener* var. *tener*), saline clover (*Trifolium depauperatum* var. *hydrophilum*), Suisun Marsh aster (*Aster lentus*), and Delta tulle pea (*Lathyrus jepsonii* ssp. *jepsonii*). Contra Costa goldfields is a federally listed endangered species. Saline clover is a California Native Plant Society 'List 1B' species (plants rare, threatened or endangered over their entire range), and alkali milk-vetch, Delta tulle pea and Suisun Marsh aster are all federal species of concern. The occurrence, distribution and habitats for each of the above special-status species is described below. Table 2 at the end of this report section summarizes the number of occurrences and area of each species by property area. Figures 1 through 3 (end of report section) show the individual occurrences of Contra Costa goldfields, saline clover and alkali milk-vetch, respectively, on the three Gentry properties. The occurrences are mapped and numbered as individual points and polygons. Figure 4 (end of report section) is a summary map of all five special-status species on the three Gentry properties.

4.1 Alkali Milk-vetch

Listing Status: Federal Species of Concern, CNPS 1B

Alkali milk-vetch is a small, purple-flowered annual in the pea family (Fabaceae). It is a federal species of concern and is considered rare and endangered (List 1B) by CNPS. It is associated with seasonally saturated grasslands with alkaline soils as well as the upper margins of alkaline vernal pools. Its historic range included the Central Coast, San Francisco Bay, Delta and mid Central Valley regions. However, due to habitat loss, it has been extirpated from the Central Coast and Bay regions and most areas in the Central Valley. Its remaining stronghold is in the Delta, especially Solano County.

Table 2 summarizes the number of occurrences of alkali milk-vetch for each property. Figure 3 shows the occurrences on the three Gentry properties.

4.1.1 Gentry Property

2000 – 2002 Surveys

Alkali milk-vetch was observed in one location in seasonally saturated annual grassland near the western end of the Gentry Property. This location consisted of approximately 20 plants in a one-meter square area.

2005 Surveys

The 2000 occurrence of alkali milk-vetch was relocated during 2005. It was one of seven occurrences located on the Gentry Property during the 2005 surveys. The occurrence, located in 2000 as 20 plants, was relocated in 2005 as a single plant. This species is known to bloom sporadically (Witham pers. comm.), and the change in number of plants from year to year is expected. Of the remaining six occurrences, three occurrences were located north of the Union

Pacific Railroad and three were located south of the railroad. The northern occurrences included a single plant in the seasonally saturated grassland in the west, and two occurrences in the middle of the property, each consisting of two plants also located in the seasonally saturated grassland habitat. The southern occurrences include a single plant, an occurrence of two plants and an occurrence of three plants, all in weedy (ruderal pasture) annual grassland habitat. As this species is known to bloom sporadically from season to season, it is likely that the additional 2005 occurrences of alkali milk-vetch are to be expected during favorable years.

4.1.2 Tooby Property

2000 – 2002 Surveys

No occurrences of alkali milk-vetch were observed on the Tooby Property during the 2000-2002 surveys.

2005 Surveys

No occurrences of alkali milk-vetch were observed on the Tooby Property during the 2005 surveys. While habitat for alkali milk-vetch does occur, the species is unlikely to occur given since it wasn't found during three years of surveys.

4.1.3 Barnfield Property

2000 – 2002 Surveys

Alkali milk-vetch was observed in one location near the northwest corner of the Barnfield Property. This occurrence, located just southeast of a large colony of Contra Costa goldfields, consisted of several hundred plants. This population was observed in 2000 and 2002 but not in 2001.

2005 Surveys

The 2000 occurrence of alkali milk-vetch was relocated during 2005 surveys in the northwestern region of the Barnfield Property. The 2005 occurrence is consistent with the 2000 survey. Approximately 200 plants were located in a 175 square foot area. An additional new occurrence was located during 2005. The second occurrence, also located in the northwestern region of the property, consists of approximately 50 plants scattered in a 141 square-foot area.

4.2 Contra Costa Goldfields

Listing Status: Federally Endangered

Contra Costa goldfields is a small, yellow-flowered annual in the sunflower family (Asteraceae). It is a federally listed as endangered and is considered rare and endangered (List 1B) by CNPS. It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands. Approximately 15 populations of the species have been documented, all of which are

in California's Delta and coastal regions, and a large majority of which are in the immediate vicinity of Fairfield, Solano County.

Table 2 summarizes the number of occurrences of Contra Costa goldfields for each property. Figure 1 shows the occurrences on the three Gentry properties. Together, these occurrences may be regarded as representing one population of the species.

4.2.1 Gentry Property

2000 – 2002 Surveys

During surveys conducted in 2000-2002, one occurrence of Contra Costa goldfields was observed on the Gentry Property near the northeast corner. Twenty to thirty plants were observed in a small depression within the seasonally saturated annual grasslands.

2005 Surveys

The single past occurrence of Contra Costa goldfields was relocated during the 2005 surveys. This occurrence consisted of approximately 20 plants in approximately the same location as the previous 2000 survey. One additional occurrence was located in the northeast region of the Gentry Property and three additional occurrences were located in the southwest region of the property. The occurrence in the northeast region consisted of nine plants in a small depression within seasonally saturated grassland habitat. Of the three occurrences in the southwest region, two were single plant occurrences located on the edge of seasonally saturated grassland habitat. The third occurrence consisted of approximately 50 plants scattered in a 583 square foot area within the seasonally saturated grassland habitat adjacent to a man-made ditch.

4.2.2 Tooby Property

2000 – 2002 Surveys

During surveys conducted in 2000-2002, four occurrences of Contra Costa goldfields were observed on the Tooby Property. Two occurrences, each consisting of a single plant were located in two vernal pools in the northwest region of the property. According to Dr. Robert Ornduff, a *Lasthenia* expert from U.C. Berkeley (recently deceased), these pools used to support larger goldfields populations but the lack of grazing over the past several years has probably stifled their growth (Ornduff pers. comm.). Two additional occurrences were located in a larger vernal pool located in the southwest region of the property. These two occurrences each consisted of ten to twenty plants near the upper edge of the pool basin.

2005 Surveys

A total of ten occurrences of Contra Costa Goldfields were located on the Tooby Property during the 2005 surveys, four occurrences were originally located in 2000 and six occurrences are new populations. The two single occurrences of the 2000 survey were relocated in the two small vernal pools in the northern region of the property. The two moderate sized occurrences of the

2000 surveys were relocated in 2005 as single plant occurrences in the larger vernal pool in the south end of the property. Of the remaining six occurrences, one new occurrence was located in the large vernal pool in the south and consisted of a dense patch of approximately 100 plants in a 100 square-foot area. Five additional occurrences were located in the north-central region of the property along the west edge of the brackish marsh habitat, including an occurrence of 20 plants in a 100 square-foot area; an occurrence of 15 plants in a 100 square-foot area; an occurrence of 100 plants in a 536 square-foot area; an occurrence of 30 plants scattered in a 728 square-foot area; and an occurrence of 100 plants scattered in a 13,027 square-foot (0.3 acre) area.

4.2.3 Barnfield Property

2000 – 2002 Surveys

During surveys conducted in 2000-2002 on the Barnfield Property, Contra Costa goldfields were observed in several scattered colonies in the northwestern portion of the property that can be grouped into four primary areas. A few thousand plants were observed in five small, shallow vernal pools just south of Cordelia Road and west of Ledgewood Creek. Several thousand plants were observed along a low-gradient, seasonally saturated grassland slope near the northwestern corner of the property. This slope is just above a low-lying area that supports seasonal alkali marsh. It appears that the goldfields occupy an intermediate area along the slope gradient, which provides sufficient prolonged soil saturation without excessive soil salinity. In addition to these occurrences, a few thousand plants were observed across a broad area in the far western portion of the site. This area consists of a terrace surrounding a small hill. The terrace has undulating mound/basin topography. The basins are generally small, less than five feet in diameter. Contra Costa goldfields occurred as individuals and small clusters within some of these basins.

2005 Surveys

The four previously mapped large scattered colonies of Contra Costa goldfields were relocated during the 2005 surveys. The four colonies are more accurately mapped as three large polygons, 14 smaller polygons, and one single plant occurrence. The general locations of the 2005 occurrences are similar to the year 2000 surveys. The relocated occurrences are still within the northwest region of the Barnfield Property, south of Cordelia Road and east of Orehr Road. The three large occurrences included an occurrence of roughly 7.7 million plants in a 5.2 acres area; an occurrence of 10,000 plants in a 3.5 acre area; and an occurrence of 3,000 plants scattered in an 8.5 acre area. The 14 smaller polygons varied from as few as 5 plants scattered in a 150 square-foot area to a dense patch of 10,000 plants in a 0.25 acre area.

While the occurrences of Contra Costa goldfields within the Barnfield Property are within the same general area of the property, significant changes in the extent and density of both the large and small polygons were noted. In previous years, the Contra Costa goldfields populations were typically limited to the ecotone of the lower edges of the seasonally saturated annual grassland habitat and the alkaline seasonal marsh habitat. In 2005 the Contra Costa goldfields extended west and up beyond this ecotone into the seasonally saturated annual grasslands and uplands where annual grasslands dominate. While Contra Costa goldfields did occur in previous years in the more upland sites, the occurrences were limited to small scattered patches within micro

depressions. During the high rainfall year of 2005, the plants in the two largest occurrences, (see mapped occurrence numbers 34 and 35 on Figure 1), were scattered more or less continuously throughout the entire mapped polygons on a density gradient from high to low in an east to west direction, i.e. more dense in the east adjacent to the alkali seasonal marsh habitat, and more lightly scattered in the upper annual grassland habitat.

In addition to the increase in density, total extent and habitat location of the larger occurrences, the smaller occurrences of Contra Costa goldfields in 2005 also showed changes from previous years in density of plants per area and habitat. Many of the smaller polygons located in 2005 include a large number of plants in a relatively small total area. These smaller occurrences were often so dense as to obscure the ground. In addition, like the larger occurrences, the small occurrences extended to outside of the seasonal alkali marsh edge and into the seasonally saturated annual grassland.

4.3 Delta Tule Pea

Listing Status: Federal Species of Concern, CNPS 1B

Delta tule pea is a robust, pink-flowered perennial in the pea family (Fabaceae). It has a climbing growth habit with stems up to eight feet long. It is a federal species of concern and is considered rare and endangered (List 1B) by the California Native Plant Society (CNPS). It occurs in marsh habitat along the margins of brackish water (and occasionally freshwater) bays and sloughs. Its range is restricted to the upper San Pablo Bay and Delta regions of California. It historically occurred in the southwestern San Francisco Bay (Santa Clara County) but has been extirpated from this region due to habitat loss.

Table 2 summarizes the number of occurrences of Delta tule pea for each property. The occurrences are mapped on Figure 4.

4.3.1 Gentry and Tooby Properties

2000 – 2002 and 2005 Surveys

Delta tule pea was not located on the Gentry and Tooby Properties. It is not expected to occur since the species was not found and the property does not have any natural slough channels connected to the Suisun Marsh.

4.3.2 Barnfield Property

2000 – 2002 Surveys

During the 2000 survey, Delta tule pea was observed in one localized area on the Barnfield Property, at the far southern tip along the eastern bank of Peytonia Slough. This occurrence was estimated to include 400 plants.

2005 Results

Surveys were not conducted for Delta tule pea in 2005. The habitat for this species is well outside the area of project influence.

4.4 Saline Clover

Listing Status: CNPS List 1B

Saline clover is a pink flowered annual and member of the pea family (Fabaceae). It is considered to be rare and endangered (List 1B) by CNPS. It occurs in mesic grasslands and around vernal pools, typically in areas with subalkaline soils. It occurs in scattered location through the Delta, San Francisco Bay and Central Coast regions of California. It is distinguished from the other three varieties of this species by the unique shape and size of its involucre (the bract below the flower head). While saline clover is does not have federal status, prior to the surveys on the Gentry property, saline clover was known from only three sites in Solano County. Additional sites in the San Francisco Bay area include one site in Yolo County, four sites in Sonoma County, and two sites in Napa County. Saline clover is threatened by the loss of seasonally saturated annual grassland and vernal pool habitat.

Table 2 summarizes the number of occurrences of Saline clover for each property. The occurrences are mapped on Figure 2.

4.4.1 Gentry Property

2000 – 2002 Surveys

During surveys in 2000-2002, one large occurrence of saline clover was observed around the upper margins of the large vernal pool on the Gentry Property. The population size was estimated at several hundred plants.

2005 Surveys

A total of 16 occurrences of saline clover were located during 2005 surveys. The original occurrence located in 2000 was relocated during the 2005 surveys. This occurrence is now mapped as seven individual occurrences surrounding the large vernal pool in the eastern region of the Gentry Property (see point and polygon numbers 8 through 14 on Figure 2). Together, these seven mapped points and polygons consisted of approximately 200 plants scattered in a total area of 15,292 square feet, or approximately 0.35 acres. Seven additional occurrences were located in or on the edge of the seasonally saturated grassland habitat in the northwest region of the property. These seven occurrences consisted of three occurrences each with a single plant; a small polygon of 15 plants scattered in a 100 square-foot area; twenty plants scattered in a 971 square-foot area; forty plants scattered in a 1,241 square-foot area; and 100 plants scattered in a 0.69 acre area. Two additional occurrences (31 and 32) were located south of the Union Pacific Railroad line in the southern region of the Gentry Property within a weedy (ruderal pasture) annual grassland habitat. One occurrence consisted of 15 plants scattered in a 0.17 acre area and

another consisted of 50 plants scattered in a 0.12 acre area. The seven occurrences outside of the large vernal pool and the two occurrences south of the railroad are new occurrences since the 2000 surveys. Saline clover is known to bloom sporadically from year to year based on weather conditions, and is often not present in the same location each year (Witham, pers. comm.). The increase in number of plants from 2000 to 2005 is therefore to be expected.

4.4.2 Tooby Property

2000 – 2002 Surveys

Saline clover was not located in the Tooby Property during the 2000-2002 surveys. Habitat does exist for this species in the seasonally saturated grasslands and seasonal alkali marsh in this property.

2005 Surveys

A total of 3 occurrences of saline clover were located in the Tooby Property during 2005 surveys. One occurrence of 15 plants in a 100 square-foot area was located in the large vernal pool in the southern region of the property. Two additional occurrences were located in the small vernal pools in the northern region of the property. These included 30 plants in a 231 square-foot area and five plants in a 100 square-foot area.

4.4.3 Barnfield Property

2000 – 2002 Surveys

Saline clover was not located in the Barnfield Property during the 2000-2002 surveys.

2005 Surveys

A total of 40 occurrences of saline clover were located throughout the Barnfield Property. Most of the occurrences were located in seasonally saturated annual grasslands in the western region of the property, with minor amounts in nearby upland annual grasslands and a few occurrences were located in the shallow vernal pools in the far northeast region of the property. Together, these 40 occurrences totaled approximately 6,300 plants in a total combined area of 19.036 acres. These occurrences are individually summarized in Table 2.

Where saline clover is more heavily grazed, the flowers are often less visible and the plants are smaller and take on a more prostrate growth habit. The lack of saline clover occurrences located in the 2000-2002 surveys is likely related to the effects of grazing pressure as well as the sporadic nature of saline clover. As described above, saline clover is known to bloom sporadically from year to year based on weather conditions, and is often not present in the same location each year. More importantly, the 2000-2002 surveys were focused more heavily on the two properties intended for proposed development projects, the Gentry and Tooby Properties, and less so on the Barnfield Property.

4.5 Suisun Marsh Aster

Listed Status: Federal Species of Concern

Suisun Marsh aster is a three to four foot tall lavender-flowered perennial in the sunflower family (Asteraceae). It is a federal species of concern and is considered rare and endangered (List 1B) by the California Native Plant Society (CNPS). It occurs along the margins of bays and the banks of slough channels with brackish waters. Its range is restricted to the upper San Pablo Bay and Delta regions of California.

Table 2 summarizes the number of occurrences of Suisun Marsh aster for each property. The occurrences are mapped on Figure 4.

4.5.1 Gentry Property

2000 – 2002 and 2005 Surveys

Suisun Marsh aster was not observed in the Gentry Property during the 2000-2002 and the 2005 surveys. It is not expected to occur in this area due to a lack of suitable habitat.

4.5.2 Tooby Property

2000 – 2002 Surveys

Suisun Marsh aster was observed in scattered locations along the southern portion of the drainage canal that traverses the Tooby Property. The canal is subject to daily tidal fluctuations of mildly brackish waters. Total population size was estimated at 200 plants.

2005 Surveys

An additional plant survey will be conducted in mid-summer, 2005 on the Tooby Property. This survey will focus on the perennial brackish marsh habitat and will be timed to coincide with the peak summer bloom period. Any changes to the 2000-2002 occurrence results for Suisun Marsh aster will be incorporated later into an amended report.

4.5.3 Barnfield Property

2000 – 2002 Surveys

Suisun Marsh aster was observed in several scattered colonies along slough banks in the southern and southeastern portions of the property. Dense colonies were also observed along the two canals on the property. Total population size of all colonies was estimated at 4,000 plants.

2005 Surveys

An additional plant survey will be conducted in mid-summer, 2005 in the Barnfield Property area. This survey will focus on the perennial brackish marsh habitat and will be timed to coincide with the peak summer bloom period. Any changes to the 2000-2002 occurrence results for Suisun Marsh aster will be incorporated later into an amended report.

4.6 Other Special-Status Plant Species

No other special-status plants were observed on the site. The vernal pools on the site provide potential habitat for several special-status plant species listed in Table 1 such as dwarf downingia (*Downingia pusilla*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legenere limosa*). Most known occurrences in the region of these species are several miles to the east. None of these species was observed during field surveys. Other vernal pool species listed in Table 1, including two Orcutt grasses, Colusa grass (*Neostapfia colusana*) and Crampton's tuctoria (*Tuctoria mucronata*), were considered target species during surveys. These two grasses typically occupy large and/or deep vernal pools that remain inundated into the summer during an average rain year. The large pool in the Gentry Property can be considered possible habitat for Colusa grass and Crampton's tuctoria. However, the two Orcutt grasses were not observed in this habitat and are not likely to occupy this habitat or any of the three Gentry properties based on the three years of surveys and because this vernal pool is artificially created.

The alkali seasonal wetlands on the site provide potential habitat for several of the special-status species listed in Table 1, especially San Joaquin spearscale (*Atriplex joaquiniana*) and other species of saltbush (*Atriplex* spp.). San Joaquin spearscale is known from Travis Air Force Base (a few miles to the northeast of the property) in habitat similar to that observed on the property (personal observation of author). However, since none of these species was observed during field surveys, they are unlikely to occur on the property.

Several of the species in Table 1 are associated with marsh habitat along brackish sloughs and bays margins including Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*), soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*), and Mason's lilaeopsis (*Lilaeopsis masonii*). Suisun marsh thistle is known from only two locations, including one along lower Peytonia Slough. There is potential habitat for this species along the slough channels in the southern portion of the property. While this species was not observed during field surveys, it may have been missed since it can be cryptic and areas where it might grow were difficult to access. Mason's lilaeopsis and soft bird's beak are more likely to occur south of the property closer to Grizzly Bay though there is low potential for them to occur along sloughs in the far southern portion of the property. As with Suisun marsh thistle, these species could have been missed during field surveys due to difficulty of access in the area.

4.7 Wildflower Fields

It is noteworthy that the three large mapped occurrences of Contra Costa goldfield on the Barnfield Property (see the mapped polygon numbers 34, 35 and 36 on Figure 1) are included within significant wildflower fields that contain a high cover of wildflower species associated

with seasonally saturated grasslands and vernal pools. The wildflower fields are also notable for their lack of introduced annual grasses. In addition to the high cover of Contra Costa goldfields, other common wildflower species include California goldfields, (*Lasthenia californica*), smooth goldfields (*Lasthenia glaberrima*), three varieties of cowbag clover (*Trifolium depauperatum* var. *hydrophilum*, *Trifolium depauperatum* var. *amplectens*, and *Trifolium depauperatum* var. *depauperatum*), variegated clover, (*Trifolium variegatum*), butter and eggs (*Triphysaria eriantha*), little owl's clover (*Triphysaria pusilla*), valley tassels (*Castilleja attenuata*), Vasey's coyote-thistle (*Eryngium vaseyi*), flat-faced downingia (*Downingia pulchella*), Brass buttons (*Cotula coronopifolia*), and stipitate popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*). The native vernal pool grass, California semaphore grass (*Pleuropogon californicus*), is a common associate in the lower depressions within the wildflower fields. Wildflower Fields are all identified as "sensitive" plant communities by the State of California based on statewide rarity and continuing decline. Occurrences of these communities are included in the CDFG's Natural Diversity Data Base (CNDDDB 2005). The three large polygons mapped as Contra Costa goldfield occurrences are also the boundaries of three wildflower fields present on the Barnfield Property.

Table 2. Summary of Special-Status Plant Occurrences Identified During 2000 - 2005 Botanical Surveys Conducted by Vollmar Consulting, on the Gentry, Tooby & Barnfield Properties, Solano County, California.

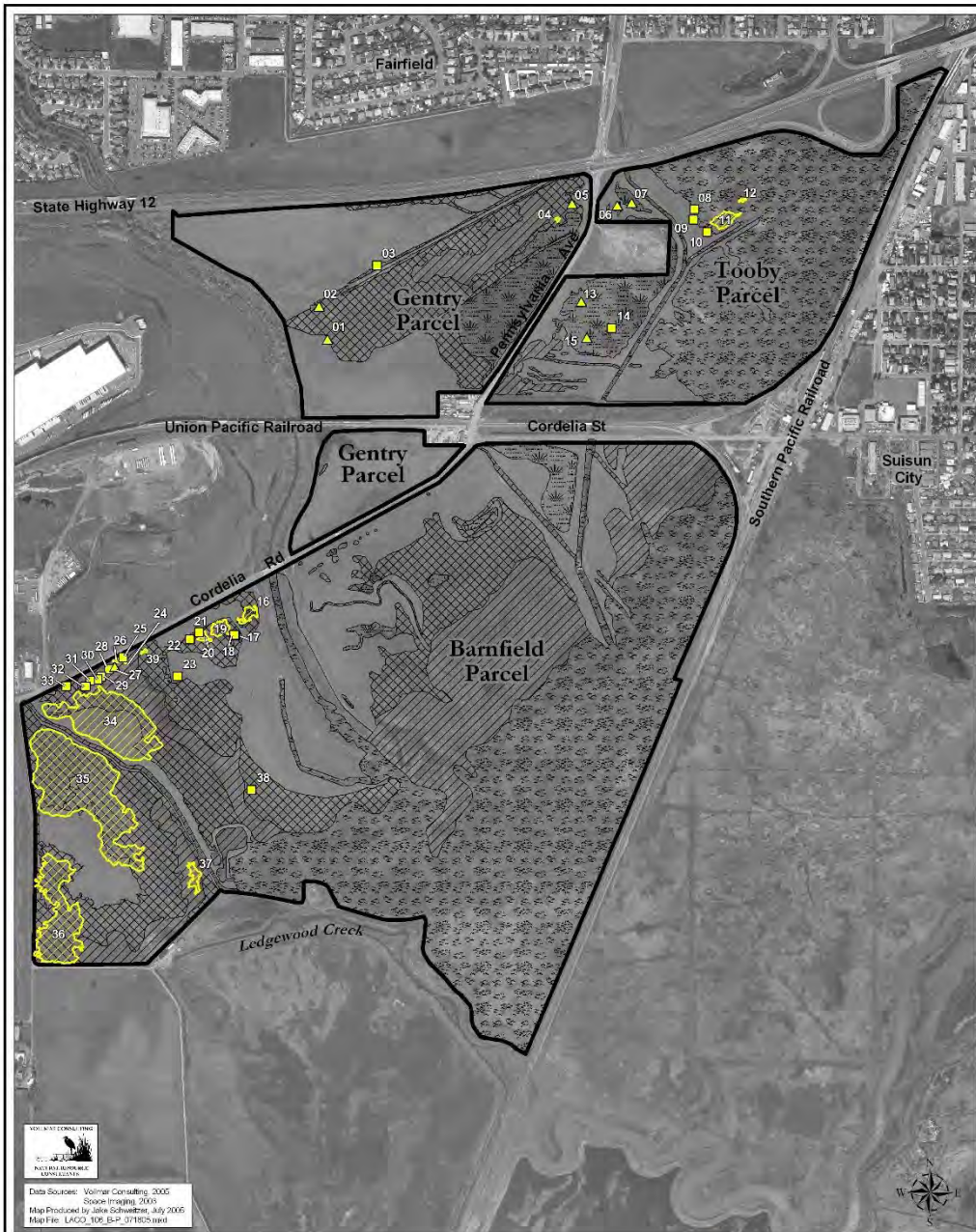
| Alkali Milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>) | | | | |
|--|-----------------------|--------------------|----------------------------------|--------------------------------|
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Gentry | 01 | 1 | 100.00 | - |
| Gentry | 02 | 1 | 100.00 | - |
| Gentry | 03 | 2 | 100.00 | - |
| Gentry | 04 | 2 | 100.00 | - |
| Gentry | 05 | 2 | 100.00 | - |
| Gentry | 06 | 1 | 100.00 | - |
| Gentry | 07 | 3 | 100.00 | - |
| Total Gentry: | 7 Occurrences | 12 | 700 Sq. Ft. | 0.016 Ac. |
| Barnfield | 08 | ~200 | 174.56 | - |
| Barnfield | 09 | ~50 | 141.43 | - |
| Total Barnfield: | 2 Occurrences | ~250 | 315.99 Sq. Ft. | 0.007 Ac. |
| TOTAL ALL SITES: | 9 Occurrences | ~260 | 1015.99 Sq. Ft. | 0.023 Ac. |
| Contra Costa Goldfields (<i>Lasthenia conjugens</i>) | | | | |
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Gentry | 01 | ~20 | 100.00 | - |
| Gentry | 02 | 1 | 100.00 | - |
| Gentry | 03 | 9 | 100.00 | - |
| Gentry | 04 | ~50 | 582.88 | - |
| Gentry | 05 | 1 | 100.00 | - |
| Total Gentry: | 5 Occurrences | ~80 | 982.88 Sq. Ft. | 0.023 Ac. |
| Tooby | 06 | 1 | 100.00 | - |
| Tooby | 07 | 1 | 100.00 | - |
| Tooby | 08 | ~20 | 100.00 | - |
| Tooby | 09 | 15 | 100.00 | - |
| Tooby | 10 | ~100 | 536.41 | - |
| Tooby | 11 | ~100 | 13,027.31 | - |
| Tooby | 12 | ~30 | 727.59 | - |
| Tooby | 13 | 1 | 100.00 | - |
| Tooby | 14 | ~100 | 100.00 | - |
| Tooby | 15 | 1 | 100.00 | - |
| Total Tooby: | 10 Occurrences | ~365 | 14,991.31 Sq. Ft. | 0.344 Ac. |
| Barnfield | 16 | ~4000 | 8,159.88 | - |
| Barnfield | 17 | ~250 | 100.00 | - |
| Barnfield | 18 | ~200 | 315.87 | - |
| Barnfield | 19 | ~10000 | 10,786.47 | - |
| Barnfield | 20 | ~2000 | 2,898.03 | - |
| Barnfield | 21 | ~150 | 306.02 | - |
| Barnfield | 22 | ~200 | 100.00 | - |
| Barnfield | 23 | 5 | 150.37 | - |

| Contra Costa Goldfields (<i>Lasthenia conjugens</i>) cont'd. | | | | |
|--|-----------------------|--------------------|----------------------------------|--------------------------------|
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Barnfield | 24 | ~150 | 539.69 | - |
| Barnfield | 25 | ~20 | 100.00 | - |
| Barnfield | 26 | ~120 | 1,113.07 | - |
| Barnfield | 27 | 1 | 100.00 | - |
| Barnfield | 28 | ~100 | 100.00 | - |
| Barnfield | 29 | ~40 | 100.00 | - |
| Barnfield | 30 | ~30 | 100.00 | - |
| Barnfield | 31 | ~25 | 100.00 | - |
| Barnfield | 32 | ~30 | 100.00 | - |
| Barnfield | 33 | ~50 | 100.00 | - |
| Barnfield | 34 | ~7,695,000 | 224,576.17 | - |
| Barnfield | 35 | ~3,000 | 368,675.09 | - |
| Barnfield | 36 | ~10,000 | 154,338.15 | - |
| Barnfield | 37 | ~5,000 | 10,017.25 | - |
| Barnfield | 38 | ~20 | 118.55 | - |
| Barnfield | 39 | ~300 | 716.73 | - |
| Total Barnfield: | 24 Occurrences | ~8,000,000 | 783,711.34 Sq. Ft. | 17.991 Ac. |
| TOTAL ALL SITES: | 39 Occurrences | ~8,000,000 | 799,685.53 Sq. Ft. | 18.358 Ac. |
| Saline Clover (<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>) | | | | |
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Gentry | 01 | 1 | 100.00 | - |
| Gentry | 02 | ~15 | 100.00 | - |
| Gentry | 03 | ~20 | 970.94 | - |
| Gentry | 04 | ~40 | 1,241.38 | - |
| Gentry | 05 | 1 | 100.00 | - |
| Gentry | 06 | 1 | 100.00 | - |
| Gentry | 07 | ~100 | 29,916.77 | - |
| Gentry | 08 | ~20 | 749.61 | - |
| Gentry | 09 | 4 | 100.00 | - |
| Gentry | 10 | 1 | 100.00 | - |
| Gentry | 11 | 1 | 100.00 | - |
| Gentry | 12 | ~80 | 10,963.21 | - |
| Gentry | 13 | ~20 | 274.98 | - |
| Gentry | 14 | ~80 | 3,242.63 | - |
| Gentry | 31 | ~15 | 7,458.72 | - |
| Gentry | 32 | ~50 | 5,284.07 | - |
| Total Gentry: | 16 Occurrences | ~450 | 60,802.31 Sq. Ft. | 1.396 Ac. |
| Tooby | 15 | 5 | 100.00 | - |
| Tooby | 16 | ~30 | 230.75 | - |
| Tooby | 17 | ~15 | 100.00 | - |
| Total Tooby: | 3 Occurrences | ~50 | 430.75 Sq. Ft. | 0.010 Ac. |

Saline Clover (*Trifolium depauperatum* var. *hydrophilum*) cont'd.

| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
|--------------------------|-----------------------|--------------------|----------------------------------|--------------------------------|
| Barnfield | 18 | ~20 | 1,110.20 | - |
| Barnfield | 19 | ~50 | 828.99 | - |
| Barnfield | 20 | ~10 | 34,985.23 | - |
| Barnfield | 21 | 2 | 100.00 | - |
| Barnfield | 22 | 6 | 2,504.46 | - |
| Barnfield | 23 | 16 | 1,687.58 | - |
| Barnfield | 24 | 1 | 100.00 | - |
| Barnfield | 25 | 46 | 89,023.42 | - |
| Barnfield | 26 | 1 | 100.00 | - |
| Barnfield | 27 | 3 | 925.19 | - |
| Barnfield | 28 | 3 | 16,559.60 | - |
| Barnfield | 29 | ~70 | 667.87 | - |
| Barnfield | 30 | 3 | 7,067.01 | - |
| Barnfield | 33 | ~4,000 | 25,036.35 | - |
| Barnfield | 34 | 5 | 100.00 | - |
| Barnfield | 35 | ~50 | 5,949.08 | - |
| Barnfield | 36 | ~700 | 489,450.56 | - |
| Barnfield | 37 | ~25 | 4,274.11 | - |
| Barnfield | 38 | 1 | 100.00 | - |
| Barnfield | 39 | ~25 | 808.81 | - |
| Barnfield | 40 | 3 | 255.64 | - |
| Barnfield | 41 | 6 | 959.00 | - |
| Barnfield | 42 | 1 | 100.00 | - |
| Barnfield | 43 | ~15 | 346.13 | - |
| Barnfield | 44 | ~20 | 381.28 | - |
| Barnfield | 45 | ~550 | 86,266.85 | - |
| Barnfield | 46 | ~25 | 1,214.64 | - |
| Barnfield | 47 | ~60 | 10,274.15 | - |
| Barnfield | 48 | ~100 | 17,159.19 | - |
| Barnfield | 49 | ~125 | 5,281.55 | - |
| Barnfield | 50 | ~200 | 10,959.85 | - |
| Barnfield | 51 | ~10 | 272.13 | - |
| Barnfield | 52 | ~30 | 168.35 | - |
| Barnfield | 53 | ~10 | 482.19 | - |
| Barnfield | 54 | ~10 | 674.59 | - |
| Barnfield | 55 | 3 | 174.41 | - |
| Barnfield | 56 | ~25 | 517.68 | - |
| Barnfield | 57 | ~125 | 11,275.87 | - |
| Barnfield | 58 | 2 | 100.00 | - |
| Barnfield | 59 | 5 | 967.57 | - |
| Total Barnfield: | 40 Occurrences | ~6,300 | 829,209.53 Sq. Ft. | 19.036 Ac. |
| TOTAL ALL SITES: | 59 Occurrences | ~6,800 | 890,442.59 Sq. Ft. | 20.442 Ac. |

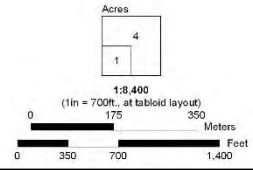
| Suisun Marsh Aster (<i>Aster lentus</i>) | | | | |
|---|-----------------------|--------------------|----------------------------------|--------------------------------|
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Tooby | N/A | ~200 total | 11,100.28 | - |
| Tooby | N/A | | 10,086.62 | - |
| Barnfield | N/A | ~4,000 total | 22,083.17 | - |
| Barnfield | N/A | | 19,646.32 | - |
| Barnfield | N/A | | 2,104.68 | - |
| Barnfield | N/A | | 2,667.94 | - |
| Barnfield | N/A | | 2,492.01 | - |
| Barnfield | N/A | | 3,004.48 | - |
| Barnfield | N/A | | 1,305.80 | - |
| Barnfield | N/A | | 2,000.07 | - |
| TOTAL ALL SITES: | 10 Occurrences | | ~4,200 total | 76,491.37 Sq. Ft. |
| Delta Tule Pea (<i>Lathyrus jepsonii</i> ssp. <i>jepsonii</i>) | | | | |
| Property Location | Map ID # | # of Plants | Occurrence Size (Sq. Ft.) | Occurrence Size (Acres) |
| Barnfield | N/A | ~400 | 7,073.40 | - |
| TOTAL ALL SITES: | 1 Occurrence | ~400 | 7,073.40 Sq. Ft. | 0.162 Ac. |

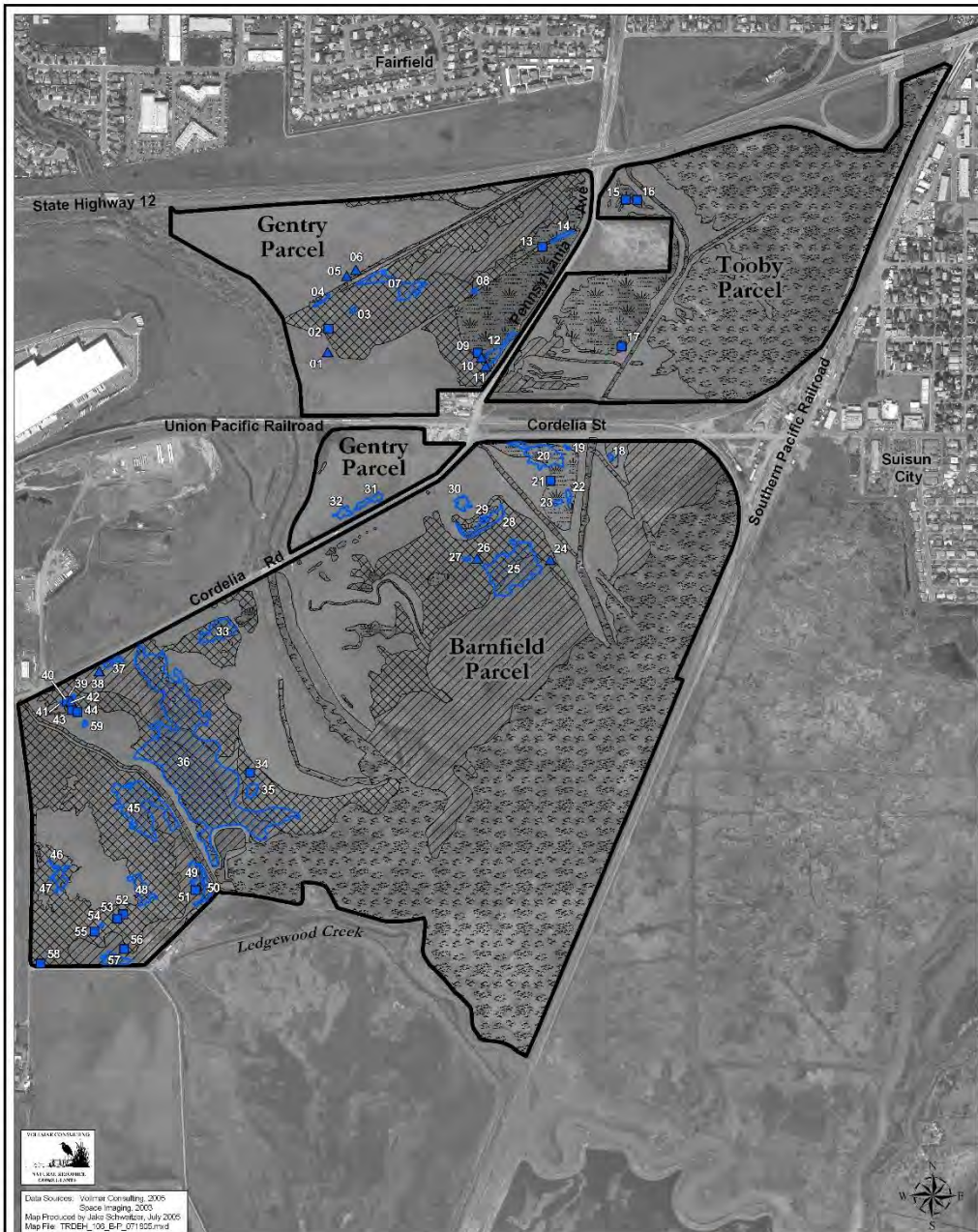


Data Sources: Volmer Consulting, 2005
 Socon Imaging, 2005
 Map Produced by John Schwabbe, July 2005
 Map File: LAGO_106_B-P_071805.mxd

- Legend**
- ▲ Contra Costa Goldfields (*Lastheria conjugens*), Individual Plant Occurrence (0.016 acres total)
 - Area of Occurrence of Contra Costa Goldfields Less Than 0.01 acres (0.032 acres total)
 - Area of Occurrence of Contra Costa Goldfields (18.310 acres)
- Habitat Type**
- ▨ Alkali Seasonal Marsh
 - ▧ Riparian
 - ▩ Seasonally Saturated Annual Grassland
 - Upland
 - Vernal Pool
 - ▨ Perennial Brackish Marsh
 - Property Boundaries

FIGURE 1
DISTRIBUTION OF
CONTRA COSTA GOLDFIELDS
 Gentry Properties
 Solano County, California



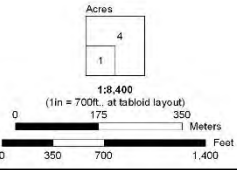


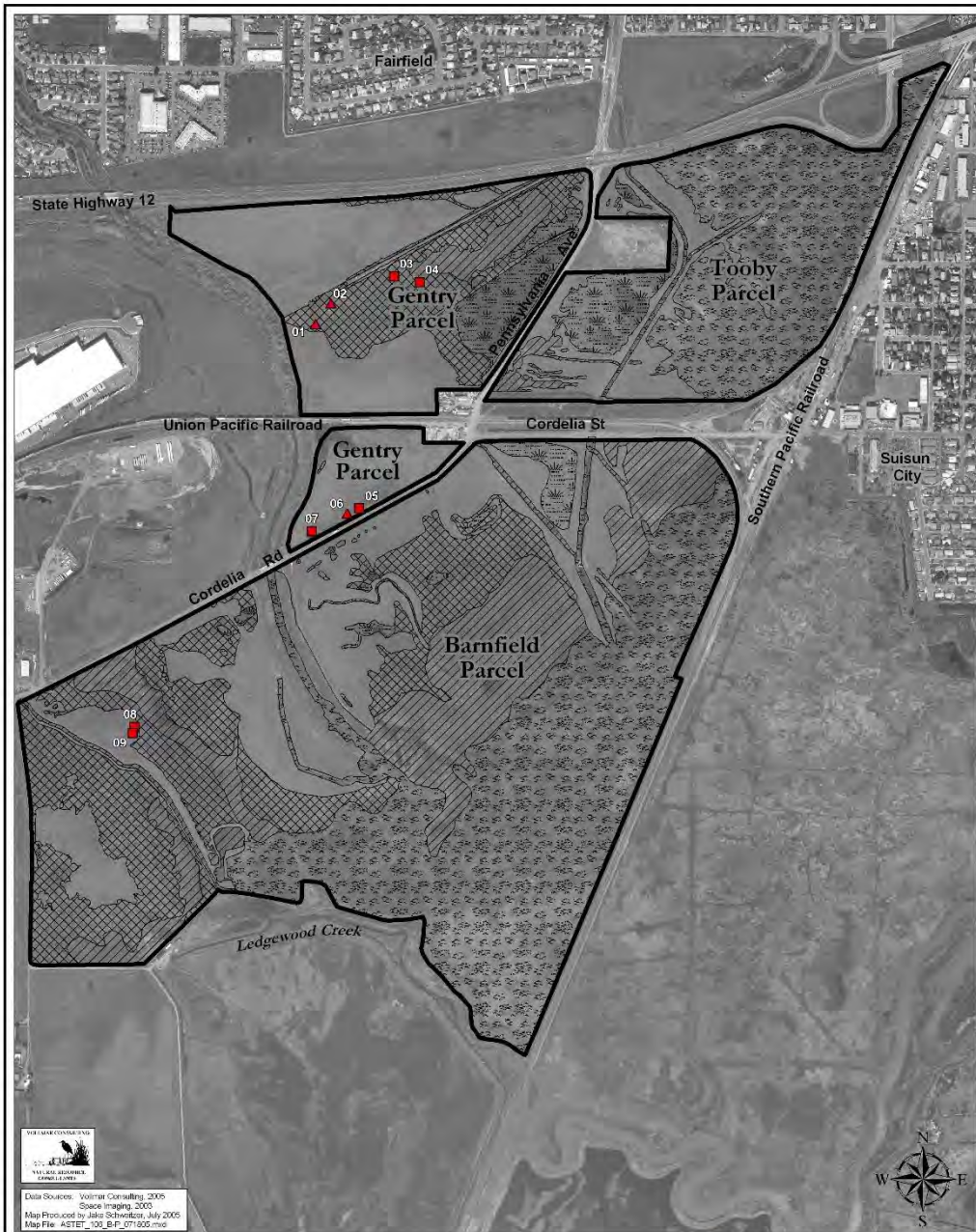
Data Sources: Volume Consulting, 2005
 Space Imaging, 2003
 Map Produced by Jake Schwilke, July 2005
 Map File: TRDGH_09_B47_071522.mxd



- Legend**
- ▲ Saline Clover (*Trifolium depauperatum* var. *hydrophilum*) Individual Plant Occurrence (0.021 acres)
 - Area of Occurrence of Saline Clover Less Than 0.01 acres (0.016 acres total)
 - ▨ Area of Occurrence of Saline Clover (20.405 acres)
 - Habitat Type**
 - ▧ Alkali Seasonal Marsh
 - ▩ Riparian
 - ▦ Seasonally Saturated Annual Grassland
 - ░ Upland
 - Vernal Pool
 - ▨ Perennial Brackish Marsh
 - Property Boundaries

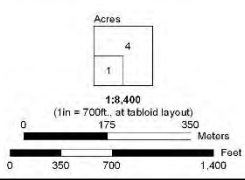
FIGURE 2
DISTRIBUTION OF
SALINE CLOVER
 Gentry Properties
 Solano County, California



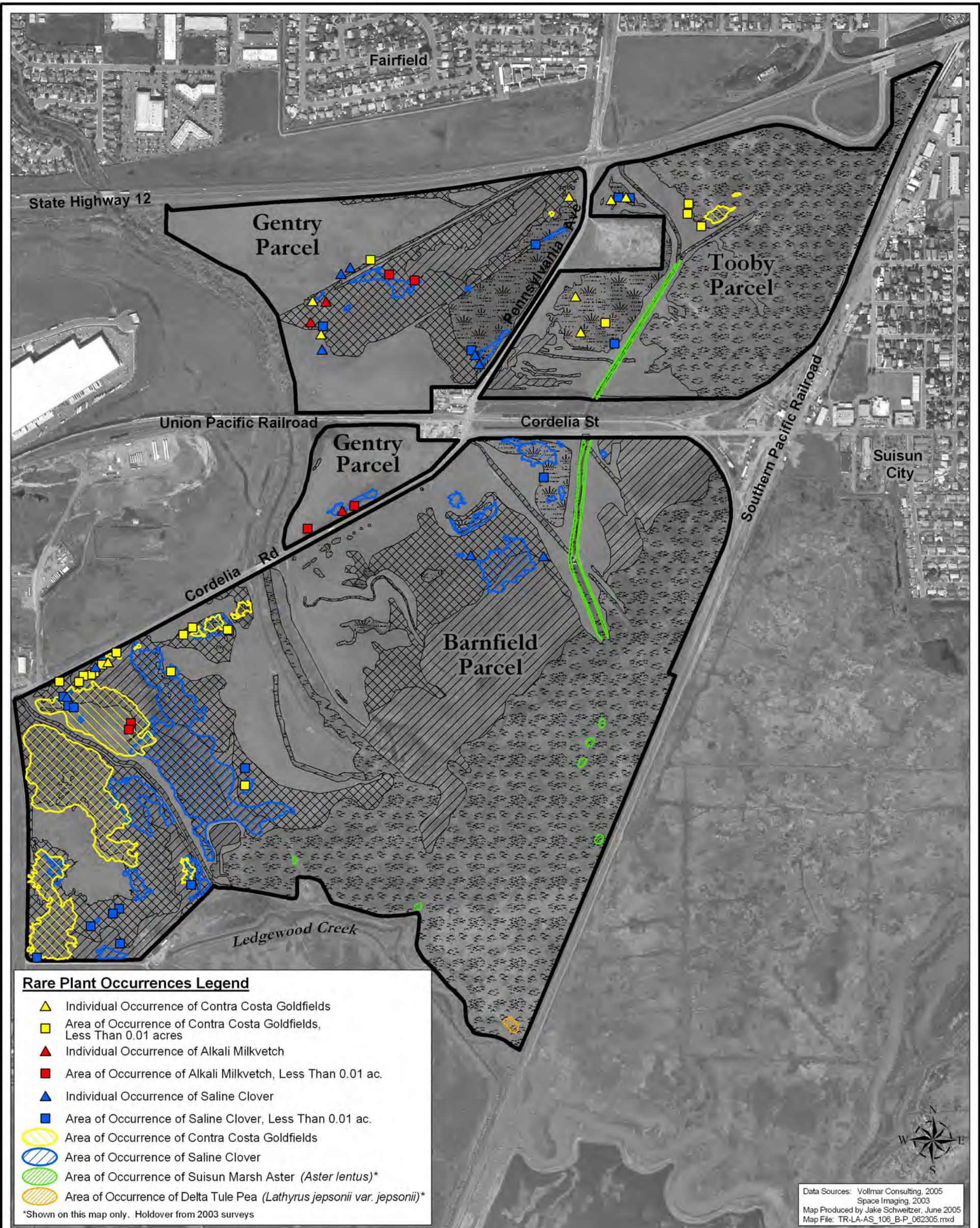


- Legend**
- ▲ Alkali Milkvetch (*Astragalus tener* var. *tener*) Individual Plant Occurrence (0.007 acres total)
 - Area of Occurrence of Alkali Milkvetch Less Than 0.01 acres (0.016 acres total)
- Habitat Type**
- ▨ Alkali Seasonal Marsh
 - ▧ Riparian
 - ▩ Seasonally Saturated Annual Grassland
 - Upland
 - ◐ Vernal Pool
 - ◑ Perennial Brackish Marsh
 - Property Boundaries

FIGURE 3
DISTRIBUTION OF
ALKALIMILKVETCH
 Gentry Properties
 Solano County, California



Data Sources: Volmer Consulting, 2005
 Space Imaging, 2003
 Map Produced by Jada Schwilke, July 2005
 Map File: A2ET_101_B_F_07192.mxd



5.0 SUMMARY AND DISCUSSION

Five special-status plant species were observed on the Gentry, Tooby and Barnfield Properties. These include alkali milk-vetch, Contra Costa goldfields, saline clover, Suisun Marsh aster and Delta tulle pea.

5.1 Alkali Milk-vetch

A total of nine occurrences of alkali milk-vetch were during all surveys including seven small occurrences on the Gentry Property and two large occurrences on the Barnfield Property. The species was not found on the Tooby Property. The seven occurrences on the Gentry Property all consisted of one to a few individual plants reflecting the fact that much of the property provides widespread but marginal habitat for the species.

5.2 Contra Costa Goldfields

A total of 39 occurrences of Contra Costa goldfields were located on the three properties during all surveys. Five occurrences were located on the Gentry Property, ten occurrences were located on the Tooby Property, and 24 occurrences were located on the Barnfield Property. Four of the five occurrences on the Gentry Property are new populations located during 2005, and all are small to moderate sized occurrences. Eight of the ten occurrences on the Tooby Property are new populations located during 2005, and all are small to moderate sized occurrences. The 24 occurrences located during 2005 surveys on the Barnfield Property are all within the boundaries of the 2000-2002 surveys. The size, density and habitat distribution of the populations however has increased since the 2000-2002 surveys. During the earlier surveys of 2000-2002, the Contra Costa goldfield populations were observed in large numbers of plants scattered along the ecotone where the seasonally saturated annual grasslands meet the seasonal alkali marsh. At that time, the numbers of plants dropped dramatically as one moved away from the seasonal alkali marsh habitat into the seasonally saturated annual grasslands and the more upland annual grasslands. Smaller sub-populations were limited to scattered patches within micro depressions in the seasonally saturated annual grasslands. The distribution at that time suggested that this species favors soils with some subsurface salinity. During the 2005 surveys, following an unusually favorable rainfall year, the Contra Costa goldfields (1) increased overall on the Barnfield Property, (2) extended its distribution to the seasonally saturated annual grasslands outside of the ecotone habitat, and (3) were seen in much higher densities in the larger populations as well as the smaller occurrences. Within the large occurrences where the species extended outside of the ecotone habitat, the plants were scattered more or less continuously throughout the entire mapped polygons but showed a density gradient with the lowest density of plants in slightly higher, drier areas and the highest density of plants in slightly lower, wetter areas (i.e. more dense adjacent to the alkali seasonal marsh habitat, and more lightly scattered in the seasonally saturated annual grassland and upper annual grassland habitats).

5.3 Saline Clover

A total of 59 occurrences of saline clover were located on the three properties during the 2005 surveys. Fourteen occurrences were located on the Gentry Property, three occurrences were

located on the Tooby Property, and 32 occurrences were located on the Barnfield Property. One large occurrence was located during the 2000-2002 surveys on the Gentry Property. This population was mapped as seven individual occurrences during the 2005 surveys. All other occurrences are new occurrences identified during the 2005 surveys. The 14 on the Gentry Property are small to moderate in size and the three occurrences on the Tooby Property are all small.

The 32 occurrences on the Barnfield Property are concentrated in two main regions, in the west and the northeast. The occurrences in the west are located just east of Orehr Road and just south of Cordelia Road. These populations extend from the lower positions in the seasonal alkali marsh habitat to the slightly higher areas with seasonally saturated annual grasslands. These occurrences could be considered one large scattered population covering the entire western quarter of the Barnfield Property. As this species is known to exhibit geographic infidelity, and because habitat does exist for saline clover throughout the entire western quarter of the property, it is likely that saline clover could be found anywhere in that western quarter over a number of years. These western occurrences are also adjacent to the Wildflower Fields, and scattered plants were located within the Wildflower Fields defined by the boundaries of the larger populations of Contra Costa goldfields.

The occurrences of saline clover in the northeastern area of the Barnfield Property are scattered in the seasonally saturated annual grassland and shallow vernal pool habitat south of Cordelia Road and north of the mapped seasonal alkali marsh and the Suisun Marsh. These occurrences were more loosely scattered and were more heavily grazed than those in the western region of the property. The flowers were often difficult to see and the plants appeared to respond to grazing by growing in a more prostrate habit. In addition to the impacts from grazing, these northeastern occurrences were all on land that was leveled in the past. It is likely that prior to disturbance from leveling, the area supported more extensive populations of saline clover.

While saline clover does not have federal status, its range within the Solano County region is very limited. Prior to the 2005 surveys on the three Gentry properties, the species was known from just three sites in Solano county and a few sites in nearby Napa, Sonoma and Yolo Counties. The occurrences of saline clover on the three Gentry properties, particularly the large and extensive occurrences on the Barnfield Property, constitute the largest known population of saline clover in Solano County and the region. Saline clover is particularly threatened by habitat loss over its range. Seasonally saturated annual grassland, one of its preferred habitats, has been significantly reduced over the past 100 years in the San Francisco Bay area (Goals Project 1999). In considering mitigation activities in the Barnfield Property, it would be appropriate to avoid disturbing the more pristine saline clover occurrences in the western region of the Barnfield Property. Any proposed vernal pool creation, or other ground disturbing mitigation activities, are likely to decrease the extent and density of saline clover occurrences in this area. Mitigation activities are more appropriate in the northeast half of the Barnfield Property, which has been previously disturbed. Mitigation and conservation activities in this area have the greatest potential to increase the populations of saline clover and other special-status plant species associated with vernal pools, seasonally saturated annual grasslands and seasonal alkali marsh.

5.4 Delta Tule Pea

One occurrence of Delta tule pea was located in the Barnfield Property during 2000 surveys. This species was not located on the Gentry and Tooby Properties. It is not expected to occur on the Gentry Property due to a lack of perennial brackish marsh habitat. The occurrence on the Barnfield Property is located at the far southern tip along the eastern bank of Peytonia Slough, and is estimated to include 400 plants. Surveys will not be conducted for Delta tule pea in 2005. The habitat for this species is well outside the potential area of project influence.

5.5 Suisun Marsh Aster

Suisun Marsh aster was located during the 2000-2002 surveys in the Tooby and Barnfield Properties. Suisun Marsh aster was not observed in the Gentry Property during the 2000-2002 surveys. It is not expected to occur in this area due to a lack of suitable habitat. The occurrence on the Tooby Property was mapped as one large population estimated at 200 plants. It occurs along the southern portion of a drainage canal that traverses the property. The canal is subject to daily tidal fluctuations of mildly brackish waters. The occurrences on the Barnfield Property occur as small scattered colonies along slough banks in the southern and southeastern portions of the property. Dense colonies were also observed along the two canals on the property. Total population size of all colonies was estimated at 4,000 plants.

An additional plant survey is scheduled in mid-summer, 2005 for the Barnfield and Tooby Properties. This survey will focus on the perennial brackish marsh habitat and will be timed to coincide with the peak summer bloom period. Any changes to the 2000-2002 survey results for Suisun Marsh aster will be incorporated later into an amended report.

5.6 Wildflower Fields

The three larger occurrences of Contra Costa goldfields in the Barnfield Property (mapped as polygon numbers 34, 35 and 36 on Figure 1) are located within a Wildflower Field that is designated as a "sensitive" plant communities by the State of California based on statewide rarity and continuing decline. Occurrences of these communities are included in the CDFG's Natural Diversity Data Base (CNDDDB 2005). The three large polygons mapped as Contra Costa goldfield occurrences may be considered the boundaries of three Wildflower Fields present on the Barnfield Property. In considering mitigation activities in the Barnfield Property area, it would be appropriate to avoid disturbing the areas designated as Wildflower Fields. Any proposed vernal pool creation, or other ground disturbing activities, are likely to decrease the value of these sensitive habitats.

6.0 REFERENCES

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APPENDIX A

LIST OF PLANT SPECIES OBSERVED DURING SPECIAL-STATUS PLANT SURVEYS

Appendix A. Plant species observed on the Gentry, Tooby and Barnfield Properties Solano County, California. Surveys conducted spring and summer, 2000, 2001, and 2002, and spring, 2005 by Vollmar Consulting. Asterisk (*) indicates non-native species, plus (+) indicates special status species.

| FAMILY/Species¹ | FAMILY/Common Name² |
|--|---|
| ALISMATACEAE Alisma plantago-aquatica | WATER-PLANTAIN FAMILY broad-leaved water-plantain |
| APIACEAE Eryngium vaseyi *Foeniculum vulgare Hydrocotyle verticillata Oenanthe sarmentosa | CARROT FAMILY Vasey's coyote-thistle fennel whorled pennywort water-parsley |
| ASTERACEAE Achyrachaena mollis Ambrosia psilostachya Artemesia douglasiana +Aster lentus Aster subulatus var. ligulatus Baccharis douglasii Baccharis pilularis Bidens sp. *Carduus pycnocephalus *Centaurea solstitialis *Centaurea calcitrapa *Cichorium intybus *Cirsium vulgare *Conyza canadensis *Cotula coronopifolia Euthamnia occidentalis Gnaphalium palustre Hemizonia pungens Holocarpa virgata ssp. virgata *Hypochaeris glabra Jaumea carnosa *Lactuca serriola Lasthenia californica +Lasthenia conjugens Lasthenia ferrisiae Lasthenia glaberrima *Leontodon taraxicoides ssp. taraxicoides Microseris campestris *Picris echioides Psilocarphus brevissimus var. brevissimus Psilocarphus oregonus *Senecio vulgaris *Sonchus oleraceus *Xanthium spinosum *Xanthium strumarium | SUNFLOWER FAMILY blow wives western ragweed mugwort Suisun marsh aster annual saltmarsh aster Douglas' false-willow coyote brush beggar-ticks Italian thistle yellow star-thistle purple star-thistle blue sailors bull thistle horseweed brass buttons western goldenrod cudweed common spikeweed virgate tarweed smooth cat's-ear fleshy jaumea prickly lettuce California goldfields Contra Costa goldfields Ferris' goldfields smooth lasthenia hairy hawkbit field microseris bristly ox-tongue dwarf woolly marbles Oregon woolly-heads common grousel common sow thistle spiny cocklebur cocklebur |
| BORAGINACEAE Plagiobothrys austinae Plagiobothrys humistratus Plagiobothrys leptocladus Plagiobothrys stipitatus var. micranthus | BORAGE FAMILY popcornflower dwarf popcornflower alkali popcornflower stipitate popcornflower |

| FAMILY/Species¹ | FAMILY/Common Name² |
|--|---|
| BRASSICACEAE *Lepidium latifolium Lepidium nitidum var. nitidum *Hirschfeldia incana *Raphanus sativus Rorippa nasturtium-aquaticum | MUSTARD FAMILY broad-leaved peppergrass shining peppergrass field mustard wild radish water cress |
| CALLITRICHACEAE Callitriche marginata | WATER-STARWORT FAMILY water-starwort |
| CAMPANULACEAE Downingia pulchella | BELLFLOWER FAMILY flat-faced downingia |
| CAROPHYLLACEAE *Cerastium glomeratum *Silene gallica Spargularia marina Spargularia macrotheca var. longistyla | CARNATION FAMILY mouse-eared chickweed windmill pink saltmarsh sand-spurry large-flowered sand-spurry |
| CHENOPODIACEAE Atriplex triangularis *Chenopodium album Salicornia virginica | GOOSEFOOT FAMILY triangular-leaved saltbush lamb's quarters pickleweed |
| CONVOLVULACEAE Calystegia sepium ssp. limnophila Convolvulus arvensis Cressa truxillensis | MORNING-GLORY FAMILY hedge bindweed field bindweed alkali weed |
| CRASSULACEAE Crassula aquatica | STONECROP FAMILY pygmy-weed |
| CYPERACEAE Carex rostrata Cyperus eragrostis Eleocharis macrostachya Scirpus acutus var. occidentalis Scirpus californicus Scirpus americanus Scirpus robustus | SEDGE FAMILY beaked sedge tall nutsedge pale spikerush tule California bulrush Olney's bulrush saltmarsh bulrush |
| EUPHORBIACEAE Eremocarpus setigerius | SPURGE FAMILY dove weed |
| FABACEAE +Astragalus tener var. tener +Lathyrus jepsonii var. jepsonii *Lotus corniculatus Lupinus bicolor *Medicago polymorpha *Melilotus alba *Melilotus indica Trifolium barbigerum Trifolium campestre Trifolium depauperatum var. amplectens Trifolium depauperatum var. depauperatum +Trifolium depauperatum var. hydrophilum Trifolium fucatum Trifolium microcephalum Trifolium subterraneum Trifolium variegatum Trifolium willdenovii *Vicia sativa | PEA FAMILY alkali milkvetch Delta tule pea bird's-foot trefoil miniature lupine bur-clover white sweetclover yellow sweetclover bearded clover hop clover dwarf sack clover dwarf sack clover saline clover sour clover small-headed clover subterranean clover white-tipped clover tomcat clover spring vetch |

| FAMILY/Species¹ | FAMILY/Common Name² |
|--|--|
| *Vicia villosa | hairy vetch |
| FRANKENIACEAE Frankenia salina | FRANKENIA FAMILY alkali heath |
| GERANIACEAE *Erodium botrys *Erodium cicutarium *Geranium carolinianum | GERANIUM FAMILY filaree filaree Carolina geranium |
| JUNCACEAE Juncus balticus Juncus bufonius Juncus effusus var. pacificus Juncus mexicanus | RUSH FAMILY Baltic rush toad rush soft rush Mexican rush |
| JUNCAGINACEAE Lillaea scilloides Triglochin concinna var. concinna Triglochin maritima | ARROW-GRASS FAMILY flowering quillwort arrow-grass seaside arrow-grass |
| LAMIACEAE *Mentha x piperita | MINT FAMILY spearmint |
| LILAEACEAE Asparagus officinalis Brodiaea minor Dichelostemma capitatum ssp. capitatum Muilla maritima Triteleia hyacinthina | LILY FAMILY asparagus dwarf brodiaea bluedicks common muilla white triteleia |
| LYTHRACEAE *Lythrum hyssopifolium | LOOSESTRIFE FAMILY hyssop loosestrife |
| MALVACEAE Malva neglecta *Malvella leprosa | MALLOW FAMILY cheeseweed alkali mallow |
| ONAGRACEAE Epilobium brachycarpum Epilobium cleistogamum | EVENING PRIMROSE FAMILY panicked willow-herb cleistogamous spike-primrose |
| PLANTAGINACEAE Plantago elongata *Plantago lanceolata *Plantago major | PLANTAIN FAMILY slender plantain English plantain common plantain |
| PRIMULACEAE *Anagallis arvensis | PRIMROSE FAMILY scarlet pimpernel |
| POACEAE *Avena fatua *Briza minor *Bromus diandrus *Bromus hordeaceus Crypsis vaginaflora Deschampsia danthonioides Distichlis spicata *Echinochloa muricata Hainardia cylindrica Hordeum brachyantherum Hordeum depressum *Hordeum marinum ssp. gussoneanum *Hordeum murinum Leymus triticoides *Lolium perenne | GRASS FAMILY wild oats little quaking grass ripgut brome soft chess prickle grass annual hairgrass saltgrass barnyard grass thintail meadow barley low barley Mediterranean barley foxtail barley alkali ryegrass perennial ryegrass |

| FAMILY/Species¹ | FAMILY/Common Name² |
|---|--|
| * <i>Lolium multiflorum</i> Parapholis incurva Paspalum dilatatum Paspalum distichum * <i>Phalaris paradoxa</i> Pleuropogon californicus * <i>Poa annua</i> * <i>Polypogon monspeliensis</i> * <i>Schismus arabicus</i> * <i>Taeniatherum caput-medusa</i> <i>Vulpia bromoides</i> * <i>Vulpia myuros</i> | Italian ryegrass sicklegrass dallis grass joint paspalum paradox canary grass California semaphore grass annual bluegrass rabbit's-foot grass Mediterranean grass medusa head six-weeks fescue rattail fescue |
| POLYGONACEAE <i>Polygonum punctatum</i> * <i>Rumex crispus</i> * <i>Rumex conglomeratus</i> | BUCKWHEAT FAMILY dotted smartweed curly dock clustered dock |
| RANUNCULACEAE <i>Myosorus minimus</i> <i>Myosurus sessilis</i> * <i>Ranunculus scleratus</i> * <i>Ranunculus muricatus</i> | BUTTERCUP FAMILY little mouse-tail mouse-tail prickle-pod buttercup celery-leaf buttercup |
| ROSACEAE <i>Potentilla anserina</i> ssp. <i>pacifica</i> <i>Rosa californica</i> * <i>Rubus discolor</i> <i>Rubus ursinus</i> | ROSE FAMILY pacific silverweed California rose Himalaya blackberry California blackberry |
| SCROPHULARIACEAE * <i>Bellardia trixago</i> <i>Castilleja attenuata</i> <i>Limosella aquatica</i> <i>Triphysaria eriantha</i> ssp. <i>eriantha</i> <i>Triphysaria versicolor</i> ssp. <i>faucibarbata</i> <i>Triphysaria pusilla</i> <i>Verbascum thapsis</i> <i>Veronica peregrina</i> ssp. <i>xalapensis</i> | FIGWORT FAMILY bellardia valley tassels mudwort butter-and-eggs yellow owl's-clover dwarf owl's-clover mullien purslane speedwell |
| SALICACEAE <i>Salix gooddingii</i> <i>Salix lasiolepis</i> | WILLOW FAMILY Gooding's black willow arroyo willow |
| TYPHACEAE <i>Typha angustifolia</i> <i>Typha latifolia</i> | CATTAIL FAMILY narrow-leaved cattail broad-leaved cattail |
| VERBENACEAE <i>Phyla nodiflora</i> var. <i>nodiflora</i> | VERVAIN FAMILY common frog-fruit |

1. Scientific names from Hickman (1993)

2. Common names from Abrams (1940), Hickman (1993), and Reed (1988).

Attachment 5

**Helm Biological Consulting Branchiopod Dry and Wet Season Survey Reports,
2020 & 2021**

Helm Biological Consulting 2020 Branchiopod Dry Season Survey

**PROTOCOL-LEVEL
DRY-SEASON SAMPLING
FOR
FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
GENTRY LOGISTICS PROJECT,
SOLANO COUNTY, CALIFORNIA
(USFWS# 2021-TA-0311)**



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(530) 633-0220

January 2021



**PROTOCOL-LEVEL
DRY-SEASON SAMPLING
FOR
FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
GENTRY LOGISTICS PROJECT,
SOLANO COUNTY, CALIFORNIA
(USFWS# 2021-TA-0311)**

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by Huffman-Broadway Group, Inc. to conduct protocol-level dry-season sampling for large branchiopods (fairy shrimp, tadpole shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [*Lepidurus packardii*]) at the Gentry Logistics Project (hereafter “Project”).


The Project is located in Solano County, California, south of State Route 12, west of the main Southern Pacific Railroad tracks, and in the general vicinity of the Pennsylvania Avenue/Cordelia Road intersection (Exhibit A). Additionally, the Project is located within an unsectionalized portion of Townships 4 and 5 north and Range 2 west, of the Fairfield South 7.5 minute U.S. Geological Survey topographic quadrangle map (Latitude 038° 13’ north, Longitude 122° 03’ west [approximate UTM 100582889 east, 4231723 north]) (Exhibit B).

Previously, Helm Biological Consulting (HBC), as sub-consultant to Area West Environmental (AWE), conducted protocol-level dry-season and protocol-level wet-season sampling for federally-listed large branchiopods at the Project (formerly “Gentry-Suisun Project) in 2005 and 2006, respectively (AWE 2006). In summary, HBC found no prior evidence of federally listed large branchiopods onsite.

The remainder of this report discusses the methods and results of the 2020 dry-season sampling for the presence of federally-listed large branchiopods at the Project.



“We certify that the information in this survey report and attached exhibits fully and accurately represents our work.”

Brent P. Helm Signature  Date 01-14-2021
(TE-795930-10.2)

Sean M. O’Brien Signature  Date 01-14-2021
(TE-795930-10.2)

METHODS

Methods followed U.S. Fish and Wildlife Service’s (USFWS 2017) *Survey Guidelines for Listed Large Branchiopods* (hereafter “Survey Guidelines”) for dry-season sampling and consisted of first soil collection and second soil processing and analysis as described below.

SOIL COLLECTION

Dr. Brent Helm and Mr. Sean O’Brien of HBC conducted dry-season sampling on November 12, 2020 as authorized by the U.S. Fish and Wildlife Service (USFWS) (Appendix A) under recovery permit TE-795930-10.2 of Section 10(a)(1)(A) of the federal Endangered Species Act, 16 U.S.C. 1531 et seq., and its implementing regulations.

Dry-season sampling was conducted in all basins (habitats) within the Project with the potential to support federally-listed large branchiopods. An aquatic resource delineation map provided by Huffman-Broadway Group, Inc. (Exhibit C), was utilized to target appropriate habitats for sampling.

Habitat characteristics of large branchiopods are based on the life history of Central Valley endemics (Eriksen and Belk 1999; Helm 1998, 1999; Helm and Vollmar 2002, Helm and Noyes 2016). The presence of water marks, algae mats, driftlines, hydrophytic vegetation (“water-loving plants”), slope, contributing watershed, maximum potential ponding depth, and aquatic arthropods (i.e., crustaceans and insects) exoskeletons were helpful indicators for evidence of ponding depth and duration. Habitats that swiftly flow water (e.g., creeks, streams, and ephemeral drainages), semi-to-permanently inundated areas that support population of predators (e.g., bullfrogs, fish, and crayfish), and habitats that receive water during the dry season (i.e., artificial water sources) were not generally considered suitable habitat for federally listed large branchiopods.

Soil samples were collected mainly from the lowest topographic areas within each sampled basin. Soil samples were placed in liter size plastic sealable bags and marked with the project name, basin, and date. Representative photographs were taken of the basins sampled (Appendix B). The soil was then transported to HBC for processing and analysis as described below.

SOIL PROCESSING AND ANALYSIS

In HBC’s laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while



gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈ 1.0 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al.* 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these three genera have species that are federally listed. Evidence of other macroscopic aquatic invertebrates encountered was also noted on the laboratory data sheet.

RESULTS

SOIL COLLECTION

A total of 63 basins were evaluated for their potential to support federally-listed large branchiopods. Eleven of these basins (W-1, W-2, W-3, W-4, W-7, W-8, W-12, W-13, W-14, W-15, and W-16) were not considered suitable habitat for federally-listed large branchiopods because they are semi-to-permanently inundated areas that likely support populations of perennial aquatic predators (e.g., bullfrogs, fish, and crayfish). The other 52 basins are ephemeral and were considered potential federally-listed large branchiopod habitat. However, many of the basins are very large (> 5 acres) (e.g., W-19, W-21, W-38, W-54, and W-61) and not all the area within them would be considered potential habitat. As such, soil samples were collected from the lowest topographic areas (i.e., sub-basins) within these very large basins.

SOIL PROCESSING AND ANALYSIS

Soils collected from a total of 52 basins were analyzed (Exhibit C). No evidence of federally-listed large branchiopods (i.e., cysts belonging to the genus *Branchinecta* or *Lepidurus* or carapaces of *Lepidurus*) were observed in the soils collected (Table 1). Representative photographs of the habitats sampled are provided in Appendix B.

Table 1. Results of Soil Examinations at the Gentry Logistics Project

| Basin Number | Invertebrates Present (X) | | | | | | |
|--------------|---------------------------|--------------------------|-------------------|---------------------------|-------------|----------|------------|
| | Insects Exo-skeletons | Micro-turbellarian Cysts | Cladocera Ehippia | Ostracod Cysts/ Carapaces | Hydracarina | Nematoda | Collembola |
| W-17 | X | | | | | | |
| W-18 | X | | X | | | | |
| W-19 | X | | X | X | | | |
| W-20 | X | | | | | | |
| W-21 | X | X | X | | | | |
| W-22 | X | X | X | | | | |
| W-23 | X | | X | | | | |
| W-24 | X | | X | | | | |
| W-25 | X | | X | | | | |
| W-26 | X | | X | | | | |
| W-27 | X | | X | | | | X |
| W-28 | X | | X | | | | |
| W-29 | X | | X | | | | |
| W-30 | X | | X | | | | X |
| W-31 | X | | X | | | | |
| W-32 | X | | | | | | X |

Table 1. Results of Soil Examinations at the Gentry Logistics Project

| Basin Number | Invertebrates Present (X) | | | | | | |
|--------------|---------------------------|--------------------------|--------------------|---------------------------|-------------|----------|------------|
| | Insects Exo-skeletons | Micro-turbellarian Cysts | Cladocera Ephippia | Ostracod Cysts/ Carapaces | Hydracarina | Nematoda | Collembola |
| W-33 | X | | | | | | |
| W-34 | X | | | | X | | X |
| W-35 | X | | | | X | | X |
| W-36 | X | | X | | X | X | |
| W-37 | X | | X | | X | X | |
| W-38 | X | | X | | | | |
| W-39 | X | X | X | | | | X |
| W-40 | X | X | X | | X | | |
| W-41 | X | | | | X | | |
| W-42 | X | | | | | | |
| W-43 | X | | X | | X | | |
| W-44 | X | X | X | | | | |
| W-45 | X | X | X | | | | |
| W-46 | X | X | X | | | | X |
| W-47 | X | X | X | | | | X |
| W-48 | X | X | X | | | | |
| W-49 | X | X | X | | | | X |
| W-50 | X | X | X | | | | X |
| W-51 | X | | | | | | |
| W-52 | X | | | | | | |
| W-53 | X | X | X | | | | X |
| W-54 | X | X | X | | | | |
| W-55 | X | X | X | | | | |
| W-56 | X | X | X | | | | |
| W-57 | X | X | X | | | | X |
| W-58 | X | X | X | | | | |
| W-59 | X | X | X | | | | X |
| W-60 | X | | | X | | | |
| W-61 | X | X | X | X | | | X |
| W-62 | X | | | | | | X |
| W-63 | X | | | | | | X |
| W-64 | X | | | X | X | | X |
| W-65 | | | | | | | X |
| W-66 | X | | | | X | | X |
| W-67 | X | | | X | X | | |
| W-68 | | | | | | | X |

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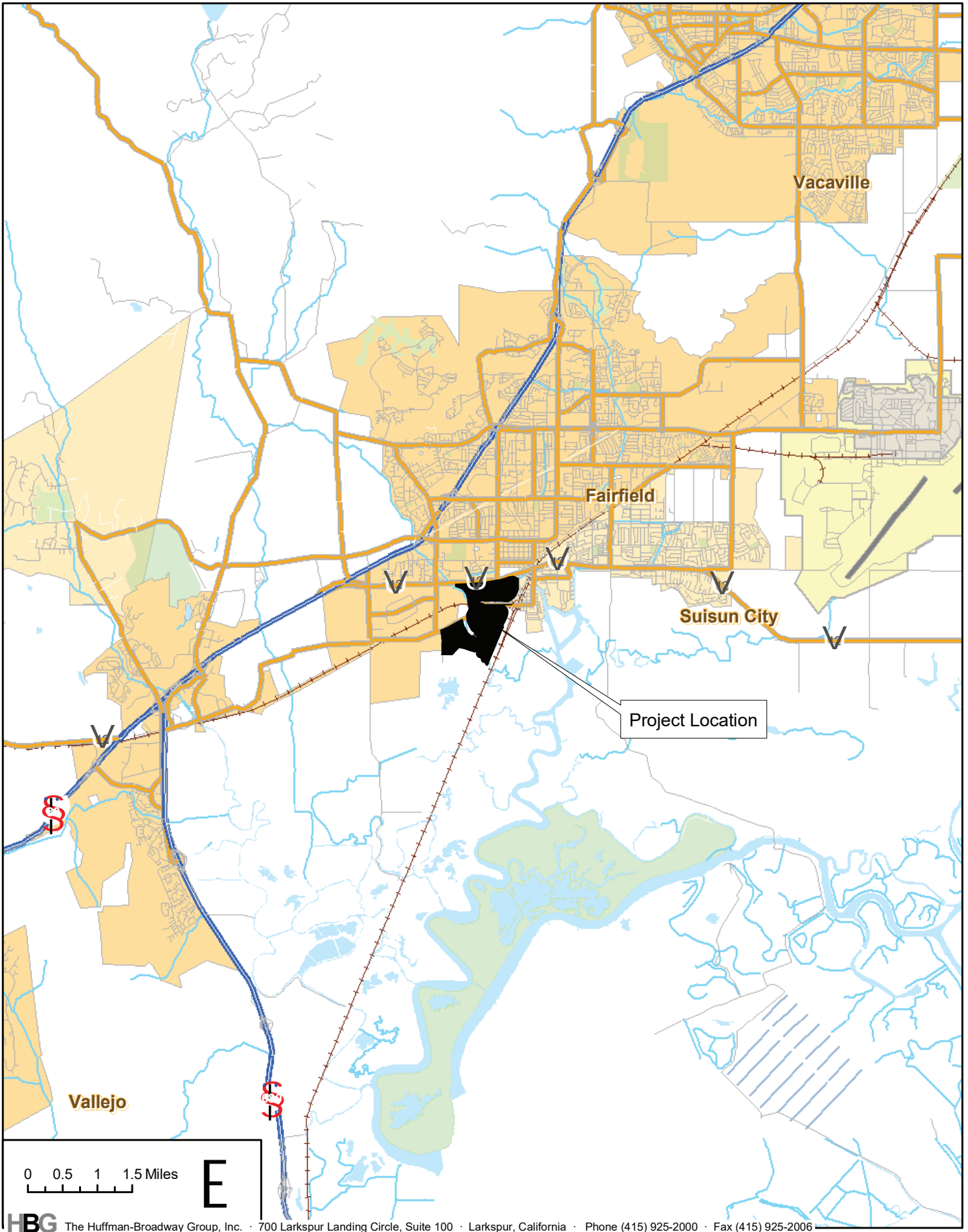


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EXHIBIT A.
PROJECT LOCATION MAP

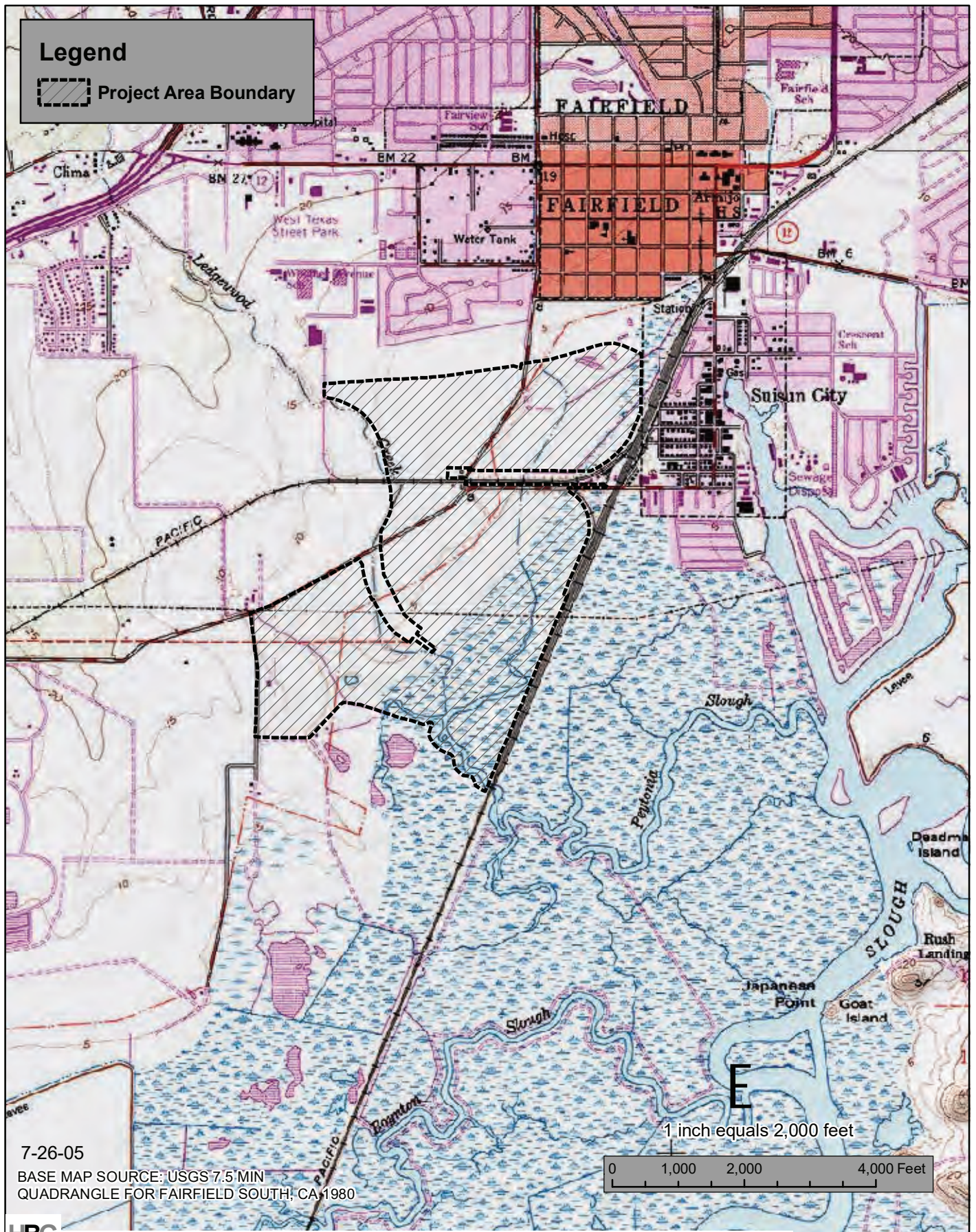


HBG The Huffman-Broadway Group, Inc. · 700 Larkspur Landing Circle, Suite 100 · Larkspur, California · Phone (415) 925-2000 · Fax (415) 925-2006

Exhibit A. Project Location Map, Gentry Logistics Project, Suisun City, CA.



EXHIBIT B.
LOCATION OF PROJECT
ON USGS TOPOGRAPHIC QUADRANGLE MAP



HBG The Huffman-Broadway Group, Inc. · 700 Larkspur Landing Circle, Suite 100 · Larkspur, California · Phone (415) 925-2000 · Fax (415) 925-2006

Exhibit B. USGS Topographic Map of Project Area, Gentry Logistics Project, Suisun City, CA.



EXHIBIT C.
AQUATIC RESOURCE DELINEATION MAP



**Peytonia Slough
Ecological Reserve**

Exhibit C. Aquatic Resource Delineation Map

Gentry Logistics Project
Solano County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS



APPENDIX A.
USFWS AUTHORIZATION



Sean O'Brien <sobrien@tansleyteam.com>

USFWS Sampling Request for Helm Biological Consulting (TE-795930-10.2) - Gentry Logistics Project

Lantz, Samantha M <samantha_lantz@fws.gov>

Mon, Nov 9, 2020 at 10:00 AM

To: Sean O'Brien <sobrien@tansleyteam.com>

Cc: Brent Helm <bhelm@tansleyteam.com>, "rperrera@h-bgroup.com" <rperrera@h-bgroup.com>, "Hanni, Jason" <jason_hanni@fws.gov>

Hi Sean,

By this email message, you are authorized to conduct 2020-2021 protocol-level vernal pool branchiopod surveys (dry and wet season) per the conditions of recovery permit TE-795930 and as specified in your request dated November 5, 2020. The surveys will be conducted at the Gentry Logistics Project in Solano County, California. Let us know if the surveys are not performed as authorized (ie if you aren't able to get out to do dry season sampling before it rains).

Please remember to carry a copy of your permit while doing the work, and to follow the terms and conditions of the permits, including the reporting requirements. This authorization does not include access to the property which must be arranged with the landowner or manager.

Please send electronic copies of the report(s) to myself and Jason Hanni (cc'd). **We ask that you use UTM coordinates for all spatial data and that you use Service reference number 2021-TA-0311 in future correspondence regarding these surveys.** In your report, please include which surveys were authorized, the names of all persons involved in the surveys, their recovery permit numbers, if applicable, and the date of this authorization, to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization.

Best,
Sam

~~~~~  
Samantha Lantz, PhD  
Fish and Wildlife Biologist  
USFWS, Sacramento Field Office  
Listing and Recovery Division  
[2800 Cottage Way W-2605](#)  
Sacramento, CA 95825-1888  
Phone: 916-414-6526  
Pronouns: she/her/hers

In an effort to slow the spread of the coronavirus (COVID-19), staff in the Sacramento Fish and Wildlife Office have implemented an aggressive telework schedule. At this time, we are responding to requests for information via email or phone as often as possible as we do not have the in-office capacity to support regular mail service. We appreciate your understanding.

---

**From:** Sean O'Brien <sobrien@tansleyteam.com>

**Sent:** Thursday, November 5, 2020 4:29 PM

**To:** Lantz, Samantha M <samantha\_lantz@fws.gov>

**Cc:** Brent Helm <bhelm@tansleyteam.com>; rperrera@h-bgroup.com <rperrera@h-bgroup.com>



**APPENDIX B.**  
**REPRESENTATIVE PHOTOGRAPHS**





Photograph of W-17 taken on November 12, 2020 (facing north).



Photograph of depression (i.e., sub-basin) located within W-19 taken on November 12, 2020 (facing north).



Photograph of depression (i.e., sub-basin) located within W-21 taken on November 12, 2020 (facing north).



Photograph of W-35 taken on November 12, 2020 (facing east).



Photograph of depression (i.e., sub-basin) located within W-38 taken on November 12, 2020 (facing west).



Photograph of W-43 taken on November 12, 2020 (facing northwest).



Photograph of W-52 taken on November 12, 2020 (facing southwest).



Photograph of W-53 taken on November 12, 2020 (facing west).



Photograph of depression (i.e., sub-basin) located within W-54 taken on November 12, 2020 (facing south).



Photograph of W-55 taken on November 12, 2020 (facing southeast).



Photograph of depression (i.e., sub-basin) located within W-61 taken on November 12, 2020 (facing west).



Photograph of depression (i.e., sub-basin) located within W-61 taken on November 12, 2020 (facing southwest).

**Helm Biological Consulting 2020-2021 Branchiopod Wet Season Survey**

**PROTOCOL-LEVEL  
WET-SEASON SAMPLING  
FOR  
FEDERALLY-LISTED LARGE BRANCHIOPODS  
AT THE  
GENTRY LOGISTICS PROJECT,  
SOLANO COUNTY, CALIFORNIA  
(USFWS# 2021-TA-0311)**



***Prepared for:***

**HUFFMAN-BROADWAY GROUP, INC.**  
828 Mission Avenue  
San Rafael, CA 94960  
**Contact: Robert Perrera**  
(415) 385-4106

***Prepared by:***

**HELM BIOLOGICAL CONSULTING**  
4600 Karchner Road  
Sheridan, CA 95681  
**Contact: Dr. Brent Helm**  
(530) 633-0220

**April 2021**





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**PROTOCOL-LEVEL  
WET-SEASON SAMPLING  
FOR  
FEDERALLY-LISTED LARGE BRANCHIOPODS  
AT THE  
GENTRY LOGISTICS PROJECT,  
SOLANO COUNTY, CALIFORNIA  
(USFWS# 2021-TA-0311)**

**INTRODUCTION**

Helm Biological Consulting (HBC), a division Tansley Team, Inc., was contracted by Huffman-Broadway Group, Inc. to conduct protocol-level wet-season sampling for large branchiopods (fairy shrimp, tadpole shrimp, and clam shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [*Lepidurus packardii*]) at the Gentry Logistics Project (hereafter “Project”).

The Project is located in Solano County, California, south of State Route 12, west of the main Southern Pacific Railroad tracks, and in the general vicinity of the Pennsylvania Avenue/Cordelia Road intersection (Exhibit A). Additionally, the Project is located within an unsectionalized portion of Townships 4 and 5 north and Range 2 west, of the Fairfield South 7.5 minute U.S. Geological Survey topographic quadrangle map (Latitude 038° 13’ north, Longitude 122° 03’ west [approximate UTM 100582889 east, 4231723 north]) (Exhibit B).

**Background**

Previously, HBC, as sub-consultant to Area West Environmental (AWE), conducted protocol-level dry-season and protocol-level wet-season sampling for federally-listed large branchiopods at the Project (formerly “Gentry-Suisun Project) in 2005 and 2006, respectively (AWE 2006). In summary, HBC found no prior evidence of federally-listed large branchiopods onsite.

Furthermore, HBC conducted protocol-level dry-season sampling in 2020 (HBC 2021). A total of 63 basins were evaluated for their potential to support federally-listed large branchiopods (Exhibit C). Eleven of these basins (W-1, W-2, W-3, W-4, W-7, W-8, W-12, W-13, W-14, W-15, and W-16) were not considered suitable habitat for federally-listed large branchiopods because they are semi-to-permanently inundated areas that likely support populations of perennial aquatic predators (e.g., bullfrogs, fish, and crayfish). The other 52 basins are ephemeral



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and were considered potential federally-listed large branchiopod habitat. However, no evidence of federally-listed large branchiopods was observed (HBC 2021) from the dry-season techniques.

The remainder of this report discusses the methods and results of the 2020/2021 wet-season sampling for the presence of federally-listed large branchiopods at the Project.



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“We certify that the information in this survey report and attached exhibits fully and accurately represents our work.”

Brent P. Helm      Signature       Date 04-30-2021  
(TE-795930-10.2)

Sean M. O'Brien      Signature       Date 04-30-2021  
(TE-795930-10.2)

## METHODS

Dr. Brent Helm and/or Mr. Sean O'Brien of HBC conducted eight rounds of protocol-level wet-season sampling during the 2020/2021 wet-season as follows:

- 1<sup>st</sup> round: December 22
- 2<sup>nd</sup> round: January 5
- 3<sup>rd</sup> round: February 5
- 4<sup>th</sup> round: February 19
- 5<sup>th</sup> round: March 5
- 6<sup>th</sup> round: March 19
- 7<sup>th</sup> round: April 2
- 8<sup>th</sup> round: April 16

The wet-season sampling was conducted under permit TE-795930-10.2 of Section 10(a)(1)(A) of the federal Endangered Species Act, 16 U.S.C. 1531 et seq., and its implementing regulations as authorized by the U.S. Fish and Wildlife Service (USFWS) (Appendix A). Methods generally followed USFWS's (2017) *Survey Guidelines for Listed Large Branchiopods* (hereafter "Survey Guidelines") for wet-season sampling.

Wet sampling was conducted in a total of 52 basins (habitats) at the Project that had potential to support federally-listed large branchiopods as determined during dry-season sampling efforts conducted the prior year (HBC 2021). Several of the basins are very large (> 5 acres) (e.g., W-19, W-21, W-38, W-54, and W-61), and not all the area within them would be considered potential federally-listed large branchiopod habitat. As such, wet-season sampling was conducted from the lowest topographic areas (i.e., sub-basins) within these very large basins.

Potential habitat for federally-listed large branchiopods is defined as any seasonal inundated depression that on average ponds water at a sufficient depth and duration for a listed large branchiopod to complete its lifecycle (generally 2.0 inches or greater in depth for 14 or more consecutive days for fairy shrimp and 30 or more consecutive days for tadpole shrimp) (USFWS 2017). Generally these habitats occur within the California Floristic Province at elevations below 1,707 meters in the Coast Ranges (CNDDDB #178) and below 914 meters for the rest of California and Oregon (CNDDDB #244) and Oregon (USFWS 2017). Habitats that swiftly flow water (e.g., creeks, streams, and ephemeral drainages), semi-to-permanently inundated areas that support perennial population of predators (e.g., bullfrogs, fish, and crayfish), and habitats that receive water during the dry season (i.e., artificial water sources) were not generally considered suitable habitat for federally-listed large branchiopods (USFWS 2017).

According to the Survey Guidelines, the Project is within Survey Zone A (Southern Oregon, Sacramento Valley, San Francisco Bay Area, North Coast Ranges, Northern Sierra Valley Foothills, Cascade Range foothills, and South Coast Ranges) (USFWS 2017). Therefore wet-season sampling was initiated 14 days after any of the habitats on site (determined to potential large branchiopod habitat) ponded a minimum of 3 centimeters (cm) of standing water. The habitats were first inundated following storm events between December 12-17, 2020 (Weather Underground 2021), therefore wet-season sampling was initiated on December 22, 2020. Wet-

season sampling was then continued at a minimum of 14-day intervals until the habitats were dry or 90 continuous ponding days had occurred. In cases when the habitats dried and refilled the 90 days would start over. Specific sampling methods are described below.

Each habitat was viewed for active large branchiopods prior to entering the water. Any large branchiopods observed were quickly netted, viewed with the aid of a 30x hand lens to determine species, and released unharmed back into the environment from which they were obtained. If no large branchiopods were observed, then a semi-quantitative sample was taken to determine the relative abundance of large branchiopods as follows.

A dip net was lowered vertically into the deepest portion of the inundated habitat (usually the center) and rested on the bottom. The 80- $\mu$ m mesh size dip net was then moved in the direction of the longest axis of the habitat for approximately one-meter. In instances where half of the habitat length is less than one meter in length, the dip net was repositioned in the deepest portion of the habitat and moved in the opposite direction for the remainder of the one-meter sample. Given the aperture of the dip net of 0.025 m<sup>2</sup> and distance the dip net was moved, roughly 0.025 m<sup>3</sup> or 25 liters of the water column was sampled horizontally each time. In those cases when the water column was shallower than the dip net aperture height, the volume of water per sweep was calculated by the horizontal distance the net is moved multiplied by the width of the dip net (25-cm) multiplied by the depth of water. After the completion of each sample sweep, the contents of the net were examined for large branchiopods. All large branchiopods captured in the dip net were identified to the lowest justifiable taxon in the field, and recorded on standardized data sheets. The relative numbers of individuals observed within each taxonomic group was recorded in one of five categories: rare ( $\leq 2$  individuals), not common (3-10 individuals), common (11-50 individual), very common (51 -100 individuals), and abundant ( $>100$  individuals). This method allows for the relative abundances and richness of large branchiopods to be compared between and among wetlands through time. Additionally, this method allows for concentration estimates of large branchiopods to be calculated as number of individuals per liter of water (= number of individuals/net aperture area x length of sweep).

If federally-listed large branchiopods were not detected during the semi-quantified sampling method, then the entire habitat was sampled as follows. Starting at one end of the habitat, the net was moved from one side of the habitat to the other in a zigzag fashion, until the opposite end of the habitat was reached. During this procedure, the net was often bounced along the habitat bottom (to encourage large branchiopods to move up into the water column from hiding places for easier capture) and viewed often for evidence of large branchiopods. If still no federally listed large branchiopods were captured, then additional netting took place in specific locations within the habitat that may have not been sampled during prior efforts. Additional taxonomic groups of large branchiopods detected using this alternative method is noted as present by an "X" on the standardized field data sheet. After the taxonomic identification and enumeration were completed, the contents of the net were placed back into the habitat from which they were collected.



Data concerning air and water temperatures, present depths (maximum and average [ft]), present ponding surface area (percent inundation), and habitat conditions were collected during each field visit. The potential depths (maximum and average [ft]) and potential ponding surface area percentage were visually estimated. Additionally, presence and abundance data were recorded for all other aquatic species using the same methods as described above for large branchiopod sampling. Representative photographs were taken of the habitats sampled.



## RESULTS AND DISCUSSION

A total of 52 basins were considered potential habitat for federally-listed large branchiopod habitat and therefore sampled using wet-season techniques (Exhibit C and Appendix B). No federally-listed large branchiopods were detected on site. The majority of potential listed large branchiopod habitat found onsite was marginal and largely consisted of palustrine emergent wetlands hydrologically connected with estuarine intertidal wetlands located along the southern and eastern boundaries of the Project. Fish (e.g., smelt [Osmeridae]) were observed within one of the sampled habitats (W-54) and likely occur in more habitats during higher rainfall years. Additionally, portions of one habitat (W-19) receive agricultural run-off. Therefore, the sampled habitats would not historically or presently be considered ideal habitat for listed large branchiopods. Field data forms from each wet-season sampling date are provided in Appendix B. Representative photographs of the habitats sampled are provided in Appendix C.

Based on the poor habitat quality and the negative findings from both protocol-level dry-season sampling (HBC 2021) and wet-season sampling (2021) as well as prior survey efforts (AWE 2006), no additional large branchiopod wet-season surveys are recommended.



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## LITERATURE CITED

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Google Earth<sup>®</sup>. 2021. V 7.3.3.7786. Available at <http://www.earth.google.com>.

Helm Biological Consulting (HBC). 2021. Protocol-level Dry-season Sampling for Federally-listed Large Branchiopods at the Gentry Logistics Project, Solano County, California (USFWS# 2021-TA-0311). 24pp. Dated: January 2021.

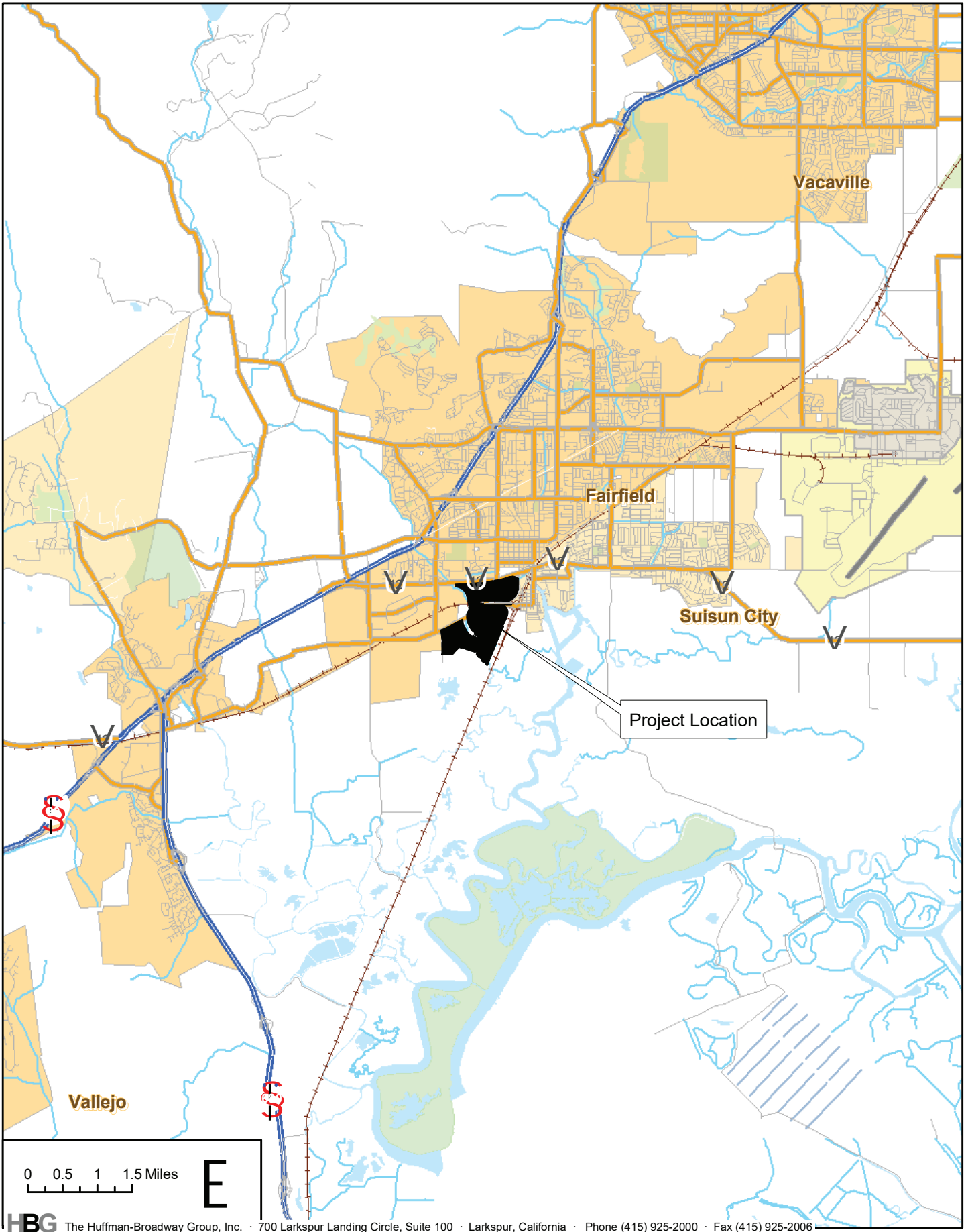
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**EXHIBIT A.**  
**PROJECT LOCATION MAP**

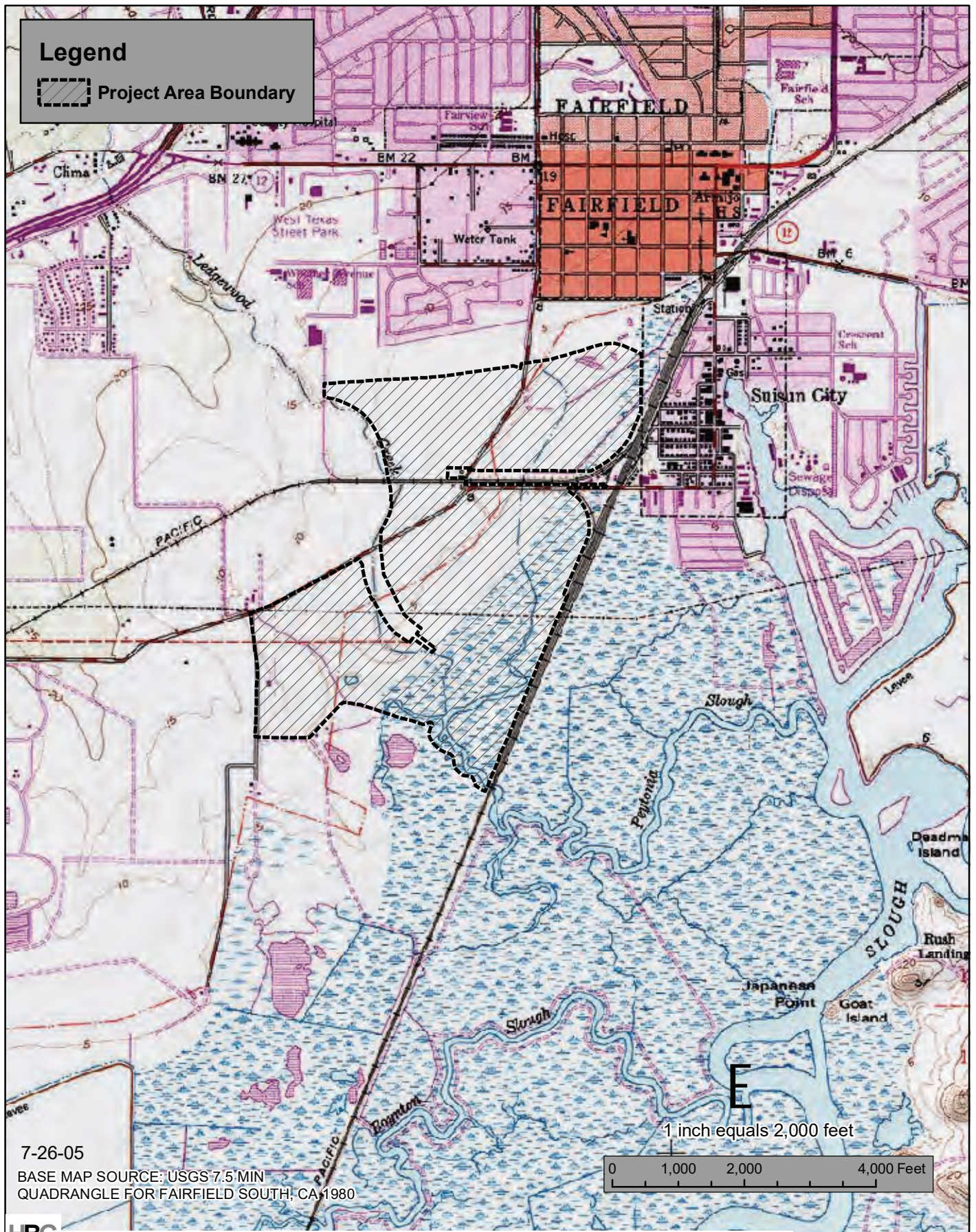


**HBG** The Huffman-Broadway Group, Inc. · 700 Larkspur Landing Circle, Suite 100 · Larkspur, California · Phone (415) 925-2000 · Fax (415) 925-2006

**Exhibit A. Project Location Map, Gentry Logistics Project, Suisun City, CA.**



**EXHIBIT B.**  
**LOCATION OF PROJECT**  
**ON USGS TOPOGRAPHIC QUADRANGLE MAP**



**HBG** The Huffman-Broadway Group, Inc. · 700 Larkspur Landing Circle, Suite 100 · Larkspur, California · Phone (415) 925-2000 · Fax (415) 925-2006

**Exhibit B. USGS Topographic Map of Project Area, Gentry Logistics Project, Suisun City, CA.**



**EXHIBIT C.**  
**AQUATIC RESOURCE DELINEATION MAP**



**Peytonia Slough  
Ecological Reserve**

**Exhibit C. Aquatic Resource Delineation Map**

Gentry Logistics Project  
Solano County, California

**Huffman-Broadway Group, Inc.**  
ENVIRONMENTAL REGULATORY CONSULTANTS



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**APPENDIX A.**  
**USFWS AUTHORIZATION LETTER**



Sean O'Brien &lt;sobrien@tansleyteam.com&gt;

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## USFWS Sampling Request for Helm Biological Consulting (TE-795930-10.2) - Gentry Logistics Project

---

Lantz, Samantha M &lt;samantha\_lantz@fws.gov&gt;

Mon, Nov 9, 2020 at 10:00 AM

To: Sean O'Brien &lt;sobrien@tansleyteam.com&gt;

Cc: Brent Helm &lt;bhelm@tansleyteam.com&gt;, "rperrera@h-bgroup.com" &lt;rperrera@h-bgroup.com&gt;, "Hanni, Jason" &lt;jason\_hanni@fws.gov&gt;

Hi Sean,

By this email message, you are authorized to conduct 2020-2021 protocol-level vernal pool branchiopod surveys (dry and wet season) per the conditions of recovery permit TE-795930 and as specified in your request dated November 5, 2020. The surveys will be conducted at the Gentry Logistics Project in Solano County, California. Let us know if the surveys are not performed as authorized (ie if you aren't able to get out to do dry season sampling before it rains).

Please remember to carry a copy of your permit while doing the work, and to follow the terms and conditions of the permits, including the reporting requirements. This authorization does not include access to the property which must be arranged with the landowner or manager.

Please send electronic copies of the report(s) to myself and Jason Hanni (cc'd). **We ask that you use UTM coordinates for all spatial data and that you use Service reference number 2021-TA-0311 in future correspondence regarding these surveys.** In your report, please include which surveys were authorized, the names of all persons involved in the surveys, their recovery permit numbers, if applicable, and the date of this authorization, to help ensure that we correctly record the fulfillment of the reporting requirement under this authorization.

Best,  
Sam

~~~~~  
Samantha Lantz, PhD
Fish and Wildlife Biologist
USFWS, Sacramento Field Office
Listing and Recovery Division
[2800 Cottage Way W-2605](#)
Sacramento, CA 95825-1888
Phone: 916-414-6526
Pronouns: she/her/hers

In an effort to slow the spread of the coronavirus (COVID-19), staff in the Sacramento Fish and Wildlife Office have implemented an aggressive telework schedule. At this time, we are responding to requests for information via email or phone as often as possible as we do not have the in-office capacity to support regular mail service. We appreciate your understanding.

From: Sean O'Brien <sobrien@tansleyteam.com>

Sent: Thursday, November 5, 2020 4:29 PM

To: Lantz, Samantha M <samantha_lantz@fws.gov>

Cc: Brent Helm <bhelm@tansleyteam.com>; rperrera@h-bgroup.com <rperrera@h-bgroup.com>



**APPENDIX B.
WET-SEASON
FIELD DATA FORMS**



APPENDIX C.
REPRESENTATIVE PHOTOGRAPHS



Photograph of W-17 (dry) taken facing south on December 22, 2020 (1st sampling round).



Photograph of a depression (i.e., sub-basin) (dry) located within W-19 taken facing north on December 22, 2020 (1st sampling round).



Photograph of a depression (i.e., sub-basin) located within W-19 taken facing northwest on December 22, 2020 (1st sampling round).



Photograph of W-45 (dry) taken facing south on December 22, 2020 (1st sampling round).



Photograph of W-53 (dry) taken facing north on December 22, 2020 (1st sampling round).



Photograph of a depression (i.e., sub-basin) (dry) located within W-61 taken facing west on December 22, 2020 (1st sampling round).



Photograph of W-40 (dry) taken facing north on January 5, 2021 (2nd sampling round).



Photograph of a depression (i.e., sub-basin) (dry) located within W-61 taken facing southwest on January 5, 2021 (2nd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-19 taken facing north on February 5, 2021 (3rd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-21 taken facing north on February 5, 2021 (3rd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-38 taken facing east on February 5, 2021 (3rd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-44 taken facing northeast on February 5, 2021 (3rd sampling round).



Photograph of W-50 taken facing east on February 5, 2021 (3rd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-54 taken facing northwest on February 5, 2021 (3rd sampling round).



Photograph of smelt (*Osmeridae*) observed in W-54 taken on February 5, 2021 (3rd sampling round).



Photograph of W-60 taken facing northwest on February 5, 2021 (3rd sampling round).



Photograph of a depression (i.e., sub-basin) located within W-19 taken facing north on February 19, 2021 (4th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-38 taken facing east on February 19, 2021 (4th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-54 taken facing west on February 19, 2021 (4th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-61 taken facing north on February 19, 2021 (4th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-54 taken facing north on March 5, 2021 (5th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-19 taken facing southwest on March 19, 2021 (6th sampling round).



Photograph of W-50 taken facing east on March 19, 2021 (6th sampling round).



Photograph of a depression (i.e., sub-basin) located within W-54 taken facing west on March 19, 2021 (6th sampling round).

Attachment 6

Vollmar Consulting 2006 and 2007 CTS Reports

Vollmar Consulting CTS Aquatic Survey Report, 2006



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GENTRY-SUISUN PROJECT AREA

SOLANO COUNTY, CA

CALIFORNIA TIGER SALAMANDER

AQUATIC SURVEY REPORT

2006 FIELD SEASON

Prepared for:

Huffman-Broadway Group, Inc.
828 Mission Ave
San Rafael, CA 94901-3209
Contact: Robert Perrera
(415) 925 2000

Prepared by:

Vollmar Consulting
1055 Creston Road
Berkeley, CA 94708
Contact: John Vollmar
(510) 559-9603

August 2006

J-106

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1.0 INTRODUCTION

This report summarizes the methods and results of a site assessment and 2006 aquatic larval surveys for the federally threatened California tiger salamander (*Ambystoma californiense*) (CTS) conducted on the Gentry-Suisun Project Area (project area) in Solano County, California. Surveys were conducted by Vollmar Consulting following current federal survey protocols. The surveys included a thorough regional and local CTS habitat assessment, as well as three rounds of seining for larvae. The purpose of these surveys was to determine the presence or absence of CTS. Federal survey protocols may require up to two consecutive years of aquatic seine surveys for larval CTS and an adult drift net survey during the intervening winter to conclude presence or absence of CTS from a site with potential breeding habitat. The surveys summarized in this report represent the first year of aquatic seine larval surveys. The surveys are being conducted in anticipation of development of a portion of the Gentry and Tooby Properties by the landowner.

2.0 BACKGROUND INFORMATION

2.1 Project Area Location, Description, and Environmental Setting

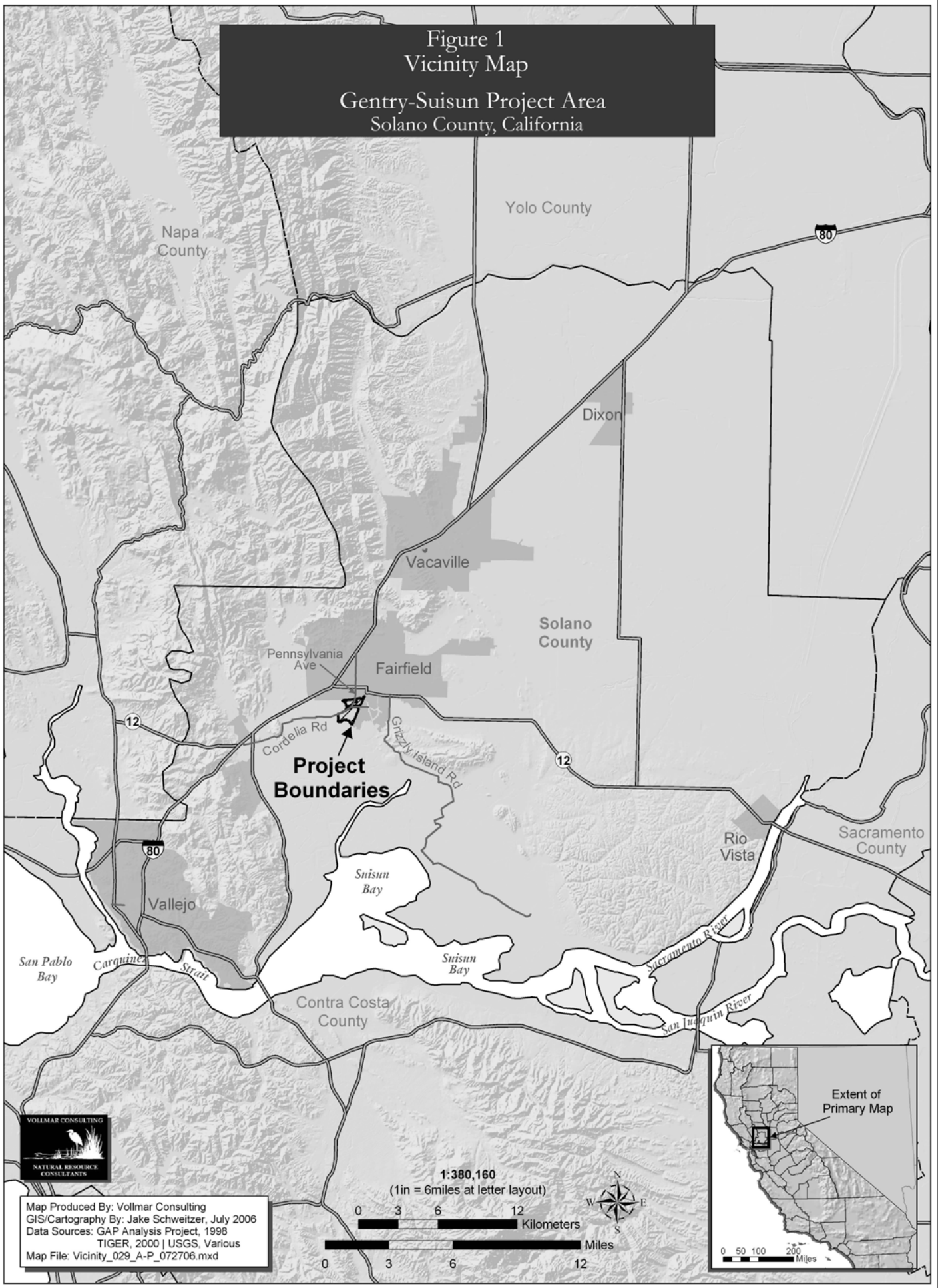
The project area is located west of the city of Suisun and south of the city of Fairfield, in Solano County, California (Figure 1). The project area is comprised of several parcels with a total are of approximately 500 acres., referred to as the Gentry Property (~ 84 acres), the Tooby Property (~ 79 acres), the Barnfield Property (~321 acres), the Ardave Property (~ 0.6 acre), the GF Gilbert Property (~ 5 acres), the Cordelia Road Right of Way (~ 4 acres), the Pennsylvania Avenue Right of Way (~ 2 acres), and the UPRR Right of Way (~ 3 acres).

The Gentry and Ardave Properties are located west of Pennsylvania Avenue, south of Highway 12, east of Ledgewood Creek and north of Cordelia Road. The Tooby and Gilbert Properties are located east of Pennsylvania Avenue, south of Highway 12, west of the Union Pacific Railroad, and north of Cordelia Road. The Barnfield Property is located south of the Gentry and Tooby properties, south of Cordelia Road, and is bordered on the west by Orehr Road, on the east by the Southern Pacific Railroad, and on the south by the upper Suisun Marsh (Figure 2).

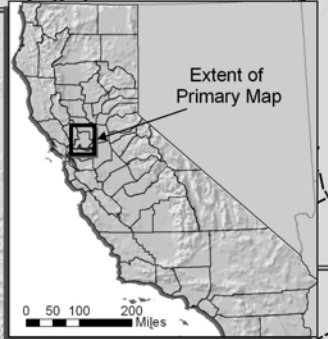
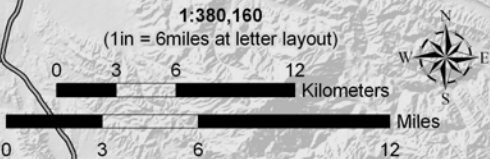
2.1.1 Gentry Property

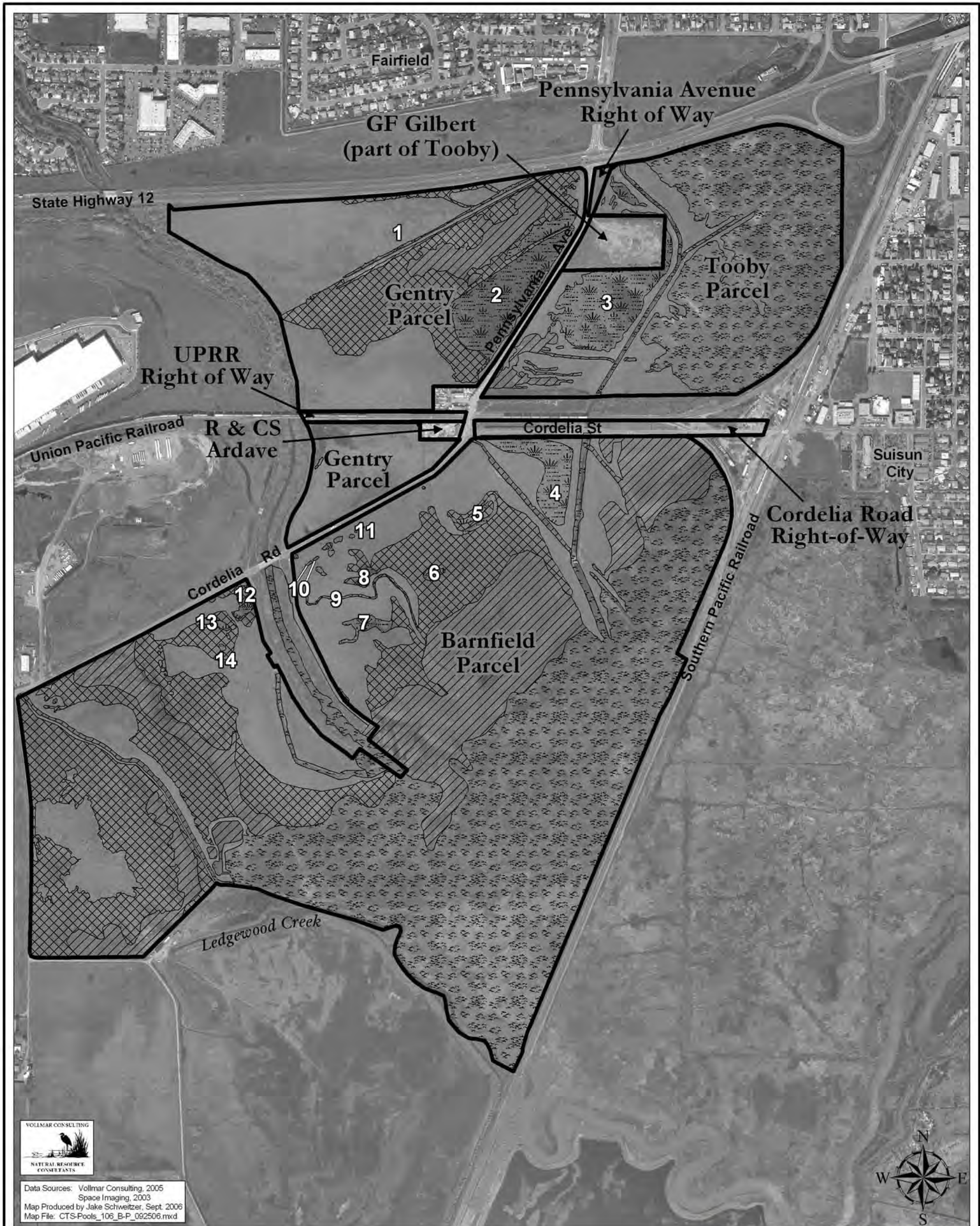
The Gentry Property is nearly level within elevation ranging from five to ten feet above sea level. The Union Pacific Railroad runs east-west through the property, creating a larger northern portion and a smaller southern portion. The property supports upland annual grasslands and a mix of wetland types including seasonally saturated annual grasslands, alkali seasonal marsh, seasonal wetlands and vernal pools. Most of the wetlands are concentrated in the northern portion, and appear to be man-made or enhanced due to the presence of road berms, buried utility line berms, and ditches. There is a large prominent artificially-created vernal pool on the eastern edge of the property measuring approximately 9.1 acres. There is a small remnant slough channel in the southern portion of the property that supports willows (*Salix* sp.) and other riparian vegetation. The larger northern portion is currently grazed, maintaining the grasslands in good condition. The smaller southern portion has not been grazed for several years and is dominated by a dense cover of introduced annual grasses.

Figure 1
Vicinity Map
Gentry-Suisun Project Area
Solano County, California



Map Produced By: Vollmar Consulting
GIS/Cartography By: Jake Schweitzer, July 2006
Data Sources: GAP Analysis Project, 1998
TIGER, 2000 | USGS, Various
Map File: Vicinity_029_A-P_072706.mxd





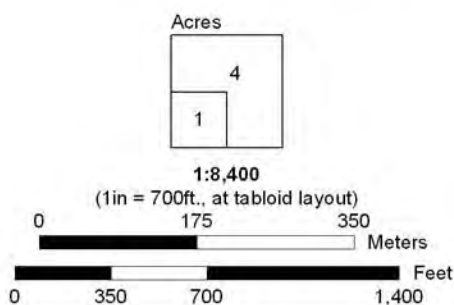
Data Sources: Vollmar Consulting, 2005
 Space Imaging, 2003
 Map Produced by Jake Schweitzer, Sept. 2006
 Map File: CTS-Pools_106_B-P_092506.mxd

Legend

Habitat Type

- Alkali Seasonal Marsh
- Riparian
- Seasonally Saturated Annual Grassland
- Upland
- Vernal Pool (with number ID)
- Perennial Brackish Marsh
- Property Boundaries

FIGURE 2
Vernal Pools
Surveyed for CTS
 Gentry-Suisun Project Area
 Solano County, California



2.1.2 Tooby and GF Gilbert Property

The Tooby Property is relatively flat with elevation ranging from approximately zero to five feet above sea level dominated by a mix of wetland and upland habitats. A drainage canal runs north to south through the western portion of the site. This canal flows directly to a slough feeding into Suisun Bay and is subject to tidal fluctuation. To the west of the canal, there are several medium to large seasonal wetlands including both vernal pools and alkali seasonal marshes. These are not tidally influenced but excess storm water from this area does drain into the canal through a culvert. To the east of the canal, most of the site supports perennial brackish marsh with dense stands of cattail (*Typha sp.*), California bulrush (*Scirpus californicus*), and pickleweed (*Salicornia virginica*). These wetlands receive tidal flow from the canal which is open to this portion of the site. The limited upland areas on the site support introduced annual grassland. There is an approximately 5-acre parcel, referred to as the GF Gilbert Property, along the western edge of the property that is owned by another party. This parcel has been used as a dumpsite for construction debris such as broken concrete and excavated soil. The GF Gilbert Property does not provide potential aquatic breeding habitat for CTS. The entire Tooby and GF Gilbert property are within the 100-year flood zone.

2.1.3 Barnfield Property

The Barnfield Property is located along the upper edge of Suisun Marsh, a large estuarine marsh formed along the northern shore of Grizzly Bay and the larger Suisun Bay near the confluence of the Sacramento and San Joaquin Rivers. The property consists of nearly level terrain with a gentle slope trending south-southeast toward Suisun Marsh. Elevation ranges from approximately zero to ten feet above sea level. The higher areas in the northern and northwestern portions of the property support introduced nearly level, grazed, upland annual grasslands with interspersed seasonal wetlands including vernal pools, seasonal alkali marsh, and seasonally saturated annual grasslands. Lower areas in the south and southeast are dominated by perennial brackish marsh associated with Suisun Marsh. Excluding a small portion along the southwestern boundary, the majority of the Barnfield property is within the FEMA 100-year floodplain.

Peytonia Slough and several smaller unnamed sloughs cut through the perennial marsh habitat. These sloughs are subject to tidal fluctuations and are hydrologically connected to Grizzly Bay via Suisun Slough. There are a few freshwater drainages which flow across the property from the northwest and drain into Peytonia Slough. Ledgewood Creek, which originates in the Gordon Valley several miles to the northwest, traverses through the center of the property. There are two canals on the property. One traverses the eastern portion of the property. This canal carries storm water runoff from the City of Fairfield, and may also convey run-off from natural drainages north of Fairfield. The second canal is adjacent to and confluent with Ledgewood Creek. This canal may be a remnant of the original channel of Ledgewood Creek before it was straightened and diked. Ledgewood Creek and the two canals are subject to tidal fluctuations and support bankside stands of perennial brackish marsh vegetation. The eastern canal has a flap gate located a few hundred yards south of Cordelia Road that is intended to prevent tidal backflow. In addition to these drainages, there are two smaller excavated ditches, one that joins the eastern canal, and one that traverses the western portion of the property. These ditches appear to convey local storm water run-off. These ditches do not appear to be subject to tidal flow except for the lower half of the western ditch.

2.1.4 Ardave Parcel

The approximately 0.6-acre Ardave parcel is in the northeast corner of the southern portion of the Gentry parcel south of the UPRR right-of-way. It currently is occupied by urban uses and is in the 100-year floodplain. No wetlands were found on this parcel during a preliminary wetland assessment conducted by HBG in July 2005.

2.1.5 Pennsylvania Avenue Right of Way

The Pennsylvania Avenue right-of-way is approximately 2 acres and is comprised of public asphalt roads and annual grassland areas and is within the 100-year floodplain. Approximately 0.727 acres of seasonally saturated annual grassland was identified in this right-of-way during a preliminary wetland assessment conducted by Huffman-Broadway Group in July of 2005. This seasonally saturated annual grassland did not pond to a depth or duration sufficient to provide breeding habitat for CTS.

2.1.6 Cordelia Road Right of Way

The approximately 4-acre Cordelia Road right of way is comprised of public asphalt roads and grassland areas. Alkali seasonal marsh (0.943 acre) and a small area of perennial brackish marsh (0.027 acre) were identified in this right-of-way during a preliminary wetland assessment conducted by Huffman-Broadway Group in July of 2005. Since CTS do not breed in either alkali seasonal marsh or perennial brackish marsh, neither of these areas was seined.

2.1.7 UPRR Right of Way

The UPRR right of way is approximately 3 acres and is comprised of railroad tracks and ruderal areas. Approximately 0.002 acre of seasonally saturated annual grassland were identified in this right-of-way during a preliminary wetland assessment conducted by Huffman-Broadway Group in July of 2005. The 0.002 acre of wetlands identified are within the 100-year floodplain. Vollmar Consulting conducted a site assessment of this area, and determined that potential aquatic breeding habitat for CTS does not exist. The 0.002 acres of seasonally saturated annual grassland does not pond to depth or duration sufficient for providing suitable breeding habitat. Therefore, no areas on this parcel were seined.

2.2 Survey Protocol, Methodology and Applicability of Results

The site assessment and field surveys conducted for this project followed the guidelines described in the California Department of Fish and Game's (DFG) and US Fish and Wildlife Service's (USFWS) *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (Interim Guidance) (CDFG and USFWS 2003). These guidelines provide guidance in planning for the protection of CTS at project sites proposed for land use activities. As the site assessment and field surveys conducted on the project site follow the Interim Guidance, the results may be used for specific project planning, impact assessment, and permitting. The site assessment and field survey results will be submitted to the USFWS for review. Upon completion of the review the USFWS may require additional field surveys to conclude presence/absence of CTS on the project area.

2.3 Project Personnel

Staff from Vollmar Consulting conducted all project work including the background review, field surveys, and reporting. John Vollmar served as project manager and senior biologist. Mr. Vollmar holds a Section 10(a)(1)(A) recovery permit for conducting federally-listed amphibian surveys (Permit Number TE-035336-0). Cassie Pinnell and Jake Schweitzer, staff biologists, served as assistant biologists. Cassie Pinnell authored this report, and Jake Schweitzer archived all GPS files and created all report figures.

3.0 METHODS

The methods used to conduct the site assessment and field surveys for CTS followed the Interim Guidance. The Interim Guidance stipulates a process to determine the presence or negative finding of CTS on a project area. This process includes an assessment of CTS locality records and of potential habitat in and around the project area. It also includes focused field surveys of potential breeding pools and their associated uplands to determine whether CTS are likely to be present.

3.1 CTS Site Assessment Methodology

3.1.1 Range of CTS

The site assessment includes a review of the range of CTS relative to a proposed project site. The Interim Guidance specifies that range maps published by USFWS must be consulted to determine if a proposed project area is within the range of the CTS. If the project area occurs within the range of the CTS, then a regional assessment of CTS is required.

A review of USFWS published maps of CTS occurrences in Northern California were assessed for the project area. Results are presented below in Section 4.0

3.1.2 CTS Occurrences within 3.1 Miles

Additionally, a review of all CTS occurrences within 3.1 miles of the project area is required. The Interim Guidance requires a review of the California Natural Diversity Data Base (CNDDDB) to determine the known localities of CTS. Additional sources to be consulted include local biological consultants, local residents, amateur herpetologists, resource managers and biologists from local, state, federal and environmental groups. If no CTS localities occur within 3.1 miles of a project area, the nearest locality is to be noted.

A review of all records in the 2005 CNDDDB were assessed for all CTS occurrence within a 3.1 mile radius of the project area. The results are presented below in Section 4.0.

3.1.3 Assessment of Upland and Aquatic Habitats within a 1.24 Mile Radius

An assessment of the upland and aquatic CTS habitats in the project area and within a 1.24 mile radius of the project boundaries is also required. This distance is based on the maximum observed dispersal of CTS to and from breeding sites to aestivation habitat. CTS inhabit

grassland and oak savannahs in the valley and low foothills of central and coastal California. The species spends most of the year in subterranean refuges dug by burrowing mammals located in the vicinity of breeding pools. During winter rains, adults emerge from upland burrow sites and migrate to ponds to breed. Typical breeding habitat includes large vernal pools, stock ponds and other ephemeral quiet waters. In early summer, juvenile and adult CTS migrate from breeding ponds to suitable aestivation sites, typically small mammal burrows within adjacent grassland habitat. The typical dispersal distance to and from CTS breeding sites is approximately one half mile, although distances up to 1.24 miles have been documented. Typical breeding and aestivation habitat does not include areas within the 100-year flood plain.

The Interim Guidance requires an assessment and description of the upland and aquatic habitats within the project area and within 1.24 miles of the project boundaries. Characteristics of the site to be recorded include acreage, elevation, topography, plant communities, presence and types of water bodies, the presence of mammal species and burrows, current land use, a description of adjacent lands and an assessment of potential barriers to CTS movement. Potential CTS breeding habitat includes pools that contain standing water continuously for at least ten weeks, extending into the month of April. Potential CTS upland (aestivation) habitat typically includes grassland or oak savannah habitat with mammal burrows present within 1.24 miles of potential CTS breeding habitat.

3.2 CTS Field Survey Methodology

If the results of a site assessment identify potential CTS habitat within 1.24 miles of the project area, the Interim Guidance states that biological field surveys should be conducted to determine presence or a negative finding of CTS. At sites that contain *both* upland (aestivation) habitat and potential breeding habitat, the Interim Guidance states that aquatic sampling for CTS during two breeding seasons and a drift fence study in the intervening winter period should be conducted to support a negative finding. Aquatic larval surveys of potential breeding pools involve dip-net or seine sampling with three visits, once each in March, April and May, with at least ten days between each survey. The drift fence studies are to be conducted during the winter between two consecutive seasons of aquatic larval sampling (if presence of CTS was not established during the first season of aquatic sampling). The drift fence study design includes the use of drift fences and pitfall traps spaced around breeding ponds and/or adjacent upland habitat.

Aquatic sampling for larval CTS was conducted in the fourteen seasonal ponds on March 31, April 20, and May 31, 2006. The pools were surveyed for CTS by first visually inspecting the pool and then by seining. All pools were sampled using a six foot by three foot seine with a mesh size no greater than one-eighth inch. The seine was moved through the water with two meter-long sweeps throughout the pools, covering the entire surface of pools smaller than one acre, and at least 30 percent of pools larger than one acre. Pools that were too small to be seined were visually inspected and dip-netted using a D-shaped long-handled dip-net with a mesh size no greater than one-eighth inch. The dip-nets were moved through the water with meter-long sweeps throughout the pools. After the completion of each sample sweep, the contents of the net were examined for larval CTS. Those pools that ponded to a maximum depth of at least two inches and remained ponded for more than two weeks following inundation were considered potential habitat for CTS and were included in the surveys.

4.0 RESULTS

4.1 CTS Site Assessment Results

4.1.1 Range of CTS

The project area is located within the historic range of the CTS. Seven CTS occurrences in Solano County are documented in CNDDDB records (CNDDDB 2005).

4.1.2 CTS Occurrences within 3.1 Miles

There are no CTS occurrences within a 3.1 mile radius of the project area. The closest CTS occurrence to the project area is located approximately 5 miles southeast, in the Potrero Hills area. This occurrence record dates from 2001, when reportedly 1000's of larvae were observed (adults had been observed in previous years). Another occurrence is reported from approximately six miles northeast of the project area, about 1.5 miles northwest of Travis Field. Five additional occurrences are reported from 10-20 miles northeast of the project area. As further described in Section 4.1.3, significant barriers to migration occur between the project area and known CTS occurrences which include roadways, residential, commercial and industrial development and large tidal channels. Additionally, all of the Gentry and Tooby parcels and approximately 95% of the Barnfield parcel are within the 100-year flood plain.

4.1.3 Assessment of Aquatic and Upland Habitats within a 1.24 Mile Radius

CTS Aquatic Breeding Habitats within the Project Area

The project area consists of a flat lowland area. The habitat in the lowland area is characterized by ruderal grasslands with interspersed seasonally saturated annual grasslands, perennial brackish marsh, seasonal alkali marsh, riparian wetlands and a number of vernal pools. CTS require large vernal pools, stock ponds or other fresh seasonal quiet waters that remain inundated continuously for at least ten weeks. Fourteen vernal pools on the site were identified as providing potential CTS breeding habitat based on inundation period. These pools are located in the central and eastern portions of the Gentry property, in the western portion of the Tooby property, and in the northern and northwestern portions of the Barnfield property. All fourteen of these pools were surveyed, but only eight remained continuously inundated for the ten weeks required to be considered CTS breeding habitat. These eight are Pools 1 and 2 on the Gentry parcel, 3 on the Tooby parcel, and 4, 5, 10, 11 and 12 on the Barnfield parcel (Figure 2). All eight pools had low turbidity, a maximum depth of less than one foot, and can be classified as vernal pools based on associated vegetation. All of the vernal pools surveyed are within the 100-year flood plain of Ledgewood Creek. The Ardave, Cordelia Road, Pennsylvania Avenue, GF Gilbert, and UPPR right-of-ways do not have potential breeding habitat, and were not seined.

Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater. They are inundated throughout the winter and gradually dry during the spring and summer through evaporation and plant transpiration. They then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools support a unique assemblage of native

plants and animals specifically adapted to their unique hydrologic regime. Vernal pools are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

Dominant species within the pools in the project area include a mix of vernal pool indicator species such as Vasey's coyote-thistle (*Eryngium vaseyi*), California semaphore grass (*Pleuropogon californica*), flat-faced downingia (*Downingia pulchella*), goldfields (*Lasthenia glabrata*), hyssop-leaved loosestrife (*Lythrum hyssopifolia*), and stipitate popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), as well as a low cover of some alkali-tolerant species (halophytes) such as alkali heath (*Frankenia salina*), pickleweed (*Salicornia virginica*), and alkali weed (*Cressa truxillensis*). Many of the pools appear man-made or enhanced by berms and ditches that collect and block the flow of water across the landscape.

Gentry Property

Pools 1 and 2 are large vernal pools, the length of each exceeding 300 meters, and are surrounded by seasonally saturated annual grassland and alkali seasonal marsh. Pool 1 is linear, and bordered on the southeastern side by a small berm. Pool 2 is rounded and has less obvious boundaries. In years of high rainfall, the seasonal wetlands can expand and mix with Pool 2, as well as sections of Pool 1. During the 2006 field season, the boundaries of Pool 2 were not evident, and the entire area including the adjacent seasonally saturated annual grassland was sampled for CTS. Pool 1 was partially separated from the surrounding seasonal wetlands and was sampled within its ordinary high water mark (OHWM). The entire Gentry parcel is within the 100-year flood plain.

Tooby Property

Pool 3 is also a large vernal pool, comparable in size to Pool 2. In years of high rainfall this pool is difficult to distinguish from the surrounding alkali seasonal marsh, as it also had a high cover of halophytes. All flooded areas adjoining Pool 3 that were not dominated by halophytes were sampled and recorded as Pool 3. The entire Tooby parcel is within the 100-year flood plain.

Barnfield Property

Pool 4 is a large vernal pool that is not directly bordered by other seasonal wetlands, and is therefore easily distinguishable even during periods of heavy inundation. Pool 5 is a meandering swale within seasonally saturated annual grasslands, it is less than three feet across, though it is relatively deep (maximum 11 inches). Pools 10 and 11 are very small (less than six feet across), but do retain water for the requisite period of 10 weeks, and are therefore considered potential habitat. Pool 12 is a small vernal pool within seasonally saturated annual grasslands. All adjoining wetlands were sampled as part of Pool 12, since the boundaries between wetlands were no longer intact after heavy rainfall. All the pools surveyed are within the 100-year floodplain.

CTS Upland Aestivation Habitats within the Project Area

The upland portions of the property, especially in the north and northwest, can be characterized as introduced annual grassland. These areas support a predominance of upland annual grasses, with soft chess (*Bromus hordeaceus*) being the dominant species. In general, there is a very low occurrence of noxious weeds such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Taeniatherum caput-medusae*) within the grasslands.

Many grassland areas border wetland habitat and are dominated by marginal wetland indicator species such as Mediterranean barley (*Hordeum marinum* var. *gussoneanum*) and Italian ryegrass (*Lolium multiflorum*). Due to the presence of residual soil salinity from old marine clay lenses, there is also often a low cover of halophytes (salt-tolerant plants) such as alkali heath (*Frankenia salina*), alkali weed (*Cressa truxillensis*), and salt grass (*Distichlis spicata*). Annual grassland areas that remain saturated for prolonged periods during the rainy season may be termed ‘vernally mesic grasslands’ or ‘seasonally saturated annual grasslands’.

Possible upland CTS aestivation habitat on the project area includes the annual grasslands immediately adjacent to the seasonal wetlands. However, all of the Gentry and Tooby parcels and nearly 95% of the Barnfield parcel are within the 100-year flood plain. No mammal burrows were observed on-site.

CTS Aquatic Breeding Habitats within 1.24 Miles of the Project Area

Potential aquatic breeding habitat occurs in large vernal pools within 1.24 miles of the project area, however, no occurrences of CTS have been documented within these pools. No CTS are known to occur within 5 miles south of the Barnfield Property and the nearest known location is southeast near Potrero Hills area.

The project area is situated within historic range of CTS. It is likely that vernal pools and other potential aquatic habitat occurred throughout the surrounding areas. However, the majority of the surrounding areas have been developed, eliminating historical habitat. The project area is now bordered on the north side by the City of Fairfield and State Highway 12 and the east side by the Union Pacific Railroad and the City of Suisun City. Those cities, combined with the Union Pacific Railroad and upper Suisun Marsh to the south and industrial development and Ledgewood Creek to the west, currently present barriers to migration from the surrounding areas. A spur of the Union Pacific Railroad now bisects the project area, providing a southern boundary for the Tooby parcel and most of the Gentry parcel, as well as a northern boundary for the Barnfield Parcel. The Southern edge is mostly brackish marsh, which does not provide habitat for CTS and is a barrier to migration. Therefore, migration to the project area would most likely need to occur from the south-western edge of the project area, south of Cordelia Rd. The south-western edge of the project area does include vernal pools and grassland, which could provide potential habitat. To access the project area, CTS would need to either cross Ledgewood Creek, marsh sloughs or utilize the railroad bridge. Additionally, all of the Gentry and Tooby parcels and nearly 95% of the Barnfield parcel are within the 100-year floodplain.

CTS Upland Aestivation Habitats within 1.24 Miles of the Project Area

The Suisun City/Fairfield City area was historically comprised of extensive grasslands and potential upland CTS aestivation habitat. However, the majority of these grasslands directly surrounding the project site have been developed into dense residential communities and industrial business parks. Currently, the only grasslands adjacent to the project site are comprised of a small strip to the north of the Gentry and Tooby parcels, and semi-contiguous grasslands to the west of the project site. The remainder of the 1.24 mile surrounding area is brackish marsh or residential development or industrial business park development. Potential upland aestivation habitat does occur within the project area.

The surrounding grasslands are separated from the project area by potentially significant barriers to migration. The strip of grasslands to the north is separated from the project area by Highway 12, and is bordered on the north side by the City of Fairfield. Any potential grassland habitat to the south and east of the project area is separated from the project area by the City of Suisun City, Southern Pacific Railroad and the upper Suisun Marsh. Additionally, the Union Pacific Railroad bisects the project area, providing a southern boundary for the Tooby parcel and most of the Gentry parcel, as well as a northern boundary for the Barnfield Parcel. All of the Gentry and Tooby parcels and approximately 95% of the Barnfield parcel are within the 100-year flood plain.

No CTS are known to occur within 5 miles south of the Barnfield Property and the nearest known location is southeast near Potrero Hills area.

4.2 Aquatic Sampling Survey Results

Aquatic sampling for larval CTS was conducted on March 31, April 20, and May 31, 2006. The sampling was conducted in all fourteen pools (see Figure 2). Table 1 summarizes recorded water depth, temperature and CTS presence/absence from each pool on the project area. No larval or adult CTS were detected during these surveys.

5.0 SUMMARY

No CTS were observed during the seine surveys. Suitable CTS breeding habitat does occur within the eight pools (Pools 1-5 and 10-12) that remained inundated for the minimum ten weeks required for CTS breeding habitat. CTS prefer pools with turbid water and the water in these pools was clear to moderately clear. Suitable upland CTS aestivation habitat exists in the ruderal and non-native annual grasslands surrounding the pools. No ground squirrel burrows were observed in the project area which decreases the potential suitability of the uplands for CTS aestivation habitat. The lack of ground squirrels is likely due to the seasonal surface and subsurface saturation that occurs over much of the project area.

As described in section 4.1.3, significant barriers to migration occur between the project area and known CTS occurrences which include roadways, residential, commercial and industrial development and large tidal water bodies. Additionally, all of the Gentry and Tooby parcels and approximately 95% of the Barnfield parcel are within the 100-year flood plain which may be a factor limiting the occurrence of ground squirrels. As mentioned above, much of the project area is subject to prolonged surface or subsurface inundation/saturation.

The site assessment and field survey results will be submitted to the USFWS for review. Upon completion of the review, the USFWS may require additional field surveys to conclude presence/absence of CTS on the project area. Informal consultation with USFWS should be conducted before the end of September to determine the need for additional surveys and allow time for any surveys required in order to complete them in the coming winter/spring.

Table 1. Results of CTS Wet Season Sampling Conducted at Gentry-Suisun Project Area, Solano County. Data and Table Compiled by Vollmar Consulting, Spring, 2006.

| Pool ID | Date | Max Depth | CTS Observed | Type of Wetland |
|---------|----------|-----------|--------------|---|
| 1 | 03/31/06 | 3" | No | Vernal pool |
| | 04/20/06 | 7" | No | |
| | 05/31/06 | Dry | No | |
| 2 | 03/31/06 | 12" | No | Vernal pool |
| | 04/20/06 | 14" | No | |
| | 05/31/06 | Dry | No | |
| 3 | 03/31/06 | 8.5" | No | Vernal pool |
| | 04/20/06 | 9" | No | |
| | 05/31/06 | Dry | No | |
| 4 | 03/31/06 | 13" | No | Vernal pool |
| | 04/20/06 | 7" | No | |
| | 05/31/06 | Dry | No | |
| 5 | 03/31/06 | 11" | No | Vernal pool |
| | 04/20/06 | 5" | No | |
| | 05/31/06 | Dry | No | |
| 6 | 03/31/06 | 5" | No | Vernal pool |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |
| 7 | 03/31/06 | 8" | No | Vernal pool |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |
| 8 | 03/31/06 | 2" | No | Vernal pool |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |
| 9 | 03/31/06 | 2" | No | Vernal pool/seasonally saturated annual grassland |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |
| 10 | 03/31/06 | 2" | No | Vernal pool |
| | 04/20/06 | 8" | No | |
| | 05/31/06 | Dry | No | |
| 11 | 03/31/06 | 8" | No | Vernal pool |
| | 04/20/06 | 9" | No | |
| | 05/31/06 | Dry | No | |
| 12 | 03/31/06 | 9" | No | Vernal pool |
| | 04/20/06 | 6" | No | |
| | 05/31/06 | Dry | No | |
| 13 | 03/31/06 | 1" | No | Vernal pool |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |
| 14 | 03/31/06 | 1" | No | Vernal pool |
| | 04/20/06 | Dry | No | |
| | 05/31/06 | Dry | No | |

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Vollmar Consulting CTS Upland Habitat Assessment Report, 2007



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GENTRY-SUISUN PROJECT SOLANO COUNTY, CA

CALIFORNIA TIGER SALAMANDER UPLAND HABITAT ASSESSMENT

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J-106

1.0 INTRODUCTION

This report provides an assessment of the potential for the presence of adult California tiger salamanders (*Ambystoma californiense*) (CTS) within the upland habitat of the Gentry-Suisun project area (project area) in Fairfield, Solano County, CA. This report considers the quality of upland habitat available within the project area, the proximity of the nearest known and potential CTS breeding and upland sheltering sites in the project vicinity, and the potential for CTS to migrate from these known and potential sites onto the project area.

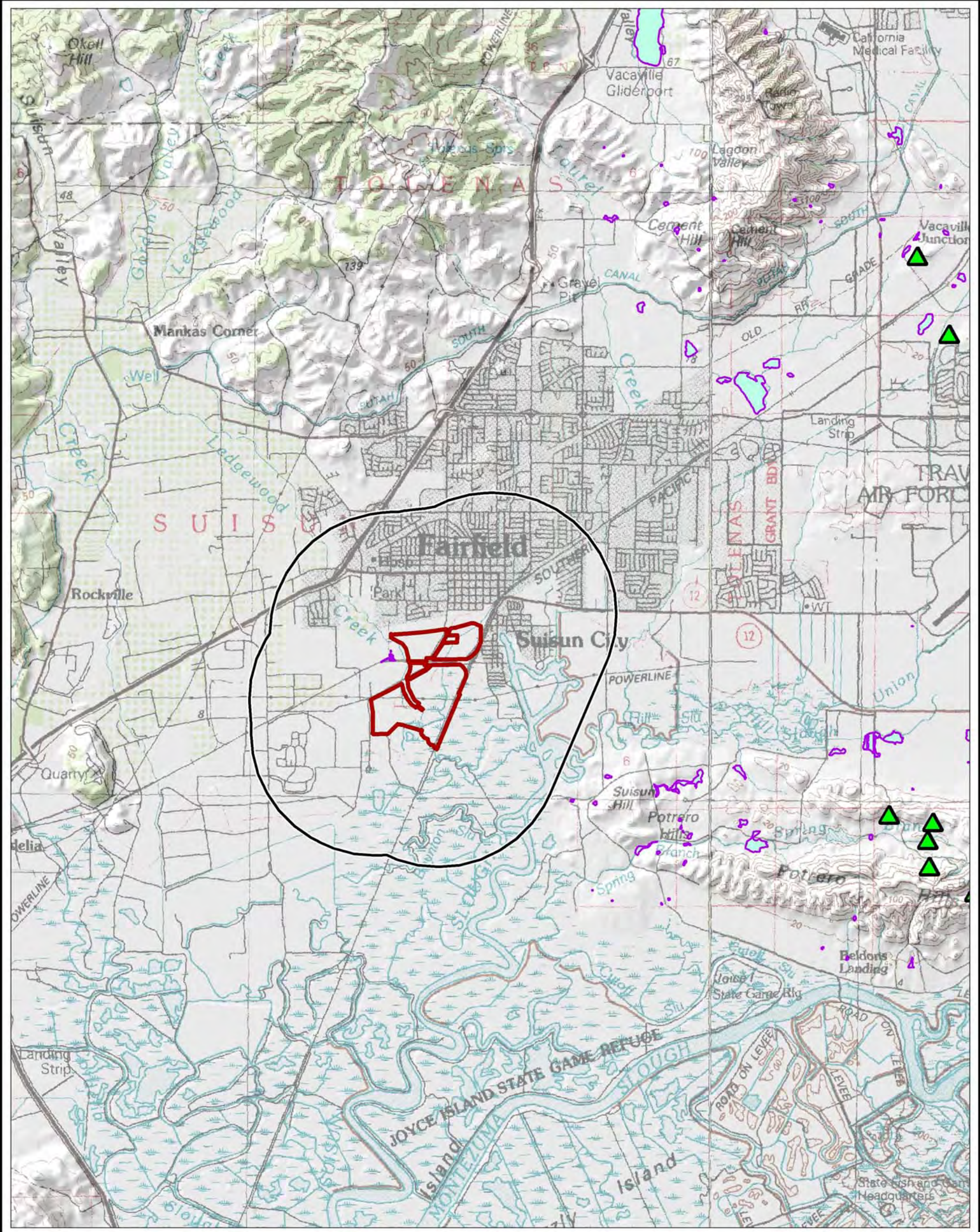
2.0 PROJECT AREA LOCATION, DESCRIPTION, AND SETTING

The project area is located west of the city of Suisun and south of the city of Fairfield, in Solano County, California (Figure 1). The project area is comprised of several parcels with a total area of approximately 500 acres (Figure 2). The Gentry and Ardave Properties are located west of Pennsylvania Avenue, south of Highway 12, east of LedgeWood Creek and north of Cordelia Road. The Tooby and Gilbert Properties are located east of Pennsylvania Avenue, south of Highway 12, west of the Union Pacific Railroad, and north of Cordelia Road. The Barnfield Property is located south of the Gentry and Tooby properties, south of Cordelia Road, and is bordered on the west by Orehr Road, on the east by the Southern Pacific Railroad, and on the south by the upper Suisun Marsh.

The wetlands on-site (Figure 2) were seined for California tiger salamander larvae by Vollmar Consulting during the 2006 field season. No CTS were observed. These results were submitted in a separate report to the US Fish and Wildlife Service in 2006. The report concludes that CTS larvae are unlikely to occur within the wetlands on-site. Possible upland CTS habitat does occur on the project area, including the annual grasslands immediately adjacent to the seasonal wetlands. No mammal burrows or other suitable burrows have been observed within the project area. If CTS are not breeding within the pools on-site, adult CTS would need to migrate between the project area and off-site breeding pools to occur on-site. Adult CTS reportedly migrate up to 1.24 miles from upland sheltering habitat to breeding areas (USFWS 2004).

3.0 KNOWN REGIONAL CTS OCCURENCES

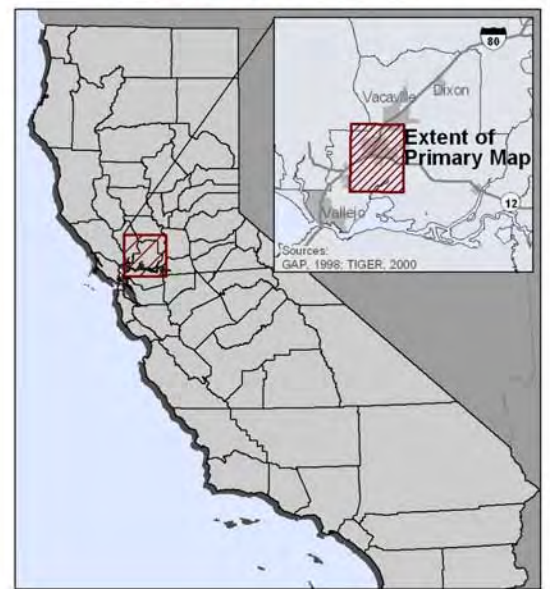
There are no known CTS breeding pools within a 1.24 mile radius of the project area. There are six pools or ponds with recorded CTS occurrences within six miles of the project area (Figure 1) (CNDDDB 2007). The closest CTS breeding sites to the project area are located approximately 4.5 miles east-southeast, in the Potrero Hills area. Another site is reported from approximately six miles northeast of the project area, about 1.5 miles northwest of Travis Field. Additionally, larval CTS have recently been observed on the Burke property (Vollmar Consulting 2006), also approximately six miles northeast of the project site.



Legend

-  Nearest Occurrences of California Tiger Salamander
-  Potential CTS Breeding Pool
-  Property Parcels
-  1.24 Mile Buffer of Project Parcels

FIGURE 1
Potential CTS Habitat
in Vicinity of Project Site
 Gentry Properties
 Solano County, California

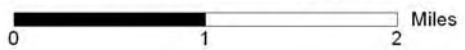
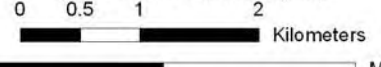


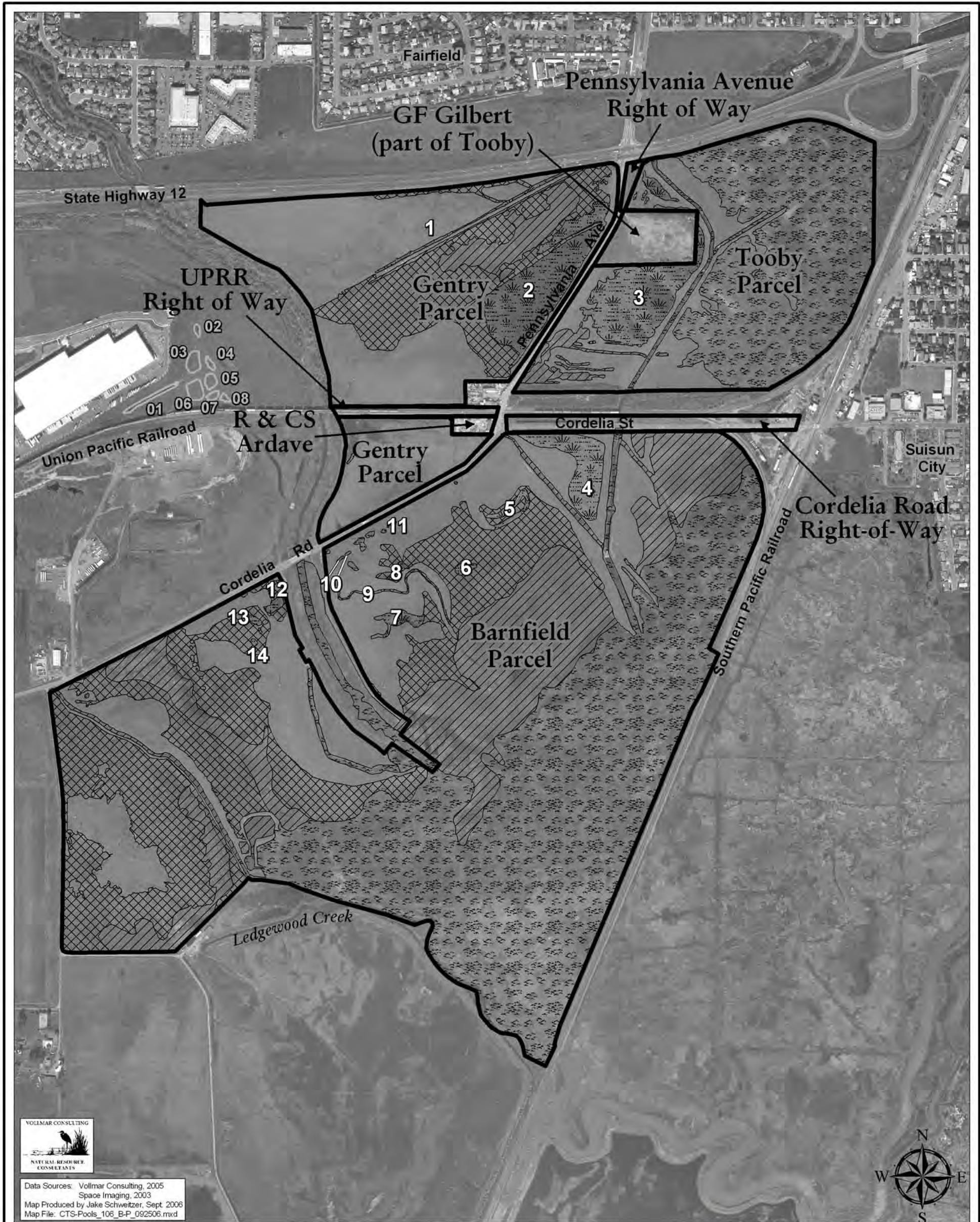
Data Sources: Vollmar Consulting, 2003-2007
 CDFG CNDDb, 2006
 USGS Napa and Lodi 1:100k Quadrangles
 Map Produced by Jake Schwetzer, April 2007
 Map File: CTS-Vicinity_106_B-P_042607.mxd



1:63,360

(1-in = 1-mile at tabloid layout)





3.1 Potrero Hills Landfill

The closest known breeding pools are adjacent to the Potrero Hills Landfill. Multiple larvae have been observed in four different stock and quarry ponds (Figure 1). Additionally, adults have been observed in surrounding upland areas (CNDDDB 2007). Of these four, the closest CTS pond is approximately 4.5 miles from the project site. This record was updated in 2006, and is presumed to be current.

These pools are man-made and generally greater than 50 feet in diameter. They are large and capable of retaining water for longer than surrounding, shallower vernal pools. The surrounding open space is predominantly grazed annual grasslands that extend into the Potrero Hills. Adult CTS have been observed in these grasslands, suggesting that they likely provide suitable upland habitat (CNDDDB 2007). This location is separated from the project area by tidal sloughs, development and major highways. These features provide a significant barrier for migration to the project area. Due to the distance and barriers, it is highly unlikely that CTS could migrate from Potrero Hills to the project area.

3.2 North of Travis Air Force Base

The CNDDDB records multiple occurrences of CTS north of Travis Air Force Base (AFB). The closest of these occurrences is approximately six miles from the project area. Two larvae were observed in 2005 in a large, man-made pool north of Vanden Road (northernmost occurrence on Figure 1) (CNDDDB 2007). The surrounding upland habitat consists of grazed annual grassland. This location is separated from the project area by major highways and development. The significant distance and barriers make it highly unlikely that CTS could migrate from this area to the project area.

3.3 Burke Property

CTS larvae were recently observed in a deep, turbid, man-made railroad pond on the Burke property, approximately six miles from the project site (Figure 1). This pool is surrounded by non-grazed and grazed annual grassland, as well as other man-made and natural pools. The surrounding pools to the north and west have been seined for two seasons by Vollmar Consulting for larval CTS. No larvae were found. This location is separated from the project site by substantial development and major highways. These features, as well as the distance to the project area, greatly diminish the possibility that CTS could migrate from this area to the project area.

4.0 OFF-SITE POTENTIAL CTS BREEDING HABITAT

As discussed in Section 3.0, the project area is greater than 1.24 miles from known CTS breeding ponds. Therefore, it is unlikely that CTS would migrate from these locations. Vollmar Consulting conducted ground surveys and utilized aerial imagery to locate additional potential aquatic breeding habitat within 1.24 miles. The only site that appeared to provide potential breeding habitat was the Meyer Cookware site, located directly west of the project area (Figure1). These pools are discussed below.

4.1 Meyer Cookware

Seven pools occur on the Meyer Cookware site adjacent to the project area. Of these pools, one is natural, one was enhanced, and five were created by Vollmar Consulting as mitigation in 1999 and 2000. Depth measurements taken in 2005 showed that six pools pond to a maximum depth of six to eight inches, and the remaining pool ponds to a maximum depth of 12 inches (Vollmar Consulting 2005). These pools have clear water, with very low turbidity. Recent visits to the site by staff of Vollmar Consulting (2006) confirmed that the lack of grazing and management have contributed to high grass and thatch levels, which appear to have encroached upon and reduced the ponding levels of the pools.

The largest created pool on-site is of sufficient size to provide potential breeding habitat for CTS. However, this pool has very low turbidity. CTS typically breed in turbid pools. Additionally, this pool was created in 1999. Adult CTS would have had to migrate to this pool within the last eight years. It is unlikely that adult CTS could have migrated to the Meyer Cookware site within the last eight years due to significant distance and dispersal barriers between this site and known regional populations. However, no CTS surveys have been conducted on this site, and therefore presence is unknown.

5.0 DISCUSSION

The surrounding known locations of CTS breeding habitat are within large man-made ponds. None of these locations are within 1.24 miles of the project site. These locations are separated from the project site by significant barriers including major highways, sloughs and extensive residential and industrial development. It is highly unlikely that CTS could migrate from known locations to the project area due to great distance and significant barriers.

It is unlikely that CTS are breeding within the Meyer Cookware pools, due to their low turbidity and recent creation. These are the only potential CTS breeding ponds within 1.24 miles of the project area other than those on the site itself. The probability of recent CTS migration to the Meyer Cookware site is very low due to significant distance and dispersal barriers between Meyer Cookware and regional occurrences.

Due to the distance from known occurrences, significant migration barriers and lack of surrounding breeding habitat, this report concludes that it is highly improbable that adult CTS could access and use the Gentry-Suisun project area as upland habitat.

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Attachment 7

Preliminary Mitigation and Monitoring Plan

**Permittee Responsible Preliminary Mitigation and Monitoring Plan
and Long-Term Management Plan
for the
Highway 12 Logistics Center, Solano County, California**

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1.0 INTRODUCTION

This Permittee-Responsible Preliminary Mitigation and Monitoring Plan (MMP) has been prepared for Buzz Oates Construction (Applicant/Landowner), by Huffman-Broadway Group, Inc. (HBG) for the Highway 12 Logistics Center Project in the City of Suisun City and Solano County, California (Project). This MMP was prepared following the guidance provided by the US Army Corps of Engineers 2008 Compensatory Mitigation for the Loss of Aquatic Resources; Final Rule (33 CFR Parts 325 and 332; 40 CFR Part 230) and in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board “Procedures” and State Water Resources Control Board Implementation Guidance dated April 2020.

During the permitting process, this MMP will be reviewed by the San Francisco District US Army Corps of Engineers, San Francisco Bay Regional Water Quality Control Board, and may be reviewed by the US Fish and Wildlife Service, California Department of Fish and Wildlife, and San Francisco Bay Conservation and Development Commission. During that review process modifications may be made to this MMP in accordance with comments or edits suggested by these agencies. A detailed grading plan, language for a deed restriction or conservation easement, and endowment cost will be developed during this process. Appendices not included with this MMP will be prepared during the review process and provided under an updated Final Mitigation and Monitoring Plan (Final MMP) once agencies have completed their review.

1.1 General Description of Development Project Requiring Compensatory Mitigation

The purpose of the proposed project is to develop approximately 1.28 million square feet of building space on an approximately 93.40-acre site (Development Site). The project site consists of approximately 486.64 acres of land, 3.7 acres of roads, 2.1 acres of a railroad parcel, and 5 acres of a privately owned parcel for a total project site of approximately 497.44-acre area mostly located in unincorporated Solano County, California, west of the City of Suisun City (Suisun City). As part of this project approximately 393.24 acres within the eastern portion of the annexation area east of Pennsylvania Avenue and south of Cordelia Road will be Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately 61.57 acres of the 393.24 acre Managed Open Space is outside of the Suisun Marsh Protection Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge for waterfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67-acres are within the primary and secondary management areas of the Suisun Marsh. Although the Suisun Marsh Protection Plan does provide protection from commercial and residential development and guidance on how lands should be preserved and enhanced, it encourages uses that may not be compatible with wildlife, such as recreation (fishing, boating, hunting etc.), and it does not provide funding to implement its policies/goals such as managing agricultural lands to support waterfowl or enhance wildlife habitat. A site protection instrument designed specifically to preserve and manage the land for wildlife habitat will provide the Managed Open Space with additional

protections and funding to implement such protections. The site protection instrument will restrict certain uses allowed under the Suisun Marsh Protection Plan such as recreation, which can have adverse impacts on wildlife habitat, will provide a sanctuary for wildfowl during hunting season by excluding duck hunting and creating freshwater seasonal wetlands. The site protection instrument will be funded to effectively manage, protect and enhance rare plants found onsite, provide funding to clean up trash blown onto the site or illegally dumped before it can enter the waterway, provide funding to minimize homeless encampments from establishing, and ensure current grazing practices are compatible with preserving and enhancing the wildlife habitat. The long-term endowment will be funded by the proposed project to manage the entire 393.24 acre Managed Open Space in perpetuity, funding that is not provided by the Suisun Marsh Projection Act.

Within the Managed Open Space, the Applicant intends to preserve rare plant habitat, which includes the critical habitat Subunit 5G core population of approximately 8,000+ Contra Costa goldfields over a 17-acre area, and create approximately 38 acres of wetlands, in-kind, to offset the 38-acre wetlands impacts and impacts of rare plants associated with the Development Site. Wetlands will be established/created prior to or concurrent with project construction in accordance with the Mitigation and Monitoring Plan. The MMP includes performance standards based on attributes that are objective and verifiable and 10-year monitoring period which is sufficient to demonstrate performance standards have been met.

Refer to Figure 4 for the general location of the Managed Open Space in relation to the Development Site. Refer to Figure 11 for the location of proposed mitigation wetlands in relation to existing wetlands. This Managed Open Space shall be planned and managed to offset impacts for the Development Site, and potentially serve as mitigation for other projects.

The Final MMP will include a site protection instrument (e.g., deed restriction or conservation easement(s)) that will restrict use of the Managed Open Space area and establish an endowment funded by the Project Applicant to manage the Managed Open Space in perpetuity.

1.2 Objectives

The objectives of this MMP and LTMP are to improve habitat conservation and biodiversity of special status plant species and wetland habitat within Solano County. This will be accomplished by meeting the following objectives:

1. Establishment of wetland habitat meeting the USACE technical criteria for jurisdictional wetlands by:
2. Development of physical conditions similar to those found within naturally occurring depressional wetlands found within the project site.
3. Development of hydrologic conditions similar to those found within naturally occurring depressional wetlands found within the project site.
4. Development of hydric soil conditions similar to those found within naturally occurring depressional wetlands found within the project site.

5. Establishment of naturalized and native plant species similar to those found within a reference wetland within the project area watershed; and
6. Establishment of areas meeting the USACE technical criteria for jurisdictional wetlands.
7. Establishment of suitable habitat for special status plant species by:
8. Development of physical conditions similar to those found within naturally occurring occupied sensitive species habitat found within the project site.
9. Development of hydrology and soil conditions similar to those found within naturally occurring occupied habitat found within the project site.
10. Establishment of new sensitive plant species populations similar to those found within the project site impacted by the Highway 12 Logistics Center Project.
11. Providing for long-term management and land use protection of established and preserved wetlands and upland watershed habitat for conservation purposes through endowment funding and a recorded conservation easement.
12. Providing for long-term management and land use protection of occupied and suitable habitat for sensitive species through endowment funding and a deed restriction or conservation easement.
13. Protect, enhance, and manage natural habitats and diverse plant and animal communities to meet, in part, objectives outlined in the Open Space and Conservation Element of the City of Suisun City General Plan and the Resources chapter of the Solano County General Plan, and the Suisun Marsh Preservation Act.

2.0 SITE SELECTION

2.1 Proposed Permittee Responsible Mitigation Site

The Permittee Responsible Mitigation (PRM) site is within the 393.24 acre Managed Open Space area. The PRM and Managed Open Space are used interchangeably throughout this MMP.

Locations within the PRM were identified where mitigation for the development of a project generally described in Section 1.0. could be implemented. The Managed Open Space area is situated within an agricultural area used historically for grazing. Populations of sensitive species together with wetlands have been documented as being present within the Managed Open Space by various plant surveys and aquatic resources delineations. Areas where sensitive species and wetlands occur will be avoided during ground disturbing activities.

The landowner, Buzz Oats Construction, Inc., will place a deed restriction or conservation easement over the entire 393.24 acre Managed Open Space, and establish an endowment to assure the long-term management and protection of the mitigation site. For purposes of this management plan, the Landowner is responsible for land management, compliance, and funding activities.

3.0 SITE PROTECTION INSTRUMENT

Long-term “in perpetuity” land use protection will be provided by recording a deed restriction and/or conservation easement(s) with the Solano Land Trust or other approved 501c3 land trust organization as the Grantee for the entirety of the 393.24 acre Managed Open Space. If a conservation easement is used, the grantee of the conservation easement shall be a non-profit 501(c)(3) conservation lands management organization approved by the USACE, USFWS, CDFW, Regional Water Quality Control Board (RWQCB), and San Francisco Bay Conservation and Development Commission (BCDC).

If requested, the USACE, USFWS, CDFW, RWQCB, and/or BCDC (the Authorizing Agencies) shall be named as the third-party beneficiaries of the conservation easement. The role of the Conservation Easement Grantee is to assure that the land is maintained in accordance with the conservation easement and the maintenance and management actions described in Sections 7.0 through 11.0. The Conservation Easement Grantee shall report to the third-party beneficiaries of the conservation easement on an annual basis. A “Land Manager” will manage the mitigation site / conservation lands in accordance with the MMP and LTMP. During the LTMP the Land Manager will be paid annually through the endowment funding described below. During years 1 through 10, the Land Manager will be paid directly by the Landowner.¹ The Conservation Easement Grantee is also paid annually through the endowment funding during the Long-Term Management Period and directly by the Permittee / Landowner during years 1 through 10.

¹ As described in Section 8.0, if the agency required performance criteria are not met within the first 10 years, the Permittee / Landowner will continue to be responsible for funding measures necessary to successfully achieve agency required performance criteria, including Land Manager-related costs, to the extent that those costs exceed those already provided for long-term management activities and funded by the endowment.

4.0 BASELINE INFORMATION

This section describes the PRM/Managed Open Space site location, land use, and its environmental setting, which includes discussion of site topography, climate, soil, hydrology, vegetation, wildlife species, special status species and habitats.

4.1 Location

Parcels which make up the Managed Open Space site are within the City of Suisun City and southwestern Solano County within the Sacramento Valley geographic sub region of the Great Central Valley, California, east of US Highway 80, and southwest of Suisun City. A regional location map for the project site is shown in Figure 1. Figure 2 shows the location of the project site on the Fairfield North and Fairfield South, California, USGS 7.5-minute topographic quadrangles and an aerial image of the project site shown in Figure 3. The USGS Section, Township, Range; County APN numbers; acreages; and approximate center point latitude and longitude coordinates of the Managed Open Space area are as follows:

| Table 1. Managed Open Space Parcel Location & Acreage | | | |
|--|-------------------------------|-----------------------------------|--------------------|
| APN | Latitude and Longitude | Section Township Range | Acreage |
| 0032-020-160 | 38.242142; -122.042786 | Section 35, Township 5N, Range 2W | 4.54 ² |
| 0032-020-100 | 38.238951; -122.0425780 | | 35.52 ³ |
| 0032-020-140 | 38.240581; -122.047591 | | 21.51 ⁴ |
| 0032-190-190 | 38.232773; -122.053062 | | 136.66 |
| 0032-190-180 | 38.231161; -122.057803 | | 10.87 ⁵ |
| 0032-190-170 | 38.230872; -122.060749 | | 25.80 |
| 0032-190-200 | 38.229500; -122.056264 | | 0.7 |
| 0046-910-280 | 38.229950; -122.063802 | | 8.6 |
| 0046-010-390 | 38.227957; -122.054964 | | 149.04.0 |
| Total Managed Open Space | | | 393.24 |

² Currently located in the City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

³ To be annexed into the City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

⁴ To be annexed into City of Suisun City, and not within the Suisun Marsh Protection Plan jurisdiction.

⁵ Title report identifies acreage at 10.87 acres, County APN data list parcel as 7.9 acres.

4.2 Ownership

The Managed Open Space site is owned by Buzz Oats Construction, Inc. Before all permits are obtained an updated title report will be prepared to determine if there are easements in the Managed Open Space area which should be considered prior to finalizing the MMP.

4.3 Land Use

Current Zoning. The Managed Open Space area is currently zoned by Solano County as “Marsh Preservation” in the northern portion above Cordelia Road, and the southern portion below Cordelia Road is zoned “Public/Quasi-Public with a Resource Conservation Overlay.” The southern portion of the area is also within the Primary and Secondary Management Area of the Suisun Marsh Protection Plan.

Current and Past Land Uses. Livestock grazing essentially occurs all year. Past land uses have been agriculture related, including crop cultivation, hay production, and livestock grazing. Current and past land uses were verified by reviewing Google Earth Pro imagery from 1985 to 2020.

Adjacent Land Use. Land uses adjacent to the Managed Open Space to the east of Pennsylvania Avenue include Highway 12 to the north, City of Suisun City to the east, and proposed commercial development to the west. Land uses adjacent to the Managed Open Space south of Cordelia Road include recreational uses along the eastern and southeastern boundary, an active duck club along the southwestern boundary and agricultural uses along the western boundary.

4.4 Topography

The topographic relief on the Project site and majority of the Managed Open Space area is flat with slopes ranging from 1-3% moving from north to south toward Peytonia Slough. Elevations range from 15 feet to 0 feet mean sea level (msl)⁶.

4.5 Sea Level Rise

The limit of tidal action currently extends to approximately 3.90 feet MSL. Existing seasonal wetlands that would be impacted within the Project site and wetlands proposed to be established on the Managed Open Space area occur at elevations ranging from 4.7 feet up to 7 feet.

4.6 Climate

The site is in the northern San Francisco Bay Area just west of Suisun City. The Bay Area is characterized by dry, mild summers and moist, cool winters.

HBG acquired USDA NRCS historical precipitation and temperature data using the Climate Analysis for Wetlands Tables (WETS Tables) station for Fairfield (Appendix B). Based on the

⁶ Sourced from the Biological Assessment prepared by HBG dated 2006.

Fairfield WETS station the average annual precipitation from January 1991 through December 2020 was 24.46 inches of rain and no snowfall. The wettest month is December which averaged 5.22 inches of rainfall with the lowest average amount occurring in July with 0.00 inches of rainfall. Recorded data also indicates that the annual average mean temperature is 61.4° F. Average high and low temperatures range between 73.9° F and 49.0° F with the coldest month occurring in December with a mean temperature of 48.0° F and hottest months being in July where mean temperature is 73.6 ° F.

4.7 Soils

The site is within the Solano County, California NRCS soil survey area. NRCS mapping shows five soil types, Sycamore silty clay loam, saline; Pescadero silty clay loam, 0 percent slopes, MLRA 17; Alviso silty clay loam; Joice muck, MLRA 16; and Water. Refer to Appendix A, Figure 6 for a soils map. The following table summarizes soil characteristics:

| Table 2. Summary of Pertinent Characteristics of Soil Mapped Onsite by NRCS | | | | | | |
|---|----------------------------|------------------------------|-------|-------------------------|----------------------|-------------------------------|
| Map Unit Symbol and Unit Name | Landform/Landform Position | Depth to Restrictive Feature | Slope | Drainage Class | Depth to Water Table | Frequency of Flooding/Ponding |
| St - Sycamore silty clay loam, saline | Alluvial Fans | 36 inches | 0-2% | Somewhat poorly drained | 36 to 60 inches | None/None |
| Pc - Pescadero silty clay loam, 0 percent slopes, MLRA 17 | Basin Floors | 4 inches | 0% | Somewhat poorly drained | 4 to 85 inches | None-Rare/Frequent |
| An - Alviso silty clay loam | Tidal Flats | 80+ inches | 0-2% | Poorly drained | 24 to 36 inches | Rare/None |
| Ja - Joice muck, MLRA 16 | Tidal Flats | 80+ inches | 0-2% | Very poorly drained | 24 to 36 inches | Frequent to None/Frequent |
| W-Water | NA | NA | NA | NA | NA | NA |

4.8 Hydrology

Watersheds. The PRM site lies within the “Suisun Bay Estuaries” (180500010401) HUC 12-digit subwatershed (<http://nhd.usgs.gov>). Refer to Appendix A, Figure 7.

Inundation Source. The source of inundation of the Perennial brackish marsh is muted tide which enters through Peytonia Slough by way of a culvert under the Union Pacific Railroad (UPRR). The culvert under UPRR appears to be undersized, which likely restricts flows causing a “muted” tidal cycle. The ebb and flow of the tide enters Peytonia Slough from the Suisun Slough which receives tidal waters from Grizzly Bay.

The primary source of inundation of the seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands are from direct precipitation. Pooling surface water and saturation below the soil surface is driven by direct precipitation during the winter months. During heavy storm events, the pooling water may overflow into the adjacent perennial brackish marsh. Once precipitation for the winter/spring ends, surface water and soil saturation remain until the water has evaporated. The hydrology within these wetlands is not driven by the influence of tides, snow melt, or seasonal ground water.

Depending on its topographic position alkali seasonal wetlands adjacent to the perennial brackish marsh may receive tidal water during high tides and/or higher spring tides or brackish water may mix with the fresh water during the winter. This mixing of brackish water and fresh water during the winter influences the alkali plant community.

FEMA. The Managed Open Space lies within Zone A on Federal Emergency Management Agency (FEMA) flood hazard mapping for Solano County and the Suisun City area. Zone A has 0.1% annual chance of flooding.

4.9 Vegetation Communities

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. The project site contains six vegetation communities: Upland Annual Grassland; Seasonally Saturated Annual Grassland; Vernal Pool; Alkali Seasonal Wetland; and Perennial Brackish Marsh, and Urban which consist of paved roads. The Riparian habitat within LedgeWood Creek is adjacent to the western portion of the project site. An inventory of plant species found on the Managed Open Space during biological studies is provided in Appendix D Table 1. A Vegetation Communities map is shown in Figure 8.

The following habitat types were identified on various portions of the Managed Open Space:

1. Upland Annual Grassland
2. Vernal Pools
3. Alkali Seasonal Marsh
4. Seasonally Saturated Annual Grasslands
5. Perennial Brackish Marsh
6. Urban / Roads

Alkali Seasonal Wetland, Vernal Pool, and Seasonally Saturated Annual Grassland are classified as Palustrine Emergent Wetlands by the USFWS (Cowardin, et al. 1979) and referred to locally as seasonal wetlands. Perennial Brackish Marsh is classified as Estuarine Intertidal Emergent Wetland and is referred locally as tidal marsh.

Upland Annual Grasslands (165.32 acres)

Upland portions of the property support introduced upland annual grassland. This habitat is dominated by several species of introduced annual grasses such as soft chess (*Bromus hordeaceus*), ripgut (*Bromus diandrus*), and barley (*Hordeum murinum*). A variety of native and non-native herbs also occur within the grasslands such as butter-and-eggs (*Triphysaria eriantha*)

ssp. *eriantha*), valley tassels (*Castilleja attenuata*), miniature lupine (*Lupinus bicolor*), bur-clover (*Medicago polymorpha*), and filaree (*Erodium botrys*). In low-lying areas and areas bordering wetlands, species composition shifts to include some marginal wetland indicator species such as Italian ryegrass (*Festuca perenne*) and Mediterranean barley (*Hordeum marinum* var. *gussoneanum*). In general, there is a very low occurrence of noxious weeds within the grasslands such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Taeniatherum caput-medusae*).

Vernal Pools (19.76 acres)

Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater from the pool basins. They are inundated throughout the winter and gradually dry during the spring and summer through evaporation and plant transpiration. The vernal pools then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools may support a unique assemblage of plants and animals specifically adapted to their unique hydrologic regime and soil chemistry. They are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

The vernal pools on the properties are concentrated in the western and eastern portions of the Development Site. Many of the pools appear to have formed or were enhanced due to the construction of berms, unmaintained roadside ditches, and partially blocked culverts on the site. The partially blocked culverts and berms and ditches may collect and block the flow of water across the landscape. This is especially true in the northern portion of the project site within the proposed annexation area. The large vernal pool within PA-1 of the Development Site may be the result of, or enhanced by, the adjacent berm that runs parallel to Pennsylvania Avenue and unmaintained and partially blocked culvert along Pennsylvania Avenue.

Dominant species within the pools on the three properties include a mix of classic vernal pool indicator species such as Vasey's coyote-thistle (*Eryngium vaseyi*), California semaphore grass (*Pleuropogon californica*), flat-faced downingia (*Downingia pulchella*), smooth goldfields (*Lasthenia glaberrima*), hyssop-leaved loosestrife (*Lythrum hyssopifolia*), and stipitate popcornflower (*Plagiobothrys stipitatus* var. *micranthus*). In addition to vernal pool indicator species, they support some alkali-tolerant species (halophytes) such as alkali heath (*Frankenia salina*), pickleweed (*Salicornia virginica*), and alkali weed (*Cressa truxillensis*).

Alkali Seasonal Wetland (46.41 acres)

The alkali seasonal wetlands form in low-lying basins and clay flats. They become seasonally inundated or saturated during the rainy season and gradually dry through the spring and early summer. The salinity comes from residual salts concentrated in a buried silty clay loam soil horizon within the predominant soil type (Sycamore silty clay, saline).

Alkali seasonal wetlands are in the northeastern portion of the Development Site, the southwestern portion of the annexation area east of Pennsylvania, and the northern and

northwestern portions of the area south of Cordelia Road/Cordelia Street. Dominant plant species within these wetlands include several halophytes including sickle grass (*Parapholis incurva*), alkali weed, and alkali heath. Slightly lower areas within the wetlands are dominated by pickleweed (*Salicornia pacifica*). The alkali seasonal marsh generally lacks vernal pool indicator species.

Seasonally Saturated Annual Grasslands (78.88 acres)

Given the very flat topography across the overall project area, there are broad transitional wetland areas between the low-lying seasonal wetlands (vernal pools and alkali seasonal wetlands) and the surrounding upland annual grasslands. These transitional areas have prolonged periods of surface and subsurface saturation but are rarely inundated. The dominant plants include a mix of facultative wetland species associated with both the annual grasslands and alkali seasonal marsh. Common species include Italian ryegrass, Mediterranean barley, alkali weed, and alkali heath.

Perennial Brackish Marsh (176.27 acres)

Perennial brackish marsh occurs throughout the southern and southeastern portions of the area south of Cordelia Road/Cordelia Street and dominates the eastern portion of the annexation area. This habitat occurs in estuarine environments where there is a mixing of fresh and salt waters such as occurs in the Delta region. The soils are perennially inundated or saturated and is generally subject to some level of tidal fluctuation. The perennial brackish marsh habitat found in the project area is subject to tidal fluctuations that extend from Suisun Bay, up tidal sloughs, and into drainage ditches that traverse the properties. The ditch within the eastern portion of the annexation area has one branch that extends northeast and provides water to the marsh habitat. In addition, water levels become elevated during the rainy season and gradually lower through the spring through evaporation, transpiration, and drainage. This is especially true for the northern portion of the marsh. The majority of alkalinity within the marsh habitat comes from residual salts in the silty clay soils in addition to salts carried through tidal fluctuations.

Within the eastern portion of the annexation area, the deepest areas within the marsh (concentrated along the eastern portion of this property) are dominated by a mix of dense, tall-growing perennial marsh species including tule (*Schoenoplectus acutus* var. *occidentalis*), Olney's bulrush (*Schoenoplectus americanus*), California bulrush (*Schoenoplectus californicus*), saltmarsh bulrush (*Schoenoplectus maritimus*), broad-leaved cattail (*Typha latifolia*), and narrow-leaved cattail (*Typha angustifolia*). Slightly higher areas are dominated by low-growing species, especially pickleweed (*Salicornia virginica*) and brass buttons (*Cotula coronopifolia*). The upper perimeter of the marsh includes additional low-growing species such as saltgrass (*Distichlis spicata*), saltmarsh sand-spurrey (*Spergularia marina*), sicklegrass, and annual beard grass.

Dominant plant species within perennial brackish marsh within the area south of Cordelia Road/Cordelia Street include a broad range of perennial emergent monocots and herbaceous and woody dicots often occurring in a mosaic dependent on local soil condition, hydrologic

regime, and micro-elevation. Low-lying areas and the lower banks of sloughs are dominated by tall, dense emergent monocots including tule, Olney's bulrush, California bulrush, saltmarsh bulrush, broad-leaved cattail, and narrow-leaved cattail. Upper slough banks are dominated by a mix of woody dicots such as annual saltmarsh aster (*Aster subulatus* var. *ligulatus*), Douglas' false-willow (*Baccharis douglasii*), western goldenrod (*Euthamia occidentalis*), and mugwort (*Artemisia douglasiana*). The special-status plants delta tule pea and Suisun Marsh aster occur in scattered locations along the upper slough banks (see "Special Status Species" section). Open areas along some of the smaller slough channels support native herbs such as water-parsley (*Oenanthe sarmentosa*) and whorled pennywort (*Hydrocotyl verticillata*). There are also dense stands of pickleweed and saltgrass in some low-lying areas away from the slough channels.

Urban / Roads (3.73 acres)

In addition to various undeveloped parcels being annexed into the City of Suisun City, a 1.10-acre portion of Cordelia Road and 2.63-acre segment of Pennsylvania Avenue will also be incorporated. The majority of the roads are paved and may include narrow strips of hardpacked gravel along each side.

Riparian Wetland

Ledgewood Creek is adjacent to the western border of the project development area and is not part of the project site. The creek transitions to perennial marsh habitat that bisects a portion of the area south of Cordelia Road and the UPRR. Dominant tree species include arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*). California blackberry (*Rubus ursinus*) and mugwort (*Artemisia douglasiana*) are the understory dominants.

4.10 Special Status Species

Rare, endangered, or threatened animal and plant species are protected by the Federal Endangered Species Act of 1973 (Title 16, US Code, Sections 1531 *et seq.*), the California Native Plant Protection Act of 1977 (Fish and Game Code Sections 1900 - 1913), and the California Endangered Species Act of 1970 (Fish and Game Code, Sections 2050 *et seq.*). The California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 *et seq.*) provides additional protection for unlisted species that meet the rare or endangered criteria defined in Title 14, *California Code of Regulations*, Section 15380.

4.10.1 Special Status Plant Species Surveys

Historical Surveys. Vollmar Consulting conducted special-status plant surveys on the portion of the site south of Cordelia Road and Cordelia Street during spring and summer 2000. These spring surveys were conducted on May 3 and 4, 2000, with an additional summer survey conducted on August 15, 2000. Vollmar Consulting conducted additional targeted surveys in this portion of the site during spring 2001 and 2002, focusing on vernal pool, seasonal alkali marsh, and seasonally saturated annual grassland habitats. These additional spring surveys during 2001 and 2002 were conducted in late April and early May. Spring surveys conducted between 2000 and 2002 were conducted throughout the entire project site that targeted special-status plant species associated with vernal pool, annual grassland, and seasonally

saturated grassland habitats. Spring surveys were timed to coincide with peak spring bloom period, which typically occur during mid-spring. The summer surveys of 2000 targeted special-status plant species associated with alkali seasonal marsh and perennial marsh habitats. The summer surveys were timed to coincide with the peak summer bloom period, which typically occurs during mid-summer.

Vollmar Consulting also conducted special-status plant surveys throughout the entire project site on eight dates in 2005. The surveys targeted special-status plant species associated with each vegetation community on the project site. April surveys were timed to coincide with peak spring bloom. August surveys focused on the alkali seasonal marsh and perennial brackish marsh habitats associated with the upper Suisun Marsh and were timed to coincide with the peak summer bloom period.

Plant surveys during the period 2000 to 2002 were part of a broader biological survey and wetland delineation. During all surveys, the entire project site was walked, with the survey effort focused on specialized habitats with high potential to support special-status plant species. All plant species observed were identified and recorded. Those specimens that could not be readily identified in the field were collected and identified later. Locations of special-status plants were mapped onto enlarged (1:3,600) aerial photo base maps of the project site obtained from WAC Corporation in Eugene, Oregon.

Surveys during 2005 focused on special-status plant species only. The surveys included complete coverage of entire project site with special focus on specialized habitats with high potential to support special-status plant species. Locations of special-status plants were mapped using a GPS unit with sub-meter accuracy (Trimble GeoXT). At each occurrence of a special-status plant, the number and density of plants, the associated species, and basic habitat information were recorded. The number of plants was determined by visual estimate.

2021 and 2022 Surveys. Additional surveys were performed in 2021 and 2022 in accordance with state and federal plant survey protocols (CDFW 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. Protocol rare plant surveys were conducted by Terry Huffman, PhD, of Huffman-Broadway Group, Inc.(HBG) in the spring and summer of 2021 and by Brent Helm of Helm Biological Consulting (HBC) in the spring and summer of 2022. Surveys were conducted during the flowering periods of target special status species when they would be identifiable. Dr. Huffman conducted three separate surveys on April 23, May 19, and June 18, 2021. Brent Helm surveyed the site during 2022 on March 31, April 1, 5, 8, 12 and 26, May 13, June 16, July 7, and September 12, The timing of the protocol field surveys was based on consideration of both the blooming period for the special status species which were identified as having a potential to occur within the habitat type or types in the project site and soil moisture conditions which allow for adequate plant growth. Given the size of the project site, it was divided into survey grid areas where biologists conducted pedestrian surveys walking meandering transects within

each survey grid to allow for thorough visual ground observations to be made throughout the various plant communities.

Prior to conducting the field surveys, the CNDDDB, the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Study Area. Previous rare plant surveys conducted on the project site (described above) were also reviewed. Reference sites were established to confirm that target species were identifiable at the time of the botanical surveys. The Jepson herbarium collection was also consulted.

Survey Results. Copies of the Vollmar Consulting rare plant survey reports from 2000, 2001, 2002, 2003, and 2005, HBG 2021 Plant Survey Report for Highway 12 Logistics Center, and HBC 2022 Protocol-Level Special Status Native Plant Surveys at the Gentry Logistics Center Project are included in Attachment 4.

The following describes in more detail the technical findings regarding seven special-status plant species observed during the plant surveys:

Alkali Milk-vetch - Alkali milk-vetch (*Astragalus tener* var. *tener*) is a small, purple-flowered annual in the pea family (Fabaceae). It is associated with seasonally saturated grasslands with alkaline soils as well as the upper margins of alkaline vernal pools. Its historical range included the Central Coast, San Francisco Bay, Delta, and mid Central Valley regions. However, due to habitat loss, it has been extirpated from the Central Coast and Bay regions and most areas in the Central Valley. Its remaining stronghold is in the Delta, especially Solano County.

Contra Costa Goldfields - Contra Costa goldfields (*Lasthenia conjugens*) are a small, yellow-flowered annual in the sunflower family (Asteraceae). It is federally listed as endangered and is considered rare and endangered (List 1B) by CNPS. It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands. Approximately 15 populations of the species have been documented, all of which are in California's Delta and coastal regions, and a large majority of which are in the immediate vicinity of Fairfield, Solano County.

Delta Tule Pea - Delta tule pea (*Lathyrus jepsonii* ssp. *jepsonii*) is a robust, pink-flowered perennial in the pea family (Fabaceae). It has a climbing growth habit with stems up to 8 feet long. It is a federal species of concern and is considered rare and endangered (List 1B) by the California Native Plant Society (CNPS). It occurs in marsh habitat along the margins of brackish water (and occasionally freshwater) bays and sloughs. Its range is restricted to the upper San Pablo Bay and Delta regions of California. It historically occurred in the southwestern San Francisco Bay (Santa Clara County) but has been extirpated from this region due to habitat loss.

Saline clover - Saline clover (*Trifolium depauperatum* var. *hydrophilum*) is a pink flowered annual and member of the pea family (Fabaceae). It is considered to be rare and endangered (List 1B) by CNPS. It occurs in mesic grasslands and around vernal pools, typically in areas with subalkaline soils. It occurs in scattered location through the Delta, San Francisco Bay, and Central Coast regions of California. Although saline clover does not have federal status, prior to the surveys on the Gentry property, saline clover was known from only three sites in Solano County. Additional sites in the San Francisco Bay area include one site in Yolo County, four sites in Sonoma County, and two sites in Napa County. Saline clover is threatened by the loss of seasonally saturated annual grassland and vernal pool habitat.

Suisun Marsh Aster - Suisun Marsh aster (*Symphotrichum lentum*) is a 3 to 4-foot-tall lavender-flowered perennial in the sunflower family (Asteraceae). It is a federal species of concern and is considered rare and endangered (List 1B) by the California Native Plant Society (CNPS). It occurs along the margins of bays and the banks of slough channels with brackish waters. Its range is restricted to the upper San Pablo Bay and Delta regions of California.

Heckard's Pepper-Grass (*Lepidium latipes* var. *herckardii*). Heckard's pepper-grass is no longer recognized as a distinct variety in the latest edition of the Jepson Manual (Baldwin et al 2012), but the species is ranked 1B.2 in the CNPS Rare Plant Inventory. This pepper-grass is in the mustard family (Brassicaceae). The nearest CNDDB occurrence of this species is 17 miles from the project site at Haas Slough. This species grows in grasslands and alkaline flats in the Central Valley.

Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*). Long-styled sand spurrey grows in alkaline seeps and meadows and is ranked 1B.2 in the CNPS Rare Plant Inventory. Sand-spurreys are in the plant family Caryophyllaceae. The nearest occurrence of this species is based on a 1953 specimen collected near the project site.

Each of these species and their occurrence onsite is discussed below. The location of each of these species in the project site is shown on Figure 11.

Alkali Milk-vetch. During historical surveys of the project site, alkali milk-vetch was found within the current development site and in portions of the area south of Cordelia Road. In the surveys conducted between 2000 and 2002, alkali milk-vetch was observed in one location in seasonally saturated annual grassland near the western end of the Development Site. This location consisted of approximately 20 plants in a 1-meter square area. The 2000 occurrence of alkali milk-vetch was also one of seven occurrences located in this portion of the site during the 2005 surveys. The occurrence, located in 2000 as 20 plants, was relocated in 2005 as a single plant. This species is known to bloom sporadically and the change in number of plants from year to year is expected. Of the remaining six occurrences, three occurrences of alkali milk-vetch were located north of the California Northern Railroad and three were located south of

the railroad. The northern occurrences included a single plant in the seasonally saturated grassland in the west, and two occurrences in the middle of the property, each consisting of two plants also located in the seasonally saturated grassland habitat. The southern occurrences include a single plant, an occurrence of two plants and an occurrence of three plants, all in weedy (ruderal pasture) annual grassland habitat. As this species is known to bloom sporadically from season to season, it is likely that the additional occurrences of alkali milk-vetch found in 2005 are to be expected during favorable years.

Alkali milk-vetch was observed in one location near the northwest corner of the portion of the project site located south of Cordelia Road and Cordelia Street in the 2000 – 2002 surveys. This occurrence consisted of several hundred plants. This population was not observed in 2001 but was observed in the 2005 surveys as approximately 200 plants within in a 175-square-foot area. An additional new occurrence was located during 2005 in the northwestern region of this portion of the project site and consisted of approximately 50 plants scattered in a 141-square-foot area.

Contra Costa Goldfields. During previous plant surveys, Contra Costa goldfields were observed in the Development Site, within the annexation area east of the Development Site, and within the remainder of the property south of Cordelia Road/Cordelia Street.

During surveys conducted in 2000 – 2002, one occurrence of Contra Costa goldfields was observed on the Development Site, near the northeast corner. Twenty to 30 plants were observed in a small depression within the seasonally saturated annual grasslands. This population was also found during the 2005 surveys, which also found an additional occurrence in the northeast region of the Development Site and three additional occurrences in the southwest portion of the Development Site. This new occurrence of Contra Costa goldfields in the northeast area consisted of 9 plants in a small depression within seasonally saturated grassland habitat. Of the three occurrences in the southwest portion, two were single plant occurrences located on the edge of seasonally saturated grassland habitat. The third occurrence consisted of approximately 50 plants scattered in a 583-square-foot area within the seasonally saturated grassland habitat adjacent to a man-made ditch.

During surveys conducted in 2000-2002, four occurrences of Contra Costa goldfields were observed within the annexation area east of the Development Site. Two occurrences, each consisting of a single plant, were located in two vernal pools in the northwest region of the property. Two additional occurrences were located in a larger vernal pool located in the southwest region of the property. These two occurrences each consisted of 10 to 20 plants near the upper edge of the pool basin. In 2005, ten occurrences of Contra Costa goldfields were located in this area, including four occurrences located in 2000 and six new occurrences. The four previously known occurrences included two relocated in the two small vernal pools in the northern region of the property and the two moderate sized occurrences of the 2000 surveys relocated in 2005 as single plant occurrences in the larger vernal pool in the south end of the property. Of the six new occurrences, one new occurrence was located in the large vernal pool in the south and consisted of a dense patch of approximately 100 plants in a 100-square-foot

area. Five additional occurrences were located in the north-central region of the property along the west edge of the brackish marsh habitat, including an occurrence of 20 plants in a 100-square-foot area; an occurrence of 15 plants in a 100-square-foot area; an occurrence of 100 plants in a 536-square-foot area; an occurrence of 30 plants scattered in a 728-square-foot area; and an occurrence of 100 plants scattered in a 13,027-square-foot (0.3 acre) area.

During surveys conducted in 2000 – 2002 south of Cordelia Road/Cordelia Street, Contra Costa goldfields were observed in several scattered colonies in the northwestern portion of the property that can be grouped into four primary areas. A few thousand plants were observed in five small, shallow vernal pools just south of Cordelia Road and west of Ledgewood Creek. Several thousand plants were observed along a low-gradient, seasonally saturated grassland slope near the northwestern corner of the property. This slope is just above a low-lying area that supports seasonal alkali marsh. It appears that the goldfields occupy an intermediate area along the slope gradient, which provides sufficient prolonged soil saturation without excessive soil salinity. In addition to these occurrences, a few thousand plants were observed across a broad area in the far western portion of the project site. This area consists of a terrace surrounding a small hill. The terrace has undulating mound/basin topography. The basins are generally small, less than 5 feet in diameter. Contra Costa goldfields occurred as individuals and small clusters within some of these basins.

The four previously mapped, large, scattered colonies of Contra Costa goldfields were located again during the 2005 surveys. The four colonies are more accurately mapped as 3 large polygons, 14 smaller polygons, and 1 single plant occurrence. The general locations of the 2005 occurrences are similar to the year 2000 surveys. The three large occurrences included an occurrence of roughly 7.7 million plants in a 5.2-acre area; an occurrence of 10,000 plants in a 3.5-acre area; and an occurrence of 3,000 plants scattered in an 8.5-acre area. The 14 smaller polygons vary from as few as 5 plants scattered in a 150 square-foot area to a dense patch of 10,000 plants in a 0.25-acre area.

The USFWS Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon (August 11, 2005) included designation of critical habitat for Contra Costa goldfields. The subject project site is included in the critical habitat designation.

Delta Tule Pea. Delta tule pea was not found anywhere within the proposed annexation area (including the Development Site) during the 2000 – 2002 or 2005 surveys but was observed in 2005 at one localized area south of Cordelia Road/UPRR at the south end of the area along the eastern bank of Peytonia Slough. This occurrence was estimated to include 400 plants.

Saline Clover. During surveys conducted in 2000 – 2002, one large occurrence of saline clover was observed at the Development Site around the upper margins of the large vernal pool. The population was estimated at several hundred plants. In addition, 16 occurrences of saline clover were located during 2005 surveys in this portion of the site. The original occurrence located in 2000 was mapped in 2005 as seven individual occurrences surrounding the large vernal pool in

the eastern region portion of the site. These seven mapped points and polygons consisted of approximately 200 plants scattered in a total area of 15,292 square feet, or approximately 0.35 acre. Seven additional occurrences were located in or on the edge of the seasonally saturated grassland habitat in the northwest region of the Development Site. These seven occurrences consisted of three occurrences each with a single plant; a small polygon of 15 plants scattered in a 100-square-foot area; 20 plants scattered in a 971-square-foot area; 40 plants scattered in a 1,241-square-foot area; and 100 plants scattered in a 0.69-acre area. Two additional occurrences were located south of the Union Pacific Railroad line in the southern region of the Development Site within a weedy (ruderal pasture) annual grassland habitat. One occurrence consisted of 15 plants scattered in a 0.17-acre area and another consisted of 50 plants scattered in a 0.12-acre area. Saline clover is known to bloom sporadically from year to year based on weather conditions and is often not present in the same location each year. The increase in number of plants from 2000 to 2005 is therefore to be expected.

A total of three occurrences of saline clover were located within the annexation area east of the Development Site during the 2005 surveys. One occurrence of 15 plants in a 100-square-foot area was located in the large vernal pool in the southern region of the property. Two additional occurrences were located in the small vernal pools in the northern region of the property. These include 30 plants in a 231-square-foot area and 5 plants in a 100-square-foot area.

Saline clover was not found in the annexation area during the 2000 – 2002 surveys, but a total of 40 occurrences of saline clover were located within the area south of Cordelia Road Cordelia Street during the 2005 survey. Most of the occurrences were located in seasonally saturated annual grasslands in the western region of the property, with minor amounts in nearby upland annual grasslands and a few occurrences were located in the shallow vernal pools in the far northeast region of the property. Together the 40 occurrences total approximately 6,300 plants in a total combined area of 19.036 acres.

Suisun Marsh Aster. Suisun Marsh aster was not observed at the Development Site during the 2000 – 2002 and the 2005 surveys but was observed in scattered locations along the southern portion of the drainage ditch that traverses the portion of the annexation area east of the Development Site during the previous late-season surveys conducted on August 15, 2000, and August 8, 2005. The ditch is subject to daily tidal fluctuations of mildly brackish waters. Total population size was estimated at 200 plants.

Suisun Marsh aster was observed in several scattered colonies along slough banks in the southern and southeastern portions of the area south of Cordelia Road and Cordelia Street during late-season surveys conducted on August 15, 2000, and August 8, 2005. Dense colonies were also observed along the two ditches on the property. Total population size of all colonies was estimated at 4,000 plants.

HBG 2021. Surveys were performed in accordance with state and federal plant survey protocols (CDFW 2018 and USFWS 2005). The methodology specifically followed the Protocols for

Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities prepared by the CDFW dated March 20, 2018.

Protocol rare plant surveys were conducted by Terry Huffman, PhD, of Huffman-Broadway Group, Inc. in the spring and summer of 2021 during the flowering periods of target special status species when they would be identifiable. HBG botanist Dr. Huffman conducted three separate surveys on April 23, May 19, and June 18, 2021. The timing of the 2021 protocol field surveys was based on consideration of both the blooming period for the special status species which were identified as having a potential to occur within the habitat type or types in the project site, and the soil moisture conditions which allow for adequate plant growth. Given the size of the project site it was divided into survey grid areas where Dr. Huffman conducted pedestrian surveys within each survey grid to allow for thorough visual ground observations to be made throughout the various plant communities within the entire 482-acre project site.

Prior to conducting the field surveys, the CNDDDB, the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the project site. Previous rare plant surveys conducted on the project site (described above) were also reviewed. Reference sites were established using the Goldfields Conservation Bank located in Fairfield bound between Walters Road and Airbase Parkway and known mapped sensitive species occurrences within the project site. The Jepson herbarium collection was also consulted.

Survey Results. Special status plant species were found during the April 23, May 19, and June 18, 2021, botanical field surveys. The following plants were found in flower or their remnant plant parts following flowering were found in previously mapped areas within the project site on April 23, May 19, and June 18, 2021: Suisun Marsh aster (*Aster lentus*), Alkali milk-vetch (*Astragalus tener* var. *tener*), Delta tulle pea (*Lathyrus jepsonii* var. *jepsonii*), Contra Costa goldfields (*Lasthenia conjugens*), and saline clover (*Trifolium depauperatum* var. *hydrophilum*). It should be noted that these same status plant species/plant populations were found in relatively the same locations during the biological survey work conducted by Vollmar Consulting during plant surveys conducted from 2000-2002 and 2005. This provides indication that the special status species populations found within the project site are stable and self-sustaining and have not been adversely affected by the recent drought or changing climatic conditions. It is also important to note that although the aquatic resources appear to provide suitable habitat on the Development Site, the Contra Costa goldfields populations are limited to less than 0.023 acre and have not expanded over the last 20 years. It is likely the soil type on the Development Site, sycamore silty clay loam saline, is not suitable for Contra Costa goldfields, which may be the reason the populations have remained and not expanded. It is also important to note the core population is restricted to the southwestern area of the project site which soil type is Pescadero silty clay loam, and the majority of Contra Costa goldfields population ends once the soil type changes to the sycamore silty clay loam saline.

Helm Biological Consulting 2022, In Progress: Helm Biological Consulting conducted a detailed special-status plant survey on the Managed Open Space. The survey report will include an

update on the number of plants and occurrence size similar to the survey conducted by Vollmar Consulting in 2000-2005.

4.10.2 Other Special Status Plant Species

No other special-status plants species have been observed in the proposed 482-acre project. The vernal pools provide potential habitat for several special-status plant species, such as dwarf downingia (*Downingia pusilla*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legenere limosa*). Most known occurrences in the region of these species are several miles to the east. None of these species was observed during field surveys. Other vernal pool species, including two Orcutt grasses, Colusa grass (*Neostapfia colusana*), and Crampton's tuctoria (*Tuctoria mucronata*), were considered target species during surveys. These two grasses typically occupy large and/or deep vernal pools that remain inundated into the summer during an average rain year. The large pool at the Development Site may be considered possible habitat for Colusa grass and Crampton's tuctoria, however, surveys over the entire site over several years yielded negative results for these species. The perennial brackish marsh in the southeastern area near Peytonia Slough is designated as critical habitat Unit 2 for the Suisun thistle, however surveys over the entire site over several years yielded negative results for this species.

The alkali seasonal wetlands on the site provide potential habitat for several of the special-status plant species, especially San Joaquin spearscale (*Atriplex joaquiniana*) and other species of saltbush (*Atriplex spp.*). San Joaquin spearscale is known from Travis Air Force Base (located a few miles northeast) in habitat similar to that observed on the project site. However, since none of these species was observed during field surveys, they are unlikely to occur on the project site.

Several of the species are associated with marsh habitat along brackish sloughs and bay margins including Suisun thistle (*Cirsium hydrophilum var. hydrophilum*), soft bird's-beak (*Chloropyron mollis ssp. mollis*), and Mason's lilaepsis (*Lilaepsis masonii*). Suisun thistle is known from only two locations, including one along lower Peytonia Slough. There is potential habitat for this species along the slough channels in the southern portion of the portion of the property south of Cordelia Road and the UPRR, but surveys over the entire project site over four years yielded negative results for these species. Mason's lilaepsis and soft bird's beak are more likely to occur south of the property closer to Grizzly Bay though there is low potential for them to occur along sloughs in the far southern portion of the project site. As with Suisun thistle, there is the possibility these species could be present but were not seen during field surveys due to the difficulty of accessing this area. However, it should be noted that this area is not proposed for development.

It is noteworthy that the three large, mapped occurrences of Contra Costa goldfields within the area south of Cordelia Road and Cordelia Street are included within an area that contains a high cover of wildflower species associated with seasonally saturated grasslands and vernal pools. These fields are notable for their lack of introduced annual grasses. In addition to the high cover of Contra Costa goldfields, other common wildflower species include California goldfields

(*Lasthenia californica*), smooth goldfields (*Lasthenia glaberrima*), varieties of cowbag clover (*Trifolium depauperatum* var. *amplectens* and *Trifolium depauperatum* var. *depauperatum*), variegated clover, (*Trifolium variegatum*), butter and eggs (*Triphysaria eriantha*), little owl's clover (*Triphysaria pusilla*), Valley tassels (*Castilleja attenuata*), Vasey's coyote-thistle (*Eryngium vaseyi*), flat-faced downingia (*Downingia pulchella*), brass buttons (*Cotula coronopifolia*), and stipitate popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*). The native vernal pool grass, California semaphore grass (*Pleuropogon californicus*), is a common associate in the lower depressions within the seasonally wet areas. The three large polygons mapped as Contra Costa goldfields in Figure 10 are also the boundaries of these areas south of Cordelia Road with a high incidence of native species.

4.11 Waters of the United States

4.11.1 Corps Jurisdictional Determinations

Vollmar Consulting conducted an investigation of the geographic extent of possible wetlands and other types of waters of the United States on the parcels north of Cordelia Road that was subsequently verified by the USACE on March 5, 2003, and May 16, 2003, under USACE file No. 26613N, and the parcel south of Cordelia Road, which was verified by the USACE on January 27, 2004, under USACE file No. 27207N. Since the verified wetland delineations did not include the rights of way for Cordelia Road and Pennsylvania Avenue, HBG conducted a delineation to include these areas and to re-verify the January 27, 2004, verification. This re-verification of the 389-acre Review Area was verified by the USACE on July 2, 2008, under USACE file No. 2005-29818N.

HBG conducted an aquatic resource re-verification delineation in the summer of 2020, and winter and spring of 2021 that was verified as a Preliminary jurisdictional Determination on February 1, 2022, under USACE file No. SPN-2005-298180 (Appendix C).

4.11.2 Wetlands

Wetlands were identified by the above-described February 1, 2022, Corps Jurisdictional Determination letter to be present within the Managed Open Space (Appendix A, Figure 9).

4.11.3 Other Waters of the United States

No "Other Waters" of United States were identified by the above-described Corps Jurisdictional Determination letter to be present within the Managed Open Space.

4.12 Waters of the State

4.12.1 Wetlands (RWQCB)

The wetlands described in the February 1, 2022, Corps Jurisdictional Determination letter are also subject to the RWQCB Porter-Cologne Act jurisdiction (Appendix A, Figure 9).

4.12.2 Other Waters of the State (RWQCB)

No "Other Waters" of the State subject to the RWQCB Porter-Cologne Act jurisdiction were identified by the above-described Corps Jurisdictional Determination letter to be present within

the Managed Open Space.

4.12.3 Lakes and Streams (CDFW)

No lakes or streams potentially subject to the CDFW Lake and Streambed Alteration Agreement program are present within the Managed Open Space.

4.13 Hazardous Materials

A Phase I Environmental Site Assessment for the site will be performed prior to the development of the detailed final mitigation plan.

4.14 Cultural Resources

A formal cultural resources survey for the site will be performed prior to the development of the detailed final mitigation plan.

5.0 DETERMINATION OF MITIGATION AMOUNT

5.1 Impacts

Review of the Biological Resource Report prepared for the Project indicates that the Project may impact:

- (2) Wetland habitat to include alkali seasonal wetland, vernal pool, seasonally saturated annual grassland, and perennial brackish marsh; and
- (3) Four special status plant species: federally listed endangered and CNPS List 1B.1 Contra Costa goldfields, in addition to alkali milk-vetch, saline clover, and Suisun Marsh aster, all three designated on CNPS List 1B.2.

The location of impacts to wetland habitat and the four special status plant species resulting from construction of the proposed project are shown in Figure 10. The following provides an account of the special status plant species that will be impacted by the Project which occur in the described wetlands:

Contra Costa Goldfields

On the basis of the 2000 – 2002 and 2005 surveys conducted by Vollmar Consulting and the more recent 2022 survey conducted by HBC, approximately 8,445 individual Contra Costa goldfields, over an 18.36 acres area, are present within the 497.44-acre project site. Within the Development Site, an approximately 0.023-acre area occupied by approximately 102 individual Contra Costa goldfields would be directly impacted by the proposed project. The impact to 102 individual plants represents approximately 1.2% of the known population of Contra Costa goldfields or 0.13% of the known occupied area within the entirety of 497.44-acre project site.

An additional impact to Contra Costa goldfields would result from the placement of fill material within wetlands not occupied by Contra Costa goldfields but providing marginal habitat for the species. It is important to note that although the aquatic resources appear to provide suitable habitat on the Development Site, and the Development Site is within USFWS designated Contra Costa goldfields critical habitat Subunit 5G, the Contra Costa goldfields populations is limited to approximately 102 individual plants over a 0.023-acre area, and the population has not expanded over the last 20 years. It is likely the soil type on the Development Site, sycamore silty clay loam saline, is less suitable for Contra Costa goldfields. This is likely the reason populations have remained at approximately 102 individual plants over 0.023 acres and not expanded over time. It is also important to note the majority of the core population on the project site is within the Managed Open Space and supports over 8,000 individual plants over 17 acres of land and is restricted to the southwestern area of the project site within the Pescadero silty clay loam soil type. The majority of the core population on the project site abruptly ends once the soil type changes to the sycamore silty clay loam saline. The term “suitable Contra Costa goldfields habitat” refers to the Pescadero silty clay loam soil type and marginal refers to sycamore silty clay loam saline

The loss of the seasonally saturated annual grassland, alkali seasonal wetland, and vernal pool vegetation types within the Development Site represents the loss of marginal Contra Costa goldfields habitat. Loss of marginal Contra Costa goldfields habitat would total 38.00 acres, which equals the amount of impacted jurisdictional wetlands within the project Development Site.

In summary, development of the proposed project will directly impact 102 individual Contra Costa goldfields plants over an approximately 0.023-acre area of occupied habitat for Contra Costa goldfields, and 38.00 acres of marginal habitat for Contra Costa goldfields.

Alkali Milk-Vetch

Alkali milk-vetch was observed in areas of seasonally saturated annual grassland and in three locations of ruderal annual grassland habitat within the Development Site. Approximately twelve (12) individual alkali milk-vetch plants will be impacted by the proposed project development. In addition, the proposed project development will impact 16.32 acres of seasonally saturated annual grassland habitat constituting suitable habitat for alkali milk-vetch.

In summary, development of the proposed project will directly impact approximately 12 individual alkali milk-vetch plants over an approximately 0.016-acre area, and 16.32 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch.

Saline Clover

Saline clover was observed around the upper margins of the large vernal pool within the Development Site and in seasonally saturated annual grassland. The loss of the vernal pool habitat and the seasonally saturated annual grassland habitat within the project development footprint represents a potential loss of 405 individual saline clover plants over a 1.10-acre area. Impacts to 1.10 acres of the onsite population of saline clover are anticipated as a result of project implementation.

In summary, development of the proposed project will directly impact 405 individual saline clover plants over a 1.10 acres area, and 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support saline clover.

Suisun Marsh Aster

Suisun Marsh aster was observed in scattered locations along the perennial brackish marsh slough channel that traverses the northeastern portion of the project site, in locations along slough channels in the southern portion of the Managed Open Space Area, and outside of the project site along LedgeWood Creek. Based on the current Development Site footprint a stormwater culvert will be constructed on the western bank of the slough channel covering an approximately 0.002-acre area. Construction of the culvert could potentially impact the Suisun Marsh aster at the culvert's location. The majority of the populations of Suisun Marsh aster, approximately 4,000 individuals, was observed in scattered colonies along slough banks in the

southern and southeastern portions of the property. No impact to Suisun Marsh aster would occur in this area which is proposed as part of the project as Managed Open Space.

In summary, development of the proposed project could directly impact a few individual plants of Suisun Marsh aster if they occur at the location of the proposed stormwater culvert.

The following table summarizes acreage impacts to the above listed environmental resources for the Highway 12 Logistics Center Project:

| Table 3. Project Impacts Resulting from the Highway 12 Logistics Center Project | |
|---|------------------------------|
| Environmental Resource Impacted | Impact Amount (Acres) |
| WETLAND HABITAT IMPACTED | |
| Perennial Brackish Marsh | 0.002 |
| Alkali Seasonal Wetland | 7.58 |
| Vernal Pool | 14.09 |
| Seasonally Saturated Annual Grassland | 16.32 |
| SPECIAL STATUS SPECIES HABITAT IMPACTED | |
| Contra Costa Goldfields (occupied habitat) | 0.023 |
| Alkali Milk-Vetch (occupied habitat) | 0.016 |
| Saline Clover (occupied habitat) | 1.10 |
| Suisun Marsh Aster (occupied habitat - perennial brackish marsh)* | 0.002 |
| * Suisun marsh aster habitat will be impacted however impacts to individual Suisun Marsh Aster plants may be avoided during construction. | |

5.2 Proposed Mitigation Strategy

The proposed compensatory mitigation strategy is to provide mitigation through permittee responsible mitigation (PRM) within the 393.24 Managed Open Space site.

Table 4 provides proposed mitigation ratios to offset impacts to wetlands and CCG habitat. Once the project goes through the permitting process with the USACE and RWQCB and consultation with the USFWS and CDFW is complete this table will be updated.

| Table 4. Project Mitigation Proposed Using Permittee Responsible Mitigation Site | | | | |
|--|---|--|-----------|---------------|
| Environmental Resource Impacted | Impact Amount (Acres) | Mitigation Type | Ratio | Acres |
| WETLANDS HABITAT | | | | |
| Perennial Brackish Marsh | 0.002 | Establishment | 1:1 | 0.002 |
| Alkali Seasonal Wetland | 7.58 | Establishment | 1:1 | 7.58 |
| Vernal Pool | 14.09 | Establishment | 1:1 | 14.09 |
| Seasonally Saturated Annual Grassland | 16.32 | Establishment | 1:1 | 16.33 |
| Total | NA | NA | NA | 38.002 |
| SPECIAL STATUS SPECIES HABITAT | | | | |
| Contra Costa Goldfields | 0.023 | Establish habitat to support approximately 102 CCG plants. | 1:1 | 0.023 |
| Contra Costa Goldfields | 0.023 | Preservation of occupied habitat | 739:1 | 17 |
| Contra Costa Goldfields | 38.00 | See establishment for alkali seasonal wetland, vernal pool, and seasonally saturated annual grassland habitat above | 1:1 | NA |
| Alkali Milk-Vetch | 0.016 | Preservation of the 0.007 acre of seasonally saturated annual grassland habitat occupied with approximately 250 alkali milk-vetch plants | 0.5:1 | 0.007 |
| Alkali Milk-Vetch (potential habitat) | 16.32-seasonally saturated annual grassland | See establishment for seasonally saturated annual grassland habitat above. | 1:1 | NA |
| Saline Clover | 1.10 | Preservation of occupied habitat that supports a minimum of 405 individual plants | 1:1 | 1.10 |
| Saline Clover | 16.32-seasonally saturated annual grassland and 14.09-vernal pool | See establishment for seasonally saturated annual grassland and vernal pool habitat above. | 1:1 | NA |
| Suisun Marsh Aster | 0.002 | Preservation of 0.002 acre of occupied habitat. | 1:1 | 0.002 |
| Suisun Marsh Aster (suitable habitat - perennial brackish marsh) | 0.002 | See establishment of 0.002 acre of perennial brackish marsh habitat above. | 1:1 | NA |
| Total | NA | NA | NA | 18.134 |

6.0 CONSTRUCTION IMPLEMENTATION PLAN

The following presents the Construction Implementation Plan for the construction of perennial brackish marsh, alkali seasonal wetland, vernal pool, seasonally saturated annual grassland, and rare plant habitats. Section 6.1 provides a construction overview, adequate hydrology determination, a general description of the detailed construction plan, and actions to be taken prior to construction; Section 6.2 discusses listed species protective measures; Section 6.3 discusses actions to be taken before disturbing soil or vegetation; Section 6.4 describes activities occurring during construction; Section 6.5 describes post-construction activities; Section 6.6 discuss adaptive management procedures to be under taken during construction, if needed; Section 6.7 describes required project authorizations; and Section 6.8 describes the anticipated construction schedule.

6.1 Wetland Habitat Design

6.1.1 Overview

The goal of this plan is to establish perennial brackish marsh, alkali seasonal wetland, vernal pool, seasonally saturated annual grassland, Contra Costa goldfields, alkali milk-vetch, saline clover, and Suisun Marsh aster habitats. This will be accomplished by excavating areas adjacent to existing populations of Contra Costa goldfields, alkali milk-vetch, saline clover, and Suisun Marsh aster and seeding with these species. The seed source will be collected prior to the implementation of the ground disturbing activities from plants within the impacted wetland habitats in the Development Site. In addition, the upper 3 to 4 inches of soil excavated within the wetland habitats occurring in the Development Site will be excavated and stock-piled separately by habitat type. This soil inoculum will be spread over the surface of the excavated wetland habitat areas. The excavation and grading work will be done during the dry season although construction of the perennial brackish marsh will likely be exposed to tidal water. Excavated soils will be placed on-site within an upland location. The construction design seeks to minimize site grading / ground-disturbing impacts to include access routes to the maximum extent practicable.

The design intent is to establish wetlands “in-kind” with the wetlands impacted as they currently exist. In addition, the design considers how sea level rise would have affected the hydrology of the “impacted” wetlands should sea levels rise to the point tidal waters could have encroached into the seasonal wetlands impacted by the Project. Considering the effects sea level rise would have on the impacted wetlands, the proposed location of the established vernal pools, seasonally saturated annual grassland and alkali seasonal wetlands will be situated at topographic elevations similar to the impacted wetlands, where under current conditions they will remain “seasonal.”

If sea levels continue to rise over the next 100+ years and beyond then portions of the established seasonal wetlands may become more alkaline and would likely experience tidal water on a seasonal basis (e.g., during extreme tides). In this scenario the Adaptive Management Plan would trigger notification to the agencies and a discussion on what the best corrective action should be.

6.1.2 General Design Specifications

Alkali Seasonal Wetland & Seasonally Saturated Annual Grassland:

1. Depth 6 to 12 inches⁷
2. Minimum 5:1 side slope.
3. Total surface area of constructed alkali seasonal wetland habitat from top of slope = 7.58 acres.
4. Total surface area of constructed seasonally saturated annual grassland habitat from top of slope = 16.32 acres.

Vernal Pool Habitat:

- Depth 18 to 24 inches⁸
- Minimum 5:1 side slope.
- Total surface area of constructed vernal pool habitat from top of slope = 14.09 acre.

Perennial Brackish Marsh:

- Depth 4-5 feet
- Maximum 2:1 slope.
- Total surface area of constructed perennial brackish marsh from top of slope = 0.002.

6.1.3 Adequate Hydrology Determination

To determine if there is sufficient water from seasonal direct precipitation and stormwater flows for ponding conditions suitable for wetland species development to include perennial brackish marsh, alkali seasonal wetland, vernal pool, seasonally saturated annual grassland, Contra Costa goldfields, alkali milk-vetch, saline clover, and Suisun Marsh aster habitats to occur within the constructed pool, a water balance was developed for the Site. The water balance assumes that the pool is essentially a "basin" that can be filled at the rate of direct precipitation and stormwater flows (P) and can drain at the rate of evapotranspiration (ETo) and infiltration (I). To determine the water balance, the following equation is solved for S, where S is the change in storage, that is, the net water available for ponding:

$$P - I - ETo = S$$

⁷ Estimated range of depth shown. Actual constructed depth to be determined using LIDAR-based topographic mapping with 0.5-foot contour intervals and onsite spot elevations documented by a registered surveyor. . During construction grade checkers will use engineer-grade, laser-guided instrumentation to determine accuracy of graded surface elevations being graded.

⁸ Estimated range of depth shown. Actual constructed depth to be determined using LIDAR-based topographic mapping with 0.5-foot contour intervals and onsite spot elevations documented by a registered surveyor. During construction grade checkers will use engineer-grade, laser-guided instrumentation to determine accuracy of graded surface elevations being graded.

For ponding to occur within the constructed habitat establishment area, the amount of precipitation and associated stormwater runoff (P) must exceed the evapotranspiration (ETo) and infiltration (I) rate.

HBG staff reviewed the following local precipitation, evapotranspiration (ETo) and soils data to characterize constructed pool hydrology conditions:

1. *Precipitation.* Average monthly precipitation data over the 50-year period of record (1971-2021) from NRCS WETS Station Fairfield, ID No. 042934.
2. *Evapotranspiration.* California Irrigation Management Information System (CIMIS) ETo data for ETo Zone 6, Upland Central Coast and Los Angeles Basin, from the State of California Department of Water Resources ([ETo Zones Brochure](#)). The nearest Zone 6 CIMIS station is CIMIS Concord #170, approximately 15 miles south of the PRM site near the intersection of Bates Avenue and Port Chicago Highway (38.015372 / -122.02028).
3. *Infiltration.* To investigate infiltration rate, soil information was obtained from the Soil Survey of Solano County, CA. prepared by the NRCS.

The data presented in the table below demonstrate that the Suisun City area generally receives most of its rainfall from November through March. On average, nearly 85 percent of the annual precipitation falls in those five months. Analysis of the data indicates that average precipitation received from November through February exceeds the rate of evapotranspiration and would allow for long periods of continuous ponding that would be suitable for wetland habitat development on a clay soil whereby the soil infiltration rate is low enough to result in water not lost to evapotranspiration being ponded in the constructed pool.

| Table 5. Monthly Average Precipitation for the 1971 – 2021 Period of Record¹ and Reference Evapotranspiration Zone Data, ETo Zone 6, Upland Central Coast and Los Angeles Basin | | | |
|---|--|------------|----------------------------|
| Month | Average Precipitation¹ | ETo | Precipitation - ETo |
| January | 4.53 | 1.86 | 2.67 |
| February | 4.44 | 2.24 | 2.20 |
| March | 3.39 | 3.41 | -0.02 |
| April | 1.32 | 4.80 | -3.48 |
| May | 0.58 | 5.58 | -5.00 |
| June | 0.12 | 6.30 | -6.18 |
| July | 0.02 | 6.51 | -6.49 |
| August | 0.04 | 6.20 | -6.16 |
| September | 0.20 | 4.80 | -4.60 |

| Table 5. Monthly Average Precipitation for the 1971 – 2021 Period of Record¹ and Reference Evapotranspiration Zone Data, ETo Zone 6, Upland Central Coast and Los Angeles Basin | | | |
|--|--|------------|----------------------------|
| Month | Average Precipitation¹ | ETo | Precipitation - ETo |
| October | 1.30 | 3.72 | -2.42 |
| November | 2.77 | 2.40 | 0.37 |
| December | 4.56 | 1.86 | 2.70 |
| Total Average Annual Precipitation | 23.27 | | |
| ¹ USDA WETS Station: Fairfield, CA 047965; ² https://cimis.water.ca.gov/Content/pdf/CimisRefEvapZones.pdf | | | |

The majority of the wetland and plant habitat will be constructed in an area that has been mapped and described by the NRCS as sycamore silty clay loam. This very deep silty clay loam is poorly drained and ponds on concave slopes. The soil exhibits very slow surface water runoff and very slow permeability.

Onsite soil pits or auger holes excavated by HBG confirm the presence of clays within the range described by the NRCS for the Site. The term permeability as used in NRCS soil surveys refers to the ability of a soil to transmit water or air and in the soil survey this property being expressed as the soil saturated hydraulic conductivity (*Ksat*).⁹ Current NRCS soil surveys express soil permeability as the capacity of the most limiting layer to transmit water (*Ksat*) with clay soil textures having the lowest permeability / *Ksat* values, which under field conditions results in ponding within closed depressional areas. In Pescadero Clay soils, this is the poorly drained clay layer which has the capacity of the most limiting layer (clay) to transmit water (infiltration rate) (*Ksat*) is Very low to moderately low (0.00 to 0.01 in/hr). In Sycamore silty clay loam, saline soils, this is the poorly drained clay layer which has the capacity of the most limiting layer (clay) to transmit water (infiltration rate) (*Ksat*) is Moderately low to moderately high (0.06 to 0.20 in/hr).

At the Project Site, the infiltration component of the water balance is, therefore, negligible in comparison to precipitation and evapotranspiration that occurs November through March. In addition, depth to groundwater is reported at about 4 to 85 inches below the soil surface for Pescadero silty clay loam, 0 percent slopes, and about 36 to 60 inches below the soil surface for Sycamore silty clay loam, saline (NRCS 2022). The results of the water balance indicate that at a minimum, in normal and above-normal precipitation years, the formation of ponding within the

⁹ Saturated hydraulic conductivity (*Ksat*) is the ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient is Darcy's Law, which describes the rate of water movement through porous media.

clay soils of the wetland to be constructed is expected to occur for long to very long periods of time¹⁰.

6.1.4 Detailed Construction Plan

A detailed construction plan with topographic contours at 0.5 foot minimum will be prepared during the permitting process and after input from the agencies has been received. The detailed plan will include plan and section view drawings and construction notes prepared by a professional engineer. The temporary site access route to the construction site and temporary construction area will be designated together with the location of wetland and sensitive plant species habitat exclusion fencing. Excavated soils may be placed in upland areas or used on the commercial development site.

6.1.5 Before Construction Activities Begin

The following shall occur before construction activities begin:

1. Identify the Landowner's Designated Representative / Authorized Agent responsible for communications with authorizing agencies (Corps, RWQCB, BCDC, CDFW and the USFWS) and oversee compliance with the construction plan.
2. Identify the Qualified Biologists and the scope of their authority.
3. Identify Qualified Land Manager for the Permittee Responsible Mitigation Site.
4. Qualified Biologists, Construction Manager / Project Engineer, and Landowner or Landowner's Designated Representative meet and (1) review the construction plan for consistency with all agencies permit conditions, USFWS Biological Opinion (USFWS BO) and CDFW Incidental Take Permit (ITP) or Consistency Determination (CD)¹¹ conservation measures and (2) agree upon a plan of action to move forward with implementing the construction plan.

6.2 Listed Species Protective Measures

The USFWS BO and CDFW ITP or CD anticipated to be issued for the Highway 12 Logistics Center Project will have Conservation Measures to be followed to minimize effects on federal and state listed Contra Costa goldfields species prior to and during construction of the project and PRM site(s) for the establishment of Contra Costa goldfields. The USFWS BO and CDFW ITP or CD conditions will be incorporated to this MMP by reference.

¹⁰ NRCS definitions: long duration is a duration class in which ponding for a single event ranges from 7 days to 1 month (≤ 28 days); very long duration is a duration class in which ponding for a single event is greater than 1 month (> 28 days).

¹¹ Incidental Take Permits (ITP) - 2081 (b), Section 2081 subdivision (b) of the Fish and Game Code allows CDFW to authorize take of species listed as endangered, threatened, candidate, or a rare plant, if that take is incidental to otherwise lawful activities and if certain conditions are met. These authorizations are commonly referred to as incidental take permits (ITPs). Consistency Determination (CD) - 2080.1. If a species is listed by both the federal Endangered Species Act and CESA, Fish and Game Code section 2080.1 allows an applicant who has obtained a federal incidental take statement (federal Section 7 consultation) or a federal incidental take permit (federal Section 10(a)(1)(B)) to request that the Director of CDFW find the federal documents consistent with CESA. If the federal documents are found to be consistent with CESA, a consistency determination (CD) is issued, and no further authorization or approval is necessary under CESA.

6.2.1 Delineation of Access Routes and Construction Work Area

Access routes and number and size of staging and work areas will be limited to the number necessary to achieve the project goal. The access route and construction area will be clearly marked with construction staking and flagging, silt fencing, and / or orange construction fencing prior to initiating disturbing soil or vegetation.

The Qualified Biologists will approve the locations of access fencing in the field. The Construction Manager, with approval of the Qualified Biologists, will clearly mark the following areas with orange construction fencing, silt fencing, rope barriers, or staking with construction flagging:

- The outside boundary of all travel routes within the project site to minimize the area traveled on by vehicle traffic to and from the habitat construction area.
- The outside boundary of staging areas for equipment and materials.
- Wetland habitats immediately adjacent to the habitat construction area will be staked or fenced temporarily during all construction-related activities (including survey work) to prevent the transport of fill material into wetland areas.
- Sensitive plant species habitats immediately adjacent to the habitat construction area will be staked or fenced temporarily during all construction-related activities (including survey work) to prevent the transport of fill material into these habitat areas.

Other measures that may be taken during construction to prevent excavated soil from entering adjacent wetlands include temporary placement during construction of area tarps or fabric, sterile straw bales or rolls, silt fencing, or other suitable barrier materials along the perimeter of construction limit boundaries.

6.3 Before Disturbing Soil or Vegetation

This section describes the activities to be completed prior to habitat construction. The USFWS BO and CDFW ITP or CD conservation measures will also be followed as they pertain to activities to be conducted prior to disturbing soil or vegetation.

6.3.1 Establish Permanent Monitoring Photo Points and Take Preconstruction Photos

Using a GPS, the Qualified Biologists will establish permanent monitoring photo points within 30 days prior to start of construction to document: (1) habitat conditions within the overall mitigation site, (2) the habitat construction areas, and (3) the construction access route. Landscape view photographs of ground conditions will be taken at approximate north, south, east, and west view directions around each permanent photo point. The location of each photo point will be memorialized using a hand-held GPS unit with sub-meter accuracy. At a minimum, the photos shall include:

1. Gate entrances.

2. Two representative photographs of the access route to the construction site.
3. North, South, East, and West representative locations along the perimeter of the constructed habitat locations with planned unimpacted edge also showing.
4. North, South, East, and West representative locations at corner and mid-way points along the Permittee Responsible Mitigation Site boundary.

The permanent photo point locations will be memorialized using a hand-held GPS unit with sub-meter accuracy. These photo points will also be used during the Interim and Long-Term Management Periods. Base line and subsequent performance monitoring, long-term monitoring, and conservation easement compliance reports will include: (1) a figure showing photo point locations and direction of view, (2) a table included with either the figure or in a table provided separately with latitude / longitude coordinates in six place decimal degrees for each photo point, and (3) representative photos taken at the permanent photo point locations with a photo caption describing the direction of view (compass bearing). All photos used in report documents will provide the location in terms of latitude and longitude in six place decimal degrees and direction of view.

6.3.2 Prepare SWPPP, if necessary, and Obtain Coverage under NPDES Construction General Permit

The Construction Manager will ensure that a Storm Water Pollution Prevention Plan (SWPPP) is prepared, if required, for any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than 1.0 acre. If it is determined that a SWPPP must be prepared for the Site, the Construction Manager will obtain coverage under the State Water Resources Control Board Construction General Permit, which requires the property owner to electronically file Permit Registration Documents (PRDs) through the State Water Board's Stormwater Multi-Application and Report Tracking System (SMARTS) website. PRDs consist of the Notice of Intent, Risk Assessment, Post-Construction Calculations, a Site Map, the SWPPP, a signed certification statement by the Legally Responsible Person, and the first annual fee. The SWPPP would be prepared by a Qualified SWPPP Developer. If a SWPPP is not found to be necessary, the Construction Manager and Qualified Biologists will ensure that appropriate Best Management Practices (BMPs) will be implemented throughout the project.

6.4 Activities During Construction

This section describes the habitat construction activities to be conducted. The USFWS BO and CDFW Conservation Measures shall also be followed as pertains to activities to be conducted while disturbing soil or vegetation.

6.4.1 Timing

Grading and clearing shall be conducted between May 15 and October 15 and only when soils are dry. If more time is needed to complete ground disturbing activities, the work period may be modified in writing on a week-by-week basis by the authorizing agency or agencies.

Note: Requests for a work period extension shall: 1) describe the extent of work already completed; 2) detail the activities that remain to be completed; 3) detail the time required to

complete each of the remaining activities; 4) provide photographs of both the current work completed and the proposed site for continued work; and 5) include an assessment of additional biological impacts as a result of the work extension.

6.4.2 Install and Maintain Erosion Control Measures

The Construction Manager and Qualified Biologists will ensure that all work will be done during the dry season only when the soils are dry, and no rain is predicted for the next 48 hours. If necessary, install and maintain straw wattles and silt fencing along all permanent and temporary construction areas to prevent sediment from being transported into adjacent wetlands during construction. Use only certified, weed-free, imported erosion-control materials. The use of erosion control materials potentially harmful to small animal species, such as monofilament netting (erosion control matting) or similar material, is prohibited. As necessary, upgrade entrances to the Site with 6 inches of coarse aggregate to prevent soil displacement that could lead to future sedimentation and erosion problems.

To prevent sedimentation in existing wetlands during construction activities, appropriate erosion control measures will be implemented. Sterile straw will be placed on bare soil areas following Site grading activities. The Construction Manager or subcontractor(s), in coordination with the Qualified Biologists, may also use straw bales, straw rolls, or other suitable barrier materials to prevent sediments from leaving the excavation area. Corrective actions will likely involve removal of the soil or repair of the damaged wetland, under the supervision of the Qualified Biologist, using hand tools. The land surface will be restored to original grade.

All work will be conducted with rubber-tired equipment and vehicles to avoid rutting the land surface.

6.4.3 Biological Monitoring

During all phases of construction, the Qualified Biologists, working in close coordination with the Construction Manager, will monitor all construction activity to ensure that this Construction Plan and the engineer drawings in Appendix E are followed and that activities comply with local, state, and federal regulatory authorizations. The Qualified Biologists shall have the authority in coordination with the Construction Manager to stop work to avoid non-compliance with the conditions of the authorizations.

As part of the monitoring activity, habitat construction activity will be photo-documented to ensure that this Construction Plan and engineer drawings are followed and that construction activities comply with local, state, and federal regulatory authorizations. The Qualified Biologist will also provide worker training as specified by the USFWS BO and CDFW ITP or CD conservation measures.

6.4.4 Install Cut and Fill Staking

The area to be excavated and then rough and final graded will be staked and monitored by a grade checker during construction. The grade checker will assist both the Qualified Biologists in avoiding fill placement within abutting or adjacent jurisdictional waters.

6.4.5 Rough Grading

The habitat construction site will be mass excavated followed by fine excavation to shape the side slopes and bottom microtopography. To construct the depressional area, soil will be excavated from the location(s) shown on the detailed design drawings (Appendix E). Appendix E also provides a typical section(s) of the constructed depressional area(s). Equipment will consist of a rubber-tired backhoe and front-end loader which will remove soil and deposit it in a rubber-tired dump truck. The excavated soil will be removed from the site and used as fill material at one or more nearby construction sites.

The Table below provides estimated quantities of cut and fill material resulting from this project.

| Table 7. Estimated Quantities of Material to be Excavated | | | | | |
|--|------------------------------|-------------------|-------------------|---|---|
| Project Component | Area (Ft²) | Depth (In) | Area (Acs) | Estimated Cut for Habitat Establishment (yd³) | Estimated Fill Disposed of On Site (yd³)* |
| Excavation for Perennial Brackish Marsh Habitat (soil excavated) | 87.12 | 48 | 0.002 | 12.8 | 12.8 |
| Excavation for Alkali Seasonal Wetland Habitat (soil excavated) | 330,184.8 | 12 | 7.58 | 12,229.1 | 12,229.1 |
| Excavation for Vernal Pool Habitat (soil excavated) | 613,760.4 | 24 | 14.09 | 45,463.7 | 45,463.7 |
| Excavation for Seasonally Saturated Grassland Habitat (soil excavated) | 711,334.8 | 12 | 16.33 | 26,345.7 | 26,345.7 |
| Total: | 1,655,367.12 | NA | 38.002 | 84,051.3 | 84,051.3 |
| * To be disposed of within development area. | | | | | |

6.4.6 Finish Excavation

Finish grading will consist of grading along the edges of the mass excavated area to tie into the existing gently sloping topography. Equipment will consist of a rubber-tired backhoe and front-end loader which will remove soil material and deposit it in a rubber-tired dump truck. Construction activities will be monitored by a grade checker using a hand level or a laser device to ensure that the constructed pool has a uniformly flat bottom surface area with less than 1 percent slope. Erosion control materials will be installed as needed. The grade checker will be under the direction of the Qualified Biologists in coordination with the Construction Manager.

6.4.7 Planting

Following finished grading, the graded sites will be track-walked followed by spreading first the inoculum obtained from wetland habitats filled within the Development Site and finally seeded. More details related to location of seeding and seed treatment prior to seeding will be provided in the detailed mitigation planting plan during the permitting process.

6.4.8 Corrective Actions for Any Activities Found not to be in Compliance

Corrective actions may be taken for any activities found not to be in compliance such as under or over excavation, but only after obtaining approval from the Qualified Biologist.

6.4.9 Install Fencing, Signs, Gates, and Monuments

The Landowner is responsible for and will fund installation of signs and monuments where required and as described below; the Site is currently fenced and gated with suitable materials.

1. *Fencing.* Suitable protective fencing and gates are currently installed along the property line. Gates will always remain secured except as authorized by the Landowner, the Qualified Biologists, Land Manager, the Conservation Easement Grantee, the USFWS, CDFW, and local agencies for emergency access. To aid in wildlife movement, where feasible, existing fencing will be replaced by a 6-foot-wide “barbless” three-wire-strand section at approximate 500-foot intervals, to be funded by the Landowner.
2. *Signs and Gates.* Signs indicating “No Trespassing ~ Conservation Area” shall be installed along all property corners and gate locations. Installation of signs will also occur at approximate North, South, East, and West center points along the perimeter of the Property.

6.4.10 Temporary Access Planting and Irrigation

Temporary impacts will occur on the mitigation site due to construction access, excavation and grading, placement of species protection fencing, and placement of erosion control BMPs. Temporary impacts to the ground surface will be restored to pre-project or better conditions (original grade elevation and vegetation cover) using only a native seed mix. Seeded bare areas will be covered by loose sterile straw. Given the dense nature of the soil, dry rutting is not anticipated when they are dry. However, if necessary, prior to seeding, a shallow uncompacted layer of topsoil excavated and stockpiled during construction shall be used to restore the rutted area back to original grade elevation. The need for irrigation is not anticipated.

Note: To be considered a wetland temporary impact the Landowner understands that all temporary impacts must meet the following criteria: (1) recontouring and seeding of the area of temporary impact shall occur by October 31 of the year of the impact, and no additional ground disturbing activities shall occur; and (2) temporary impact sites have achieved vegetation success as described in the development and construction plan. Impacts not meeting this temporary impact definition are considered permanent impacts.

6.5 Post-Construction Activities

This section describes post-construction activities to be conducted following construction and seeding. The USFWS BO and CDFW ITP or CD conservation measures shall also be followed as pertains to activities to be conducted following ground and vegetation disturbance.

6.5.1 Take Post-Construction Photos

Required Action: Post-construction photographs will be taken by the Qualified Biologists to document sensitive habitat conditions within the limits of construction disturbance. Using a GPS, locate previously established permanent monitoring photo points; take photos of the same areas previously photographed to document habitat conditions at completion of construction.

6.5.2 Prepare As-Built Report

Required Action: Within 30 days after construction is complete, a post-construction as-built topographic survey (0.5-foot contour interval) will be prepared using a total station survey instrument or LiDAR data using a drone. Within 60 days following completion of site construction, the Construction Manager will prepare a draft as-built report and submit it to both the Qualified Biologists for review and approval. This report will include:

- 4 An as-built plan showing both pre- and post-construction topography with minimum 0.5-foot contour intervals.
- 5 Written description of construction activities, paying particular attention to any adjustments to the final grading plan with adjustments marked in red on the as-built plan.
- 6 Photo-documentation of construction activities, as well as identification of permanent photo point locations.

6.5.3 Review Construction Manager's As-Built Report

Within 15 days following receipt of the as-built report from the Construction Manager, the Qualified Biologists will review the as built report and coordinate with the Construction Manager if corrections need to be made. The as-built report will consist of subsections describing as-built details for each habitat constructed.

6.5.4 Prepare Final As-Built Report

Within 15 days of receipt of comments from the Qualified Biologists, the Construction Manager shall finalize and return the as-built report to the Qualified Biologists.

6.5.5 Submit As-Built Report

Within 90 days following completion of construction, the Qualified Biologist will submit the report to the USACE, RWQCB, BCDC, USFWS, CDFW (Authorizing Agencies). The Qualified Biologists in coordination with the Construction Manager shall respond to any comments regarding the review of the as-built report.

6.6 Adaptive Management

It is expected that the Qualified Biologists / Land Manager may need to make minor adjustments to the plan while construction work is on-going given the uncertainties, unforeseen challenges, and dynamic nature of habitat construction. Major changes to the construction plan are allowed if it is determined that construction as planned in terms of general location, specified depth and side slopes, or planting cannot be successfully implemented in accordance with the agency approved Construction Plan. Modification of the construction plan requires written approval from the Authorizing Agencies and Conservation Easement Grantee. The role of the Authorizing Agencies and Conservation Easement Grantee will be to review and approve proposed plan modifications. Implementation of the revised construction plan requires written approval from the Authorizing Agencies, and Conservation Easement Grantee (email or letter). Depending on the nature of the agreed-upon modification, conservation measures required by the USFWS BO and CDFW ITP or CD will continue to be implemented.

The Land Manager, in consultation with the Landowner, will identify and determine appropriate adaptive construction measures to be proposed to the Authorizing Agencies and the Conservation Easement Grantee. The Authorizing Agencies, and Conservation Easement Grantee will review and approve them if acceptable. The measures may include site modifications, access route modification, and construction design changes. The adaptive construction measures need to ensure that the modified compensatory mitigation project provides resource functions comparable to the original Construction Plan objective.

6.7 Schedule

Construction is proposed to begin prior to or at the time ground disturbing activities for the development Project begins. Construction of vernal pools, alkali seasonal marsh, and seasonally saturated annual grasslands will be conducted when the soils are dry. Construction of the 0.002 acre of perennial brackish marsh may be exposed to tidal water. The Qualified Biologists will begin construction monitoring at that time and continue monitoring throughout construction implementation.

| Table 8. Construction Plan Implementation Schedule | |
|---|--|
| Activity | Timing |
| Prepare detailed construction designs in collaboration with the USACE, RWQCB, & USFWS | Prior to site mobilization |
| Obtain amendment to BO if additional protective measures are required | Prior to site mobilization |
| Obtain USACE, RWQCB, & USFWS approval of detailed construction plan | Prior to site mobilization |
| Conduct environmental sensitivity training. | Prior to site mobilization and construction activities |
| Initiate & complete Site work | Approximately 45 days |
| Prepare as-built topographic survey (0.5-foot contours) | Within 20 days after completion of construction |
| Prepare and submit as-built report to Authorizing Agencies. | Within 90 days after completion of construction |

7.0 MAINTENANCE PLAN

This section describes maintenance, site inspection, and follow-up actions for maintaining the mitigation site following implementation. The objective of inspections and follow-up maintenance actions, if needed, is to ensure that agency required performance standards are successfully achieved. Site inspection and maintenance actions are discussed in detail below.

7.1 Plan Overview

The Land Manager will implement the Maintenance Plan to ensure that the goals and objectives of the MMP are achieved. Activities will include maintenance monitoring and reporting and, if necessary, maintenance. Inspection activities are described in detail below.

During maintenance inspections, the Land Manager's tasks are to:

1. Look for potential problems that could prevent achievement of the goal and objectives of the MMP.
2. Ensure that appropriate corrective actions, if necessary, are undertaken.
3. Document observations and maintenance activities on standardized monitoring forms (Appendix G).
4. Avoid adverse impacts to wetlands while conducting maintenance activities.
5. Photo-document Site conditions, including (a) problems discovered during monitoring inspections and (b) annual site photographs taken during the springtime maintenance inspection period from the permanent photo points and directions of view established during base line monitoring. Memorialize photo locations using a hand-held GPS with submeter accuracy; and
6. Prepare report section as part of the annual monitoring report describing any maintenance actions taken and recommendation for any future maintenance action(s) that may need to be taken. The Land Manager will submit the annual monitoring report to the Corps, RWQCB, USFWS, CDFW, and Conservation Easement Grantee by January 31 of the following year.

7.2 Implementation

The Land Manager or their designated qualified representative will conduct periodic site inspections and inform the Landowner if maintenance actions are needed to ensure mitigation performance success. During site inspections, the Land Manager and / or their designated representative will look for potential problems that may result in the objectives of the MMP not being achieved and to ensure that appropriate corrective actions are taken, if found necessary. A record of management inspections and any maintenance actions undertaken will be submitted as part of the annual mitigation monitoring report. Any maintenance issues discovered will be photo-documented during monitoring inspections and the location mapped, all of which will be provided with the annual monitoring report. Follow-up photo-documentation will occur once the needed maintenance action(s) is completed.

Representative photographs of the mitigation site will be taken and documented as described in 7.3.7, below. If necessary, representative photos shall also be taken of any maintenance issue identified and provided together with a description of the problem and recommended action(s) to be taken to ensure performance criterion / criteria success.

7.3 Site Inspection and Maintenance Actions

This section describes the site inspection and maintenance actions that are to be performed. Site inspection and potential maintenance actions are described below. These actions include:

- Land Use Inspections and Maintenance Actions
- Trash and Debris Inspection and Maintenance Actions
- Vegetation Management Inspection and Maintenance Actions
- Fence, Gate, and Sign inspections
- Fuel Modification
- Mosquito Control

7.3.1 Land Use Inspection and Maintenance Actions

Maintenance visits will include inspection for and documentation of any evidence of vandalism or other encroachment that may interfere with successful achievement of wetland mitigation performance standards. The mitigation site will be monitored for signs of (1) excessive human disturbance such as heavy foot traffic, (2) removal of plantings, (3) off-road vehicle use, (4) gardening, (5) evidence of waste dumping, (6) sagging fencing wires as evidence of human access by climbing over fencing, (7) cut fence, and (8) cut gate chain and/or lock. Disturbances will be documented on monitoring forms along with remedial action being taken (e.g., fill tire ruts to original grade, remove garden plots, remove trash, and replanting).

7.3.2 Manmade Trash and Litter Inspection and Maintenance Actions

Although accumulation of manmade trash and litter is not anticipated to be a significant problem, inspections for and documentation of observed trash and litter will be made. Accumulated trash and litter that may interfere with successful achievement of wetland mitigation performance standards will be removed and disposed of at an appropriate County authorized landfill location.

7.3.3 Vegetation Management

The goal of vegetation management is to maintain a competitive advantage of beneficial upland and wetland plant species over exotic invasive annual plant species, including but not limited to noxious weeds, using allowable management methods. These methods include managed grazing; hand/mechanical removal of invasive weed species; hand cutting or mowing; focused grazing; and controlled herbicide use.

The maintenance objective for “Invasive Plant Control” is ≤ 5 percent total cover for invasive plant species rated “high”¹² or included as a “red alert” species by the California Invasive Plant Council or species rated as “high priority” by the Bay Area Early Detection Network.¹³

Managed Grazing. The primary vegetation management tool is livestock grazing (typically cattle). Livestock grazing will be allowed throughout the year to control thatch buildup and minimize the potential for invasive plant species to out-compete the mitigation site’s rare plant species or reduce the heterogeneity of the depressional wetland species. This will be accomplished by managing the number of livestock grazing in order to achieve a Residual Dry Matter (RDM) value ranging between 500 and ≤ 750 pounds per acre per year in order to avoid over-grazing, then, if necessary, adjusting RDM values over time as part of the long-term management of the mitigation site to benefit special status wetland plant species.

Maintenance inspections include periodic inspections to:

1. determine if the livestock grazing being conducted is within the range of allowable livestock per acre as specified in Table 11 (Subsection 10.5.3); and
2. collect annual RDM samples and conduct analysis following the methodology described in “Subsection 10.5.3. Task a” under the paragraph heading “Modification of Grazing Plan.”

Maintenance actions taken may include reducing or increasing livestock during the monitoring year or requiring either an increase or decrease in livestock numbers during the following grazing year in order to achieve the target RDM range of 500 and ≤ 750 pounds per acre per year. Maintenance action may also prohibit livestock grazing in a portion or portions of established wetlands if vegetation performance standards are not being met.

Invasive Plant Inspection and Maintenance Actions. If maintenance site inspections or performance monitoring determine that invasive plant species rated “high” or included as a “red alert” species by the California Invasive Plant Council or species rated as “high priority” by the Bay Area Early Detection Network are present and comprise \geq to 5 percent of the total plant cover of the mitigation site, invasive plant maintenance actions need to be taken. The objective of invasive plant maintenance actions is to provide a competitive advantage for native and naturalized plant species over invasive species through various vegetation management methods. Allowable methods to control invasive weed species at the wetland mitigation site are described below. In conducting invasive plant control, the use of non-chemical removal methods is to be pursued to the maximum extent feasible.

¹² Plants are considered invasive if they have been introduced into an environment where they did not evolve. As a result, they may have no natural enemies or other constraints to limit their reproduction and spread (Westbrooks, 1998, cited by BLM). Some invasive plants can produce significant changes to vegetation, composition, structure, or ecosystem function (Cronk and Fuller, 1995, cited by BLM). An inventory with ranking of invasives (High, Moderate, and Limited) can be found at <https://www.cal-ipc.org/plants/inventory/>

¹³ https://www.sfbayjv.org/bay_area_early_detection_network.php

- 3 **Hand/Mechanical Removal of Invasive Weed Species.** Hand removal or use of handheld equipment (such as a weed uprooter¹⁴ or a chainsaw) should always be the preferred method of removing invasive weed species from the mitigation site. If hand removal methods are tried and found to be ineffective, or the problem is too widespread for hand removal to be practicable, then hand-held mechanical methods of removal, focused grazing, or chemical controls as described below can be implemented. The goal is to rely on application of herbicides as a last resort.
- 4 **Hand Cutting or Mowing.** Hand clipping or mowing with a hand-held mechanical mower or weed whip to control invasive weed species before they set seed is allowable during the late winter, spring, and early summer months.
- 5 **Focused Grazing.** Focused grazing for no longer than 30 days with sheep or goats to control invasive plants or thatch buildup is allowable preferably during the late winter, spring, and early summer months before targeted invasive plants set seed.
- 6 **Controlled Herbicide Use.** Only herbicides registered with the California Department of Pesticide Regulation (DPR) will be applied. Localized spot treatments should be used, when feasible. All herbicides will be applied in accordance with regulations set by DPR, used according to labeled instructions, and approved for use in an aquatic environment (e.g., Rodeo[®]). Labeled instructions for the herbicide used will be made available to Authorizing Agencies and DPR upon request. Herbicide application will be conducted on calm days only with wind less than five (5) miles per hour to prevent airborne transfer of herbicide. Pesticide mixing sites will be located at existing road sites outside of aquatic resource areas. No herbicides will be used where CESA and/or federally listed ESA species have been documented to occur.
- 7 **Replanting.** Based on the performance standards described in Section 8.0 below, if planted vegetation and / or natural re-vegetation within any portions of the mitigation site appears unsuccessful due to invasive plants or resulting from invasive plant removal within any of the performance monitoring years, the invasive plant species will be removed from the unsuccessful area and the area will be replanted with native vegetation previously planted. Consideration should be given to the use of a pre-emergent herbicide if repopulation with a dominance of invasive species is a concern. If plant species are proposed other than previously planted, the Authorizing Agencies need to be consulted.

7.3.4 Fence, Gate, and Sign Inspections

Inspect fencing and gates to ensure they are maintained in good condition to prevent unauthorized access. Check to see that there is proper tension in the wire or fencing / gate

¹⁴ <https://www.theuprooter.com/>

parts, the wire or metal grill work is not broken, and appropriate post alignment and stability is maintained. Inspect signs for readability.

Maintenance actions taken may include splicing broken wire, reattachment of wire or gate to fence posts, replacing fence posts, replacing gate parts, replacing gate, (e.g., steel gate, wire gap), and repairing or replacing signs(s).

7.3.5 Fuel Modification

If the local Fire Marshal requires fuel breaks, they will be maintained through mowing or focused livestock grazing when the ground surfaces are dry. Prior to creating fuel breaks, areas will be searched for nesting migratory birds. Areas where nesting migratory birds are found will be handled in accordance with the requirements of the Migratory Bird Treaty Act and Fish and Game Code section 3500 et seq. **Note: Disking is not permitted on the Site.**

7.3.6 Mosquito Control

In coordination with the Solano County Mosquito Abatement District (SCMAD; <https://www.solanomosquito.com/>), inspect the Site when surface water ponding is occurring, and temperatures are conducive to mosquito breeding. If vector control becomes necessary, SCMAD shall identify and implement mosquito abatement practices that are protective of federal and state special status species following approval by the Landowner, Land Manager, the USFWS, CDFW, and Conservation Easement Grantee.

7.3.7 Record Keeping and Reporting

Documentation of all inspection and maintenance activities will be required. A record of maintenance activities by date will be submitted yearly to the Authorizing Agencies and Conservation Easement Grantee as part of the annual Mitigation Monitoring Report. All annual reports will include the following information: (1) frequency and dates of observations, (2) photographs of areas where maintenance issue(s) are found with direction of view, latitude and longitude, and location mapping, locations of permanent photo points and direction of view, what was observed, maintenance activities, a summary of repairs and any recommended follow-up maintenance actions that may be required.

7.3.8 Schedule

To assure that the performance standards presented in Section 8.0 are successfully met, the land management activities described above will commence after habitat construction is complete and prior to ground disturbing activities at the Development Site described in Section 1.1, above. Maintenance actions will continue for 10 years according to the schedule provided by the table below unless the agency required performance standards have not been met after 10 years, in which case maintenance actions will continue until performance standards are successfully met.

The following table identifies specific responsibilities associated with management inspections and maintenance activities.

| Table 9. Land Management Inspections, Responsibility, and Schedule | | |
|---|------------------------------------|---|
| Inspection and Maintenance Actions | Responsibility | Schedule (Years 1-10) * |
| 1. Land use | I & M | January, April, July, and October |
| 2. Manmade Trash and Litter | I & M | January, April, July, and October |
| 3. Vegetation Management | I & M | January, April, July, and October |
| 4. Fuel Modification | I & M | May - June |
| 5. Mosquito Control | I & M | Rainy Season: October to May |
| 6. Record Keeping and Reporting | Documentation & Report Preparation | Documentation: Contemporaneously during Inspection & Maintenance Activities; Reporting: January 31 following each monitoring year |
| *Maintenance actions will continue for a minimum of 10 years according to schedule or until the performance standards have been met, whichever is longer. | | |

7.4 Funding

The Landowner¹⁵ will fund all the costs associated with site inspection, maintenance, and adaptive management activities as described in this MMP for Years 1 - 10, which includes performance monitoring and agency-required reporting. If performance criteria are not met within 10 years, the Landowner shall continue to be responsible for funding measures necessary to successfully achieve agency required performance criteria, to include maintenance monitoring, unless all or portions thereof of the monitoring after the initial 10 years is part of the monitoring conducted as part of the long-term management activities funded by the endowment.

¹⁵ Currently the property is owned by Tom Gentry California Company but is being sold to Buzz Oats Construction upon receiving agency authorizations for the proposed project.

7.5 Responsible Parties

Successful implementation of this Mitigation Management Plan is the responsibility of:

PERMITTEE / LANDOWNER:

Buzz Oates Construction
555 Capitol Mall, Ninth Floor
Sacramento, CA 95814
Contact: Joe Livaich
916.379.8874
joelivaich@buzzoates.com

LAND MANAGER:

Robert F. Perrera
Huffman-Broadway Group, Inc.
828 Mission Avenue
San Rafael, CA 94901
415.385.4106
Rperrera@h-bgroup.com

8.0 PERFORMANCE STANDARDS

This section presents the mitigation performance standards and monitoring methods for evaluating conformance with these standards. Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Part 332) defines performance standards as “*observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives*” (33 CFR 332.2.) Additionally,

Performance standards should relate to the objectives of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g., acres). (33 CFR 332.5(a))

Performance monitoring by Qualified Biologists is required by the Authorizing Agencies and will occur for a minimum of ten years from the time construction ends until all Performance Standards have been met. Performance Standards are observable or measurable physical or biological characteristics that can be used to evaluate success or progress toward meeting a project’s goal(s). The Performance Standards are based on attributes that are objective and verifiable. If Performance Standards are not met during this period, performance monitoring will continue until the Performance Standards are achieved, unless otherwise approved in writing by CDFW and USFWS. Interim monitoring methods and reporting requirements are provided in Section 9.0.

The objective of mitigation monitoring is to track progress toward meeting the MMP objectives described in Section 1.2, above. Monitoring is designed to evaluate objectively in a quantitative manner whether desired habitat characteristics are being achieved. These include:

1. Establishment of wetland habitat meeting the USACE technical criteria for jurisdictional wetlands by:
 - a. Development of physical conditions similar to those found within naturally occurring depressional wetlands found within the proposed 393.24-acre Managed Open Space.
 - b. Development of hydrologic conditions similar to those found within naturally occurring depressional wetlands found within the Managed Open Space.
 - c. Development of hydric soil conditions similar to those found within naturally occurring depressional wetlands found within the Managed Open Space.
 - d. Establishment of naturalized and native plant species similar to those found within a naturally occurring reference wetland within the Managed Open Space area; and
 - e. Establishment of areas meeting the USACE technical criteria for jurisdictional wetlands.
2. Establishment of suitable habitat for special status plant species by:

- a. Development of physical conditions similar to those found within naturally occurring occupied sensitive species habitat found within the Managed Open Space.
 - b. Development of hydrology and soil conditions similar to those found within naturally occurring occupied habitat found within the Managed Open Space.
 - c. Establishment of new sensitive plant species populations similar to those found within the project site impacted by the Highway 12 Logistics Center Project.
3. Providing for long-term management and land use protection of established and preserved wetlands and upland watershed habitat and occupied and suitable habitat for sensitive species for conservation purposes through endowment funding and a recorded deed restriction or conservation easement.

The performance standards provided in the table below are designed to determine if the mitigation objectives are being achieved and provide a means to identify and remedy problems that would hinder achievement of the mitigation objectives. This will be accomplished by collecting and analyzing data to determine if the performance standards are being achieved and whether corrective actions need to be taken following the Adaptive Management Plan described in Section 11.0.

Each monitoring year will be assessed to determine if average or above average rainfall occurred on a monthly basis during the rainy season (October through May) and how the rainfall amounts may have affected Performance Standard results. To determine if rainfall was within the “normal” or “above normal” range, HBG will conduct a “Climate Analysis for Wetlands” (WETS analysis)¹⁶ for each monitoring year to assess whether rainfall periods fell within the normal range of precipitation based on long-term records collected for the Solano County / Suisun City area.

Table 10a. Performance Standards for Years 1 - 5

| Type & Number | Performance Standards | Annual Target | | | | |
|--|---|---------------|--|--|--|--|
| | | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5* |
| Seasonally Saturated Annual Grasslands, Alkali Seasonal Wetlands, Vernal Pools and Perennial Brackish Marsh | | | | | | |
| Physical-1 | Structural Patch Richness – Using appropriate CRAM field book. 1. By year 10 the site must contain 90% or more of the total number of structural patch richness types found at the selected reference site. | NA | ≥20% of reference site range | ≥30% of reference site range | ≥40% of reference site range | ≥50% of reference site range |
| Physical-2 | Topographic Complexity – Using appropriate CRAM field book. 1. By year 10 the site must have a rating equal to or greater than the reference site. | NA | NA | No more than 2 rating less than the reference site rating | NA | No more than 1 rating less than the reference site rating |
| Hydrologic 1 | Soil Saturation & Inundation <ul style="list-style-type: none"> By year 2-3 at least 25% of the established wetland acreage for each wetland types must be saturated or inundated to a depth within 10% of the reference site range. By year 4-5 at least 50% of the established wetland acreage for each wetland types must be saturated or inundated to a depth within 10% of the reference site range. The duration of soil saturation or inundation for performance standard a and b must within 70% of the reference site. | NA | +/-10% of reference site range & +/- 70% duration of the reference site. | +/-10% of reference site range & +/- 70% duration of the reference site. | +/-10% of reference site range & +/- 70% duration of the reference site. | +/-10% of reference site range & +/- 70% duration of the reference site. |
| Hydrologic 2 | Wetland Hydrology Indicators Development of wetland hydrology indicators listed in the Arid West Manual. 1. By year 10 100% of the established wetland acreage will exhibit at least 1 primary or 2 secondary wetland hydrology indicators. | NA | NA | NA | NA | NA |
| Hydrologic 3 | Hydric Soil Indicator - Development of USDA NRCS hydric soil characteristics listed in the Arid West Manual. 1. By year 10 100% of the established wetland acreage will exhibit hydric soil indicator/s. | NA | NA | NA | NA | 25% of established wetlands exhibit hydric soil indicator/s. |

Table 10a. Performance Standards for Years 1 - 5

| Type & Number | Performance Standards | Annual Target | | | | |
|---------------|---|---------------|--|--|--|---|
| | | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5* |
| Flora 1 | Dominance of Hydrophytes - ≥75% of absolute cover of wetland species (OBL, FACW or FAC) is met by year 10. | NA | ≥10% of reference site range. | ≥20% of reference site range. | ≥30% of reference site range. | ≥40% of reference site range. |
| Flora 2 | Species Composition - ≥75% of relative cover of native and naturalized species by year 10. | NA | ≥10% of reference site range. | ≥20% of reference site range. | ≥30% of reference site range. | ≥40% of reference site range. |
| Flora 3 | Species Richness – ≥75% target native species richness values are met by year 10. | NA | NA | ≥10% of reference site range. | ≥20% of reference site range. | ≥30% of reference site range. |
| Flora 4 | Horizontal Interspersion - Using appropriate CRAM field book. a. By year 10 the site must have a rating equal to or greater than the reference site. | NA | NA | NA | NA | No more than 2 rating less than the reference site rating |
| Flora 5 | Invasive Plant Species ¹⁷ -. Plants rated “high” or included as a “red alert” species by the California Invasive Plant Council or species rated as “high priority” by the Bay Area Early Detection Network ¹⁸ shall not comprise greater than 5% of the total plant cover. | NA | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” |

¹⁷ Plants are considered invasive if they have been introduced into an environment where they did not evolve. As a result, they may have no natural enemies or other constraints to limit their reproduction and spread (Westbrooks, 1998, cited by BLM). Some invasive plants can produce significant changes to vegetation, composition, structure, or ecosystem function (Cronk and Fuller, 1995, cited by BLM). An inventory with ranking of invasives (High, Moderate, and Limited) can be found at <https://www.cal-ipc.org/plants/inventory/>.

¹⁸ https://www.sfbayiv.org/bay_area_early_detection_network.php.

Table 10a. Performance Standards for Years 1 - 5

| Type & Number | Performance Standards | Annual Target | | | | |
|---------------------------|--|----------------------------------|--|--|--|--|
| | | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5* |
| Flora 6 | Vegetation Management - Maintain RDM at a level which gives native vegetation a complete advantage over introduced species. | NA | NA | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. |
| Flora 7 | Establish Vernal Pool Habitat 1. By year 10 a minimum of 14.09 acres of vernal pool habitat will be established and meet the USACE's and RWQCB's definition of a wetland. | NA | NA | NA | NA | ≥25% of required wetland areas meets definition of wetland. |
| Flora 8 | Establish Seasonally Saturated Annual Grassland Habitat 1. By year 10 a minimum of 16.32 acres of seasonally saturated annual grassland habitat will be established and meet the USACE's and RWQCB's definition of a wetland. | NA | NA | NA | NA | ≥25% of required wetland areas meets definition of wetland |
| Flora 9 | Establish Alkali Seasonal Wetland Habitat 1. By year 10 a minimum of 7.58 acres of alkali seasonal wetland habitat will be established and meet the USACE's and RWQCB's definition of a wetland. | NA | NA | NA | NA | ≥25% of required wetland areas meets definition of wetland |
| Flora 10 | Establish Perennial Brackish Marsh Habitat 1. By year 10 a minimum of 0.002 acres of perennial brackish marsh habitat will be established and meet the USACE's and RWQCB's definition of a wetland. | NA | NA | NA | NA | ≥25% of required wetland areas meets definition of wetland |
| Rare Plant Habitat | | | | | | |
| Flora 11 | CCG Habitat Establishment By year 10 establish 0.023 acre of Contra Costa Goldfields habitat with minimum growth of 102 individual CCG plants on at least 2 out of the last 9 years of monitoring period (to be established within seasonally saturated annual grassland establishment area described in Flora 8). | NA | Establish 0.023 acre of Contra Costa Goldfields habitat with minimum growth of 102 individual CCG plants on at least 2 out of the last 9 years of monitoring period. | | | |
| Flora 12 | CCG Habitat Preservation 1. By year 1 preserve the entire core population of 8,000+ plants over a 17-acre area. | Preservation to occur by year 1. | NA | NA | NA | NA |
| Flora 13 | Alkali Milk-Vetch Habitat Preservation 1. By year 1 preserve 0.007 acre of occupied alkali milk-vetch habitat. | Preservation to occur by year 1. | NA | NA | NA | NA |
| Flora 14 | Saline Clover Habitat Preservation 1. By year 1 preserve t 1.10 acres of occupied saline clover habitat. | Preservation to occur by year 1. | NA | NA | NA | NA |

Table 10a. Performance Standards for Years 1 - 5

| Type & Number | Performance Standards | Annual Target | | | | |
|---|--|----------------------------------|---|-------|-------|--------|
| | | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5* |
| Flora 15 | Suisun Marsh Aster Habitat Preservation 1. By year 1 preserve 0.002 acre of occupied Suisun Marsh aster habitat. | Preservation to occur by year 1. | N/A | N/A | N/A | N/A |
| Flora 16 | Suisun Marsh Aster Habitat Establishment** - (If Impacts Are Unavoidable) - Within the open space management area establish 0.002 acre of Suisun Marsh aster habitat which supports the same or greater number of plants impacted at least 2 out of the last 9 years of monitoring period (to be established within perennial brackish marsh establishment area described in Flora 10). . . | NA | establish 0.002 acre of Suisun Marsh aster habitat which supports the same or greater number of plants impacted at least 2 out of the last 9 years of monitoring period . | | | |
| Managed Open Space | | | | | | |
| Preservation 1 | Managed Open Space Place 393.24 acre Managed Open Space site under a deed restriction or conservation easement. The 38 acres of wetland mitigation and rare plant preservation (Flora 12-15) shall be specifically designated as mitigation for the Development Site project. | Preservation to occur by year 1. | NA | NA | NA | NA |
| <p>* Performance monitoring will continue for 10 years unless the agency required performance standards have not been met in which case performance monitoring will continue until performance standards are successfully met.</p> <p>** Preconstruction plant surveys should be conducted prior to the construction of the stormwater culvert outfall to ensure impacts to individual Suisun Marsh aster plants are avoided. If individual plants do occur in the proposed location of the stormwater outfall culvert the location should be modified, if feasible, to avoid impacting the plants.</p> | | | | | | |

Table 10b. Performance Standards for Years 6 - 10

| Type & Number | Performance Standards | Annual Target | | | | |
|--|---|------------------------------|---|------------------------------|------------------------------|------------------------------|
| | | Yr. 6 | Yr. 7 | Yr. 8 | Yr. 9 | Yr. 10* |
| Seasonally Saturated Annual Grasslands, Alkali Seasonal Wetlands, Vernal Pools and Perennial Brackish Marsh | | | | | | |
| Physical-1 | Structural Patch Richness – Using appropriate CRAM field book. 1. By year 10 the site must contain 90% or more of the total number of structural patch richness types found at the selected reference site. | ≥60% of reference site range | ≥70% of reference site range | ≥80% of reference site range | ≥80% of reference site range | ≥90% of reference site range |
| Physical-2 | Topographic Complexity – Using appropriate CRAM field book. 1. By year 10 the site must have a rating equal to or greater than the reference site. | NA | No more than 1 rating less than the reference site rating | NA | NA | ≥ the reference site rating |

Table 10b. Performance Standards for Years 6 - 10

| Type & Number | Performance Standards | Annual Target | | | | |
|---------------|---|---------------|---|-------|-------|---|
| | | Yr. 6 | Yr. 7 | Yr. 8 | Yr. 9 | Yr. 10* |
| Hydrologic 1 | <p>Soil Saturation & Inundation</p> <p>1. By year 7 at least 60% of the established wetland acreage for each wetland types must be saturated or inundated to a depth within 10% of the reference site range.</p> <p>2. By year 10 at least 70% of the established wetland acreage for each wetland types must be saturated or inundated to a depth within 10% of the reference site range.</p> <p>3. The duration of soil saturation or inundation for performance standard a and b must within 70% of the reference site.</p> | NA | +/-10% of reference site range & +/-70% duration of the reference site. | NA | NA | +/-10% of reference site range & +/-70% duration of the reference site. |
| Hydrologic 2 | <p>Wetland Hydrology Indicators Development of wetland hydrology indicators listed in the Arid West Manual.</p> <p>4. By year 10 100% of the established wetland acreage will exhibit at least 1 primary or 2 secondary wetland hydrology indicators.</p> | NA | Exhibits at least 1 secondary indicator | NA | NA | Exhibits at least 1 primary or 2 secondary indicators |
| Hydrologic 3 | <p>Hydric Soil Indicator - Development of USDA NRCS hydric soil characteristics listed in the Arid West Manual.</p> <p>5. By year 10 100% of the established wetland acreage will exhibit hydric soil indicator/s.</p> | NA | 50% of established wetlands exhibit hydric soil indicator/s. | NA | NA | 100% of established wetlands exhibit hydric soil indicator/s. |
| Flora 1 | <p>Dominance of Hydrophytes - ≥75% of absolute cover of wetland species (OBL, FACW or FAC) is met by year 10.</p> | NA | ≥60% of reference site range. | NA | NA | ≥75% of reference site range. |
| Flora 2 | <p>Species Composition - ≥75% of relative cover of native and naturalized species by year 10.</p> | NA | ≥60% of reference site range. | NA | NA | ≥75% of reference site range. |
| Flora 3 | <p>Species Richness – The target native species richness values are each monitoring year.</p> | NA | ≥50% of reference site range. | NA | NA | ≥75% of reference site range. |

Table 10b. Performance Standards for Years 6 - 10

| Type & Number | Performance Standards | Annual Target | | | | |
|---------------|---|--|--|--|--|--|
| | | Yr. 6 | Yr. 7 | Yr. 8 | Yr. 9 | Yr. 10* |
| Flora 4 | Horizontal Interspersion - Using appropriate CRAM field book. a. By year 10 the site must have a rating equal to or greater than the reference site. | NA | No more than 1 rating less than the reference site rating | NA | NA | ≥ the reference site rating |
| Flora 5 | Invasive Plant Species ¹⁹ -. Plants rated “high” or included as a “red alert” species by the California Invasive Plant Council or species rated as “high priority” by the Bay Area Early Detection Network ²⁰ shall not comprise greater than 5% of the total plant cover. | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” | ≤5% invasive plant species rated “high.” |
| Flora 6 | Vegetation Management - Maintain RDM at a level which gives native vegetation a complete advantage over introduced species. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. | Maintain Residual Dry Matter (RDM) value between 500 and ≤750 pounds per acre. |
| Flora 7 | Establish Vernal Pool Habitat 6. By year 10 a minimum of 14.09 acres of vernal pool habitat will be established and meet the USACE’s and RWQCB’s definition of a wetland. | NA | ≥50% of required wetland areas meets definition of wetland | NA | NA | ≥14.09 acres of vernal pool habitat. |
| Flora 8 | Establish Seasonally Saturated Annual Grassland Habitat 7. By year 10 a minimum of 16.32 acres of seasonally saturated annual grassland habitat will be established and meet the USACE’s and RWQCB’s definition of a wetland. | NA | ≥50% of required wetland areas meets definition of wetland | NA | NA | ≥16.32 acres of seasonally saturated annually grassland habitat. |
| Flora 9 | Establish Alkali Seasonal Wetland Habitat 8. By year 10 a minimum of 7.58 acres of alkali seasonal wetland habitat will be established and meet the USACE’s and RWQCB’s definition of a wetland. | NA | ≥50% of required wetland areas meets definition of wetland | NA | NA | ≥7.58 acres of alkali seasonal wetland habitat.; |

¹⁹ Plants are considered invasive if they have been introduced into an environment where they did not evolve. As a result, they may have no natural enemies or other constraints to limit their reproduction and spread (Westbrooks, 1998, cited by BLM). Some invasive plants can produce significant changes to vegetation, composition, structure, or ecosystem function (Cronk and Fuller, 1995, cited by BLM). An inventory with ranking of invasives (High, Moderate, and Limited) can be found at <https://www.cal-ipc.org/plants/inventory/>.

²⁰ https://www.sfbayiv.org/bay_area_early_detection_network.php.

Table 10b. Performance Standards for Years 6 - 10

| Type & Number | Performance Standards | Annual Target | | | | |
|---|---|---|--|-------|-------|--|
| | | Yr. 6 | Yr. 7 | Yr. 8 | Yr. 9 | Yr. 10* |
| Flora 10 | Establish Perennial Brackish Marsh Habitat 9. By year 10 a minimum of 0.002 acres of perennial brackish marsh habitat will be established and meet the USACE's and RWQCB's definition of a wetland. | NA | ≥50% of required wetland areas meets definition of wetland | NA | NA | ≥0.002 acre of perennial brackish marsh habitat. |
| Rare Plant Habitat | | | | | | |
| Flora 11 | CCG Habitat Establishment By year 10 establish 0.023 acre of Contra Costa Goldfields habitat with minimum growth of 102 individual CCG plants on at least 2 out of the last 9 years of monitoring period (to be established within vernal pool establishment area described in Flora 7). | Establish 0.023 acre of Contra Costa Goldfields habitat with minimum growth of 102 individual CCG plants on at least 2 out of the last 9 years of monitoring period. | | | | |
| Flora 12 | CCG Habitat Preservation 10. By year 1 preserve the entire core population of 8,000+ plants over a 17-acre area. See Preservation 1 performance standard. | NA | NA | NA | NA | NA |
| Flora 13 | Alkali Milk-Vetch Habitat Preservation 11. By year 1 preserve 0.007 acre of occupied alkali milk-vetch habitat. See Preservation 1 performance standard. | NA | NA | NA | NA | NA |
| Flora 14 | Saline Clover Habitat Preservation 12. By year 1 preserve t 1.10 acres of occupied saline clover habitat. See Preservation 1 performance standard. | NA | NA | NA | NA | NA |
| Flora 15 | Suisun Marsh Aster Habitat Preservation 13. By year 1 preserve 0.002 acre of occupied Suisun Marsh aster habitat. See Preservation 1 performance standard. | NA | NA | NA | NA | NA |
| Flora 16 | Suisun Marsh Aster Habitat Establishment** - (If Impacts Are <u>Unavoidable</u>) - Within the open space management area establish 0.002 acre of Suisun Marsh aster habitat which supports the same or greater number of plants impacted at least 2 out of the last 9 years of monitoring period with minimum growth of the number of individual impacted (to be established within perennial brackish marsh establishment area described in Flora 10). | establish 0.002 acre of Suisun Marsh aster habitat which supports the same or greater number of plants impacted at least 2 out of the last 9 years of monitoring period | | | | |
| Managed Open Space | | | | | | |
| Preservation 1 | Managed Open Space 1. Place 393.24 acre Managed Open Space site under a deed restriction or conservation easement. The 38 acres of wetland mitigation and rare plant preservation (Flora 12-15) shall be specifically designated as mitigation for the Development Site project. | NA | NA | NA | NA | NA |
| * Performance monitoring will continue for 10 years unless the agency required performance standards have not been met in which case performance monitoring will continue until performance standards are successfully met. | | | | | | |
| ** Preconstruction plant surveys should be conducted prior to the construction of the stormwater culvert outfall to ensure impacts to individual Suisun Marsh aster plants are avoided. If individual plants do occur in the proposed location of the stormwater outfall culvert the location should be modified, if feasible, to avoid impacting the plants. | | | | | | |

9.0 INTERIM PERFORMANCE MONITORING REQUIREMENTS

Annual performance monitoring is required by the Authorizing Agencies to determine whether the mitigation is successful or is trending toward success as determined by meeting the performance standards described in Section 8.0 (Table 10a and 10b). The Land Manager will implement the annual performance monitoring program described by this Plan.

9.1 Plan Overview

The Land Manager will implement interim performance monitoring to ensure that the goals and objectives of the MMP are achieved. Activities will include performance standard monitoring and reporting as described in Tables 12, and, if necessary, maintenance. Inspection activities are described in detail below.

During performance monitoring, the Land Manager's tasks are to:

1. Document observations on standardized Arid West Region data form and customized tables.
2. Look for potential problems that could prevent achievement of the goal and objectives of the MMP.
3. Ensure that appropriate corrective actions, if necessary, are undertaken.
4. Photo-document any problem locations discovered not meeting performance standards during monitoring. Memorialize photo locations using a hand-held GPS unit with submeter accuracy; and
5. Prepare annual monitoring report and submit it to the Corps, RWQCB, USFWS, CDFW by January 31 of the following year.

9.2 Monitoring Objective

The objective of monitoring is to determine by quantitative means whether the performance standards defined in Section 8.0 are being successfully met and to identify actual and potential problems that may impact the success of the mitigation effort. This will be accomplished by collecting data to determine the level of success and the need for any improvements or remedial actions to be taken in the mitigation effort.

9.3 Baseline Monitoring

Baseline conditions at the reference site(s) will be established prior to the start of grading activities. Reference sites will be located within naturally occurring wetlands within the proposed Managed Open Space site. The primary purpose of base-line monitoring is to establish a basis of comparison between naturally occurring on-site wetlands and on-site constructed wetland habitat conditions and thus be used to determine whether performance standards have been successfully met or are proceeding on a trajectory toward success or if adaptive management needs to occur. Base-line monitoring will document existing land surface conditions using the performance standard data collection methodologies described below.

Base-line conditions will be analyzed by comparison of reference site(s) and mitigation site annual monitoring results obtained over the 5-year monitoring period.

Representative photographs of the mitigation site will be taken as described in 6.3.1. If necessary, representative photos should also be taken of any maintenance issue identified and provided together with a description of the problem and recommended action(s) to be taken to ensure performance criterion / criteria success.

9.4 Sampling Methodology

This section describes the methodology that will be used to collect data to determine whether the physical, hydrologic, flora, fauna, and water quality performance standards are being met.

9.4.1 Physical Performance Standard

Determining if the physical performance standards “Physical 1. Structural Patch Richness” and “Physical 2. Topographic Complexity” and Flora performance standard “Flora 4 Horizontal Interspersion” as described in Section 8.0 (Table 10a and 10b) are met will be determined through observations made during annual vegetation sampling of the site. At least one Assessment Area (AA) will be assessed for each reference and mitigation wetland type. The AA will be determined, in general, using the California Rapid Assessment Method procedures for determining an AA. Sampling methodology for physical performance standards is as follows:

Physical 1. Structural Patch Richness. This performance criterion will be determined through analysis of the physical structure attribute using Metric 1 “Structural Patch Richness” described in the California Rapid Assessment Method field book for each respective wetland type.

Physical 2. Topographic Complexity. This performance criterion will be determined through analysis of the physical structure attribute using Metric 2 “Topographic Complexity” described in the California Rapid Assessment Method field book for each respective wetland type.

Flora 4. Horizontal Interspersion. This performance criterion will be determined through analysis of the biotic structure attribute using Metric 2 “Horizontal Interspersion” described in the California Rapid Assessment Method field book for each respective wetland type.

9.4.2 Hydrologic Performance Standards

Determining hydrologic performance standards “Hydrologic 1. Soil Saturation;” “Hydrologic 2. Inundation;” and “Hydrologic 3. Hydric Soils” as described in Section 8.0 (Table 10a and 10b) are met will be determined through analysis of hydrology and hydric soil field indicators found within the mitigation and reference site(s).

Hydrology and hydric soil conditions will be monitored by documenting the presence of hydrology and hydric soil indicators within each vegetation sampling quadrat following the Corps wetland delineation criteria and methodology as described in the *Corps’ 1987 Wetlands Delineation Manual (Corps Delineation Manual)*, and the *Corps’ 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Arid West Supplement)*. Subsurface hydrology and hydric soil indicators will be determined by digging a

soil pit (or auguring) up to 22-inches deep. On-site observations will be recorded on Corps' Arid West Data Forms. The location of any area within the mitigation site that does not satisfy the hydrology or hydric soil criteria will be memorialized as a polygon feature using a Global Positioning System (GPS) unit with real-time beacon correction (accuracy <50cm) and the feature added to the annual report mapping of site conditions. Representative photographs of hydrology indicators observed at the site will be taken. All photos used in report documents will provide the location in terms of latitude and longitude six place decimal degree coordinates, direction of view, and identification of hydrology and/or hydric soil indicator present.

9.4.3 Flora Performance Standards

Determining if the flora performance standards are met will be determined through analysis of plant cover²¹ data and complete floristic surveys of species found within the mitigation and reference site(s). Sampling methodology for flora performance standards is as follows:

Flora 1. Dominance of Hydrophytes; Flora 2. Species Composition; Flora 3. Species Richness; and Flora 5. Invasive Plant Species. Plant cover data will be collected at both mitigation and reference site(s) for a period of 10 years to obtain data for determining performance standards Flora 1 – Flora 4. A random sampling design will be used to sample vegetation to determine percentage cover at the mitigation site and reference site(s). Methodology to determine plant cover will follow Elzinga, *et al.* (undated). Vegetation will be sampled between March and June each monitoring year (depending on general plant growth related to precipitation received) using 3-foot by 3-foot or 2-foot by 2-foot sampling quadrats depending on mitigation site width and geographical shape. The number of sample plots used for sampling will be determined using a cumulative species/ sample (or cumulative species/area) curve with a minimum of 5 quadrats²² sampled within the planted areas at each mitigation (wetland establishment site) and reference site(s). Locations for each quadrat will be determined using a random number generator during each sampling period. During each annual sampling period, the location of each quadrat randomly determined will be loaded into a GPS unit with real-time beacon correction (accuracy <50cm), and georeferenced in the field during quadrat sampling. On-site observations will be recorded on Corps' Wetland Determination Data Forms – Arid West Region.

Representative photographs of each sample quadrat will be taken. Mitigation site overview photographs will also be taken from permanent approximate north, south, east, and west photo points established during base line monitoring. All photos used in report documents will

²¹ The percentage of the ground covered by the vertical projection of the plant crowns of a species or defined set of plants (also known as the vertical projection of foliage of plants) as viewed from above. Small openings in the canopy and overlap are excluded (SRM 1989). The absolute cover of herbaceous plants includes any standing (Attached to a living plant, and not lying on the ground) plant parts, whether alive or dead; this definition excludes litter and other separated plant material. <http://www.cnps.org/cnps/vegetation/>

²² A quadrat as referred to here is a plot used in ecological field sampling to isolate a standard unit of area for study of the distribution of vegetation data over a larger area.

provide the location in terms of latitude and longitude six place decimal degree coordinates, direction of view, and identification of dominant species present.

Flora 6. Vegetation Management. Residual Dry Matter (RDM) to assist with determining the number of livestock to be utilized will be determined as described in the paragraph entitled “Modification of Grazing Plan” in Section 10.5.3.

Flora 7, 8, 9, and 10 Establish Wetland Habitat. The 38 acres of established wetlands will be delineated using the Corps 1987 Manual, the Arid West Manual, and supporting guidance documents. To determine the landward extent of wetlands soil pits will be excavated within representative landform areas. The number and location of soil pits will be determined based on the size of the wetlands, topography and landscape and drainage features. The soil pits will be dug to a depth required to determine if the soil is hydric. Vegetation and hydrologic conditions will be observed within 3-to-5-foot radius sampling plots surrounding the pits. Sample point locations will be geo-referenced onto orthorectified satellite imagery. Soil, vegetation, and hydrology observations will be recorded on Wetland Determination Data Forms – Arid West Region, Version 2.0. A delineation report will be prepared and provided to the USACE with a request for a Preliminary Jurisdictional Determination. HBG will provide a copy of the report to the RWQCB and include RWQCB staff in correspondence with the USACE.

Floras 11 and 16 Habitat Establishment. Plant cover data will be collected at both mitigation and reference site(s) for a period of 10 years to obtain data for determining performance standards Flora 11 and 16. A random sampling design will be used to sample vegetation to determine percent cover at the mitigation site and reference site(s). Methodology to determine plant cover will follow Elzinga, *et al.* (undated). Vegetation will be sampled between March and June each monitoring year (depending on general plant growth related to precipitation received) using 3-foot by 3-foot or 2-foot by 2-foot sampling quadrats depending on mitigation site width and geographical shape. The number of sample plots used for sampling will be determined using a cumulative species/ sample (or cumulative species/area) curve with a minimum of 5 quadrats²³ sampled within the planted areas at each mitigation (wetland establishment site) and reference site(s). Locations for each quadrat will be determined using a random number generator during each sampling period. During each annual sampling period, the location of each quadrat randomly determined will be loaded into a GPS unit with real-time beacon correction (accuracy <50cm), and georeferenced in the field during quadrat sampling. On-site observations will be recorded on Corps’ Arid West Data Forms.

Representative photographs of each sample quadrat will be taken. Mitigation site overview photographs will also be taken from permanent approximate north, south, east, and west photo points established during base line monitoring. All photos used in report documents will

²³ A quadrat as referred to here is a plot used in ecological field sampling to isolate a standard unit of area for study of the distribution of vegetation data over a larger area.

provide the location in terms of latitude and longitude six place decimal degree coordinates, direction of view, and identification of dominant species present.

RDM to assist with determining the number of livestock to be utilized will be determined as described in the paragraph entitled “Modification of Grazing Plan” in Section 10.5.3.

Preservation 1. Habitat preservation will be demonstrated either prior to or during mitigation implementation by providing a deed restriction or conservation easement approved by the authorizing agencies that has been recorded with Solano County. The 38 acres of wetland mitigation and rare plant preservation (Flora 12-15) shall be specifically designated as mitigation for the Development Site project. A map showing the location of these areas will be included in the deed restriction or conservation easement.

9.5 Data Analysis

The monitoring data obtained during the annual monitoring periods will be compared with the data from: (1) base-line monitoring prior to the initiation of ground disturbing activities and (2) reference site data taken prior to ground disturbing activities and contemporaneously during performance monitoring. Data analysis will be accomplished using Microsoft Excel and ArcGIS.

Microsoft Excel will be used to create various graphical comparisons to include:

- Percent cover mapping
- Percent cover of native and naturalized plant species vs. invasive plant species

Habitat feature mapping using the GIS program ArcGIS will be conducted for visual comparative purposes to include:

- Vegetation cover mapping
- Bare ground cover mapping
- Point location and cover mapping of invasive weed species
- Location of signs of erosion
- Location of signs of sedimentation
- Protective fencing Location (if used)

9.6 Annual Monitoring Report

Monitoring reports will be submitted on an annual basis during the month of January after each monitoring year (1 - 9) and a final summary report in the tenth (10th) year of monitoring. Monitoring reports will be submitted to the Authorizing Agencies on January 31 of the year following the monitoring period. These reports will provide technical findings as to the progress toward achievement of final performance success and recommendations if adaptive management action is required to successfully meet agency required performance standards. The reports will include the following:

- 1.0 Executive Summary
- 2.0 Introduction
 - 2.1 Background
 - 2.2 Objective
 - 2.3 Performance Standards

| | | |
|------------|-------|--|
| | 2.4 | Monitoring Requirements |
| 3.0 | | Methods |
| | 3.1 | Sampling |
| | 3.2 | Analysis |
| 4.0 | | Results |
| | 4.1 | Implementation of Maintenance Actions |
| | 4.2 | Status of Successfully Meeting Performance Standards |
| | 4.2.1 | Physical |
| | | ▪ Hydrologic |
| | | ▪ Flora |
| 5.0 | | Recommendations |
| | 5.1 | Maintenance Monitoring |
| | 5.2 | Maintenance Actions |
| 6.0 | | Literature Cited |
| 7.0 | | Appendices |
| 1- | | Location Maps (mitigation site, plant associations, sample locations) |
| 2- | | Monitoring Data Sheets (vegetation, hydrology, wetlands) |
| 3- | | Maintenance Records (observations and actions taken) |
| 4- | | Photo Documentation (aerial and on-site) |
| 5- | | GIS Comparison Mapping/Analysis |
| 6- | | Data Summaries |
| 7- | | Floristic Survey |
| 8- | | Agency Contacts |
| 9- | | Names, title and company names of all persons who prepared the report and conducted field work |

9.7 Annual Review of Monitoring Procedures

The protocol and results of the monitoring program will be reviewed annually by the Land Manager. Adjustments to monitoring procedures may be required as the site changes over time, or if logistical problems render a procedure unduly difficult to conduct. Such adjustments would be reported to the Authorizing Agencies and Conservation Easement Grantee. After reviewing annual reports, Authorizing Agencies staff may have suggestions for adjusting the monitoring program. Agency suggestions will be reviewed and if appropriate will be incorporated into the monitoring program, following agreement between the Landowner, Land Manager, Conservation Easement Grantee, and Authorizing Agency staff. The key is to anticipate that the monitoring program may need occasional adjustments to remain viable for determining attainment of performance standards and the identification of factors that may be limiting successful achievement of one or more performance standards.

9.8 Completion of Annual Monitoring

9.8.1 Notification of Completion

When the final performance monitoring period is complete, and if the Landowner on behalf of the Permittee(s) believes the agency required performance standards have been successfully met, the Landowner or Designated Representative will notify the Authorizing Agencies and Conservation Easement Grantee when submitting the final annual report.

9.8.2 Agency Confirmation

Following receipt of the report the Authorizing Agencies may require a site visit to confirm performance success prior to providing a written confirmation either in Email or official letter form that mitigation is successful.

9.9 Funding

The Landowner will fund all the costs associated with the monitoring activities outlined in this Plan for Years 1 - 10, which includes performance monitoring and agency-required reporting. If performance criteria are not met within 10 years, the Landowner shall continue to be responsible for funding measures necessary to successfully achieve agency required performance criteria, to include performance monitoring, unless all or portions thereof of the monitoring after the initial 10 years is part of the monitoring conducted as part of the long-term management activities funded by the endowment.

9.10 Responsible Parties

Successful implementation of the above-described performance monitoring and reporting is the responsibility of:

PERMITTEE / LANDOWNER:

Buzz Oates Construction
555 Capitol Mall, Ninth Floor
Sacramento, CA 95814
Contact: Joe Livaich
916.379.8874
joelivaich@buzzoates.com

LAND MANAGER:

Robert F. Perrera
Huffman-Broadway Group, Inc.
323 4th Street, Suite 224
San Rafael, CA 94901
415.385.4106
rperrera@h-bgroup.com

10.0 LONG-TERM MANAGEMENT PLAN

10.1 Plan Overview

The objective of this Long-Term Management Plan (LTMP) is to manage habitat conditions, using an adaptive management approach, to benefit special status plant species, and wetlands in perpetuity.

The LTMP elements described in this section are designed to manage for the viability of special status plant species, and wetlands. Monitoring, maintenance, and management activities are the responsibility of an agency-approved Land Manager that is proposed by the landowner who has the knowledge, training, and experience to accomplish the land management responsibilities described herein. Monitoring reports shall be submitted annually to the Conservation Easement Grantee, and to the Corps, USFWS, CDFW, and RWQCB, the third-party beneficiaries of the Conservation Easement.

10.2 Land Manager Responsibilities

The Land Manager is responsible for implementing the LTMP to ensure that the Mitigation and Monitoring Plan objectives (Section 1.2) are achieved through the following actions:

- 3 Through timely monitoring of the mitigation site, identify conditions that could prevent continued achievement of the MMP objectives.
- 4 Ensure that appropriate and timely maintenance actions are taken.
- 5 Implement adaptive management actions if determined necessary.
- 6 Avoid adverse impacts to special status species, and seasonal wetland areas when maintenance and adaptive management actions are taken.
- 7 Document and report all actions taken.

Land Manager activities, including Deed restriction or Conservation Easement consistency inspection, biological monitoring, vegetation management and security inspection, performance of necessary maintenance action, and annual reporting are detailed in the Sections below. Costs for land management activities are to be submitted by the Land Manager quarterly to the Conservation Easement Grantee, which will also hold the endowment that funds the LTMP.

10.3 Deed Restriction or Conservation Easement Consistency Inspection (PAR Element A.1²⁴)

Objective. Conservation Easement Grantee and Land Manager inspect property to determine if the requirements of the Conservation Easement (CE) are being met.

²⁴ To be provided as part of the Final MMP following receipt of authorizing agency review comments provided for the Preliminary MMP.

10.3.1 Site Inspection (PAR Element A.1)

Frequency: Annually after wetland soils dry

Responsibility: Land Manager and Conservation Easement Grantee

Task a – Conservation Easement Grantee and Land Manager inspect property. Conservation Easement Grantee prepares annual inspection report for submittal to the third-party CE beneficiaries. Report may include management recommendations to maintain consistency with requirements of the CE and LTMP.

10.4 Biological Resources Monitoring (PAR Elements B.1, B.2, and B.3)

This section presents the methods, tasks, frequency, and responsibilities for monitoring biological resources on-site, together with the monitoring objective and performance standards that define successful habitat preservation.

Objective. The objective of biological resources monitoring is to determine that habitat conditions remain suitable for special status species, and wetlands. By collecting biological monitoring data, the Land Manager will be able to identify and evaluate conditions on-site, create an ongoing record using consistent data points to monitor trends, and provide early identification of any problems at the mitigation site.

10.4.1 Vegetation Monitoring (PAR Element B.1)

Frequency: Every 5 years during spring flowering season, typically between March and May.

Responsibility: Land Manager / Landowner

Task a – Vegetation Monitoring. Conduct vegetation monitoring to determine presence / absence of sensitive plant species and, if found present, estimate number of plants per species. Surveys will follow USFWS and CDFW protocols (USFWS 1996 and CDFW 2009). Location of sensitive plant species population(s) will be documented with a hand-held GPS unit with submeter accuracy. Record all plant species encountered during the survey.

Task b – Download GPS data and link to GIS database.

Task c – Analyze monitoring data for trends; compare with base line and previous data obtained during interim performance monitoring.

Task d – Prepare a detailed list of all plant species found during the survey.

10.4.2 Wetland Monitoring (PAR Element B.2)

Frequency: Every 5 years during spring flowering season, typically between March and May.

Responsibility: Land Manager / Landowner

Task a – Wetland Monitoring. Every 5 years, typically between March and May, conduct an aquatic resources delineation following current Corps methodology for delineating wetlands.

Collect wetland indicator field data by recording observations on a Corps Arid West Data Sheet. Document sample locations using a hand-held GPS unit with submeter accuracy.

Task b – Analyze field data and determine presence / absence of wetlands

Task c – Map natural wetland, established wetland, and upland boundaries.

Task d – Analyze mapping for trends compared with base line and previous delineations and include with above technical report.

Task e – Prepare wetland / aquatic resources delineation report.

10.4.4 Biological Resources Monitoring Report (PAR Element B.4)

Task – Prepare letter report every 5 years that presents vegetation and wetland monitoring results and includes monitoring forms, photos, and mapping and identifies any monitoring and maintenance issues, their resolution, and future activities.

10.5 Vegetation Management (PAR Elements C.1, C.2, and C.3.)

Objective. The objective of vegetation management is to maintain the existing competitive advantage of native and naturalized wetland species over non-native invasive annual plant species.

Non-native invasive species threaten the diversity or abundance of native species through competition for resources, with native populations causing physical or chemical changes to the invaded habitat. Both native and non-native plant species occur at the mitigation site. If not effectively managed, non-native invasive plant species can out-compete native plant species.

This section describes tasks for invasive species research, annual site inspections, and vegetation management methods. Managed grazing is the preferred vegetation management method.

Any significant modification to the vegetation management approach described above shall be reviewed and approved by the USFWS, CDFW, and Conservation Easement Grantee prior to implementation. These actions will be monitored and supervised by the Land Manager.

10.5.1 Vegetation Management Inspections (PAR Element C.1)

Frequency: Annually (concurrently with PAR Elements D.1, D.2, D.3 & D.4).

Responsibility: Land Manager / Landowner

Task – Annual Vegetation Management Inspections. Inspect the mitigation site annually after wetland soils dry for signs of non-native invasive vegetation growth that has the potential to gain a competitive advantage over wetland plants. Monitor and document the presence/absence of exotic / invasive species, determine appropriate adaptive management strategy and make recommendation(s) as follows:

- Using a GPS instrument, map the outer edge / perimeter of areas containing concentrations of exotic vegetation.
 - Photo-document any problems discovered.
 - Complete non-native invasive vegetation portion of Maintenance Monitoring Field Form to document conditions observed.
 - Plot GPS polygon data on the mitigation site base map to show location(s) of invasive vegetation. When data is available (Monitoring Year 3 +) compare data with base line (Year 1 of LTMP implementation) and previous years' data in terms of geographic extent of exotic / invasive vegetation growth.
- Determine an appropriate adaptive management strategy for invasive species, then recommend vegetation management maintenance action(s) necessary to correct problem(s).

10.5.2 Invasive Species Research (PAR Element C.2)

Frequency: Annually

Responsibility: Land Manager / Landowner

Task – Non-native Invasive Species Research. The Land Manager will consult the following (or similar) sources to identify species which may threaten the mitigation site and methods for the above described development of a strategy for managing / eliminating those species:

- [California Department of Food and Agriculture's Integrated Pest Control Branch \(http://www.cdfa.ca.gov/plant/ipc/ \)](http://www.cdfa.ca.gov/plant/ipc/)
- California Department of Food and Agriculture (CDFA) list of "noxious weeds" that are subject to regulation or quarantine by county agricultural departments (Encyclopedia: https://www.cdfa.ca.gov/plant/ipc/encycloweedia/encycloweedia_hp.html)
- University of California Statewide Integrated Pest Management Program list of "Exotic and invasive pests and diseases that threaten California's agricultural, urban, or natural areas" (<http://www.ipm.ucdavis.edu/GENERAL/links.html>).
- California Invasive Plant Council's California Invasive Plant Inventory (<https://www.cal-ipc.org/plants/inventory/>)

The websites listed above, and similar websites, are frequently updated and website addresses may change as well. The Land Manager should check the websites for updated information.

10.5.3 Vegetation Management (PAR Element C.3)

Frequency: Varies; see PAR in Appendix I

Responsibility: Land Manager / Landowner

Objective: Maintain the existing competitive advantage of beneficial upland and wetland plant species over exotic invasive annual plant species, including but not limited to noxious weeds, using allowable management methods: managed grazing, mowing, and/or controlled herbicide application. The management goal is ≤ 5 percent total cover for invasive²⁵ plant species rated

²⁵ An inventory with ranking of invasives (High, Moderate, and Limited) can be found at <https://www.cal-ipc.org/plants/inventory/>

“high” or included as a “red alert” species by the California Invasive Plant Council or species rated as “high priority” by the Bay Area Early Detection Network.²⁶ Grazing is the preferred method of invasive plant control. Hand pulling is second, mowing is third, and/or a combination of these methods, with spot treatment with herbicide is the least favored. The goal is to avoid using chemical herbicides.

Note: *Prescribed burns as an adaptive management measure will not be allowed without the concurrence and written permission of the fire marshal.*

Task a – Managed Grazing. Livestock grazing (typically cattle) will be allowed throughout the year to control thatch buildup and minimize the potential for invasive plant species to out-compete the mitigation site’s beneficial upland grassland species and reduce the heterogeneity of the depressional wetland vegetation. Focused grazing of sheep or goats is also allowed to control thatch buildup or problem species such as star-thistle until the problem is eliminated, but no longer than 30 days. The table below provides a summary of grazing plan details.

Grazing Agreements. Should the Land Manager allow livestock grazing on-site to manage vegetation, long-term grazing will be allowed through a grazing lease signed by the Landowner, Land Manager, and the grazing lessee (if not the Landowner), with a copy provided to the Conservation Easement Grantee. The lease will be for a period of a maximum of 10 years, subject to renewal if the terms and conditions of the lease were met. The lease will specify the objective of the grazing program; the location(s) where livestock are allowed to graze, be watered, loaded and unloaded; the number of livestock allowed per acre; and that all fencing and gates will be maintained in proper working order (sufficient tension in the wire, repair of broken wire, and appropriate post alignment and stability). If terms of the lease are not adhered to, and the lessee fails to abide by the lease agreement, the lease may be terminated. If required for localized or rotational grazing, exclusionary fencing will be provided by the grazing lessee, grazing contractor, or Landowner to protect wetland areas specified by the Land Manager. The Land Manager will make the final determination regarding whether livestock have to be removed, excluded from an area, or reduced in numbers based on the amount of rainfall received in a given year which may dictate an increase or decrease in the duration of grazing based on vegetation growth or based on beneficial or adverse impacts to CCG plant populations.

Livestock Watering and Loading/Unloading. Watering and loading/unloading of livestock will be conducted in specified areas away from special status species populations thereby minimizing impacts caused by these activities. Watering troughs will be equipped with adjustable float valves, so spillage is minimized.

Supplemental Feeding. No supplemental feeding will be allowed except for the use of certified weed-free livestock feed due to the potential for introduction of additional invasive plant

²⁶ https://www.sfbayjv.org/bay_area_early_detection_network.php

species to the mitigation site.

Modification of Grazing Plan. The above-described plan is only a beginning toward the development of a successful vegetation management strategy. The amount and duration of seasonal grazing may be increased or decreased from the maximum per acre livestock numbers as an adaptive management approach to meet the vegetation management objective of maintaining the existing competitive advantage of wetland and upland species over exotic annual plant species. It is important to establish a target residual dry matter (RDM) amount to assist in making appropriate decisions regarding the level of grazing to allow in order to prevent over grazing but reduce thatch levels to encourage wetland plant development in depressional areas within the landscape. As part of the maintenance monitoring program, the Land Manager will develop a “qualitative visual guided estimation approach” for estimating target RDM amounts (e.g., 300 to ≤ 500 (low RDM Range) >500 to ≤750 (Medium RDM Range); >750 to ≤1,000; and >1,000 lbs./acre (High RDM Range)) (Bartolom, Frost, and McDougald, 2006). Target RDM values will be developed from site-specific biomass, cover, density, and height data collected at six randomly located 5-foot by 5-foot sampling plots on-site using documented scientific vegetation sampling procedures. The visual guide will be based on 5 years of annual monitoring starting with the year the MMP begins and extending through the first 2 years of the LTMP implementation. The goal of the grazing management program is to achieve and maintain a medium ranging RDM in order to avoid over grazing then adjust over time, if necessary, to maintain existing state- and federal-listed plant species populations.

Grazing Plan Reporting. To evaluate progress in maximizing wetland habitat development, through management for removal of invasive plant species and eliminating thatch build-up, and attaining the vegetation management objective, the Land Manager, with the assistance, as necessary, of a specialist(s) in grazing management, will include in the annual inspection and maintenance monitoring report the results of vegetation sampling in the mitigation area, the estimated RDM volumes per acre, and recommendations for any modifications to the grazing plan.

| Table 11. Grazing Plan Details | | |
|---------------------------------------|---|----------------------|
| Grazing Details | Specification/Requirement | Comment |
| Timing: | | |
| Rainy Season | Grazing allowed. | |
| Dry Season | Grazing allowed. | |
| Type of Livestock: | | |
| Cattle | Grazing allowed year-round. | |
| Sheep or Goats | Focused grazing for duration necessary to control thatch or exotic invasive weed species. | |
| Number: | | |
| Cattle | Number will be determined based on vegetation management goals and comments from the agencies during the permitting review process. | |
| Sheep or goats | Number of sheep or goats / acre and duration of | Focused grazing only |

| Table 11. Grazing Plan Details | | |
|---|---|---|
| Grazing Details | Specification/Requirement | Comment |
| | grazing will be determined on a case-by-case basis. | |
| Other: | | |
| Livestock Watering | Watering trough location(s) to be specified by Land Manager | Map designating location(s) will be provided by the Land Manager to the lessee as part of grazing lease agreement. |
| Target Residual Dry Matter | >500 to ≤750 lbs / acre around seasonal wetland areas prior to the beginning of the rainy season | A qualitative visual guided assessment approach will be developed by the Land Manager. |
| Sensitive Species and Habitat Protection: | <u>Long-term Grazing.</u> If required for localized or rotational grazing, exclusionary fencing will be provided by the Lessee or Landowner to protect wetland areas specified by the Land Manager. <u>Focused Grazing.</u> If focused grazing is necessary to protect sensitive habitats, portable solar electric cross fencing will be added by grazing contractor or Landowner. | For example, if eutrophication or disruption of long-term documentation of special status species occurrence becomes a problem. |
| Livestock owned/managed by: | With the exception of short-term focused grazing, livestock can be grazed only in accordance with annual written agreement signed by the Land Manager, Landowner, and Grazing Lessee | Annual agreements are renewable if the terms and conditions of the previous year were met. |
| Landowner: | Buzz Oates Construction 555 Capitol Mall, Ninth Floor Sacramento, CA 95814 Contact: Joe Livaich 916.379.8874 joelivaich@buzzoates.com | |
| Land Manager | Terry Huffman, Ph.D. Huffman-Broadway Group, Inc. 828 Mission Avenue San Rafael, CA 94901 Telephone: 415.385.1045 | -- |
| Conservation Easement Grantee | Agricultural-Natural Resources Trust 5554 Clayton Rd., #2 Concord, CA 94521 Telephone: 925. 672.2354 | -- |

Task b – Hand Pulling. Second to grazing, hand pulling of invasive species is the preferred method. Identify the non-native species to remove, loosen the soil around the plant and pull the entire plant up from the root. Use short or long handled weeding tools and related garden aids. Optimum time is before these plants have gone to seed.

Task c – Mowing. Mowing is allowable to control nonnative invasive species during the summer months (i.e., after June 1) (a) with hand-held mechanical mowers and/or (b) with rubber-tired mowers when the ground surface and subsoil (upper 12 inches) are dry so that vehicle ruts do

not form, and special status plant species that have not gone to seed are not likely to be encountered. Prior to mowing, areas will be searched for nesting migratory birds. Areas where nesting migratory birds are found will be handled in accordance with the requirements of the Migratory Bird Treaty Act. Collect mowed material with invasive species using a hand rake, place it in disposable lawn bags, and dispose of it at a County-approved waste disposal location.

Task d – Controlled Herbicide Use. Herbicide application is allowable, but only to control small, localized non-native invasive species problem areas during the dry season. Application of herbicides will be accomplished in accordance with the following standards:

- Herbicides will be used only by a licensed applicator.
- Under the direction of the Land Manager, a biological monitor will accompany sprayers to prevent impacts to non-target native and naturalized vegetation that is to be retained.
- Nonnative plants will only be sprayed using EPA-approved post-emergent herbicides that are demonstrated to have no significant adverse effects on special status plant species.
- No herbicides shall be used within 250 feet of any special status species population without authorization from the USFWS and CDFW.

Task e - Replanting. Based on the performance standards described in Section 8.0, if planted vegetation and / or natural re-vegetation within any portions of the mitigation site appears unsuccessful due to invasive plants, the invasive plant species will be removed from the unsuccessful area and the localized area will be replanted by seeding with the same native vegetation previously planted. Consideration should be given to the use of a pre-emergent herbicide if repopulation with a dominance of invasive species is a concern. Consideration should also be given to whether the species to be planted needs to be changed from the original planting plan followed. If plant species are proposed other than previously planted, the Authorizing Agencies need to be consulted.

10.6 Security – PAR Elements D.1 – D.4

10.6.1 Site Access Security & Trash Removal (PAR Element D.1)

Frequency: Annually after wetland soils dry (concurrently with PAR Elements C.1, D.2, D.3, & D.4).

Responsibility: Land Manager / Landowner

Objective: Monitor for and document the presence of unauthorized access and accumulation of trash. Make necessary repairs and remove trash.

Adjacent properties are not under the control of the Landowner / Land Manager. Annual maintenance visits will include inspection for any evidence of vandalism or other encroachment. Because the area is fenced, vandalism is not anticipated. However, the mitigation site will be monitored for signs of (1) excessive human disturbance such as heavy foot traffic and/or illegal encampments, (2) removal of plantings, (3) off-road vehicle use, (4)

gardening, (5) evidence of waste dumping, (6) sagging fencing wires as evidence of human access by climbing over fencing, (7) cut fence, and (8) cut gate chain and/or lock.

Disturbances will be documented on monitoring forms along with remedial action being taken (e.g., coordinate with law enforcement, fill tire ruts to original grade, remove garden plots, remove trash, and replanting).

Note: *Research and/or other educational programs or efforts consistent with the goals of LTMP and Deed Restriction or Conservation Easement may be allowed as deemed appropriate by the Land Manager but are not to be funded by this management plan.*

Task – Conduct Annual Land Use Inspection for Evidence of Unauthorized Access and Encroachment. During each site visit for management and monitoring purposes, inspect the mitigation site for signs of encroachment. Document and mitigate any problems identified as follows.

1. Complete Maintenance Monitoring Field Form (Appendix G) documenting conditions observed.
2. Photo-document any problems discovered.
3. Document location with a GIS grade GPS instrument.
4. Using GPS data, map location on a mitigation site base map.
5. Remove any accumulated debris, trash or litter and dispose of it at an appropriate county-approved disposal location.
6. For tire ruts or other types of depressional and elevated areas, fill and level soil surface back to original grade.
7. Coordinate with law enforcement regarding encampment issues.
8. If necessary, take appropriate actions with the assistance of the County, the Corps, USFWS, CDFW, and RWQCB to prevent future encroachment or vandalism.

10.6.2 Fences, Gates, Locks, and Signs (PAR Element D.2)

Frequency: Annually (concurrently with PAR Elements C.1, D.1, D.3 & D.4).

Responsibility: Land Manager / Landowner

Objective: Maintain fencing to preserve mitigation site integrity, preclude public access, prevent damage to habitat and associated biota, and facilitate the ongoing management of the mitigation site. The entire site is currently fenced. To preserve the integrity of the mitigation site, the Land Manager will inspect all perimeter fencing, the gate(s), lock(s), and signs for the entire site.

Inspection and maintenance protocols are presented below.

Task a – Conduct annual property maintenance inspection. Inspect property annually to evaluate integrity of fences, gates, locks, and signs. Document and mitigate any problems identified as follows.

- Complete Maintenance Monitoring Field Form (Appendix G) documenting conditions observed.
- Photo-document any problems discovered.
- Document location by obtaining GPS coordinates using a GIS-grade GPS instrument.
- Using GPS data, map location(s) on base map of the mitigation site.
- Initiate any necessary maintenance as described below to correct problems observed and photo document (before and after) maintenance activity and describe on the Maintenance Monitoring Field Form.

Fencing & Gates. Inspect fencing and gates to ensure they are maintained in good condition to prevent unauthorized access. Check to see that there is proper tension in the wire or fencing / gate parts, the wire or metal grill work is not broken, and appropriate post alignment and stability is maintained. Maintenance actions taken may include splicing broken wire, reattachment of wire or gate to fence posts, replacing fence posts, replacing gate parts, and replacing gate, (e.g., steel gate, wire gap).

Replace existing fencing and gates sitewide when it is no longer functional; assume that all wire fencing and posts will need to be replaced every 30 years.

Locks. Replace chain and locks, as necessary.

Signs. Replace signs found to be damaged or illegible or if information on them needs updating.

10.6.3 Fuel Management (PAR Element D.3)

Frequency: (If Required) Annually, after wetland soils dry (concurrently with PAR Elements C.1, D.1, D.2 & D.4).

Responsibility: Land Manager / Landowner.

Objective: Maintain mitigation site as required by local fire marshal for fire prevention, while limiting impacts to mitigation site biological resources from excessive vegetation fuel load.

Task a - Fire Breaks. If the local Fire Marshal requires fuel breaks, they will be maintained through mowing or focused livestock grazing when the ground surface is dry. Prior to creating fuel breaks, areas will be searched for nesting migratory birds. Areas where nesting migratory birds are found will be handled in accordance with the requirements of the Migratory Bird Treaty Act and Fish and Game Code section 3500 et seq. Disking is not permitted for fuel management.

Task b – Conduct Annual Inspection for Excessive Vegetation Fuel Load. In coordination with the local fire marshal, inspect the mitigation site after the end of the rainy season and before grasses dry up (typically by June 1) for signs of excessive vegetation fuel load within designated fire break areas. Document and mitigate any problems identified as follows.

- Complete Maintenance Monitoring Field Form (Appendix G) documenting conditions observed.

- Photo-document any problems discovered.
- Document location with a GIS grade GPS instrument.
- Using GPS data, map location(s) on a base map of the mitigation site.
- Mow or conduct focused livestock grazing if needed

10.6.4 Mosquito Control (PAR Element D.4)

Frequency: (If required by County or City) Once annually during mosquito breeding season. (concurrently with PAR Elements C.1, D.1, D.2 & D.3)

Responsibility: Land Manager / Landowner

Objective: Work with City of Suisun City and/or Solano County Mosquito Abatement District to monitor mosquito populations and mitigate if necessary.

Task a – Conduct Annual Inspection to Assess Mosquito Breeding Potential in Coordination with the Solano County Mosquito Abatement District. Inspect mitigation site annually during the rainy season when air temperatures and a recent rainfall event (typically > 1 inch) are conducive to mosquito breeding in standing water.

- Conduct site visit with County mosquito control staff.
- Complete Maintenance Monitoring Field Form (Appendix G) documenting conditions observed.
- Document location of potential problem(s) with a GIS-grade GPS instrument.
- Using GPS data, map location(s) on the mitigation site base map.
- Eliminate or reduce potential mosquito problem following the vector control plan developed by the mosquito control district.
- Describe actions taken in maintenance section of annual monitoring report.

If vector control becomes necessary, the County would identify and implement mosquito control practices that are protective of wetlands, state special status species, and other federally protected species. The plan shall be approved by Landowner, and Conservation Easement Grantee, If requested by the agencies the plan will also be provided to and approved by USFWS and/or CDFW prior to implementation by the mosquito control district.

10.7 Prepare Annual Accounting and Management Report (PAR Element E.1)

Frequency: Annually.

Responsibility: Land Manager / Landowner

Objective: Prepare annual accounting and management report.

Task a - Provide an accounting of all Endowment funds expended in the management of the Property during the previous year.

Task b - Provide a general summary description of the status of the Property based on analysis of Tasks c and d. below. The report shall describe status of the Property, positives and negatives

with references to accounting, biological and management report sections of the accounting and management report.

Task c - Review biological data (B.1 & B.2) for comparative trends and potential need for adaptive management if objectives of MMP / LTMP are not being met. Prepare biological section of the accounting and management report based on analysis of data from biological monitoring as scheduled and described for Elements B.1 and B.2. Assess changes in biological resources by comparing current data with baseline and previous years' data. Include illustrative figures & maps for comparative purposes. Make recommendations, as necessary.

Task d - Review and analyze management and maintenance data (Elements C.1 - D.4) for comparative trends and potential need for adaptive management if objectives of MMP / LTMP are not being met. Review data (analyze data using GIS mapping analysis, if necessary) and comparative tables. Describe previous years maintenance actions, results, describe any maintenance problems and recommendations for future actions.

Task e - Describe management actions to be undertaken in the coming year. Provide estimated costs. Review management procedures and sampling protocols to assess whether adjustments need to be made to maintain and preserve habitat. Estimate costs for upcoming year.

10.8 Adaptive Management

An adaptive management plan to be followed during long-term management of the mitigation site is provided in Section 11.0, below.

10.9 Schedule

Implementation of this LTMP will begin in year 11 assuming establishment and funding of the endowment and recording of the Deed restriction or Conservation Easement is complete. The schedule outlining the proposed frequency of monitoring and routine maintenance procedures for the mitigation site is provided in the following table.

| Table 12. Long-Term Monitoring, Maintenance, and Reporting Schedule | | |
|---|---|---|
| Monitoring / PAR Element | Frequency | Responsibility |
| A. Conservation Easement | | |
| A.1. Conservation Easement On-site Consistency Inspection | Yearly | Conservation Easement Grantee with Land Manager |
| B. Biological Monitoring | | |
| B.1. Vegetation Monitoring | Every 5 years following LTMP implementation | Land Manager |
| B.2. Wetland Monitoring | Every 5 years following LTMP implementation | Land Manager |
| B.3. Biological Resources Monitoring Report to Resource Agencies | Every 5 years following LTMP implementation | Land Manager |
| C. Vegetation Management | | |

| Table 12. Long-Term Monitoring, Maintenance, and Reporting Schedule | | |
|--|---|--|
| Monitoring / PAR Element | Frequency | Responsibility |
| C.1. Vegetation Management | Annually after wetland soils dry (concurrently with Elements D.1, D.2, D.3, & D.4) | Land Manager |
| C.2. Invasive Species Research | Annually | Land Manager |
| C.3. Managed Grazing | Annually | Livestock Lessee or Contractor under contract with Land Manager or Landowner |
| D. Security | | |
| D.1. Site Access Security & Trash Removal | Annually (concurrently with Elements C.1, D.2, D.3, & D.4) | Land Manager |
| D.2. Fences, Gates, Locks, Signs, & Monuments | Annually (concurrently with Elements C.1, D.1, D.3, & D.4) | Land Manager |
| D.3. Fuel Management | Currently not required; if required likely annually after wetland soils dry (concurrently with Elements C.1, D.1, D.2, & D.4) | Land Manager |
| D.4. Mosquito Abatement | Annually during mosquito breeding season (concurrently with Elements C.1, D.1, D.2, & D.3). | Land Manager |
| E. Reporting | | |
| E.1. Prepare Annual Accounting and Management Report | Annually | Land Manager |

10.10 Recordkeeping and Reporting

Task a – Annual Work Plan and Budget Preparation and Funding. Annually by September 1, prepare a work plan and budget for the next calendar year. Submit the work plan / budget to the endowment holder by October 1. Discuss the plan with the endowment holder and agree upon the endowment distribution amount. Funding should be received by January 1 of the new year.

Task b. - Maintain Periodic Inspection Documentation and Annual Report. The Land Manager will collect, maintain, and archive in either digital or paper form: (1) completed Management Inspection Forms, including photos and maps; (2) completed Maintenance Action Forms, including photos and maps; (3) vendor invoices and receipts, (4) Resource agency contact records (letters and emails); and (5) annual accounting of endowment funds. The Land Manager will provide archived records or related information to resource agencies and/or Conservation Easement Grantee upon request.

10.11 Plan Amendments

The Land Manager, Landowner, Conservation Easement Grantee, and the Corps, USFWS, CDFW and / or RWQCB, may meet and confer from time to time regarding revision(s) of the LTMP as described in Section 10.0, to better meet management objectives and preserve the habitat and

conservation values of the mitigation site. Any proposed change(s) to the LTMP shall be discussed and designed with input from all parties. Amendments to the LTMP shall be approved by the Corps, USFWS, CDFW, RWQCB, and Conservation Easement Grantee in writing (letter or email). Plan amendments shall be required management components and shall be implemented by the Land Manager within the budget constraints of the endowment.

If the USFWS and / or CDFW determine, in writing (letter or email), that continued implementation of an element(s) of the LTMP would jeopardize the continued existence of a state or federally listed species, the amendment to the LTMP that is determined by the above-described review process necessary to avoid jeopardy shall be a required management component and shall be implemented by the Land Manager.

10.12 Notification

Any notices regarding the LTMP shall be directed as follows:

PERMITTEE / LANDOWNER:

Buzz Oates Construction

LANDOWNER CONTACT:

Buzz Oates Construction
555 Capitol Mall, Ninth Floor
Sacramento, CA 95814
Contact: Joe Livaich
916.379.8874
joelivaich@buzzoates.com

LAND MANAGER:

Robert F. Perrera
Huffman-Broadway Group, Inc.
828 Mission Avenue
San Rafael, California 94901
415.385.4106 / rperrera@hbggroup.com

CE GRANTEE & ENDOWMENT HOLDER:

To be Determined

Corps: CLEAN WATER ACT SECTION 404 PERMIT AUTHORIZATION; CE THIRD-PARTY BENEFICIARY:

Department of the Army
San Francisco District, Corps of Engineers
Regulatory Division
450 Golden Gate Avenue, 4th Floor
San Francisco, California 94102-3404
Attn: Division Chief
415.503.6768

USFWS: ISSUES BIOLOGICAL OPINION:

US Fish & Wildlife Service
Sacramento Field Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825
Attn: Field Supervisor
916.414.6600; Fax: 916.414.6712 or 916.414.6713

CDFW: ISSUES INCIDENTAL TAKE PERMIT:

California Department of Fish and Wildlife
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
Attn: Regional Manager
707.428.2002

RWQCB: CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: Executive Director
(510) 622-2300

10.13 Funding

The LTMP described in this Section 10.0 will be fully funded by the Landowner through an endowment held and managed by a third party or the Conservation Easement Grantee, which is a 501(c)(3) organization authorized by the USFWS and CDFW to hold endowments. A Property Analysis Record (PAR) used to determine the amount of endowment necessary for implementation of the LTMP for the mitigation site is presented in Appendix I.

10.14 Responsible Parties

Successful implementation of this LTMP is the responsibility of the following:

| PERMITTEE / LANDOWNER: | LAND MANAGER: |
|--|--|
| Buzz Oates Construction | Robert F. Perrera |
| 555 Capitol Mall, Ninth Floor | Huffman-Broadway Group, Inc. |
| Sacramento, CA 95814 | 828 Mission Avenue |
| Contact: Joe Livaich | San Rafael, CA 94901 |
| 916.379.8874 | 415.385.4106 |
| joelivaich@buzzoates.com | rperrera@h-bgroup.com |

11.0 ADAPTIVE MANAGEMENT PLAN

An integral part of a successful mitigation project is early detection of problems through periodic monitoring designed to identify problems that have the potential to prevent the mitigation project from successfully meeting or continuing to meet plan objectives. Successful problem resolution requires identification of the cause(s) of the problem, the development of a strategy for how to correct the problem, and then implementation of the strategy with follow-up monitoring to determine if the problem has been corrected.

Section 11.1 below discusses problem identification; Section 11.2 discusses identification of adaptive management approach strategy; Section 11.3 describes agency initiating procedures; Section 11.4 funding responsibility; and Section 11.5 identifies responsible parties.

11.1 Problem Identification

Periodic monitoring is key to identifying problems that would impact successfully meeting the objectives or continuing to successfully meet the objectives of the mitigation plan. Failure to meet one or more of the annual performance standards described in Section 8.0 or monitoring conducted as part of the LTMP is the primary means to determine if an adaptive management strategy needs to be developed and then implemented. However, initiation of an adaptive management process can also be anticipatory where it is judged during mitigation site inspection that if corrective action is not taken one or more performance standards may not be met or continue to be met during implementation of the LTMP. Examples include unanticipated anthropogenic problems such as large-scale trespassing and vandalism, goose predation of plantings, waterfowl congregation, and growth of invasive plant species.

11.2 Initiation of Adaptive Management Approach Strategy

Once problems are identified, a strategy for correcting the problem is developed and corrective action or actions are taken. Such measures may include, but are not limited to, part or all of the mitigation site. If problems are of a small-scale nature immediate notification of the problem to the approving agencies is not necessary and can be reported in the annual monitoring report. However large-scale problems should be reported to the Authorizing Agencies as soon as possible requesting assistance in development of a management strategy. The following subsections provide a representative summary of types of small- and large-scale problems that have been encountered by past aquatic resource mitigation projects, possible management strategies, and corrective actions. This is not meant to be an inclusive summary, but although believed unlikely, is prepared in anticipation of more common issues should they arise.

11.2.1 Small Scale Problems

Potential small-scale problems and possible management strategies and actions that may be taken are summarized in the table below.

| Table 13. Example Small Scale Problem Adaptive Management Strategies and Actions | | |
|--|---|---|
| Small Scale Problem | Management Strategy | Potential Corrective Action(s) |
| Trash | Litter and debris should be removed as a matter of routine maintenance. If litter and debris continue to be left at the migration site, fencing and signage should be installed to discourage access. If person or persons committing the vandalism are known, law enforcement should also be involved. | <ul style="list-style-type: none"> ■ Remove litter and debris ■ Place fencing around the mitigation site until performance standard successfully met ■ Install sign(s) indicating to please keep out of fenced area which is an ecological restoration site ■ Involve law enforcement |
| Vandalism | Measures should be taken to discourage access such installing temporary fencing and signage. If person or persons committing the vandalism are known, law enforcement should also be involved. Law enforcement should be involved if problem persists. | |
| Heavy foot traffic | Measures should be taken to discourage access such installing temporary fencing and signage. | <p>(2) Restore damaged areas</p> <p>(3) Place temporary fencing around the mitigation site until performance standard successfully met</p> <p>(4) Install sign(s) indicating to please keep out of fenced area which is an ecological restoration site</p> |
| Isolated instances of plant mortality | Re-planting during the rainy season should occur. | <p>(5) Re-prepare seed bed</p> <p>(6) Re-plant seed during rainy season</p> <p>(7) Continue annual monitoring.</p> |
| Small-scale weed infestations | Invasive plants should be removed without the use of herbicides followed by re-planting, if necessary, during the rainy season should occur. | <p>(8) Remove invasive species</p> <p>(9) Re-prepare seed bed</p> <p>(10) Re-plant seed during rainy season</p> <p>(11) Continue annual monitoring.</p> |
| Goose predation of plantings | Measures should be taken to re-plant the site and then preclude access using fencing and overhead netting to discourage access. | <p>(12) Place temporary fencing and overhead netting around the mitigation site until performance standard successfully met</p> <p>(13) Re-prepare seed bed</p> <p>(14) Re-plant seed during rainy season</p> <p>(15) Continue annual monitoring</p> |

11.2.2 Large Scale Problems

Potential large-scale problems and possible management strategies and actions that may be taken are summarized in the table below.

| Table 14. Example Large Scale Problem Adaptive Management Strategies and Actions | | |
|--|---|--|
| Large Scale Problem | Management Strategy | Potential Corrective Action(s) |
| Mitigation cannot be constructed in accordance with | Either revise mitigation construction design or provide mitigation by an alternate means. | <ul style="list-style-type: none"> ■ Revise construction plan ■ Select an alternative mitigation site for approved plan implementation |

Table 14. Example Large Scale Problem Adaptive Management Strategies and Actions

| Large Scale Problem | Management Strategy | Potential Corrective Action(s) |
|---|---|---|
| the approved mitigation plan | | <ul style="list-style-type: none"> ■ Purchase mitigation bank credits |
| Failure to meet hydrology performance standard | Measures should be taken to understand existing soil permeability and topographic conditions as relates to surface drainage. Then, if necessary, re-grade and plant the site. | <ul style="list-style-type: none"> ■ Conduct soil permeability study ■ Prepare topographic survey ■ Re-grading to modify surface drainage ■ Excavation and regrading after adding soil with low permeability ■ Obtain agency approval of a revised planting plan ■ Implement mitigation at an alternate site using initially approved performance standard ■ Purchase mitigation bank credits |
| Failure to meet Vegetation performance standards (Dominance of Wetland Species) | Measures should be taken to understand existing soil permeability and topographic conditions as relates to surface drainage and hydric soil development that supports hydrophytic vegetation. Then, if necessary, re-grade to create wetter soil conditions and plant the site. | <ol style="list-style-type: none"> 1. Obtain agency approval of a revised planting plan 2. weeding to eliminate competing non-native invasive species 3. Replanting with a different species. 4. Allowing for continued re-vegetation with naturalized non-invasive vegetation. 5. Implement mitigation at an alternate site using initially approved performance standards 6. Purchase mitigation bank credits |
| Failure to meet Vegetation Criteria (Control of invasive plant species) | Measures should be taken to aggressively remove invasive species and then either re-plant site and / or allow for natural revegetation. Intensify maintenance monitoring and actions, if needed, remove any invasive species as they begin to appear to minimize competition. | <ol style="list-style-type: none"> a) Mowing b) Focused grazing c) Pre-emergent herbicide treatment d) Seed bed preparation and re-planting (with same or different plant species after obtaining an agency approval of a revised planting plan) e) Implement mitigation at an alternate site using initially approved performance standard f) Use of mitigation bank plant species g) Allow for natural revegetation h) Intensify inspection and maintenance actions |
| Fire | Measures should be taken to re-plant the site if determined necessary. | <ol style="list-style-type: none"> i) Re-planting as before |

| Table 14. Example Large Scale Problem Adaptive Management Strategies and Actions | | |
|--|---|--|
| Large Scale Problem | Management Strategy | Potential Corrective Action(s) |
| Failure to meet performance criteria after corrective action taken | Evaluate performance standard for appropriateness and potentially change. If appropriate, revise performance criteria to account for measures taken to address deficiencies in the compensatory mitigation project or to reflect changes in management strategies and objectives if the new criteria provide for ecological benefits that are comparable or superior to those approved. | <ul style="list-style-type: none"> j) Revise performance standards k) Implement mitigation at an alternate site using initially approved performance standards l) Purchase mitigation bank credits |
| Sea Level Rise causes tidal action to encroach toward seasonal wetlands. | Evaluate the frequency of tidal water intrusion into the seasonal wetlands, changes in plant compositions, and document source of location/s (e.g., low area in slough channel, general sheet flow etc.) Notify agencies to discuss potential corrective action that should be taken. | <ul style="list-style-type: none"> m) Install a baffle on culvert/s to mute the tide entering the Managed Open Space. n) Construct earthen barriers in key areas where tidal water is entering the seasonal wetlands. o) Improve/repair banks along slough channels that are compromised. p) Modify how the resources are managed long-term giving the potential for sea levels to continue to rise. |

11.3 Agency Initiating Procedures

Notification to Authorizing Agencies and Conservation Easement Grantee is required for the following adaptive management actions:

- A significant modification of the approved mitigation plan in terms of plan implementation, maintenance, performance standards, performance monitoring, long-term management, site protection, or financial assurances.
- If monitoring or other information indicates that the mitigation project is not progressing towards meeting its performance standards as anticipated, the Landowner or Land Manager must notify the Authorizing Agencies and Conservation Easement Holder as soon as possible.

Notification will consist of providing an analysis of the problem and proposed corrective strategy / action plan for approval. Scaled plan and section view drawings should be provided for site construction modifications.

If all the performance standards have not been met by Year 10, the maintenance and performance monitoring obligations will continue until the Authorizing Agencies determine the mitigation project is complete.

11.4 Funding

The Landowner has and will fund the costs associated with adaptive management actions taken to successfully achieve agency required performance standards during years 1 through 10. Actions taken during long-term management will be funded by contingency funds established as part of the endowment funding described in Section 10.0.

11.5 Responsible Parties

The following parties are responsible for identifying problems and, if needed, contacting Authorizing Agency and Conservation Easement Grantee representatives to develop appropriate adaptive management measures:

PERMITTEE / LANDOWNER:

Buzz Oates Construction
555 Capitol Mall, Ninth Floor
Sacramento, CA 95814
Contact: Joe Livaich
916.379.8874
joelivaich@buzzoates.com

LAND MANAGER:

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12.0 FINANCIAL ASSURANCES

12.1 Funding

The LTMP described in Section 10.0 will be fully funded by the Permittee / Landowner through an endowment held and managed by a third party or the Conservation Easement Grantee.

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A Property Analysis Record (PAR) used to determine the amount of endowment necessary for implementation of the LTMP for the mitigation site is presented in Appendix I (to be provided as part of the detailed Final MMP to be submitted following receipt of authorizing agency review comments provided for the Preliminary MMP / LTMP).

The purpose of the endowment is to provide a non-wasting fund designed to provide through conservative investment an annual interest amount which covers all costs associated with implementing the LTMP as described in Section 10.0, above. The LTMP will be funded immediately following recording of the Conservation Easement.

Note. *Annual costs for at least the first ten (10) years of plan implementation as part of MMP will be paid directly by the Landowner prior to funds being taken from the endowment for annual management activities. This will allow for the endowment funds to accumulate prior to the tenth year and subsequent annual draw to fund LTMP implementation activities.*

12.2 Prioritization of Annual Management Activities

Due to unforeseen circumstances, prioritization of management plan Elements A – D, including activities resulting from new requirements, may be necessary if insufficient funding is available to accomplish all management elements described in the LTMP (Section 10.0). The Land Manager, Corps, USFWS, CDFW, and Conservation Easement Grantee shall discuss management priorities and funding availability to determine which management plan elements or specific management actions will be implemented. In general, implementation of management elements is prioritized in this order: (1) management actions required by a local, state, or federal agency; (2) management actions necessary to maintain or remediate habitat quality; and (3) management actions that monitor resources, particularly if past monitoring has not shown downward trends. Equipment and materials necessary to implement priority management actions will also be considered priorities. Final determination of priorities in any given year of insufficient funding will be determined in consultation with the Corps, USFWS, CDFW, RWQCB, and Conservation Easement Grantee.

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Appendix A

Figures

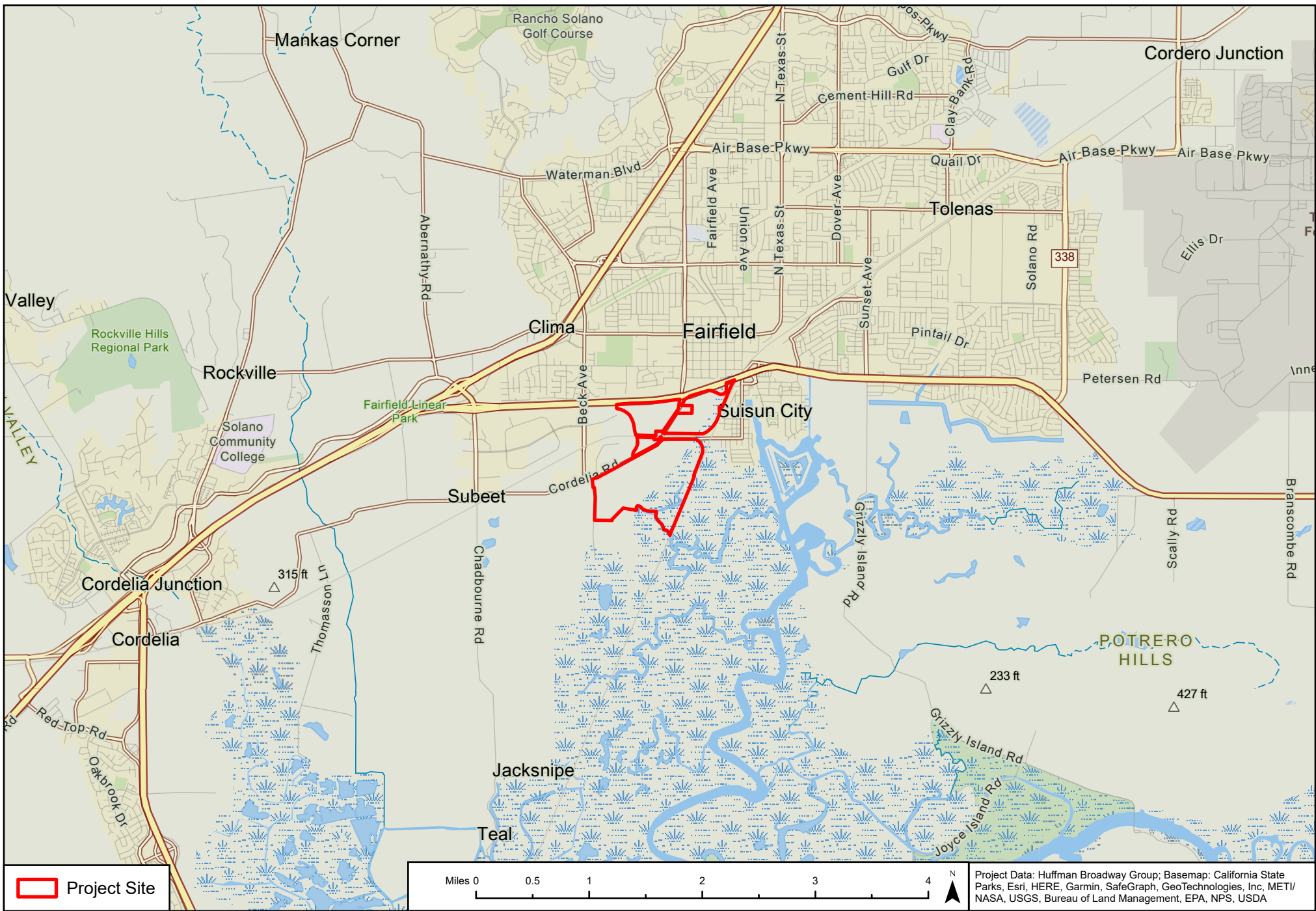


Figure 1. Regional Location Map
 Highway 12 Logistics Center Project
 Solano County, California

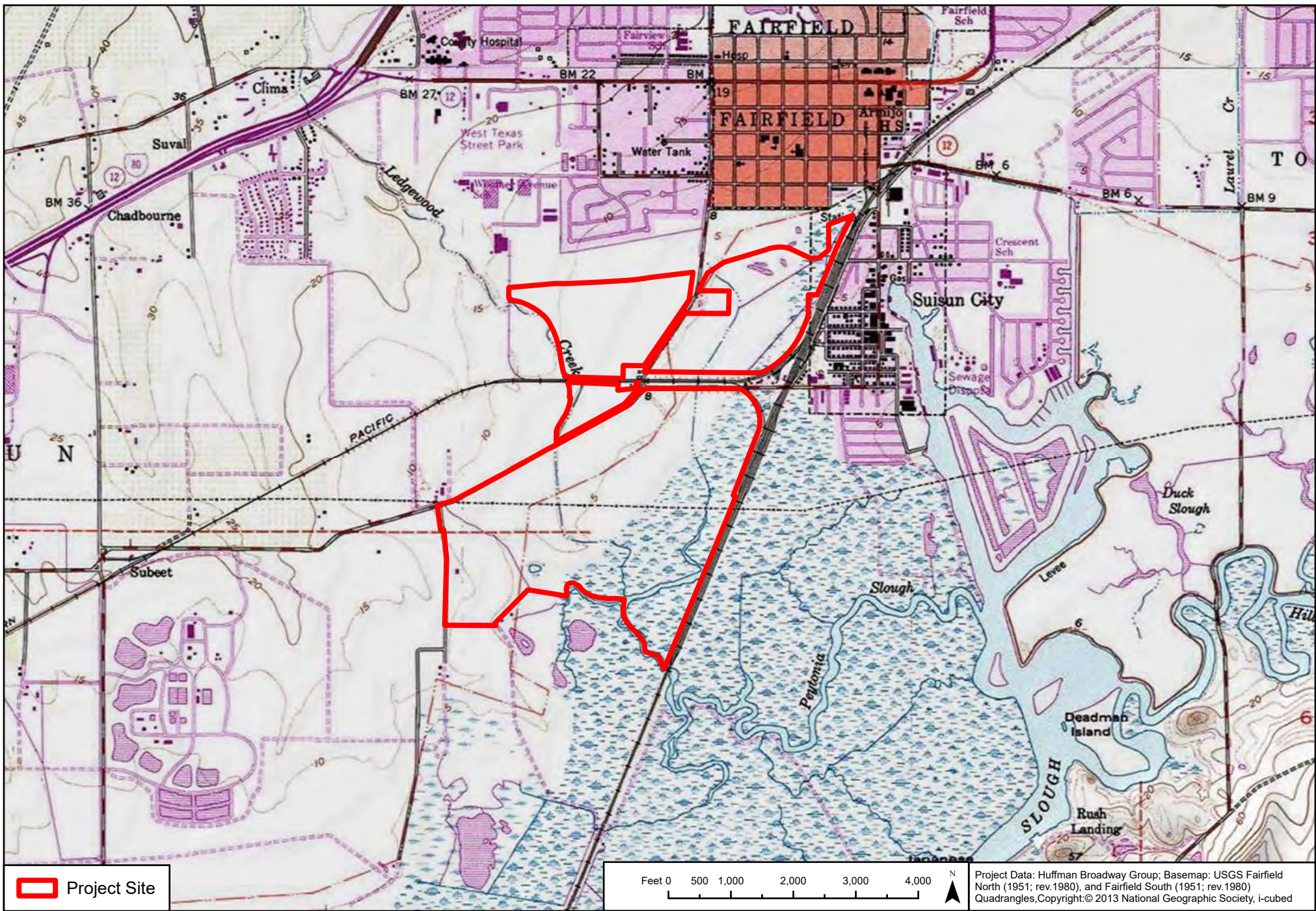
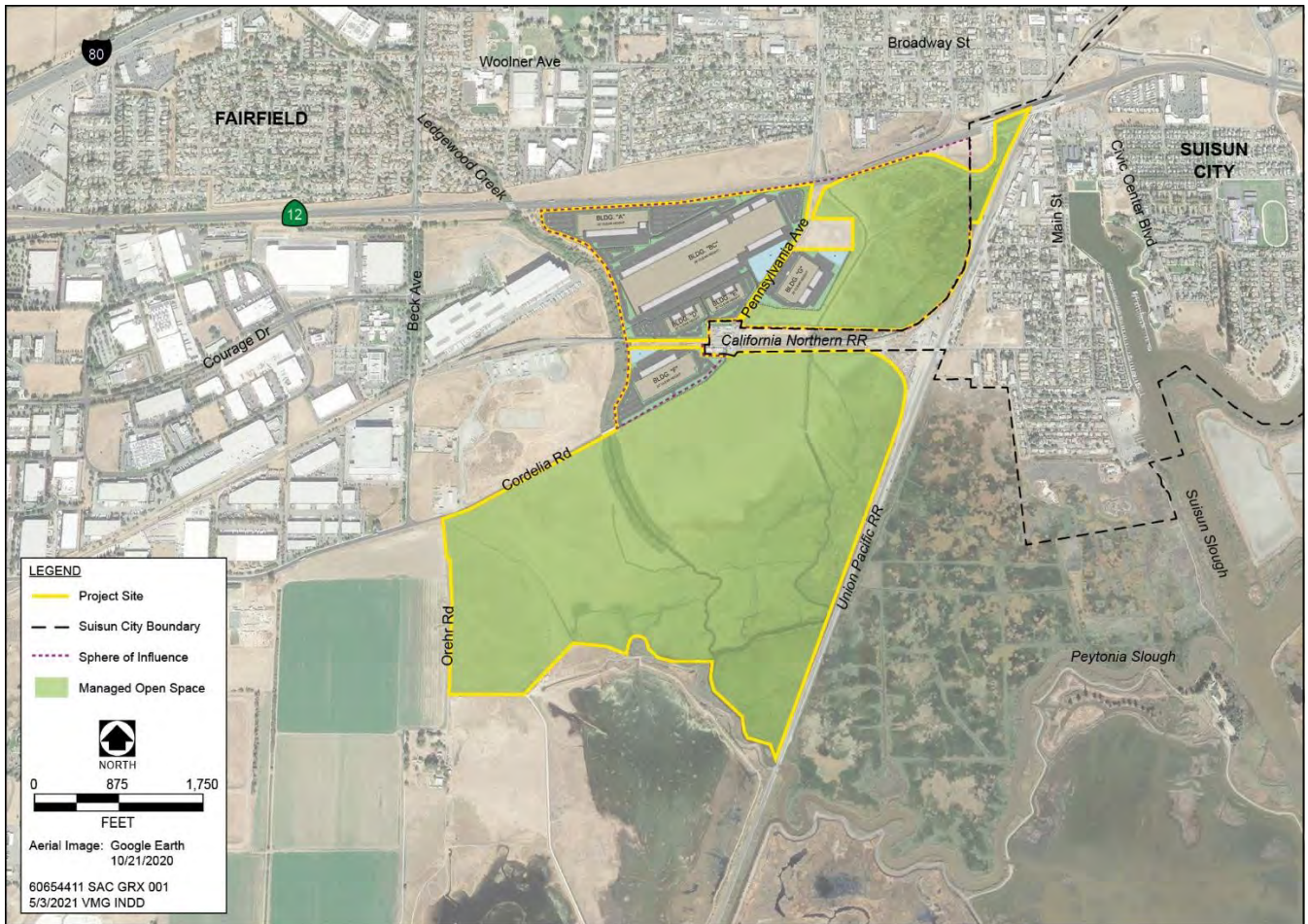


Figure 2. USGS Topographic Map
 Highway 12 Logistics Center Project
 Solano County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS



Figure 3. Aerial Imagery
 Highway 12 Logistics Center Project
 Solano County, California



Source AECOM 2022

Figure 4. Proposed Development Site and Managed Open Space Area
 Highway 12 Logistics Center Project
 Solano County, California

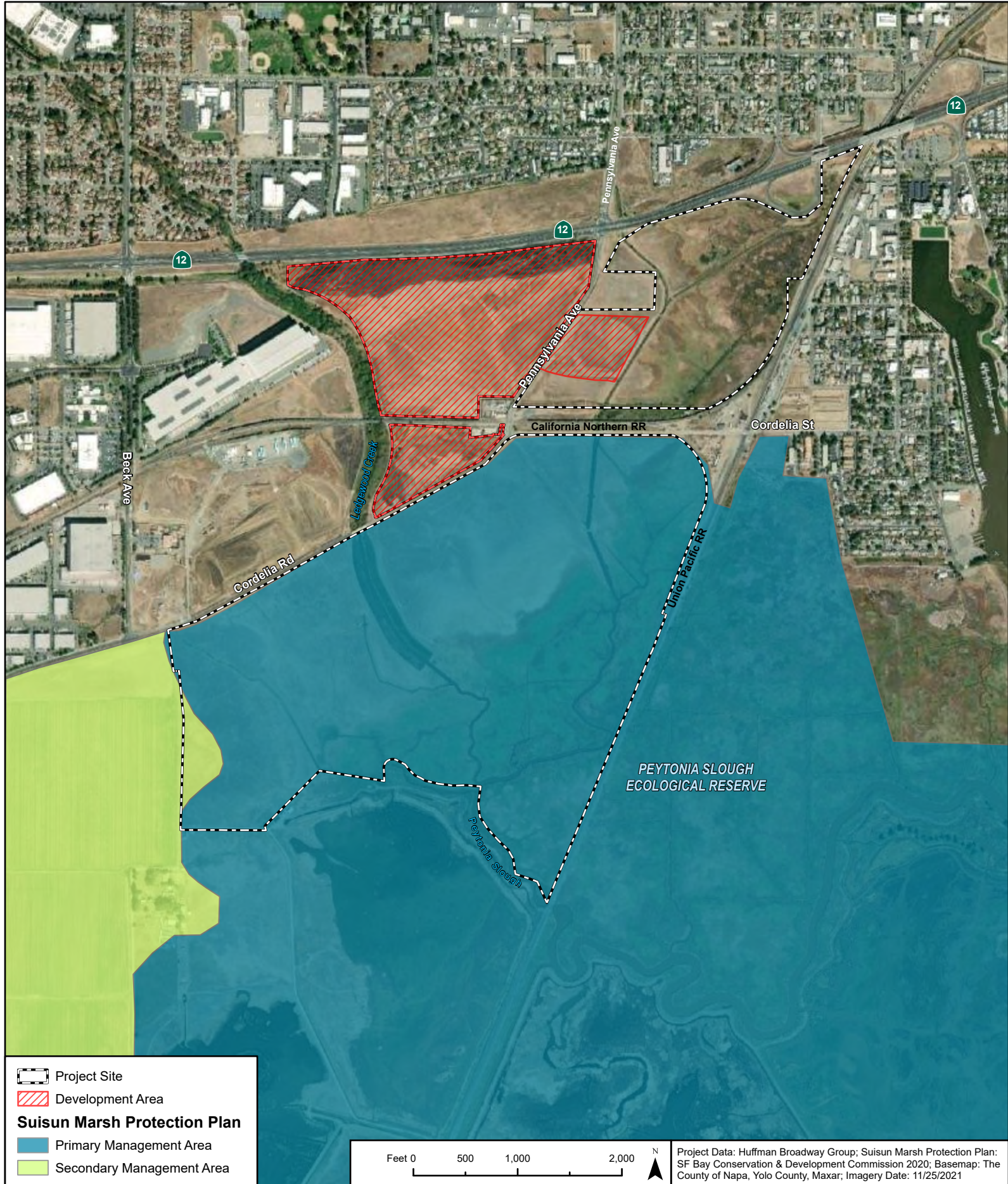


Figure 5. Suisun Marsh Primary and Secondary Management Areas
 Highway 12 Logistics Center Project
 Solano County, California

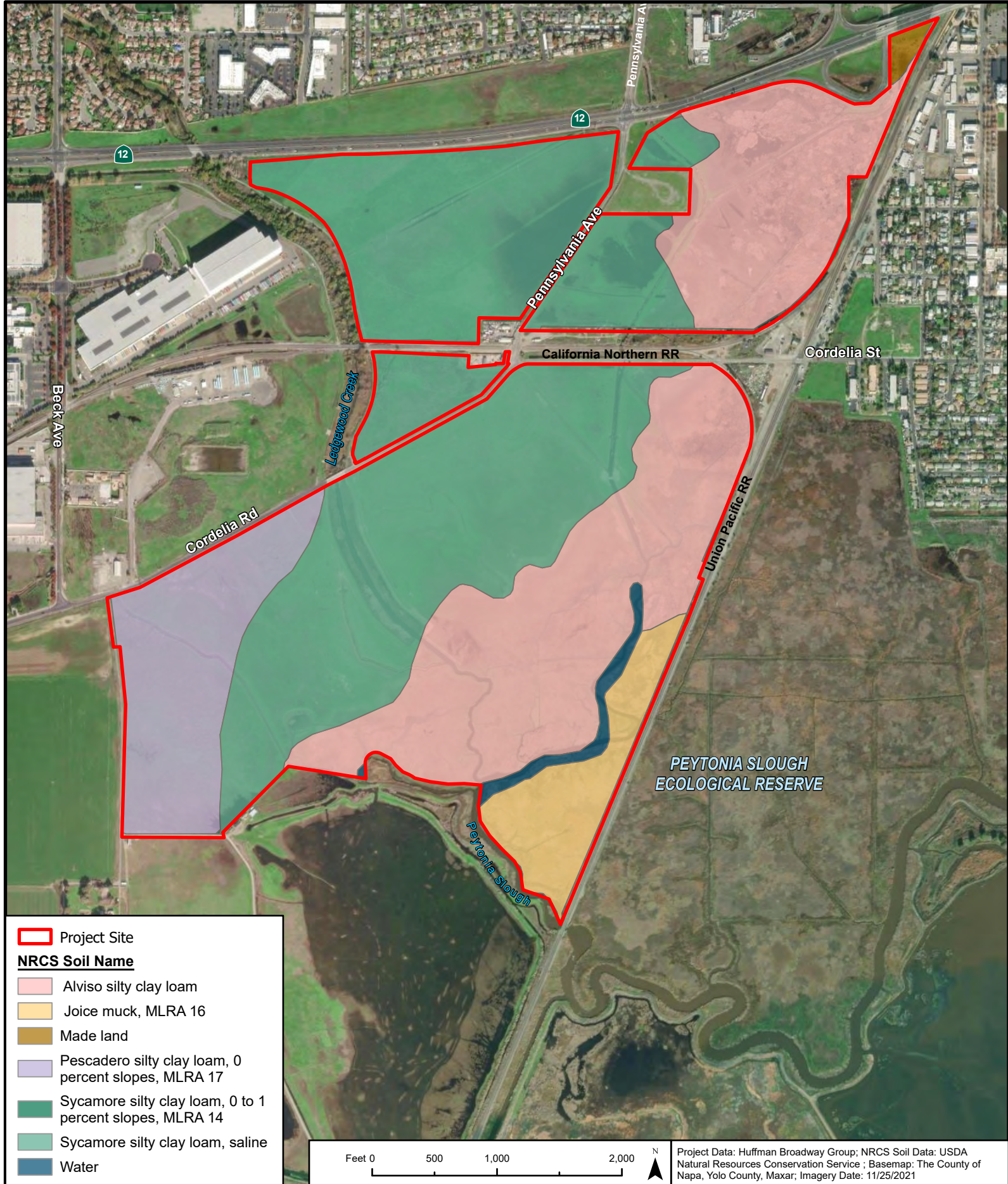


Figure 6. NRCS Soils Map
 Highway 12 Logistics Center Project
 Solano County, California

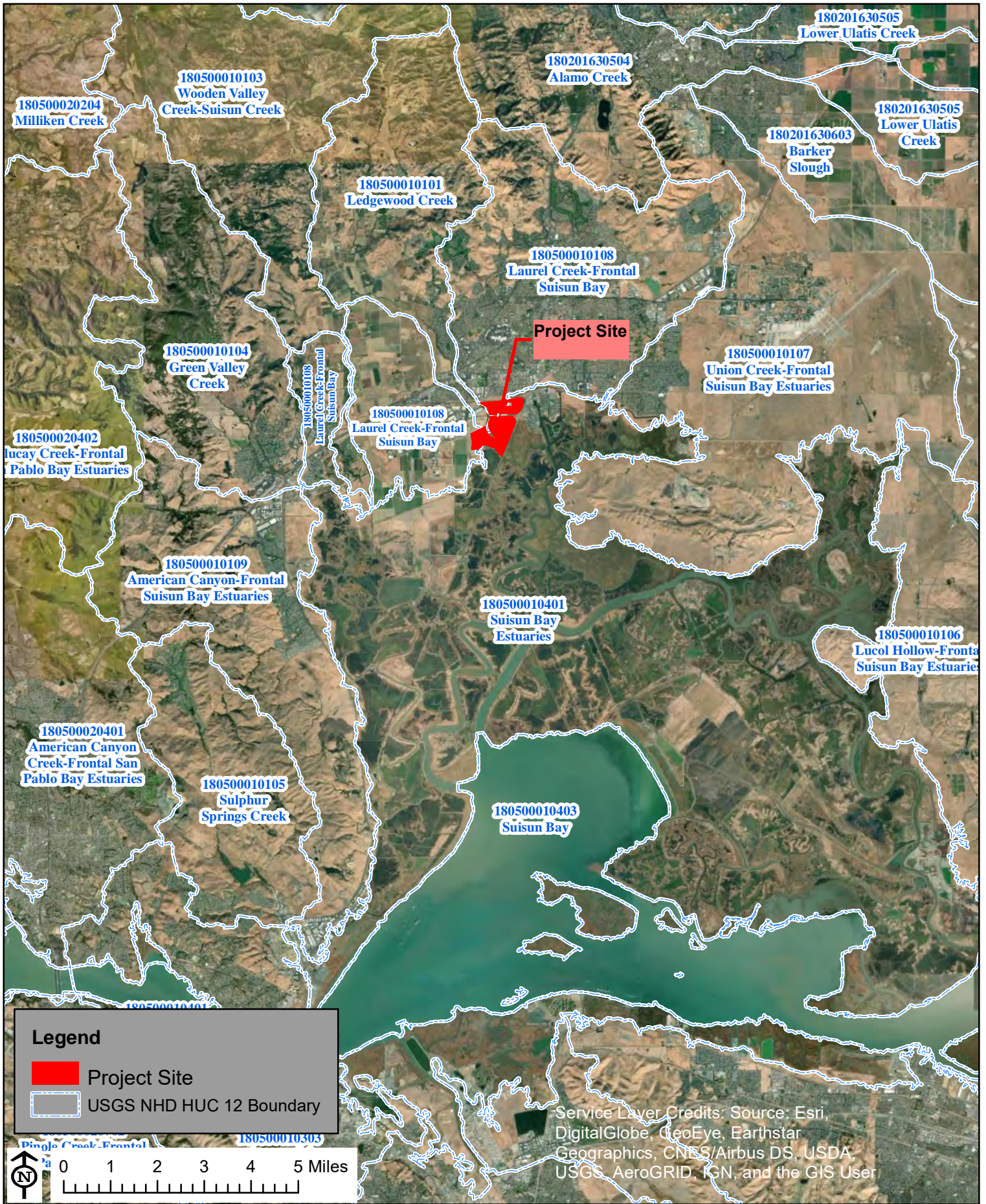


Figure 7. USGS NHD HUC 12 Map
 Highway 12 Logistics Center Project
 Sonoma County, California

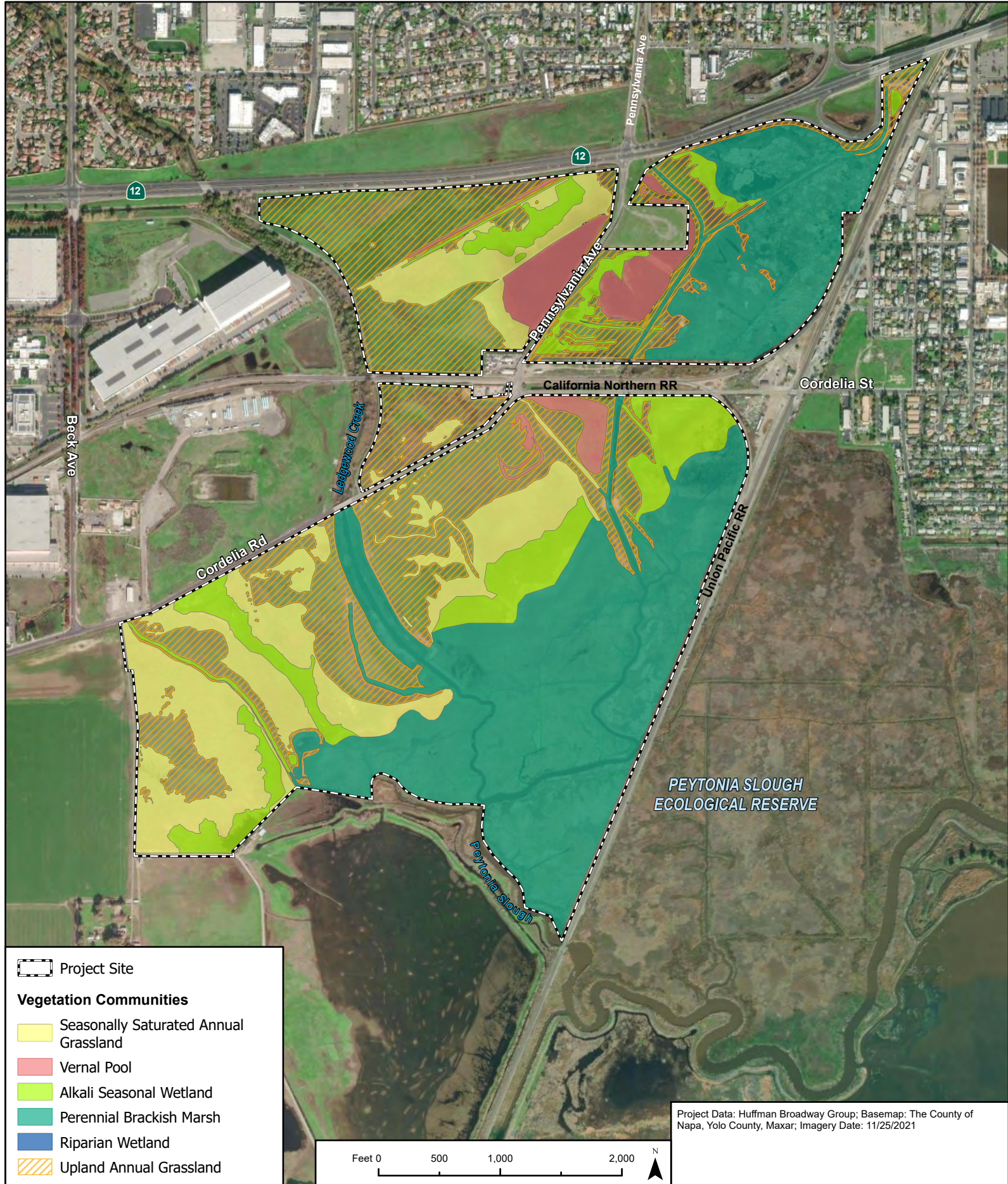


Figure 8. Vegetation Communities
 Highway 12 Logistics Center Project
 Solano County, California

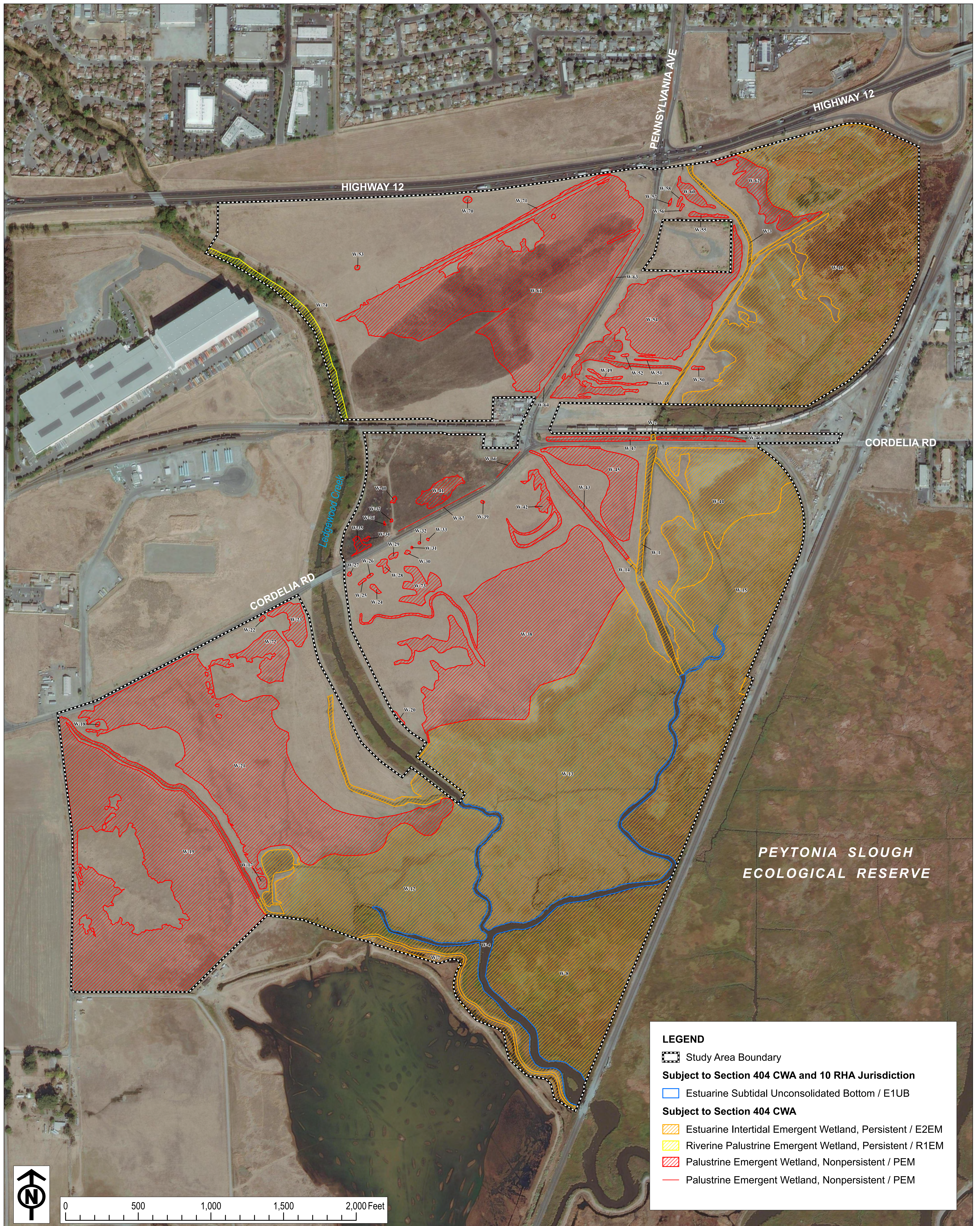


Figure 9. USACE Verified Preliminary Jurisdictional Delineation Map

Aerial Imagery: Maxar, 11/3/2019

Highway 12 Logistics Center Project
Solano County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Plant Survey Boundary, 2021-2022

Development Area

Plant Communities

Seasonally Saturated Annual Grassland

Vernal Pool

Alkali Seasonal Wetland

Perennial Brackish Marsh

Riparian Wetland

Rare Plant Occurrences

Alkali Milkvetch Points

Contra Costa Goldfields

Delta Tule Pea

Heckard's Pepper-grass

Suisun Marsh Aster

Long-styled Sand Spurry

Saline Clover

Area of Occurrence of Contra Costa Goldfields

Area of Occurrence of Delta Tule Pea

Area of Occurrence of Heckard's Pepper-grass

Area of Occurrence of Suisun Marsh aster

Area of Occurrence of Alkali Milkvetch

Area of Occurrence of Saline Clover

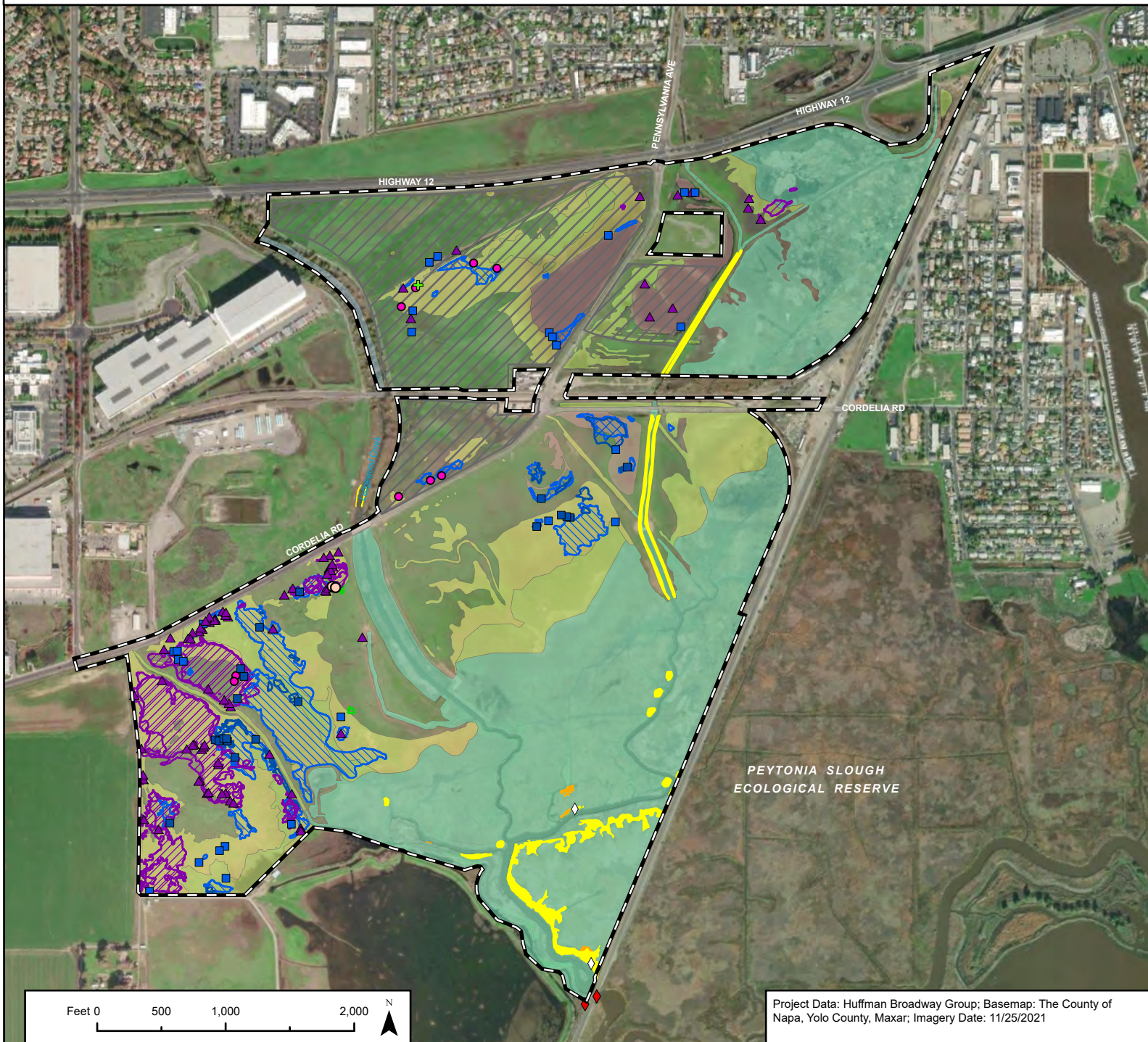


Figure 10. Wetland and Special Status Plant Impacts
Highway 12 Logistics Center Project
Solano County, California

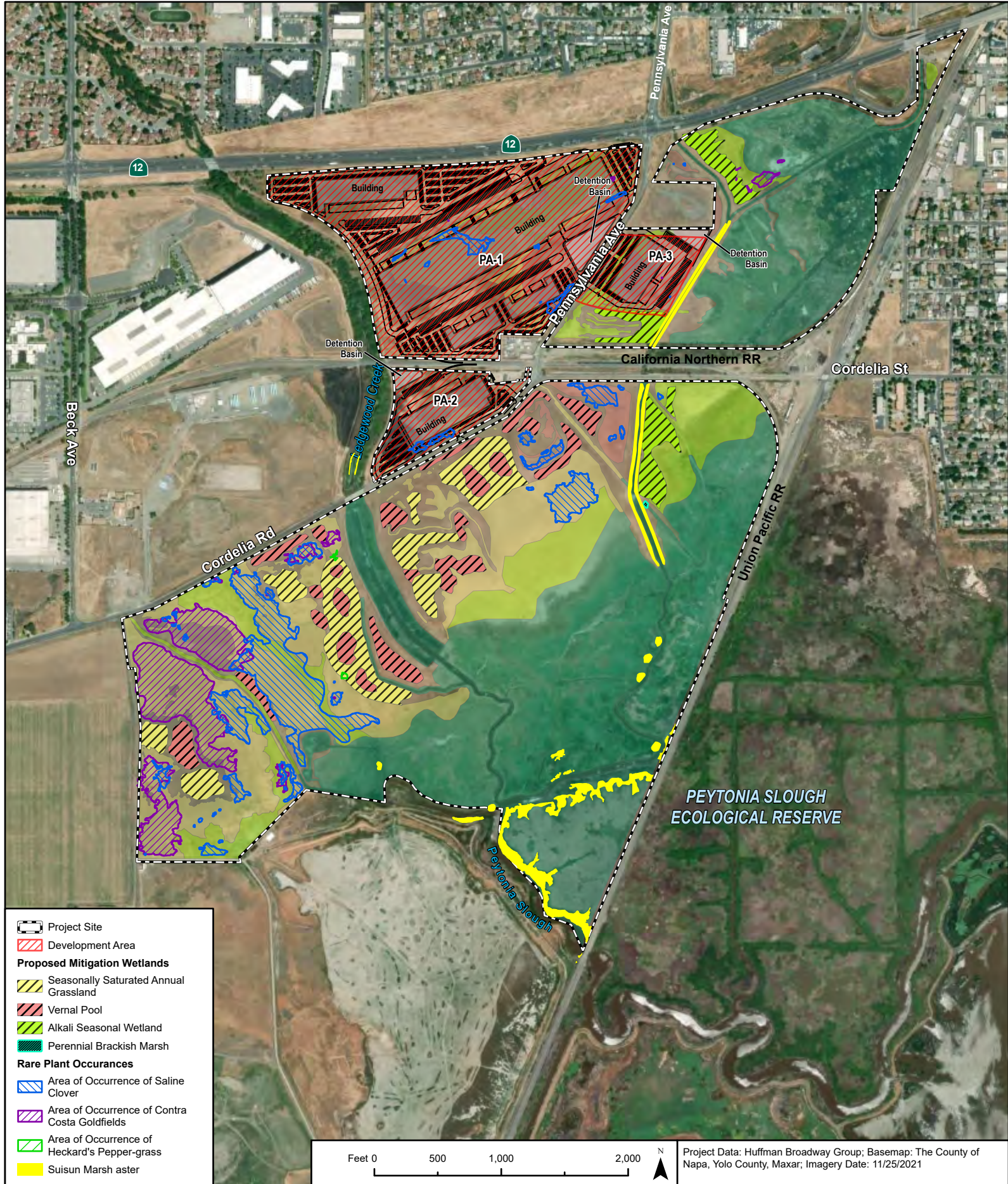


Figure 11. Wetland Establishment Mitigation Map
 Highway 12 Logistics Center Project
 Solano County, California

Appendix B

WETS Table

APPENDIX 1

NRCS WETS Temperature and Precipitation Data

**Precipitation Data Summary, January 2020– December 2020,
and
Comparison with Normal Precipitation Range
WETS Station FAIRFIELD, CA
Gentry Logistics Project
Solano County, California**

| Month / Year | Total Precipitation (inches) | WETS Average precipitation for month (inches) 1971 – 2021 | WETS Normal precipitation range (inches)* 1971 – 2021 | Within WETS normal precipitation range? |
|---------------------|---|--|--|--|
| January 2020 | 1.56 | 4.53 | 1.66 - 5.46 | < Normal |
| February 2020 | 0.00 | 4.44 | 1.74 - 5.30 | < Normal |
| March 2020 | 1.84 | 3.39 | 1.50 - 4.14 | Normal |
| April 2020 | 0.83 | 1.32 | 0.47 - 1.59 | Normal |
| May 2020 | 0.71 | 0.58 | 0.13 - 0.52 | > Normal |
| June 2020 | 0.00 | 0.12 | 0.00 - 0.06 | Normal |
| July 2020 | 0.00 | 0.02 | 0.00 - 0.00 | Normal |
| August 2020 | 0.00 | 0.04 | 0.00 - 0.00 | Normal |
| September 2020 | 0.00 | 0.20 | 0.00 - 0.14 | Normal |
| October 2020 | 0.00 | 1.30 | 0.41 - 1.39 | < Normal |
| November 2020 | 1.35 | 2.77 | 1.17 - 3.37 | Normal |
| December 2020 | 2.03 | 4.56 | 1.95 - 5.48 | Normal |

All precipitation data from WETS Station Fairfield, CA.

* 30 percent chance precipitation will be less than the lower value or greater than the higher value.

M = Missing

WETS Table

| WETS Station: FAIRFIELD, CA | | | | | | | | |
|------------------------------|--------------|--------------|---------------|------------|-----------------------------|-----------------------------|-------------------------------------|--------------|
| Requested years: 1971 - 2021 | | | | | | | | |
| Month | Avg Max Temp | Avg Min Temp | Avg Mean Temp | Avg Precip | 30% chance precip less than | 30% chance precip more than | Avg number days precip 0.10 or more | Avg Snowfall |
| Jan | 56.0 | 38.5 | 47.2 | 4.53 | 1.66 | 5.46 | 7 | 0.0 |
| Feb | 61.8 | 41.5 | 51.6 | 4.44 | 1.74 | 5.30 | 7 | 0.0 |
| Mar | 66.1 | 44.2 | 55.2 | 3.39 | 1.50 | 4.14 | 7 | 0.0 |
| Apr | 71.5 | 46.6 | 59.1 | 1.32 | 0.47 | 1.59 | 3 | 0.0 |
| May | 78.3 | 50.9 | 64.6 | 0.58 | 0.13 | 0.52 | 2 | 0.0 |
| Jun | 85.5 | 54.7 | 70.1 | 0.12 | 0.00 | 0.06 | 0 | 0.0 |
| Jul | 89.5 | 56.7 | 73.1 | 0.02 | 0.00 | 0.00 | 0 | 0.0 |
| Aug | 88.9 | 56.6 | 72.8 | 0.04 | 0.00 | 0.00 | 0 | 0.0 |
| Sep | 86.7 | 55.1 | 70.9 | 0.21 | 0.00 | 0.14 | 1 | 0.0 |
| Oct | 78.2 | 50.6 | 64.4 | 1.16 | 0.40 | 1.26 | 2 | 0.0 |
| Nov | 65.3 | 43.6 | 54.4 | 2.79 | 1.17 | 3.39 | 5 | 0.0 |
| Dec | 56.2 | 38.2 | 47.2 | 4.48 | 1.90 | 5.38 | 7 | 0.0 |
| Annual: | | | | | 18.38 | 27.13 | | |
| Average | 73.7 | 48.1 | 60.9 | - | - | - | - | - |
| Total | - | - | - | 23.07 | | | 41 | 0.0 |

GROWING SEASON DATES

| | | | |
|---------------------------|----------------|----------------|-------------------------|
| Years with missing data: | 24 deg = 12 | 28 deg = 14 | 32 deg = 8 |
| Years with no occurrence: | 24 deg = 36 | 28 deg = 20 | 32 deg = 4 |
| Data years used: | 24 deg = 39 | 28 deg = 37 | 32 deg = 43 |
| Probability | 24 F or higher | 28 F or higher | 32 F or higher |
| 50 percent * | No occurrence | No occurrence | 2/5 to 12/10: 308 days |
| 70 percent * | No occurrence | No occurrence | 1/21 to 12/26: 339 days |

* Percent chance of the growing season occurring between the Beginning and Ending dates.

| STATS TABLE - total precipitation (inches) | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Yr | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annl |
| 1950 | | | | | | | | | | | | M3.86 | 3.86 |
| 1951 | 3.40 | 2.10 | 2.19 | 0.98 | M0.83 | 0.00 | 0.00 | 0.00 | MT | M1.28 | 4.84 | 8.25 | 23.87 |
| 1952 | 9.00 | M1.31 | 2.68 | 0.77 | 0.27 | 0.40 | M0.00 | T | M0.00 | M0.00 | M2.08 | M7.79 | 24.30 |
| 1953 | 4.31 | T | M2.26 | M2.58 | M0.35 | M0.38 | 0.00 | 0.04 | M0.00 | M0.00 | M2.93 | 0.72 | 13.57 |
| 1954 | M3.02 | 2.94 | M2.76 | 1.97 | 0.17 | M0.00 | M0.00 | M0.00 | 0.00 | M0.00 | M0.00 | M4.96 | 15.82 |
| 1955 | 3.16 | M1.61 | 0.53 | 2.21 | 0.32 | M0.00 | M0.00 | 0.00 | 0.28 | M0.05 | 2.06 | 13.66 | 23.88 |
| 1956 | 7.89 | 2.11 | M0.32 | 1.10 | M0.08 | 0.04 | 0.00 | 0.00 | 0.55 | M0.41 | 0.12 | M0.33 | 12.95 |
| 1957 | M2.48 | 4.46 | M1.69 | 1.61 | M0.73 | 0.00 | M0.00 | M0.00 | M0.41 | 3.66 | 0.37 | 2.73 | 18.14 |

| | | | | | | | | | | | | | |
|------|-------|-------|-------|------|------|-------|------|------|------|-------|-------|-------|-------|
| 1958 | M4.22 | 9.55 | 6.02 | 4.33 | 0.64 | 0.33 | 0.15 | 0.07 | 0.04 | 0.13 | 0.08 | 1.10 | 26.66 |
| 1959 | 5.19 | 5.59 | 1.05 | 0.19 | T | 0.00 | 0.00 | T | 2.49 | 0.00 | T | 2.34 | 16.85 |
| 1960 | 3.11 | 4.79 | 2.21 | 1.05 | 0.74 | 0.00 | T | 0.00 | 0.00 | 0.13 | M3.01 | 1.55 | 16.59 |
| 1961 | 4.06 | 0.96 | 1.92 | 0.71 | 0.20 | 0.04 | 0.00 | 0.05 | 0.15 | M0.18 | 4.01 | 2.34 | 14.62 |
| 1962 | 0.80 | 6.25 | 3.05 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | T | 7.85 | 0.16 | 2.58 | 20.91 |
| 1963 | 5.32 | 2.67 | 3.59 | 5.49 | 0.45 | 0.09 | 0.00 | T | 0.40 | 1.77 | 2.80 | 0.48 | 23.06 |
| 1964 | 3.22 | 0.00 | 1.91 | 0.12 | 0.22 | 0.93 | 0.04 | 0.05 | 0.00 | 0.23 | 2.85 | 5.01 | 16.58 |
| 1965 | 4.34 | 0.00 | 1.35 | 2.94 | 0.12 | 0.00 | 0.00 | 0.43 | 0.00 | 0.00 | 4.94 | M2.63 | 16.75 |
| 1966 | 4.46 | 2.49 | 0.26 | 0.34 | 0.45 | 0.00 | 0.08 | 0.18 | 0.37 | 0.00 | 5.68 | 4.39 | 18.70 |
| 1967 | 9.90 | 0.31 | 4.17 | 4.78 | 0.12 | 1.45 | T | T | 0.05 | 0.36 | 1.36 | 1.75 | 24.25 |
| 1968 | 4.93 | 3.11 | 2.31 | 0.29 | 0.40 | 0.00 | 0.00 | 1.18 | 0.00 | 0.75 | 3.55 | 4.44 | 20.96 |
| 1969 | 9.80 | 7.04 | 1.95 | 1.25 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 2.12 | 0.46 | 6.16 | 28.88 |
| 1970 | 11.75 | 1.36 | 1.86 | 0.16 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.76 | 5.94 | 6.00 | 28.22 |
| 1971 | 1.86 | 0.26 | 2.72 | 0.22 | 0.69 | 0.00 | 0.00 | 0.00 | 0.15 | 0.06 | 2.20 | 4.16 | 12.32 |
| 1972 | 1.30 | 1.54 | 0.19 | 1.00 | 0.02 | 0.20 | 0.00 | 0.00 | 0.98 | 4.60 | 6.73 | 1.67 | 18.23 |
| 1973 | 11.54 | 5.62 | 2.71 | 0.19 | 0.14 | 0.00 | 0.00 | 0.00 | 0.35 | 1.66 | 7.20 | 4.73 | 34.14 |
| 1974 | 3.64 | 1.06 | 4.61 | 1.80 | 0.11 | 0.00 | 0.60 | 0.00 | 0.00 | 1.29 | 0.88 | 3.79 | 17.78 |
| 1975 | 1.16 | 7.03 | 5.58 | 1.13 | 0.07 | 0.10 | 0.06 | 0.14 | 0.03 | 3.50 | 0.44 | 0.30 | 19.54 |
| 1976 | 0.52 | 1.31 | 1.89 | 0.86 | 0.00 | 0.01 | 0.00 | 0.66 | | 0.33 | 1.02 | 1.26 | 7.86 |
| 1977 | 1.89 | 1.06 | 2.13 | 0.14 | 0.81 | T | 0.00 | 0.00 | 1.08 | 0.42 | 5.44 | 5.51 | 18.48 |
| 1978 | 9.73 | 5.25 | 5.12 | 2.02 | 0.05 | 0.05 | 0.00 | 0.00 | 0.23 | 0.00 | 1.67 | 0.84 | 24.96 |
| 1979 | 9.13 | 4.31 | 1.93 | 1.19 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 2.38 | 2.47 | 6.58 | 28.58 |
| 1980 | 6.94 | 10.33 | 3.58 | 1.24 | 0.34 | 0.01 | 0.13 | 0.00 | 0.00 | 0.20 | 0.08 | M2.67 | 25.52 |
| 1981 | M5.14 | 1.11 | 3.74 | 0.36 | 0.04 | 0.00 | 0.00 | 0.00 | 0.19 | 1.40 | 5.91 | 5.72 | 23.61 |
| 1982 | 8.12 | 3.82 | 6.14 | 5.05 | 0.00 | 0.01 | T | 0.00 | 1.11 | 2.79 | 4.32 | 2.51 | 33.87 |
| 1983 | 5.78 | 8.72 | 10.89 | 3.06 | 0.79 | M0.00 | 0.00 | 0.01 | 0.74 | 0.30 | 6.51 | 7.48 | 44.28 |
| 1984 | 0.30 | 1.49 | 1.17 | 0.80 | T | 0.08 | 0.00 | 0.17 | 0.10 | 1.96 | 6.52 | 1.26 | 13.85 |
| 1985 | 0.68 | 1.95 | 4.14 | 0.06 | 0.06 | 0.02 | 0.00 | 0.00 | 0.30 | 0.65 | 4.32 | 3.05 | 15.23 |
| 1986 | 4.57 | 11.30 | 5.61 | 0.99 | 0.19 | 0.00 | 0.00 | 0.00 | 1.09 | 0.38 | 0.10 | 1.14 | 25.37 |
| 1987 | 3.02 | 4.12 | 3.14 | 0.08 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.95 | 2.97 | 5.63 | 19.98 |
| 1988 | 5.62 | 0.39 | 0.26 | 1.49 | 0.68 | 0.36 | 0.00 | T | 0.00 | 0.17 | 3.86 | 3.93 | 16.76 |
| 1989 | 1.05 | 1.82 | 5.23 | 0.37 | 0.01 | 0.21 | 0.00 | 0.00 | 1.37 | 1.59 | 1.66 | 0.00 | 13.31 |
| 1990 | 4.26 | 2.44 | 0.80 | 0.24 | 3.25 | 0.00 | 0.00 | 0.00 | 0.26 | 0.23 | 0.35 | 1.00 | 12.83 |
| 1991 | 0.47 | 3.21 | 9.17 | 0.31 | 0.09 | 0.02 | 0.00 | 0.02 | 0.00 | 1.99 | 0.67 | 2.42 | 18.37 |

| | | | | | | | | | | | | | | |
|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| 1992 | 2.18 | 7.09 | 4.14 | 0.63 | 0.00 | 0.49 | 0.00 | 0.00 | 0.00 | 0.00 | 3.17 | 0.26 | 9.55 | 27.51 |
| 1993 | 10.57 | 5.79 | 3.54 | M0.55 | M0.86 | M0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 2.65 | 2.39 | 27.90 |
| 1994 | 2.71 | 4.48 | 0.14 | M1.19 | 1.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.28 | 5.30 | 4.49 | 19.87 |
| 1995 | 12.47 | 0.14 | 9.21 | 0.88 | 1.21 | 1.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.01 | 10.02 | 35.84 |
| 1996 | 8.65 | 8.34 | 2.32 | 2.18 | M3.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.61 | 3.58 | 11.67 | 41.38 |
| 1997 | 11.07 | 0.28 | 0.52 | 0.20 | M0.47 | 0.27 | 0.00 | 0.41 | 0.00 | 0.00 | 0.81 | 6.73 | 2.30 | 23.06 |
| 1998 | 8.95 | 14.71 | 2.35 | 2.30 | 3.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 0.71 | 4.29 | 1.57 | 38.51 |
| 1999 | 2.11 | 6.97 | 2.85 | 1.73 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.56 | 2.91 | 0.52 | 17.72 |
| 2000 | 5.98 | 11.25 | 2.87 | 1.29 | 0.98 | 0.17 | 0.00 | 0.00 | 0.00 | 0.08 | 2.54 | 1.15 | 1.13 | 27.44 |
| 2001 | 3.36 | 6.35 | 1.37 | 0.62 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.20 | 0.50 | 4.47 | 10.23 | 27.18 |
| 2002 | 3.10 | 1.37 | 1.95 | 0.10 | 1.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.80 | 13.86 | 25.51 |
| 2003 | 2.42 | 1.53 | 2.00 | 2.92 | 1.02 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 1.08 | 6.72 | 18.02 |
| 2004 | 2.84 | 7.68 | 0.91 | 0.16 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 2.30 | 3.30 | 6.66 | 23.94 |
| 2005 | 5.52 | 4.24 | 4.28 | 1.43 | 1.46 | 0.28 | 0.00 | 0.00 | 0.00 | 0.01 | 0.24 | 2.16 | 16.69 | 36.31 |
| 2006 | 4.13 | 4.02 | 8.87 | 4.96 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 2.55 | 3.41 | 28.66 |
| 2007 | 0.20 | 4.38 | 0.11 | 2.05 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 2.22 | 0.92 | 4.35 | 15.16 |
| 2008 | 7.80 | 3.96 | 0.46 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 2.67 | 2.87 | 18.26 |
| 2009 | 1.55 | 9.31 | 2.39 | 1.10 | 1.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 5.71 | 0.69 | 2.13 | 24.05 |
| 2010 | 8.29 | 4.14 | 1.66 | 3.43 | 0.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 2.38 | 2.50 | 7.13 | 30.54 |
| 2011 | 0.55 | 4.26 | 5.05 | 0.39 | 0.96 | 1.21 | 0.00 | 0.00 | 0.00 | 0.00 | 1.65 | 1.25 | 0.23 | 15.55 |
| 2012 | 0.55 | 1.04 | 6.77 | M2.31 | M0.04 | 0.03 | M0.00 | M0.00 | M0.00 | 0.00 | 1.48 | M4.75 | 7.73 | 24.70 |
| 2013 | 0.60 | M0.11 | 1.07 | 1.41 | M0.37 | M0.00 | M0.00 | M0.00 | M1.10 | M0.00 | M1.28 | 0.74 | 6.68 | |
| 2014 | M0.26 | 9.58 | 2.66 | M2.39 | 0.00 | 0.00 | 0.00 | 0.05 | 0.82 | 0.78 | 0.00 | 2.29 | M10.44 | 29.27 |
| 2015 | 0.01 | 1.99 | 0.16 | 1.26 | 0.00 | 0.16 | 0.04 | 0.00 | M0.00 | 0.12 | 0.00 | 2.08 | 4.01 | 9.83 |
| 2016 | 9.25 | 0.59 | 6.92 | 0.59 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 2.65 | 2.29 | 5.12 | 27.76 |
| 2017 | 13.87 | 11.47 | 3.49 | 3.40 | 0.00 | 0.32 | 0.00 | 0.00 | 0.02 | 0.14 | 0.00 | 2.69 | 0.03 | 35.43 |
| 2018 | 3.43 | 0.32 | 4.79 | 3.32 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 4.52 | 2.87 | 19.36 |
| 2019 | 6.29 | 10.43 | 5.57 | 0.36 | 2.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | M0.57 | 7.37 | 33.42 |
| 2020 | 1.56 | 0.00 | 1.84 | 0.83 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.35 | 2.03 | 8.32 |
| 2021 | 4.02 | 2.55 | 1.91 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 8.50 |

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2021-10-01

Climatological Data for FAIRFIELD, CA - January 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-01-01 | 64 | 41 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-02 | 64 | 42 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-03 | 57 | 35 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-04 | 61 | 43 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-01-05 | 61 | 44 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-06 | 56 | 40 | 48.0 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-07 | 56 | 34 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-08 | 56 | 34 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-09 | 53 | 46 | 49.5 | 10 | 0 | 0.42 | 0.0 | 0 |
| 2020-01-10 | 56 | 37 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-11 | 58 | 45 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-01-12 | 54 | 39 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-13 | 56 | 39 | 47.5 | 8 | 0 | 0.06 | 0.0 | 0 |
| 2020-01-14 | 55 | 43 | 49.0 | 9 | 0 | 0.18 | 0.0 | 0 |
| 2020-01-15 | 51 | 36 | 43.5 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-16 | 49 | 40 | 44.5 | 5 | 0 | 0.67 | 0.0 | 0 |
| 2020-01-17 | 50 | 37 | 43.5 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-18 | 55 | 35 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-19 | 49 | 37 | 43.0 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-20 | 52 | 36 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-21 | 54 | 42 | 48.0 | 8 | 0 | 0.21 | 0.0 | 0 |
| 2020-01-22 | 61 | 44 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-01-23 | 57 | 42 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| 2020-01-24 | 65 | 44 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-01-25 | 62 | 50 | 56.0 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2020-01-26 | 64 | 54 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-01-27 | 62 | 46 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-01-28 | 62 | 48 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-01-29 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-01-30 | 65 | 46 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-01-31 | 66 | 45 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| Average Sum | 58.1 | 41.6 | 49.8 | 313 | 65 | 1.56 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - February 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-02-01 | 65 | 44 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-02 | 58 | 48 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-02-03 | 55 | 35 | 45.0 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2020-02-04 | 58 | 40 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-02-05 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-06 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-07 | 66 | 38 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-02-08 | 63 | 40 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-02-09 | 63 | 50 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-02-10 | 76 | 54 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-02-11 | 77 | 51 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-02-12 | 70 | 40 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-13 | 60 | 42 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-02-14 | 65 | 40 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-02-15 | 66 | 43 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-16 | 68 | 47 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-17 | 73 | 45 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-02-18 | 67 | 48 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-19 | 67 | 42 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-02-20 | 67 | 41 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-02-21 | 74 | 45 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-02-22 | 67 | 47 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-02-23 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-02-24 | 76 | 41 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-02-25 | 77 | 48 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-02-26 | 73 | 43 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-02-27 | 76 | 46 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-02-28 | 74 | 48 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-02-29 | 66 | 47 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| Average Sum | 67.6 | 43.8 | 55.7 | 462 | 178 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - March 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-03-01 | 60 | 44 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-03-02 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-03-03 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-03-04 | 77 | 44 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-03-05 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-03-06 | 60 | 50 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-03-07 | 58 | 46 | 52.0 | 12 | 2 | 0.16 | 0.0 | 0 |
| 2020-03-08 | 58 | 38 | 48.0 | 8 | 0 | 0.02 | 0.0 | 0 |
| 2020-03-09 | 66 | 47 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-03-10 | 76 | 44 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-11 | 73 | 47 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-12 | 77 | 47 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-03-13 | 73 | 46 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-03-14 | 55 | 46 | 50.5 | 11 | 1 | 0.41 | 0.0 | 0 |
| 2020-03-15 | 54 | 44 | 49.0 | 9 | 0 | 0.51 | 0.0 | 0 |
| 2020-03-16 | 49 | 39 | 44.0 | 4 | 0 | 0.17 | 0.0 | 0 |
| 2020-03-17 | 57 | 41 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-03-18 | 55 | 45 | 50.0 | 10 | 0 | 0.05 | 0.0 | 0 |
| 2020-03-19 | 62 | 40 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-03-20 | 63 | 39 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-03-21 | 66 | 42 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-03-22 | 68 | 43 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-03-23 | 69 | 40 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-03-24 | 61 | 43 | 52.0 | 12 | 2 | 0.09 | 0.0 | 0 |
| 2020-03-25 | 58 | 37 | 47.5 | 8 | 0 | 0.12 | 0.0 | 0 |
| 2020-03-26 | 59 | 38 | 48.5 | 9 | 0 | 0.15 | 0.0 | 0 |
| 2020-03-27 | 61 | 37 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-03-28 | 57 | 43 | 50.0 | 10 | 0 | 0.06 | 0.0 | 0 |
| 2020-03-29 | 61 | 46 | 53.5 | 14 | 4 | 0.10 | 0.0 | 0 |
| 2020-03-30 | 65 | 47 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-03-31 | 70 | 50 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| Average Sum | 64.2 | 43.8 | 54.0 | 438 | 142 | 1.84 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - April 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-04-01 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-04-02 | 69 | 43 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-04-03 | 67 | 40 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-04-04 | 62 | 44 | 53.0 | 13 | 3 | 0.26 | 0.0 | 0 |
| 2020-04-05 | 55 | 48 | 51.5 | 12 | 2 | 0.52 | 0.0 | 0 |
| 2020-04-06 | 58 | 39 | 48.5 | 9 | 0 | 0.05 | 0.0 | 0 |
| 2020-04-07 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-04-08 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-04-09 | 62 | 52 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-04-10 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-04-11 | 66 | 49 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-04-12 | 71 | 51 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-04-13 | 76 | 49 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-04-14 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-15 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-16 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-04-17 | 64 | 51 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2020-04-18 | 66 | 53 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-19 | 66 | 46 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2020-04-20 | 67 | 52 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-21 | 75 | 45 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-04-22 | 82 | 49 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-04-23 | 83 | 57 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-04-24 | 88 | 65 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-04-25 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-04-26 | 82 | 55 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-04-27 | 83 | 54 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-04-28 | 87 | 58 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-04-29 | 77 | 56 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2020-04-30 | 78 | 53 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| Average Sum | 72.6 | 49.8 | 61.2 | 644 | 345 | 0.83 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - May 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-05-01 | 79 | 46 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-05-02 | 72 | 52 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-03 | 76 | 50 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-05-04 | 82 | 47 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-05 | 80 | 50 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-06 | 87 | 50 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-05-07 | 92 | 52 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-05-08 | 95 | 56 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-05-09 | M | 53 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-05-10 | 76 | 52 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-05-11 | 67 | 53 | 60.0 | 20 | 10 | 0.10 | 0.0 | 0 |
| 2020-05-12 | 68 | 54 | 61.0 | 21 | 11 | 0.12 | 0.0 | 0 |
| 2020-05-13 | 64 | 49 | 56.5 | 17 | 7 | 0.02 | 0.0 | 0 |
| 2020-05-14 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2020-05-15 | 79 | 51 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-16 | 77 | 55 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-05-17 | 73 | 58 | 65.5 | 26 | 16 | 0.28 | 0.0 | 0 |
| 2020-05-18 | 69 | 51 | 60.0 | 20 | 10 | 0.19 | 0.0 | 0 |
| 2020-05-19 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-20 | 76 | 48 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2020-05-21 | 82 | 53 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-05-22 | 79 | 51 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-05-23 | 87 | 53 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-05-24 | 92 | 53 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-05-25 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-05-26 | 101 | 64 | 82.5 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2020-05-27 | 99 | 67 | 83.0 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2020-05-28 | 96 | 58 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-05-29 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-05-30 | 77 | 61 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-05-31 | 76 | 56 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| Average Sum | 81.0 | 53.7 | 67.4 | 826 | 526 | 0.71 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - June 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-06-01 | 86 | 57 | 71.5 | 32 | 22 | 0.00 | M | M |
| 2020-06-02 | 95 | 61 | 78.0 | 38 | 28 | 0.00 | M | M |
| 2020-06-03 | 101 | 64 | 82.5 | 43 | 33 | 0.00 | M | M |
| 2020-06-04 | 100 | 61 | 80.5 | 41 | 31 | 0.00 | M | M |
| 2020-06-05 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | M | M |
| 2020-06-06 | M | 53 | M | M | M | 0.00 | M | M |
| 2020-06-07 | M | 52 | M | M | M | 0.00 | M | M |
| 2020-06-08 | 84 | 55 | 69.5 | 30 | 20 | 0.00 | M | M |
| 2020-06-09 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | M | M |
| 2020-06-10 | 96 | 58 | 77.0 | 37 | 27 | 0.00 | M | M |
| 2020-06-11 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | M | M |
| 2020-06-12 | 85 | 57 | 71.0 | 31 | 21 | 0.00 | M | M |
| 2020-06-13 | 76 | 54 | 65.0 | 25 | 15 | 0.00 | M | M |
| 2020-06-14 | 83 | 56 | 69.5 | 30 | 20 | 0.00 | M | M |
| 2020-06-15 | 82 | 59 | 70.5 | 31 | 21 | 0.00 | M | M |
| 2020-06-16 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | M | M |
| 2020-06-17 | 91 | 60 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-18 | 97 | 59 | 78.0 | 38 | 28 | 0.00 | M | M |
| 2020-06-19 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-20 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | M | M |
| 2020-06-21 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-22 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | M | M |
| 2020-06-23 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | M | M |
| 2020-06-24 | 93 | 58 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-25 | 91 | 59 | 75.0 | 35 | 25 | 0.00 | M | M |
| 2020-06-26 | 94 | 57 | 75.5 | 36 | 26 | 0.00 | M | M |
| 2020-06-27 | M | 57 | M | M | M | 0.00 | M | M |
| 2020-06-28 | 79 | 55 | 67.0 | 27 | 17 | 0.00 | M | M |
| 2020-06-29 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | M | M |
| 2020-06-30 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | M | M |
| Average Sum | 90.0 | 57.5 | 73.9 | 924 | 654 | 0.00 | M | M |

Climatological Data for FAIRFIELD, CA - July 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-07-01 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-02 | M | 55 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-07-03 | 85 | 55 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-07-04 | 95 | 55 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-05 | 93 | 61 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-07-06 | 87 | 61 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-07-07 | 89 | 54 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-07-08 | 92 | 59 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-09 | 96 | 56 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-10 | 97 | 61 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-07-11 | 103 | 59 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-07-12 | 101 | 60 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-07-13 | 95 | 60 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-07-14 | 95 | 56 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-15 | 88 | 57 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-16 | 85 | 58 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-07-17 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-18 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-19 | M | 59 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-07-20 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-07-21 | 84 | 57 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-22 | 81 | 57 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-07-23 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-07-24 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-25 | 91 | 55 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-07-26 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-27 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-07-28 | 93 | 57 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-29 | 97 | 55 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-07-30 | 93 | 56 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-07-31 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| Average Sum | 90.4 | 57.2 | 73.8 | 988 | 698 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - August 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-08-01 | 92 | 59 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-02 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-08-03 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-04 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-05 | 78 | 57 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-08-06 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-07 | 89 | 58 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-08-08 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-09 | 97 | 61 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-10 | 92 | 62 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-08-11 | 83 | 60 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-12 | 96 | 57 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-08-13 | 101 | 60 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-08-14 | 106 | 72 | 89.0 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-15 | 107 | 73 | 90.0 | 50 | 40 | 0.00 | 0.0 | 0 |
| 2020-08-16 | 104 | 76 | 90.0 | 50 | 40 | 0.00 | 0.0 | 0 |
| 2020-08-17 | 103 | 74 | 88.5 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-18 | 105 | 72 | 88.5 | 49 | 39 | 0.00 | 0.0 | 0 |
| 2020-08-19 | 102 | 71 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2020-08-20 | 96 | 61 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-08-21 | 99 | 61 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-08-22 | 99 | 63 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-08-23 | M | 62 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-08-24 | 90 | 62 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-08-25 | 91 | 69 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-08-26 | 88 | 62 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-08-27 | 85 | 58 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-28 | 85 | 56 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-08-29 | 90 | 56 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-08-30 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-08-31 | 89 | 56 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| Average Sum | 93.5 | 62.4 | 78.0 | 1146 | 846 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - September 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-09-01 | 82 | 59 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-02 | 83 | 59 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-03 | 86 | 57 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-04 | 96 | 56 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-09-05 | 103 | 67 | 85.0 | 45 | 35 | 0.00 | 0.0 | 0 |
| 2020-09-06 | 110 | 71 | 90.5 | 51 | 41 | 0.00 | 0.0 | 0 |
| 2020-09-07 | 111 | 73 | 92.0 | 52 | 42 | 0.00 | 0.0 | 0 |
| 2020-09-08 | 103 | 69 | 86.0 | 46 | 36 | 0.00 | 0.0 | 0 |
| 2020-09-09 | 83 | 64 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-10 | 74 | 56 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-09-11 | 87 | 54 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-12 | 92 | 57 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-09-13 | M | 56 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-09-14 | 83 | 53 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-09-15 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-16 | 91 | 56 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-17 | 88 | 59 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-09-18 | 80 | 60 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-09-19 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-20 | 91 | 60 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2020-09-21 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-09-22 | 84 | 59 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-09-23 | 87 | 58 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-09-24 | 86 | 60 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-09-25 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-09-26 | 91 | 62 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-09-27 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-09-28 | 101 | 75 | 88.0 | 48 | 38 | 0.00 | 0.0 | 0 |
| 2020-09-29 | 95 | 63 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-09-30 | 98 | 58 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| Average Sum | 90.9 | 60.3 | 75.6 | 1041 | 751 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - October 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-10-01 | 93 | 68 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-10-02 | 92 | 64 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-10-03 | 92 | 63 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2020-10-04 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-05 | 95 | 55 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-06 | 93 | 56 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-07 | 90 | 53 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2020-10-08 | 71 | 56 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-10-09 | 76 | 53 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-10-10 | 72 | 57 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2020-10-11 | 83 | 54 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2020-10-12 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2020-10-13 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-10-14 | 97 | 62 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2020-10-15 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2020-10-16 | 97 | 65 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2020-10-17 | 95 | 59 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-18 | 92 | 62 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2020-10-19 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2020-10-20 | 89 | 56 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2020-10-21 | 89 | 58 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2020-10-22 | 84 | 56 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2020-10-23 | 76 | 45 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-10-24 | 67 | 51 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2020-10-25 | 74 | 54 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-10-26 | 77 | 58 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2020-10-27 | 76 | 49 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-28 | 76 | 45 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-10-29 | 78 | 47 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-30 | 79 | 46 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2020-10-31 | 81 | 48 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| Average Sum | 85.2 | 55.9 | 70.5 | 957 | 647 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - November 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-11-01 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-11-02 | 82 | 50 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2020-11-03 | 78 | 49 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-11-04 | 78 | 49 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2020-11-05 | 82 | 52 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2020-11-06 | 69 | 52 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2020-11-07 | 63 | 43 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-11-08 | 59 | 43 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-09 | 61 | 40 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-10 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-11 | 59 | 49 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-12 | 63 | 35 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-11-13 | 59 | 45 | 52.0 | 12 | 2 | 0.53 | 0.0 | 0 |
| 2020-11-14 | 62 | 41 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-11-15 | 70 | 40 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-11-16 | 70 | 43 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2020-11-17 | 65 | 48 | 56.5 | 17 | 7 | 0.34 | 0.0 | 0 |
| 2020-11-18 | 64 | 48 | 56.0 | 16 | 6 | 0.48 | 0.0 | 0 |
| 2020-11-19 | 64 | 44 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-20 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-11-21 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-22 | 64 | 39 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-11-23 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-24 | 68 | 41 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-11-25 | 63 | 45 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-26 | 64 | 44 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-11-27 | 63 | 39 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-28 | 65 | 36 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-29 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-11-30 | 62 | 37 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| Average Sum | 66.7 | 43.2 | 55.0 | 456 | 157 | 1.35 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - December 2020

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2020-12-01 | 65 | 40 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-12-02 | 66 | 37 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-03 | 65 | 38 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-04 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-12-05 | 64 | 39 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2020-12-06 | 65 | 41 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2020-12-07 | 74 | M | M | M | M | 0.00 | 0.0 | 0 |
| 2020-12-08 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-12-09 | 69 | 38 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2020-12-10 | 68 | 41 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2020-12-11 | 55 | 40 | 47.5 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-12 | 57 | 46 | 51.5 | 12 | 2 | 0.33 | 0.0 | 0 |
| 2020-12-13 | 55 | 45 | 50.0 | 10 | 0 | 0.92 | 0.0 | 0 |
| 2020-12-14 | 58 | 44 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-12-15 | 55 | 39 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-16 | 55 | 37 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-17 | 59 | 48 | 53.5 | 14 | 4 | 0.48 | 0.0 | 0 |
| 2020-12-18 | 61 | 38 | 49.5 | 10 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-19 | 58 | 34 | 46.0 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-20 | 60 | 36 | 48.0 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-21 | M | 32 | M | M | M | 0.00 | 0.0 | 0 |
| 2020-12-22 | 59 | 32 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-23 | 54 | 31 | 42.5 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-24 | 55 | 36 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-25 | 53 | 39 | 46.0 | 6 | 0 | 0.07 | 0.0 | 0 |
| 2020-12-26 | 60 | 49 | 54.5 | 15 | 5 | 0.11 | 0.0 | 0 |
| 2020-12-27 | 57 | 41 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-28 | 56 | 45 | 50.5 | 11 | 1 | 0.08 | 0.0 | 0 |
| 2020-12-29 | 64 | 37 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2020-12-30 | 58 | 35 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2020-12-31 | 62 | 41 | 51.5 | 12 | 2 | 0.04 | 0.0 | 0 |
| Average Sum | 60.7 | 39.4 | 50.0 | 298 | 46 | 2.03 | 0.0 | 0.0 |

**Precipitation Data Summary, January 2021– December 2021,
and
Comparison with Normal Precipitation Range
WETS Station FAIRFIELD, CA
Gentry Logistics Project
Solano County, California**

| Month / Year | Total Precipitation (inches) | WETS Average precipitation for month (inches) 1971 – 2021 | WETS Normal precipitation range (inches)* 1971 – 2021 | Within WETS normal precipitation range? |
|---------------------|---|--|--|--|
| January 2021 | 4.02 | 4.53 | 1.66 - 5.46 | < Normal |
| February 2021 | 2.55 | 4.44 | 1.74 - 5.30 | < Normal |
| March 2021 | 1.91 | 3.39 | 1.50 - 4.14 | Normal |
| April 2021 | 0.02 | 1.32 | 0.47 - 1.59 | Normal |
| May 2021 | 0.00 | 0.58 | 0.13 - 0.52 | < Normal |
| June 2021 | 0.00 | 0.12 | 0.00 - 0.06 | Normal |
| July 2021 | 0.00 | 0.02 | 0.00 - 0.00 | Normal |
| August 2021 | 0.00 | 0.04 | 0.00 - 0.00 | Normal |
| September 2021 | 0.00 | 0.20 | 0.00 - 0.14 | Normal |
| October 2021 | 8.45 | 1.30 | 0.41 - 1.39 | > Normal |
| November 2021 | 1.86 | 2.77 | 1.17 - 3.37 | Normal |
| December 2021 | 8.89 | 4.56 | 1.95 - 5.48 | > Normal |

All precipitation data from WETS Station Fairfield, CA.

* 30 percent chance precipitation will be less than the lower value or greater than the higher value.

M = Missing

Climatological Data for FAIRFIELD, CA - January 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-01-01 | 56 | 38 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-02 | 56 | 38 | 47.0 | 7 | 0 | 0.18 | 0.0 | 0 |
| 2021-01-03 | 60 | 43 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-01-04 | 59 | 40 | 49.5 | 10 | 0 | 0.27 | 0.0 | 0 |
| 2021-01-05 | 59 | 39 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-06 | 55 | 40 | 47.5 | 8 | 0 | 0.07 | 0.0 | 0 |
| 2021-01-07 | 59 | 43 | 51.0 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-01-08 | 64 | 42 | 53.0 | 13 | 3 | 0.10 | 0.0 | 0 |
| 2021-01-09 | 61 | 36 | 48.5 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-10 | 54 | 37 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-11 | 59 | 30 | 44.5 | 5 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-12 | 60 | 43 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-01-13 | 66 | 48 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-01-14 | 66 | 46 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-01-15 | 66 | 40 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-01-16 | 73 | 46 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-01-17 | 72 | 47 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-01-18 | 78 | 52 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-01-19 | 71 | 53 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-01-20 | 68 | 45 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-01-21 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-01-22 | 54 | 43 | 48.5 | 9 | 0 | 0.14 | 0.0 | 0 |
| 2021-01-23 | 59 | 39 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-24 | 56 | 38 | 47.0 | 7 | 0 | 0.50 | 0.0 | 0 |
| 2021-01-25 | 55 | 40 | 47.5 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2021-01-26 | 51 | 30 | 40.5 | 1 | 0 | 0.12 | 0.0 | 0 |
| 2021-01-27 | 49 | 41 | 45.0 | 5 | 0 | 1.50 | 0.0 | 0 |
| 2021-01-28 | 53 | 44 | 48.5 | 9 | 0 | 0.87 | 0.0 | 0 |
| 2021-01-29 | 55 | 44 | 49.5 | 10 | 0 | 0.27 | 0.0 | 0 |
| 2021-01-30 | 59 | 42 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-01-31 | 64 | 45 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| Average Sum | 60.6 | 41.6 | 51.1 | 354 | 85 | 4.02 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - February 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-02-01 | 63 | 43 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-02 | 62 | 52 | 57.0 | 17 | 7 | 0.44 | 0.0 | 0 |
| 2021-02-03 | 56 | 39 | 47.5 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2021-02-04 | 67 | 39 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-05 | 67 | 41 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-06 | 67 | 40 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-07 | 63 | 40 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-02-08 | 64 | 50 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-09 | 66 | 44 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-02-10 | 66 | 44 | 55.0 | 15 | 5 | 0.62 | 0.0 | 0 |
| 2021-02-11 | M | M | M | M | M | 0.62 | 0.0 | 0 |
| 2021-02-12 | M | M | M | M | M | 0.32 | 0.0 | 0 |
| 2021-02-13 | 64 | 50 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-14 | 64 | M | M | M | M | 0.05 | 0.0 | 0 |
| 2021-02-15 | 61 | 47 | 54.0 | 14 | 4 | 0.35 | 0.0 | 0 |
| 2021-02-16 | 61 | 40 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-02-17 | 63 | 42 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-02-18 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-02-19 | 60 | 47 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-20 | 60 | 41 | 50.5 | 11 | 1 | 0.15 | 0.0 | 0 |
| 2021-02-21 | 68 | 45 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-22 | 69 | 45 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-02-23 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-02-24 | 70 | 48 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-02-25 | 68 | 44 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-02-26 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-27 | 68 | 40 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-02-28 | 66 | 43 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| Average Sum | 65.1 | 43.6 | 54.4 | 364 | 116 | 2.55 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - March 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-03-01 | 67 | 38 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-03-02 | 71 | 41 | 56.0 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-03-03 | 67 | 44 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-03-04 | 62 | 39 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-03-05 | 67 | 39 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-03-06 | 63 | 39 | 51.0 | 11 | 1 | 0.14 | 0.0 | 0 |
| 2021-03-07 | 66 | 39 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-03-08 | 58 | 43 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-03-09 | 57 | 42 | 49.5 | 10 | 0 | 0.13 | 0.0 | 0 |
| 2021-03-10 | 56 | 42 | 49.0 | 9 | 0 | 0.36 | 0.0 | 0 |
| 2021-03-11 | 60 | 39 | 49.5 | 10 | 0 | 0.02 | 0.0 | 0 |
| 2021-03-12 | 69 | 39 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-03-13 | 69 | 39 | 54.0 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-03-14 | 69 | 39 | 54.0 | 14 | 4 | 0.13 | 0.0 | 0 |
| 2021-03-15 | 53 | 40 | 46.5 | 7 | 0 | 0.22 | 0.0 | 0 |
| 2021-03-16 | 61 | 35 | 48.0 | 8 | 0 | 0.00 | 0.0 | 0 |
| 2021-03-17 | 57 | 37 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-03-18 | 54 | 47 | 50.5 | 11 | 1 | 0.66 | 0.0 | 0 |
| 2021-03-19 | M | M | M | M | M | 0.25 | 0.0 | 0 |
| 2021-03-20 | 64 | 43 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-03-21 | 69 | 44 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-03-22 | 67 | 42 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-03-23 | 66 | 49 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-03-24 | 72 | 49 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-03-25 | 67 | 46 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-03-26 | 74 | 47 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-03-27 | 77 | 44 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-03-28 | 79 | 44 | 61.5 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-03-29 | 77 | 45 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-03-30 | 77 | 45 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-03-31 | 80 | 47 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| Average Sum | 66.5 | 42.2 | 54.4 | 440 | 149 | 1.91 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - April 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-04-01 | 85 | 49 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-04-02 | 85 | 48 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-04-03 | 71 | 46 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-04 | M | 45 | M | M | M | 0.00 | 0.0 | 0 |
| 2021-04-05 | 65 | 46 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-04-06 | 72 | 44 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-07 | 68 | 46 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-04-08 | 74 | 42 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-09 | 71 | 46 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-10 | 75 | 43 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-11 | 80 | 46 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-04-12 | 80 | 44 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-13 | 76 | 47 | 61.5 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-14 | 71 | 43 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-04-15 | 73 | 42 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-04-16 | 75 | 42 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-04-17 | 86 | 45 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-04-18 | 89 | 48 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-04-19 | 80 | 52 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-04-20 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-21 | 73 | 51 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-04-22 | 73 | 49 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-04-23 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-04-24 | 71 | 49 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-04-25 | 62 | 50 | 56.0 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2021-04-26 | 66 | 39 | 52.5 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-04-27 | 79 | 49 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-04-28 | 86 | 49 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-04-29 | 88 | 52 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-04-30 | 82 | 52 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| Average Sum | 75.9 | 46.8 | 61.4 | 626 | 336 | 0.02 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - May 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-05-01 | 78 | 50 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-05-02 | 85 | 51 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-05-03 | 91 | 58 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-05-04 | 90 | 59 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-05-05 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-05-06 | 81 | 50 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-05-07 | 78 | 51 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-05-08 | 89 | 60 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-05-09 | 88 | 58 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-05-10 | 93 | 54 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-05-11 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-05-12 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-05-13 | 83 | 49 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-05-14 | 76 | 50 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-05-15 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-05-16 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-05-17 | 71 | 49 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-05-18 | 81 | 50 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-05-19 | 74 | 48 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-05-20 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-05-21 | 75 | 53 | 64.0 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-05-22 | 76 | 47 | 61.5 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-05-23 | 75 | 50 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-05-24 | 84 | 52 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-05-25 | 80 | 59 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-05-26 | 86 | 52 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-05-27 | 83 | 51 | 67.0 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-05-28 | 83 | 56 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-05-29 | 79 | 52 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-05-30 | 93 | 51 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-05-31 | 100 | 58 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| Average Sum | 82.4 | 52.7 | 67.5 | 861 | 551 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - June 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-06-01 | 96 | 63 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-06-02 | 88 | 53 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-06-03 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-06-04 | 88 | 59 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-06-05 | 88 | 55 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-06-06 | 84 | 56 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-06-07 | 80 | 53 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-06-08 | 71 | 50 | 60.5 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-06-09 | M | 63 | M | M | M | 0.00 | 0.0 | 0 |
| 2021-06-10 | 76 | 46 | 61.0 | 21 | 11 | 0.00 | 0.0 | 0 |
| 2021-06-11 | 79 | 52 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-06-12 | 89 | 52 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-06-13 | 84 | 60 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-06-14 | 81 | 63 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-06-15 | 88 | 52 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-06-16 | 98 | 60 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-06-17 | 107 | 65 | 86.0 | 46 | 36 | 0.00 | 0.0 | 0 |
| 2021-06-18 | 107 | 67 | 87.0 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2021-06-19 | 95 | 64 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-06-20 | 94 | 57 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-06-21 | 86 | 57 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-06-22 | 79 | 58 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-06-23 | 82 | 57 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-06-24 | 83 | 56 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-06-25 | 89 | 55 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-06-26 | 93 | 56 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-06-27 | 89 | 57 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-06-28 | 88 | 58 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-06-29 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-06-30 | 84 | 59 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| Average Sum | 87.9 | 57.3 | 72.5 | 951 | 661 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - July 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-07-01 | 80 | 58 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-07-02 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-03 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-04 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-05 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-06 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-07 | 88 | 55 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-08 | 101 | 56 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-09 | 104 | 69 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2021-07-10 | 107 | 62 | 84.5 | 45 | 35 | 0.00 | 0.0 | 0 |
| 2021-07-11 | 102 | 60 | 81.0 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-07-12 | 85 | 55 | 70.0 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-07-13 | 78 | 55 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-07-14 | 82 | 54 | 68.0 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-07-15 | 80 | 55 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-07-16 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-07-17 | 94 | 55 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-07-18 | 98 | 60 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-19 | 94 | 62 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-07-20 | 87 | 57 | 72.0 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-07-21 | 91 | 58 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-07-22 | 90 | 57 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-23 | 96 | 55 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-07-24 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-07-25 | 92 | 56 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-07-26 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-07-27 | 98 | 62 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-07-28 | 98 | 61 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-07-29 | 98 | 63 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-07-30 | 98 | 60 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-07-31 | 92 | 60 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| Average Sum | 91.4 | 57.9 | 74.6 | 1082 | 772 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - August 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-08-01 | 89 | 59 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-02 | 93 | 58 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-03 | 97 | 55 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-04 | 93 | 57 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-08-05 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-06 | 94 | 57 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-07 | 89 | 61 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-08-08 | 86 | 59 | 72.5 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-08-09 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-10 | 98 | 57 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-08-11 | 95 | 62 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-08-12 | 94 | 61 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-08-13 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-08-14 | 97 | 63 | 80.0 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-08-15 | 97 | 62 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-08-16 | 96 | 62 | 79.0 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-08-17 | 90 | 61 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-08-18 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-19 | 83 | 60 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-08-20 | 83 | 55 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-21 | 72 | 59 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-08-22 | 82 | 55 | 68.5 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-08-23 | 79 | 56 | 67.5 | 28 | 18 | 0.00 | 0.0 | 0 |
| 2021-08-24 | 81 | 51 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-08-25 | 85 | 54 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-08-26 | 94 | 54 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-08-27 | 100 | 61 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-08-28 | 102 | 64 | 83.0 | 43 | 33 | 0.00 | 0.0 | 0 |
| 2021-08-29 | 101 | 62 | 81.5 | 42 | 32 | 0.00 | 0.0 | 0 |
| 2021-08-30 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-08-31 | 87 | 59 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| Average Sum | 90.1 | 58.4 | 74.3 | 1070 | 760 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - September 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-09-01 | 87 | 55 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-02 | 78 | 53 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-03 | 88 | 51 | 69.5 | 30 | 20 | 0.00 | 0.0 | 0 |
| 2021-09-04 | 94 | 52 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-09-05 | 99 | 55 | 77.0 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-06 | 102 | 59 | 80.5 | 41 | 31 | 0.00 | 0.0 | 0 |
| 2021-09-07 | 99 | 64 | 81.5 | 42 | 32 | 0.00 | 0.0 | 0 |
| 2021-09-08 | 106 | 67 | 86.5 | 47 | 37 | 0.00 | 0.0 | 0 |
| 2021-09-09 | 94 | 65 | 79.5 | 40 | 30 | 0.00 | 0.0 | 0 |
| 2021-09-10 | 85 | 61 | 73.0 | 33 | 23 | 0.00 | 0.0 | 0 |
| 2021-09-11 | 91 | 58 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-09-12 | 95 | 58 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-13 | 94 | 59 | 76.5 | 37 | 27 | 0.00 | 0.0 | 0 |
| 2021-09-14 | 96 | 59 | 77.5 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-09-15 | 86 | 56 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-16 | 75 | 55 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-09-17 | 79 | 53 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-18 | 73 | 56 | 64.5 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-09-19 | 83 | 55 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-09-20 | 92 | 55 | 73.5 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-09-21 | 94 | 58 | 76.0 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-09-22 | 94 | 63 | 78.5 | 39 | 29 | 0.00 | 0.0 | 0 |
| 2021-09-23 | 97 | 54 | 75.5 | 36 | 26 | 0.00 | 0.0 | 0 |
| 2021-09-24 | 95 | 61 | 78.0 | 38 | 28 | 0.00 | 0.0 | 0 |
| 2021-09-25 | 86 | 55 | 70.5 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-09-26 | 77 | 55 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-09-27 | 77 | 56 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-09-28 | 82 | 56 | 69.0 | 29 | 19 | 0.00 | 0.0 | 0 |
| 2021-09-29 | 83 | 50 | 66.5 | 27 | 17 | 0.00 | 0.0 | 0 |
| 2021-09-30 | 89 | 53 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| Average Sum | 89.0 | 56.9 | 73.0 | 997 | 697 | 0.00 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - October 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-10-01 | 88 | 55 | 71.5 | 32 | 22 | 0.00 | 0.0 | 0 |
| 2021-10-02 | 92 | 58 | 75.0 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-10-03 | 90 | 58 | 74.0 | 34 | 24 | 0.00 | 0.0 | 0 |
| 2021-10-04 | 92 | 57 | 74.5 | 35 | 25 | 0.00 | 0.0 | 0 |
| 2021-10-05 | 88 | 54 | 71.0 | 31 | 21 | 0.00 | 0.0 | 0 |
| 2021-10-06 | 74 | 56 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-07 | 71 | 53 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-08 | 69 | 50 | 59.5 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-10-09 | 76 | 48 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-10 | 80 | 50 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-11 | 75 | 55 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-12 | 72 | 54 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-10-13 | 72 | 46 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-10-14 | 79 | 47 | 63.0 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-10-15 | 81 | 49 | 65.0 | 25 | 15 | 0.00 | 0.0 | 0 |
| 2021-10-16 | 83 | 49 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-17 | 78 | 54 | 66.0 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-18 | 65 | 43 | 54.0 | 14 | 4 | 0.03 | 0.0 | 0 |
| 2021-10-19 | 67 | 42 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-10-20 | 64 | 51 | 57.5 | 18 | 8 | 0.18 | 0.0 | 0 |
| 2021-10-21 | 66 | 56 | 61.0 | 21 | 11 | 0.51 | 0.0 | 0 |
| 2021-10-22 | 66 | 55 | 60.5 | 21 | 11 | 0.19 | 0.0 | 0 |
| 2021-10-23 | 64 | 51 | 57.5 | 18 | 8 | 0.01 | 0.0 | 0 |
| 2021-10-24 | 61 | 56 | 58.5 | 19 | 9 | 6.10 | 0.0 | 0 |
| 2021-10-25 | 64 | 53 | 58.5 | 19 | 9 | 1.43 | 0.0 | 0 |
| 2021-10-26 | 67 | 49 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-10-27 | 74 | 53 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-10-28 | 77 | 54 | 65.5 | 26 | 16 | 0.00 | 0.0 | 0 |
| 2021-10-29 | 74 | 53 | 63.5 | 24 | 14 | 0.00 | 0.0 | 0 |
| 2021-10-30 | 68 | 56 | 62.0 | 22 | 12 | 0.00 | 0.0 | 0 |
| 2021-10-31 | 65 | 53 | 59.0 | 19 | 9 | 0.00 | 0.0 | 0 |
| Average Sum | 74.3 | 52.2 | 63.2 | 726 | 416 | 8.45 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - November 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-11-01 | 61 | 56 | 58.5 | 19 | 9 | 0.25 | 0.0 | 0 |
| 2021-11-02 | 68 | 54 | 61.0 | 21 | 11 | 0.07 | 0.0 | 0 |
| 2021-11-03 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-11-04 | 69 | 58 | 63.5 | 24 | 14 | 0.04 | 0.0 | 0 |
| 2021-11-05 | 65 | 48 | 56.5 | 17 | 7 | 0.00 | 0.0 | 0 |
| 2021-11-06 | 65 | 52 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-07 | 63 | 47 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-08 | 62 | 41 | 51.5 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-09 | 58 | 50 | 54.0 | 14 | 4 | 1.48 | 0.0 | 0 |
| 2021-11-10 | 66 | 51 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-11 | 69 | 51 | 60.0 | 20 | 10 | 0.00 | 0.0 | 0 |
| 2021-11-12 | 63 | 47 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-13 | 60 | 49 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-14 | 60 | 51 | 55.5 | 16 | 6 | 0.02 | 0.0 | 0 |
| 2021-11-15 | 56 | 51 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-16 | 67 | 50 | 58.5 | 19 | 9 | 0.00 | 0.0 | 0 |
| 2021-11-17 | 64 | 42 | 53.0 | 13 | 3 | 0.00 | 0.0 | 0 |
| 2021-11-18 | 58 | 46 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-19 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-20 | 69 | 46 | 57.5 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-21 | 69 | 40 | 54.5 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-22 | 65 | 39 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-23 | 63 | 41 | 52.0 | 12 | 2 | 0.00 | 0.0 | 0 |
| 2021-11-24 | 67 | 43 | 55.0 | 15 | 5 | 0.00 | 0.0 | 0 |
| 2021-11-25 | 63 | 38 | 50.5 | 11 | 1 | 0.00 | 0.0 | 0 |
| 2021-11-26 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-27 | 65 | 42 | 53.5 | 14 | 4 | 0.00 | 0.0 | 0 |
| 2021-11-28 | 67 | 44 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-11-29 | 69 | 47 | 58.0 | 18 | 8 | 0.00 | 0.0 | 0 |
| 2021-11-30 | 69 | 45 | 57.0 | 17 | 7 | 0.00 | 0.0 | 0 |
| Average Sum | 64.9 | 47.0 | 55.9 | 487 | 187 | 1.86 | 0.0 | 0.0 |

Climatological Data for FAIRFIELD, CA - December 2021

| Date | Max Temperature | Min Temperature | Avg Temperature | GDD Base 40 | GDD Base 50 | Precipitation | Snowfall | Snow Depth |
|-------------|-----------------|-----------------|-----------------|-------------|-------------|---------------|----------|------------|
| 2021-12-01 | 69 | 42 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-12-02 | 67 | 44 | 55.5 | 16 | 6 | 0.00 | 0.0 | 0 |
| 2021-12-03 | 72 | 53 | 62.5 | 23 | 13 | 0.00 | 0.0 | 0 |
| 2021-12-04 | M | M | M | M | M | 0.00 | 0.0 | 0 |
| 2021-12-05 | 50 | 43 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-06 | 49 | 44 | 46.5 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-07 | 59 | 47 | 53.0 | 13 | 3 | 0.05 | 0.0 | 0 |
| 2021-12-08 | 53 | 45 | 49.0 | 9 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-09 | 59 | 47 | 53.0 | 13 | 3 | 0.02 | 0.0 | 0 |
| 2021-12-10 | 57 | 37 | 47.0 | 7 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-11 | 56 | 35 | 45.5 | 6 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-12 | 50 | 45 | 47.5 | 8 | 0 | 0.85 | 0.0 | 0 |
| 2021-12-13 | 55 | 48 | 51.5 | 12 | 2 | 3.30 | 0.0 | 0 |
| 2021-12-14 | 51 | 37 | 44.0 | 4 | 0 | 0.51 | 0.0 | 0 |
| 2021-12-15 | 52 | 36 | 44.0 | 4 | 0 | 0.04 | 0.0 | 0 |
| 2021-12-16 | 55 | 45 | 50.0 | 10 | 0 | 0.80 | 0.0 | 0 |
| 2021-12-17 | 54 | 35 | 44.5 | 5 | 0 | 0.02 | 0.0 | 0 |
| 2021-12-18 | 46 | 31 | 38.5 | 0 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-19 | 46 | 39 | 42.5 | 3 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-20 | 47 | 41 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| 2021-12-21 | 47 | 38 | 42.5 | 3 | 0 | 0.08 | 0.0 | 0 |
| 2021-12-22 | 47 | 42 | 44.5 | 5 | 0 | 0.06 | 0.0 | 0 |
| 2021-12-23 | 58 | 46 | 52.0 | 12 | 2 | 0.92 | 0.0 | 0 |
| 2021-12-24 | 55 | 48 | 51.5 | 12 | 2 | 0.10 | 0.0 | 0 |
| 2021-12-25 | 55 | 46 | 50.5 | 11 | 1 | 0.86 | 0.0 | 0 |
| 2021-12-26 | 48 | 35 | 41.5 | 2 | 0 | 0.05 | 0.0 | 0 |
| 2021-12-27 | 51 | 44 | 47.5 | 8 | 0 | 0.65 | 0.0 | 0 |
| 2021-12-28 | 45 | 37 | 41.0 | 1 | 0 | 0.05 | 0.0 | 0 |
| 2021-12-29 | 44 | 41 | 42.5 | 3 | 0 | 0.50 | 0.0 | 0 |
| 2021-12-30 | 54 | 42 | 48.0 | 8 | 0 | 0.03 | 0.0 | 0 |
| 2021-12-31 | 55 | 33 | 44.0 | 4 | 0 | 0.00 | 0.0 | 0 |
| Average Sum | 53.5 | 41.5 | 47.5 | 236 | 38 | 8.89 | 0.0 | 0.0 |

Appendix C

Corps Jurisdictional Determination



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

February 1, 2022

Regulatory Division

Subject: File No. SPN-2005-298180

Mr. Robert Perrera
Huffman-Broadway Group, Inc.
828 Mission Avenue
San Rafael, California 94901
Rperrera@h-bgroup.com

Dear Mr. Pererra:

This correspondence is in reference to your submittal of August 23, 2021, on behalf of Buzz Oates Construction and Tom Gentry California Company, requesting a preliminary jurisdictional determination of the extent of navigable waters of the United States and waters of the United States occurring on a Highway 12 Logistics Center site located near the City of Suisun City, Solano County, California; Latitude 38.2333°, Longitude -122.0541°.

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; and within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended, 33 U.S.C. § 1344 *et seq.*

All proposed structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States, typically require Department of the Army authorization and the issuance of a permit under Section 10 of the Rivers and Harbors Act of 1899, as amended, 33 U.S.C. § 403 *et seq.*

The enclosed delineation map titled "Preliminary Jurisdictional Determination pursuant to Section 404 Clean Water Act and Section 10 Rivers and Harbors Act, Highway 12 Logistics Center, Solano County, California," in one sheet and date certified January 19, 2022, depicts the extent and location of wetlands, and other waters of the United States, and navigable waters of the United States within the Study Area Boundary of the site that **may be** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. This preliminary jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of October 28, 2021, a review of available digital photographic imagery, and a review of other data included in your submittal. While this preliminary jurisdictional determination was conducted pursuant to Regulatory Guidance Letter No. 16-01, *Jurisdictional Determinations*, it may be subject to future

revision if new information or a change in field conditions becomes subsequently apparent. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form*. You are requested to sign and date this form and return it to this office within two weeks of receipt.

You are advised that the preliminary jurisdictional determination may **not** be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. pt. 331 (65 Fed. Reg. 16,486; Mar. 28, 2000). Under the provisions of 33 C.F.R Section 331.5(b)(9), non-appealable actions include preliminary jurisdictional determinations since they are considered to be only advisory in nature and make no definitive conclusions on the jurisdictional status of the water bodies in question. However, you may request this office to provide an approved jurisdictional determination that precisely identifies the scope of jurisdictional waters on the site; an approved jurisdictional determination may be appealed through the *Administrative Appeal Process*. If you anticipate requesting an approved jurisdictional determination at some future date, you are advised not to engage in any on-site grading or other construction activity in the interim to avoid potential violations and penalties under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Finally, you may provide this office new information for further consideration and request a reevaluation of this preliminary jurisdictional determination.

You may refer any questions on this matter to Bryan Matsumoto by telephone at (415) 503-6786 or by e-mail at Bryan.T.Matsumoto@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter. The San Francisco District is committed to improving service to our customers. The Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <https://www.spn.usace.army.mil/Missions/Regulatory.aspx>.

Sincerely,



Bryan Matsumoto
Senior Project Manager
Regulatory Division

Enclosures

cc (w/ encls):

RWQCB, Erin Fairley, erin.fairley@waterboards.ca.gov

Buzz Oates Construction, Joe Livaich, joelivaich@buzzoates.com

Appendix D.

Flora and Fauna Species Tables

TABLES

- Table 1. Plant Species Observed on the Project Site in 2022
- Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site.
- Table 3. Special Status Plants known to Occur within a 10-Mile Radius of the Project Site
- Table 4. Special Status Animal Species known to Occur within a 10-Mile Radius of the Project Site

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---------------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| Trees | | | |
| <i>Fraxinus</i> sp. | Ash | FACW | |
| <i>Phoenix canariensis</i> * | Canary Island date palm | NL | L |
| <i>Prunus dulcis</i> * | Domestic almond | NL | |
| <i>Salix babylonica</i> * | Weeping willow | FAC | |
| <i>Salix gooddingii</i> | Goodding's black willow | FACW | |
| <i>Salix lasiolepis</i> | Arroyo willow | FACW | |
| <i>Quercus agrifolia</i> | Coast live oak | NL | |
| Shrubs | | | |
| <i>Baccharis glutinosa</i> | Salt marsh baccharis | FACW | |
| <i>Baccharis pilularis</i> | Coyote brush | NL | |
| <i>Tamarix</i> sp.* | Tamarisk | FACW | |
| Vines | | | |
| <i>Rosa californica</i> | California rose | FAC | |
| <i>Rosa</i> sp.* | Rose | NL | |
| <i>Rubus armeniacus</i> * | Himalayan blackberry | FAC | H |
| <i>Rubus ursinus</i> | California blackberry | FAC | |
| <i>Vitis californica</i> | California wild grape | FACU | |
| Grasses | | | |
| <i>Avena fatua</i> * | Wild oat | NL | M |
| <i>Briza minor</i> * | Little quaking grass | FAC | |
| <i>Bromus diandrus</i> * | ripgut brome | NL | M |
| <i>Bromus hordeaceus</i> * | Soft brome | FACU | L |
| <i>Cortaderia selloana</i> * | Pampas grass | FACW | H |
| <i>Crypsis vaginiflora</i> * | African prickly grass | OBL | |
| <i>Cynodon dactylon</i> * | Bermuda grass | FACU | M |
| <i>Deschampsia danthonioides</i> | Annual hairgrass | FACW | |
| <i>Distichlis spicata</i> | Inland saltgrass | FAC | |
| <i>Echinochloa crus-galli</i> * | Barnyard grass | FACW | |
| <i>Echinochloa muricata</i> * | Rough barnyard grass | FACW | |
| <i>Elymus caput-medusae</i> * | Medusa head | NL | H |
| <i>Elymus triticoides</i> | Creeping wild rye, Beardless wild rye | FAC | |
| <i>Festuca bromoides</i> * | Brome fescue | FACU | |
| <i>Festuca perennis</i> * | Italian rye grass | FAC | M |
| <i>Hainardia cylindrica</i> * | Barbgrass | FACW | |
| <i>Hordeum brachyantherum</i> | Meadow barley | FACW | |
| <i>Hordeum depressum</i> | Alkali barley | FACW | |
| <i>Hordeum marinum</i> ssp. <i>gussoneanum</i> * | Mediterranean barley | FAC | M |
| <i>Hordeum murinum</i> ssp. <i>leporinum</i> * | Hare barley | FACU | |
| <i>Parapholis incurva</i> * | Curved sicklegrass | FACU | |
| <i>Paspalum dilatatum</i> * | Dallis grass | FAC | |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Paspalum distichum</i> | Knot grass | FACW | |
| <i>Phalaris paradoxa</i> * | Hood canarygrass | FAC | |
| <i>Phragmites australis</i> | Common reed | FACW | |
| <i>Pleuropogon californicus</i> | Annual semaphoregrass | OBL | |
| <i>Poa annua</i> * | Annual blue grass | FAC | |
| <i>Polypogon monspeliensis</i> * | Rabbitsfoot grass | FACW | L |
| <i>Schismus arabicus</i> * | Arabian schismus | NL | L |
| Grasslikes | | | |
| <i>Bolboschoenus robustus</i> | Sturdy bullrush | OBL | |
| <i>Carex barbarae</i> | Santa Barbara sedge | FAC | |
| <i>Cyperus eragrostis</i> | Tall flatsedge | FACW | |
| <i>Eleocharis macrostachya</i> | Common spikerush | OBL | |
| <i>Juncus balticus</i> | Baltic rush | FACW | |
| <i>Juncus bufonius</i> | Toad rush | FACW | |
| <i>Juncus effusus</i> ssp. <i>pacificus</i> | Pacific rush | FACW | |
| <i>Juncus mexicanus</i> | Mexican rush | FACW | |
| <i>Schoenoplectus acutus</i> var. <i>occidentalis</i> | Tule | OBL | |
| <i>Schoenoplectus americanus</i> | Chairmaker's bulrush | OBL | |
| <i>Schoenoplectus californicus</i> | California bulrush | OBL | |
| <i>Triglochin concinna</i> var. <i>concinna</i> | Arrowgrass | OBL | |
| <i>Triglochin maritima</i> | Arrowgrass | OBL | |
| <i>Triglochin scilloides</i> | Flowering-quillwort | OBL | |
| <i>Typha angustifolia</i> * | Narrowleaf cattail | OBL | |
| <i>Typha latifolia</i> | Broadleaf cattail | OBL | |
| Herbs | | | |
| <i>Achyraea mollis</i> | Blow wives | FAC | |
| <i>Alisma triviale</i> | Northern water plantain | OBL | |
| <i>Ambrosia psilostachya</i> | Ragweed | FACU | |
| <i>Apium graveolens</i> * | Celery | NL | |
| <i>Artemisia douglasiana</i> | California mugwort | FAC | |
| <i>Asparagus officinalis</i> ssp. <i>officinalis</i> * | Garden asparagus | FACU | |
| <i>Astragalus tener</i> var. <i>tener</i> | Alkali milk vetch | FACW | |
| <i>Atriplex prostrata</i> * | Fat-hen | FACW | |
| <i>Bassia hyssopifolia</i> * | Five horn bassia | FACU | L |
| <i>Bellardia trixago</i> * | Mediterranean linseed | NL | L |
| <i>Bidens frondosa</i> | Devil's beggartick | FACW | |
| <i>Brodiaea minor</i> | Dwarf brodiaea | NL | |
| <i>Callitriche marginata</i> | California water starwort | OBL | |
| <i>Capsella bursa-pastoris</i> * | Shepherd's purse | FACU | |
| <i>Cardamine oligosperma</i> | Bitter cress | FAC | |
| <i>Carduus pycnocephalus</i> * | Italian thistle | NL | M |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Castilleja attenuata</i> | Narrow leaved owl's clover | NL | |
| <i>Castilleja campestris</i> ssp. <i>campestris</i> | Field owl clover | FACW | |
| <i>Centaurea calcitrapa</i> * | Purple star-thistle | NL | M |
| <i>Centaurea solstitialis</i> * | Yellow star-thistle | NL | H |
| <i>Centromadia pungens</i> | Common tarweed | FAC | |
| <i>Cerastium glomeratum</i> * | Large mouse ears | UPL | |
| <i>Chenopodium album</i> * | Lamb's quarters | FACU | |
| <i>Cirsium vulgare</i> * | Bull thistle | FACU | M |
| <i>Conium maculatum</i> * | Poison hemlock | FACW | M |
| <i>Convolvulus arvensis</i> * | Field bindweed | NL | |
| <i>Cotula coronopifolia</i> * | Brass buttons | OBL | L |
| <i>Crassula aquatica</i> | Water pygmyweed | OBL | |
| <i>Cressa truxillensis</i> | Alkali weed | FACW | |
| <i>Croton setiger</i> | Turkey-mullein | NL | |
| <i>Cynara cardunculus</i> * | Cardoon | NL | M |
| <i>Downingia pulchella</i> | Flatface downingia | OBL | |
| <i>Epilobium brachycarpum</i> | Annual fireweed | FAC | |
| <i>Epilobium cleistogamum</i> | Cleistogamous boisduvalia | OBL | |
| <i>Erigeron canadensis</i> | Canada horseweed | FACU | |
| <i>Erodium botrys</i> * | Broad leaf filaree | FACU | |
| <i>Erodium cicutarium</i> * | Red stemmed filaree | NL | L |
| <i>Erodium moschatum</i> * | Musky stork's bill | NL | |
| <i>Eryngium vaseyi</i> | Coyote thistle | FACW | |
| <i>Euthamia occidentalis</i> | Western goldenrod | FACW | |
| <i>Foeniculum vulgare</i> * | Fennel | NL | H |
| <i>Frankenia salina</i> | Alkali heath | FACW | |
| <i>Galium aparine</i> | Common bedstraw | FACU | |
| <i>Grindelia stricta</i> | Coastal gumweed | FACW | |
| <i>Geranium dissectum</i> | Cut leaved geranium | | L |
| <i>Gnaphalium palustre</i> | Lowland cudweed | FACW | |
| <i>Helminthotheca echioides</i> * | Bristly ox-tongue | FAC | L |
| <i>Hirschfeldia incana</i> * | Short podded mustard | | M |
| <i>Hydrocotyle verticillata</i> | Whorled marsh pennywort | OBL | |
| <i>Jaumea carnosa</i> | Marsh jaumea | OBL | |
| <i>Lactuca serriola</i> * | Prickly wild lettuce | FACU | |
| <i>Lasthenia californica</i> ssp. <i>californica</i> | California goldfields | FACU | |
| <i>Lasthenia conjugens</i> | Contra Costa goldfields | FACW | |
| <i>Lasthenia ferrisiae</i> | Alkali goldfields | OBL | |
| <i>Lasthenia glaberrima</i> | Smooth goldfields | OBL | |
| <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> | Delta tule pea | OBL | |
| <i>Leontodon saxatilis</i> * | Hairy hawkbit | FACU | |

Table 1. Plant Species Observed on the Project Site in 2022

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|---|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Lepidium latifolium</i> * | Broad leaved pepper grass, Perennial pepperweed | FAC | H |
| <i>Lepidium latipes</i> var. <i>heckardii</i> | Heckard's pepper grass | FACW | |
| <i>Lepidium nitidum</i> | Shining pepperweed | FAC | |
| <i>Limosella aquatica</i> | Northern mudwort | OBL | |
| <i>Lotus corniculatus</i> * | Bird's foot trefoil | FAC | |
| <i>Lupinus bicolor</i> | Miniature lupine | NL | |
| <i>Lysimachia arvensis</i> | Scarlet pimpernel | NL | |
| <i>Lythrum hyssopifolia</i> * | Hyssop loosestrife | FAC | L |
| <i>Malva neglecta</i> * | Common mallow | NL | |
| <i>Malva parviflora</i> * | Cheeseweed mallow | NL | |
| <i>Medicago polymorpha</i> * | Bur clover | FACU | L |
| <i>Melilotus albus</i> * | White sweetclover | NL | |
| <i>Melilotus indicus</i> * | Annual yellow sweetclover | FACU | |
| <i>Mentha ×piperita</i> * | Peppermint | NL | |
| <i>Microseris campestris</i> | San Joaquin microseris | NL | |
| <i>Muilla maritima</i> | Common muilla | NL | |
| <i>Myosurus minimus</i> | Common mouse tail | OBL | |
| <i>Myosurus sessilis</i> | Tiny mouse tail | FACW | |
| <i>Nasturtium officinale</i> | Watercress | OBL | |
| <i>Oenanthe sarmentosa</i> | Water parsley | OBL | |
| <i>Persicaria punctata</i> | Dotted smartweed | OBL | |
| <i>Phyla nodiflora</i> var. <i>nodiflora</i> | Common lippia | FACW | |
| <i>Plagiobothrys greenei</i> | Greene's popcornflower | FACW | |
| <i>Plagiobothrys humistratus</i> | Dwarf popcornflower | OBL | |
| <i>Plagiobothrys leptocladus</i> | Alkali popcornflower | OBL | |
| <i>Plagiobothrys stipitatus</i> var. <i>micranthus</i> | Stalked popcornflower | FACW | |
| <i>Plantago elongata</i> | Coastal plantain | FACW | |
| <i>Plantago lanceolata</i> * | English plantain | FAC | L |
| <i>Plantago major</i> * | Common plantain | FAC | |
| <i>Polygonum aviculare</i> * | Prostrate knotweed | FAC | |
| <i>Potentilla anserina</i> ssp. <i>pacifica</i> | Pacific potentilla | OBL | |
| <i>Psilocarphus brevissimus</i> var. <i>brevissimus</i> | Woolly marbles | FACW | |
| <i>Psilocarphus oregonus</i> | Oregon woolly marbles | OBL | |
| <i>Ranunculus muricatus</i> * | Buttercup | FACW | |
| <i>Ranunculus scleratus</i> | Cursed buttercup | OBL | |
| <i>Raphanus raphanistrum</i> * | Wild radish | NL | |
| <i>Rumex conglomeratus</i> * | Clustered dock | FACW | |
| <i>Rumex crispus</i> * | Curly dock | FAC | L |
| <i>Rumex pulcher</i> * | Fiddle dock | FAC | |
| <i>Salicornia pacifica</i> | Pickleweed | OBL | |
| <i>Salsola tragus</i> * | Russian thistle | FACU | L |

| Table 1. Plant Species Observed on the Project Site in 2022 | | Wetland Indicator Status | Cal-IPC Rating |
|---|--------------------------------|--------------------------|----------------|
| Scientific Name | Common Name | | |
| <i>Senecio hydrophilus</i> | Alkali marsh ragwort | OBL | |
| <i>Senecio vulgaris</i> * | Common groundsel | FACU | |
| <i>Silene gallica</i> * | Common catchfly | NL | |
| <i>Silybum marianum</i> * | Milk thistle | NL | L |
| <i>Soliva sessilis</i> * | Field burrweed | FACU | |
| <i>Sonchus oleraceus</i> * | Sow thistle | UPL | |
| <i>Spergularia macrotheca var. longistyla</i> | Long-styled sand spurry | FAC | |
| <i>Spergularia marina</i> | Salt marsh sand spurry | OBL | |
| <i>Spergularia rubra</i> * | Purple sand spurry | FAC | |
| <i>Symphotrichum lentum</i> | Suisun Marsh aster | OBL | |
| <i>Tragopogon porrifolius</i> * | Purple salsify | NL | |
| <i>Trifolium campestre</i> * | Low hop clover | NL | |
| <i>Trifolium depauperatum var. amplexens</i> | Balloon sack clover | FAC | |
| <i>Trifolium depauperatum var. depauperatum</i> | Bladder sack clover | FAC | |
| <i>Trifolium depauperatum var. truncatum</i> | Dwarf sack clover | FAC | |
| <i>Trifolium fucatum</i> | Sour clover | FACU | |
| <i>Trifolium hirtum</i> * | Rose clover | NL | L |
| <i>Trifolium hydrophilum</i> | Saline clover | FAC | |
| <i>Trifolium repens</i> * | White clover | FACU | |
| <i>Trifolium subterraneum</i> * | Subterranean clover | NL | |
| <i>Trifolium tomentosum</i> * | Woolly clover | NL | |
| <i>Trifolium variegatum</i> | Variegated clover | FAC | |
| <i>Trifolium willdenovii</i> | Tomcat clover | FACW | |
| <i>Triphysaria eriantha</i> | Butter-and-eggs | NL | |
| <i>Triphysaria pusilla</i> | Dwarf owl's clover | NL | |
| <i>Triphysaria versicolor ssp. faucibarbata</i> | Yellow owl's clover | NL | |
| <i>Verbascum thapsus</i> * | Moth mullein | FACU | L |
| <i>Veronica peregrina ssp. xalapensis</i> | Hairy purslane speedwell | FAC | |
| <i>Vicia sativa</i> * | Spring vetch | FACU | |
| <i>Vicia villosa</i> * | Hairy vetch | NL | |
| <i>Xanthium spinosum</i> * | Spiny cocklebur | FACU | |
| <i>Xanthium strumarium</i> | Cocklebur | FAC | |

* = non native , + = observed just out side the Study Area.

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|----------------------------------|-----------------------------------|
| Reptiles and Amphibians | |
| Pacific Chorus Frog | <i>Pseudacris regilla</i> |
| Bullfrog | <i>Rana catesbeiana</i> |
| Western Toad | <i>Bufo boreas</i> |
| Western Fence Lizard | <i>Sceloporus occidentalis</i> |
| Coast Horned Lizard | <i>Phrynosoma coronatum</i> |
| Gilbert's Skink | <i>Eumeces gilberti</i> |
| Western Whiptail | <i>Cnemidophorus tigris</i> |
| Southern Alligator Lizard | <i>Gerrhonotus multicarinatus</i> |
| Racer | <i>Coluber constrictor</i> |
| Coachwhip | <i>Masticophis flagellum</i> |
| Glossy Snake | <i>Arizona elegans</i> |
| Gopher Snake | <i>Pituophis melanoleucus</i> |
| Common Kingsnake | <i>Lampropeltis getulus</i> |
| Long-nosed Snake | <i>Rhinocheilus lecontei</i> |
| Common Garter Snake | <i>Thamnophis sirtalis</i> |
| Western Terrestrial Garter Snake | <i>Thamnophis elegans</i> |
| Western Rattlesnake | <i>Crotalis viridis</i> |
| Birds | |
| Pied-billed Grebe | <i>Podilymbus podiceps</i> |
| Eared Grebe | <i>Podiceps nigricollis</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|---------------------------|----------------------------------|
| Western Grebe | <i>Aechmophorus occidentalis</i> |
| Clark's Grebe | <i>Aechmophorus clarkii</i> |
| American White Pelican | <i>Pelecanus erythrorhynchos</i> |
| Double-crested Cormorant | <i>Phalacrocorax auritus</i> |
| American Bittern | <i>Botaurus lentiginosus</i> |
| Great Blue Heron | <i>Ardea herodias</i> |
| Green Heron | <i>Butorides virescens</i> |
| Black-crowned Night Heron | <i>Nycticorax nycticorax</i> |
| Great Egret | <i>Ardea albus</i> |
| Snowy Egret | <i>Egretta thula</i> |
| Cattle Egret | <i>Bubulcus ibis</i> |
| Canada Goose | <i>Branta Canadensis</i> |
| Green-Winged Teal | <i>Anas crecca</i> |
| Mallard | <i>Anas platyrhyncos</i> |
| Northern Pintail | <i>Anas acuta</i> |
| Cinnamon Teal | <i>Anas cyanoptera</i> |
| Northern Shoveler | <i>Anas clyeata</i> |
| Gadwall | <i>Anas strepera</i> |
| American Wigeon | <i>Anas americana</i> |
| Canvasback | <i>Aythya valisineria</i> |
| Redhead | <i>Aythya americana</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|----------------------|-------------------------------|
| Ring-necked Duck | <i>Aythya collaris</i> |
| Lesser Scaup | <i>Aythya affinis</i> |
| Common Goldeneye | <i>Bucephala clangula</i> |
| Bufflehead | <i>Bucephala albeola</i> |
| Ruddy Duck | <i>Oxyura jamaicensis</i> |
| Turkey Vulture | <i>Cathartes aura</i> |
| Osprey | <i>Pandion haliaetus</i> |
| White-tailed Kite | <i>Elanus leucurus</i> |
| Northern Harrier | <i>Circus hudsonius</i> |
| Sharp-shinned Hawk | <i>Accipiter striatus</i> |
| Cooper's Hawk | <i>Accipiter cooperi</i> |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> |
| Red-shouldered Hawk | <i>Buteo lineatus</i> |
| Golden Eagle | <i>Aquila chrysaetos</i> |
| American Kestrel | <i>Falco sparverius</i> |
| Prairie Falcon | <i>Falco mexicanus</i> |
| Merlin | <i>Falco columbarius</i> |
| Ring-necked Pheasant | <i>Phasianus colchicus</i> |
| California Quail | <i>Callipepla californica</i> |
| Virginia Rail | <i>Rallus limicola</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|-----------------------|--------------------------------|
| Sora | <i>Porzana carolina</i> |
| Common Gallinule | <i>Gallinula galeata</i> |
| American Coot | <i>Fulica Americana</i> |
| Black-bellied Plover | <i>Pluvialis squatarola</i> |
| Killdeer | <i>Charadrius vociferous</i> |
| Black-necked Stilt | <i>Himantopus mexicanus</i> |
| American Avocet | <i>Recurvirostra americana</i> |
| Greater Yellowlegs | <i>Tringa melanoleuca</i> |
| Spotted Sandpiper | <i>Actitis macularia</i> |
| Long-billed Curlew | <i>Numenius americanus</i> |
| Least Sandpiper | <i>Calidris minutilla</i> |
| Western Sandpiper | <i>Calidris mauri</i> |
| Dunlin | <i>Calidris alpina</i> |
| Long-billed Dowitcher | <i>Limnodromus scolopaceus</i> |
| Wilson's Snipe | <i>Gallinago delicata</i> |
| Ring-billed Gull | <i>Larus delawarensis</i> |
| California Gull | <i>Larus californicus</i> |
| Herring Gull | <i>Larus argentatus</i> |
| Forster's Tern | <i>Sterna forsteri</i> |
| Caspian Tern | <i>Sterna caspia</i> |
| Rock Dove | <i>Columba livia</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|--------------------------|------------------------------------|
| Mourning Dove | <i>Zenaida macroura</i> |
| Barn Owl | <i>Tyto alba</i> |
| Great Horned Owl | <i>Bubo virginianus</i> |
| Burrowing Owl | <i>Athene cunicularia</i> |
| Short-eared Owl | <i>Asio flammeus</i> |
| Vaux's Swift | <i>Chaetura vauxi</i> |
| Anna's Hummingbird | <i>Calypte annas</i> |
| Belted Kingfisher | <i>Ceryle alcyon</i> |
| Northern Flicker | <i>Colaptes auratus</i> |
| Nuttall's Woodpecker | <i>Picoides nuttallii</i> |
| Downy Woodpecker | <i>Dryobates pubescens</i> |
| Black Phoebe | <i>Sayornis nigricans</i> |
| Say's Phoebe | <i>Sayornis saya</i> |
| Pacific-slope Flycatcher | <i>Empidonax difficilus</i> |
| Ash-throated Flycatcher | <i>Myiarchus cinerascens</i> |
| Western Kingbird | <i>Tyrannus verticalis</i> |
| California Horned Lark | <i>Eremophila alpestris actica</i> |
| Barn Swallow | <i>Hirundo rustica</i> |
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> |
| Tree Swallow | <i>Tachycineta bicolor</i> |
| Violet-green swallow | <i>Tachycineta thalassina</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|-------------------------------|-----------------------------------|
| Northern Rough-winged Swallow | <i>Stelgidopteryx serripennis</i> |
| California Scrub-jay | <i>Aphelocoma californica</i> |
| American Crow | <i>Corvus brachyrhynchos</i> |
| Common Bushtit | <i>Psaltriparus minimus</i> |
| Bewick's Wren | <i>Thryomanes bewickii</i> |
| House Wren | <i>Troglodytes aedon</i> |
| Marsh Wren | <i>Cistothorus palustris</i> |
| American Robin | <i>Turdus migratorius</i> |
| Hermit Thrush | <i>Hylocichla guttata</i> |
| Western Bluebird | <i>Sialia mexicana</i> |
| Ruby-crowned Kinglet | <i>Regulus calendula</i> |
| Northern Mockingbird | <i>Mimus polyglottos</i> |
| American Pipit | <i>Anthus rubescens</i> |
| Cedar Waxwing | <i>Bombycilla cedrorum</i> |
| Loggerhead Shrike | <i>Lanius ludovicianus</i> |
| European Starling | <i>Sturnus vulgaris</i> |
| Warbling Vireo | <i>Vireo gilvusi</i> |
| Orange-crowned Warbler | <i>Vermivora celata</i> |
| Yellow Warbler | <i>Setophaga petechia</i> |
| Yellow-rumped Warbler | <i>Setophaga coronata</i> |
| Townsend's Warbler | <i>Setophaga townsendi</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|------------------------|-------------------------------------|
| Common Yellowthroat | <i>Geothlypis trichas</i> |
| Wilson's Warbler | <i>Cardellina pusilla</i> |
| Western Tanager | <i>Piranga ludoviciana</i> |
| Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> |
| Lazuli Bunting | <i>Passerina amoena</i> |
| Spotted Towhee | <i>Pipilo maculatus</i> |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> |
| Lark Sparrow | <i>Chondestes grammacus</i> |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> |
| Golden-crowned Sparrow | <i>Zonotrichia atricapilla</i> |
| Fox Sparrow | <i>Passerella iliaca</i> |
| Suisun Song Sparrow | <i>Melospiza melodia maxillaris</i> |
| Lincoln's Sparrow | <i>Melospiza lincolnii</i> |
| Dark-eyed Junco | <i>Junco hyemalis</i> |
| Western Meadowlark | <i>Sturnella neglecta</i> |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i> |
| Tri-colored Blackbird | <i>Agelaius tricolor</i> |
| Brewer's Blackbird | <i>Euphagus cyanocephalus</i> |
| Brown-headed Cowbird | <i>Molothrus ater</i> |
| Bullock's Oriole | <i>Icterus bullockii</i> |
| Purple Finch | <i>Haemorhous purpureus</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|----------------------------|------------------------------------|
| House Finch | <i>mexicanus</i> |
| Pine Siskin | <i>Carduelis pinus</i> |
| American Goldfinch | <i>Spinus tristis</i> |
| Lesser Goldfinch | <i>Spinus psaltria</i> |
| House Sparrow | <i>Passer domesticus</i> |
| Mammals | |
| Virginia Opossum | <i>Didelphis virginiana</i> |
| Suisun Shrew | <i>Sorex ornatus sinuosus</i> |
| Broad-footed Mole | <i>Scapanus latimanus</i> |
| California Myotis | <i>Myotis californicus</i> |
| Western Pipistrelle | <i>Pipistrellus hesperus</i> |
| Big Brown Bat | <i>Eptesicus fuscus</i> |
| Red Bat | <i>Lasiurus borealis</i> |
| Pallid Bat | <i>Antrozous pallidus</i> |
| Brazilian Free-tailed Bat | <i>Tadarida brasiliensis</i> |
| Black-tailed Hare | <i>Lepus californicus</i> |
| Desert Cottontail | <i>Sylvilagus audubonii</i> |
| California Ground Squirrel | <i>Otospermophilus beecheyi</i> |
| Botta's Pocket Gopher | <i>Thomomys bottae</i> |
| Western Harvest Mouse | <i>Reithrodontomys megalotis</i> |
| Salt Marsh Harvest Mouse | <i>Reithrodontomys raviventris</i> |

Table 2. Animal Species Known to Occur or Expected to Occur on the Project Site

| Common Name | Scientific Name |
|--------------------|---------------------------------|
| Deer Mouse | <i>Peromyscus maniculatus</i> |
| California Vole | <i>Microtus californicus</i> |
| Muskrat | <i>Ondatra zibethicus</i> |
| Norway Rat | <i>Rattus norvegicus</i> |
| House Mouse | <i>Mus musculus</i> |
| Coyote | <i>Canis latrans</i> |
| Red Fox | <i>Vulpes fulva</i> |
| Gray Fox | <i>Urocyon cinereoargenteus</i> |
| Raccoon | <i>Procyon lotor</i> |
| Long-tailed Weasel | <i>Mustela frenata</i> |
| Striped Skunk | <i>Mephitis mephitis</i> |
| Mule Deer | <i>Odocoileus hemionus</i> |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|---|---|
| Ferris' milk-vetch (<i>Astragalus tener</i> var. <i>ferrisae</i>) | --/--/1B.1 | Inhabits subalkaline flats on overflow land within meadows and valley and foothill grassland, usually on dry, adobe soil. Extirpated from Solano Co. 5-75m. | Not present. Some suitable habitat is present, but the species is extirpated from Solano County. |
| Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>) | --/--/1B.2 | Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m. | Present. Special status plant surveys in 2021 and 2022 and prior years indicated this species is present in central areas of the proposed development area of the project site as well as in the area south of Cordelia Road. |
| Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>) | --/--/1B.2 | Inhabits alkaline flats and scalds with sandy soils. 0-560m. | Unlikely. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Brittlescale (<i>Atriplex depressa</i>) | --/--/1B.2 | Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in alkali scalds in alkaline clay soils. Rarely in riparian marshes or vernal pools. 1-320m. | Possible. A CNDDDB element was mapped on the project site in 2002, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Vernal pool smallscale (<i>Atriplex persistens</i>) | --/--/1B.2 | Inhabits alkali vernal pools; known from scattered locations in the Delta and Central Valley basin. 10-115m. | Unlikely. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|--|
| Big-scale balsamroot (<i>Balsamorhiza macrolepis</i>) | --/--/1B.2 | Chaparral, cismontane woodland, valley and foothill grassland, sometimes on serpentinite. 90-1555m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Narrow-anthered brodiaea (<i>Brodiaea leptandra</i>) | --/--/1B.2 | Broadleafed upland forest, chaparral, lower montane coniferous forest, valley and foothill grassland. 110-915m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Mt. Diablo fairy-lantern (<i>Calochortus pulchellus</i>) | --/--/1B.2 | Found on wooded and brushy slopes within chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. 30-915 m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Lyngbye's sedge (<i>Carex lyngbyei</i>) | -/--/2B.2 | Marshes and swamps (brackish or freshwater) at sea level. | Unlikely. Suitable habitat present but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Tiburon paintbrush (<i>Castilleja affinis</i> var. <i>neglecta</i>) | FE/ST/1B.2 | Rocky serpentinite sites within valley and foothill grassland. 75-400m. | Not present. Suitable habitat is not found at the site. |
| Holly-leaved ceanothus (<i>Ceanothus purpureus</i>) | --/--/1B.2 | Rocky volcanic slopes in chaparral. 120-640m. | Not present. Suitable habitat is not found at the project site |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|--|--|
| Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>) | --/--/1B.1 | Found in alkaline soils in valley and foothill grasslands. 1-230m. | Unlikely. Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>) | --/--/1B.2 | Found in mesic and often alkaline sites in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Hispid salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>hispidum</i>) | --/--/1B.1 | Found in meadows and seeps, playas, and valley and foothill grasslands. Alkaline soils in alkaline meadows and alkali sinks with <i>Distichlis</i> . 1-155m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Soft bird's-beak (<i>Chloropyron molle</i> ssp. <i>molle</i>) | FE/SR/1B .2 | Coastal salt marsh with <i>Distichlis</i> , <i>Salicornia</i> , <i>Frankenia</i> , etc. 0-3m. | Unlikely. According to the CNDDDB, this species was collected in 1904 along the railroad near Suisun. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Bolander's water-hemlock (<i>Cicuta maculata</i> var. <i>bolanderi</i>) | --/--/2B.1 | Found in fresh or brackish water. 0-200m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|--|
| Suisun thistle (<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>) | FE/-- /1B.1 | Found with <i>Scirpus</i> and <i>Distichlis</i> near small watercourses within salt marsh 0-1m; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano, Co. | Unlikely. Designated Critical Habitat occurs in the southern portion of the site. Although potential habitats are found on site, the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Recurved larkspur (<i>Delphinium recurvatum</i>) | --/--/1B.2 | On alkaline soils in chenopod scrub, cismontane woodland and valley and foothill grassland. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Western leatherwood (<i>Dirca occidentalis</i>) | --/--/1B.2 | On brushy slopes and mesic sites mostly in mixed evergreen and foothill woodland communities. 30-550m. | Not present. Suitable habitat is not found on site. |
| Dwarf downingia (<i>Downingia pusilla</i>) | --/--/2B.2 | Inhabits vernal pools and vernal lake margins. 1-445m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Greene's narrow-leaved daisy (<i>Erigeron greenei</i>) | --/--/1B.2 | Serpentine and volcanic substrates in chaparral. 75-1060m. | Not present. Suitable habitat not found at the site. |
| Mt. Diablo buckwheat (<i>Eriogonum truncatum</i>) | --/--/1B.1 | On dry, exposed clay or sandy substrates in chaparral, coastal scrub and valley and foothill grasslands. 3-350m. | Not present. Suitable habitat is not found at the site. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|--|---|
| Jepson's coyote-thistle (<i>Eryngium jepsonii</i>) | --/--/1B.2 | On clay soils in vernal pools and valley and foothill grassland. 3-305 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| San Joaquin spearscale (<i>Etriplex joaquiniana</i>) | --/--/1B.2 | Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with <i>Distichlis</i> , <i>Frankenia</i> , etc. 1-835m. | Unlikely. Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Fragrant fritillary (<i>Fritillaria liliaceas</i>) | --/--/1B.2 | Coastal scrub, coastal prairie and valley and foothill grasslands, often on serpentine but usually in clay. 3-410m. | Not present. Suitable habitat is not found at the project site |
| Adobe-lily (<i>Fritillaria pluriflora</i>) | --/--/1B.2 | Clay soils in valley and foothill grasslands, chaparral or cismontane woodland. 60-705m. | Not present. Suitable habitat is not found at the project site |
| Bogg's Lake hedge hyssop (<i>Gratiola heterosepala</i>) | -- /SE/1B.2 | Inhabits vernal pools and margins of vernal lakes. 10-2375m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Diablo helianthella (<i>Helianthella castanea</i>) | --/--/1B.2 | Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. | Not present. Suitable habitat is not found at the site. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|---|
| | | Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m. | |
| Brewer's western flax (<i>Hesperolinon breweri</i>) | --/--/1B.2 | Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland at 30-885 meters. | Not present. Suitable habitat is not found at the site. |
| Sharsmith's western flax (<i>Hesperolinon sharsmithiae</i>) | --/--/1B.2 | Serpentine substrates in chaparral. 180-670 m. | Not present. Suitable habitat not found at the site. |
| Woolly rose-mallow (<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>) | --/--/1B.2 | Freshwater marshes and swamps. Found on freshwater-soaked riverbanks and low peat islands in sloughs. 0-120m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Carquinez goldenbush (<i>Isocoma arguta</i>) | --/--/1B.1 | Found in valley and foothill grasslands on alkaline soils, on low benches near drainages and on the tops and sides of mounds in swale areas. 1-20m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Contra Costa goldfields (<i>Lasthenia conjugens</i>) | FE/--/1B.1 | Inhabits vernal pools, swales and low depressions in open grassy areas. Most remaining occurrences are restricted to the Fairfield region. 1-470m. | Present. Designated Critical Habitat occurs on the project site. Populations of this species were observed onsite in special status species surveys conducted in 2021 and 2022 and in prior surveys conducted in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|--|---|---|---|
| Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>) | --/--/1B.1 | Coastal salt marsh, playas, and vernal pools. Usually found on alkaline soils in in playas, sinks, and grasslands. 1-1375m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Delta tule pea (<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>) | --/--/1B.2 | Freshwater and brackish marshes with <i>Typha</i> , <i>Rosa</i> , <i>Juncus</i> , <i>Scirpus</i> etc. Usually on the marsh the slough edges. | Present onsite. Observed onsite in the southern portion of the property during special status plant surveys conducted in 2005 and again in 2021 and 2022. There are numerous known occurrences south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh. |
| Legenere (<i>Legenere limosa</i>) | --/--/1B.1 | Inhabits the beds of vernal pools. 1-880m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Heckard's pepper-grass (<i>Lepidium latipes</i> var. <i>heckardii</i>) | --/--/1B.2 | Valley and foothill grassland. In grassland or vernal pool edges on alkaline soils. 2-200 m. | Present. Although not observed during special status plant surveys conducted in 2000, 2001, 2002, 2005 or 2021, this species was found on the project site in surveys conducted in 2022. |
| Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>) | --/--/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 not found at the site. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|--|
| Mason's lilaepsis (<i>Lilaepsis masonii</i>) | -- /SR/1B.1 | Found in the tidal zone in muddy or silty soils with freshwater and brackish marshes and riparian scrub. 1-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Delta mudwort (<i>Limosella australis</i>) | --/--/2B.1 | Found in riparian scrub and in freshwater and brackish marshes. On mud banks in marsh and riparian associations. Often with Mason's lilaepsis. 0-3m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Marsh microseris (<i>Microseris paludosa</i>) | --/--/1B.2 | Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Baker's navarretia (<i>Navarretia leucocephala</i> <i>ssp. bakeri</i>) | --/--/1B.1 | Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils at 5-1740m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Few-flowered navarretia (<i>Navarretia leucocephala</i> <i>ssp. pauciflora</i>) | FE/ST/1B. 1 | Inhabits volcanic ash flows and volcanic substrates in vernal pools. 400-855m. | Not present. Suitable habitat not found at the site. |
| Colusa grass (<i>Neostapfia colusana</i>) | FT/SE/1B. 1 | Inhabits pool bottoms in adobe soils in large vernal pools and vernal lakes. 5-200m. | Unlikely. Suitable habitats are present, but the species was not observed during special status |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|---|--|
| | | | plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>) | FT/SE/1B.1 | Vernal pools 15-660 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Bearded popcorn flower (<i>Plagiobothrys hystriculus</i>) | --/--/1B.1 | Vernal pools, valley and foothill grassland in wet sites. 0-275m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Marin knotweed (<i>Polygonum marinense</i>) | --/--/3.1 | Coastal salt marshes and brackish marshes. 0-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| California alkali grass (<i>Puccinellia simplex</i>) | --/--/1B.2 | Found in meadows and seeps, chenopod scrub, and vernal pools in foothill grasslands. Found in alkaline, vernal mesic sinks, flats, and lake margins. 1-915 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| California beaked-rush (<i>Rhynchospora californica</i>) | --/--/1B.1 | Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
|---|---|--|---|
| Chaparral ragwort (<i>Senecio aphanactis</i>) | --/--/2B.2 | Known from foothill woodland and chaparral habitats. | Not present. Suitable habitat is not found at the site. |
| Keck's checkerbloom (<i>Sidalcea keckii</i>) | FE/-- /1B.1 | Found on grassy slopes in blue oak woodland. 75-650m. | Not present. Suitable habitat is not found at the project site |
| Long-styled sand-spurrey (<i>Spergularia macrotheca</i> var. <i>longistyla</i>) | --/--/1B.2 | Found in alkaline marshes and swamps, meadows and seeps. 0-220 m. | Present. Observed in previous surveys but not mapped as it had no listing status at the time. Observed in one location north of Cordelia Road and west of Pennsylvania Avenue during 2022 surveys. |
| Northern slender pondweed (<i>Stuckenia filiformis</i> ssp. <i>alpina</i>) | --/--/2B.2 | Found in marshes and swamps, in shallow, clear water of lakes and drainage channels. 300-2150m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Suisun Marsh aster (<i>Symphotrichum lentum</i>) | --/--/1B.2 | Found in freshwater and brackish marshes and swamps, often along sloughs with <i>Phragmites</i> , <i>Scirpus</i> , <i>Typha</i> , etc. 0-3m. | Present. Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in the southern portion of the project site and in the eastern portion of the proposed annexation area adjacent to the perennial brackish marsh ditch. |
| Napa bluecurls (<i>Trichostema ruygtii</i>) | --/--/1B.2 | Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower montane coniferous forest. 30-590 m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |

| TABLE 3. SPECIAL STATUS PLANTS KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|---|---|--|
| SPECIES | STATUS ² Federal/ State/ CRPR | HABITAT/RANGE | OCCURRENCE AT THE SITE |
| Two-fork clover (<i>Trifolium amoenum</i>) | FE/-- /1B.1 | Open, sunny sites and swales, sometimes on serpentine soil, within valley and foothill grassland and coastal buff scrub. Recently found on an eroding cliff face on a roadside. 5-415m. | Unlikely. Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Saline clover (<i>Trifolium hydrophilum</i>) | --/--/1B.2 | Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m. | Present onsite. Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in within areas proposed for development as well as the eastern portion of the annexation area, and the area south of Cordelia Road. |
| Crampton's tuctoria (<i>Tuctoria mucronata</i>) | FE/SE/1B .1 | Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10m. | Unlikely. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005. |
| Oval-leaved viburnum (<i>Viburnum ellipticum</i>) | --/--/2B.3 | Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m. | Not present. Suitable habitat not found at the site. |

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Map and surrounding areas, information dated March 2023.

2. Status Codes:

FE Federally listed Endangered.
FT Federally listed Threatened.
FPE Federally Proposed Endangered
FPT Federally Proposed Threatened
SE California State-listed Endangered
ST California State-listed Threatened
SR California State Rare
SCE California State Candidate Endangered
SCT California State Candidate Threatened

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 Ranks

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)

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Invertebrates | | | |
| Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) | FE/-- | Inhabits large vernal pools, often with turbid water; known from fewer than 15 occurrences in the Delta (Jepson Prairie) and Central Valley. | Not present. Nearest known occurrence is several miles to the east (Jepson Prairie). Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) | FE/-- | Inhabits vernal pools; known from fewer than 15 occurrences along western edge of the mid Central Valley (including Contra Costa, Alameda Counties) | Not present. Nearest known occurrence approximately 50 miles to the south (west of Tracy) in pools on sandstone outcrops. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Vernal Pool fairy shrimp (<i>Branchinecta lynchi</i>) | FT/-- | Inhabits vernal pools; occurs throughout the Delta and Central Valley. | Not present. Known from sites a couple of miles north and east of the property. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| Midvalley fairy shrimp (<i>Branchinecta mesovallensis</i>) | --/-- | Vernal pools, swales, and ephemeral freshwater habitat. | Not present. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large Brachiopods was conducted by Brent Helm. Results were negative. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Vernal Pool tadpole shrimp (<i>Lepidurus packardii</i>) | FE/-- | Inhabits vernal pools; known from scattered locations in the Delta and Central Valley. | Not present. Known CNDDDB records a couple miles east of the study site at Potrero Hill landfill and along Highway 12. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| California Linderiella (<i>Linderiella occidentalis</i>) | --/-- | Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. | Not present. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative. |
| California freshwater shrimp (<i>Syncaris pacifica</i>) | FE/SE | Found in low-elevation (less than 53-foot) and low gradient (generally less than 1%) streams. | Not present. Suitable habitat is not present at the site. Brackish waters in Ledgewood Creek would not be considered suitable habitat for California freshwater shrimp. |
| Wilbur Springs shore bug (<i>Saldula usingeri</i>) | --/-- | Found only on wet substrate of spring outflows. Requires springs/creeks with high concentrations of sodium, chlorine and lithium. | Not present. Suitable habitat not found at the site. |
| Hairy water flea (<i>Dumontia oregonensis</i>) | --/-- | Vernal pools. In California, known only from Mather Field. | Not present. Outside the range of the species. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Western bumble bee (<i>Bombus occidentalis</i>) | --/SCE-- | This species was once common and widespread, but the species has declined precipitously from Central California to Southern British Columbia, perhaps from disease. | This widespread and once common species could occur almost anywhere in the general area of the site and is included in the CNDDDB due to a general decline in bee populations in recent years. |
| Crotch bumble bee (<i>Bombus crotchii</i>) | --/SCE | Found in coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> and <i>Eriogonum</i> . | This species occurs primarily in California and is included in the CNDDDB due to sharp declines over the last decade. |
| Valley Elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) | FT/-- | Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills. | Not present. CNDDDB records of elderberry bushes with exit holes along creeks northwest of Fairfield. However, no blue elderberry bushes were observed on the site, therefore no potential habitat exists for this species onsite. |
| Delta Green ground beetle (<i>Elaphrus viridis</i>) | FT/-- | Inhabits the drying edges of large vernal pools; presently only known from Jepson Prairie area. They prefer barren areas with an abundance of their favored prey, springtails. | Not present. CNDDDB records at Jepson Prairie. Unlikely to occur on the study site due to a lack of suitable habitat. Project Area boundary is not within designated critical habitat. |

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|--|--|---|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Ricksecker's water scavenger beetle <i>(Hydrochara rickseckeri)</i> | --/-- | Aquatic beetle that lives in weedy shallow, open water associated freshwater seeps, springs, farm ponds, vernal pools (playa type pools) and slow-moving stream habitats. Occurs in Jepson Prairie preserve in Solano County. | Not present. May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative. |
| Curved-foot hygrotus diving beetle <i>(Hygrotis curvipes)</i> | --/-- | Inhabits small seasonal water bodies, mostly alkaline. | Not present. No CNDDDB records in the vicinity. May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative. |
| Monarch butterfly <i>(Danaus plexippus)</i> (wintering sites) | FC/-- | Winter roost sites are located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Not present. Suitable habitat for winter roosting sites is not present onsite. |
| Callippe silverspot butterfly <i>(Speyeria callippe callippe)</i> | FE/-- | Habitat for this species is grassland, often with a significant component of native grasses including the host plant (<i>Viola pedunculata</i>) and characterized by shallow rocky soils and numerous rock outcrops. | Not present. Suitable habitat consisting of grassland with shallow rocky soils and the larvae host plant is not present onsite. |
| Fish | | | |

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|--|--|---|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Western River lamprey (<i>Lampetra ayresii</i>) | --/SSC | Adult lampreys spawn in gravel bottomed streams, at the upstream end of riffle habitat, typically above suitable ammocoete habitat. River lampreys are associated with large river systems such as the Fraser, Columbia, Klamath, Eel, and Sacramento Rivers. | Not present. Suitable habitat is not present onsite. Ledgewood Creek is not characteristic of the large river systems River Lampreys are associated with. |
| Pacific lamprey (<i>Lampetra tridentata</i>) | --/SSC | Spawning takes place in low gradient sections of water, with gravel and sandy bottoms. Pacific lampreys have been historically or recently documented in many streams of the San Francisco Bay area. | Not present. Suitable habitat is not present onsite. |
| Green sturgeon, Southern DPS (<i>Acipenser medirostris</i>) | FT/-- | Green Sturgeon rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. They prefer to spawn in lower reaches of large rivers with swift currents and large cobble. They are found spawning in the Sacramento, Klamath and Rogue Rivers. | Not present. Suitable habitat is not present onsite. Ledgewood Creek is not characteristic of the large river systems Green Sturgeon are associated with. |

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|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Coho Salmon-Central California Coast ESU (<i>Oncorhynchus kisutch</i>) | FE/SE | Coho Salmon spawn in streams that are narrow, shallow, clear, and cold with a strong upwelling of water through the gravel. This ESU encompasses the area from Punta Gorda in northern California south to and including tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin river system. | Not present. This ESU is not known to occur east of Carquinez Strait. |
| Steelhead-Central California Coastal DPS (<i>Oncorhynchus mykiss irideus</i>) | FT/-- | Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the San Pablo Bay/Napa River watersheds. | Unlikely. There is the potential for this species to occur within LedgeWood Creek south of Cordelia Road. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat. |

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|--|--|--|--|
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| Steelhead-Central Valley DPS (<i>Oncorhynchus mykiss irideus</i>) | FT/-- | Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Suisun Bay/Sacramento River Delta watersheds. Waterways currently known to support breeding/rearing habitat for steelhead in Solano County include Green Valley, Suisun Valley and American Canyon Creeks. | Unlikely. There is the potential for this species to occur within LedgeWood Creek south of Cordelia Road. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat. |
| Chinook Salmon-Central Valley fall/late fall-run ESU (<i>Oncorhynchus tshawytscha</i>) | --/SSC | Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait. | Unlikely. There is the potential for this species to occur within LedgeWood Creek in the southern portion of the project site. LedgeWood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat. |

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| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Chinook Salmon Central Valley spring-run ESU (<i>Oncorhynchus tshawytscha</i>). | FT/ST | Chinook salmon choose to spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Sacramento River and its tributaries. | Unlikely. There is the potential for this species to occur within Ledgewood Creek in the southern portion of the project site. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat. |
| Chinook Salmon Sacramento River winter-run ESU (<i>Oncorhynchus tshawytscha</i>) | FE/SE | Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes populations of winter-run Chinook Salmon in the Sacramento River and its tributaries. | Unlikely. There is the potential for this species to occur within Ledgewood Creek in the southern portion of the project site. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat |
| Delta smelt (<i>Hypomesus transpacificus</i>) | FT/SE | 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. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the proposed development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |

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|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Longfin smelt (<i>Spirinchus thaleichthys</i>) | FC/ST | In California, Longfin Smelt have been commonly collected from San Francisco Bay, Eel River, Humboldt Bay and Klamath River. As they mature in the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning probably takes place in freshwater. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |

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|--|--|--|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Sacramento splittail (<i>Pogonichthys macrolepidotus</i>) | --/SSC | Adult Sacramento Splittail migrates 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. Within Solano County, splittail are year-round residents of Suisun Marsh, concentrating in the dead-end sloughs that typically have small streams feeding into them. | Unlikely. There is the potential for this species to occur in the southern portion of the project site or the eastern portion of the proposed annexation area (not the proposed development area of the project site). The lower reach of Ledgewood Creek and a slough that runs through the eastern portions of the project site are hydrologically connected to Suisun slough and may provide suitable spawning habitat. |
| Amphibians | | | |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| California tiger salamander, Central California DPS (<i>Abystoma californiense</i>) | FT/ST,WL | Found in annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water source for breeding. | Not present. Previous dip-netting surveys have all been negative for CTS. Lack of turbid water in deeper pools not conducive to breeding and lack of suitable small mammal burrows not conducive to use as upland habitat. Pools in the southern portion of the project area were too shallow to support breeding. Significant barriers to migration occur between the project area and known CTS occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies. Also, the proposed annexation area is within the 100-year floodplain as is 95% of the area south of Cordelia Road. |
| Western spadefoot toad (<i>Spea hammondi</i>) | --/SSC | Breeds in vernal pools/seasonal stock ponds in the Central Valley and southern coast. | Not present. CNDDDB records in vicinity of the property. Nearest recorded occurrences are more than twenty miles to the east and south. Dip-net surveys for other species did not turn up this species. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|--|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| California red-legged frog (<i>Rana draytonii</i>) | FT/SSC | 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. The study site is considered to be outside of the current range of this species. Additionally, non-tidal wetlands onsite are seasonal and do not provide the perennial waters typically required for California red-legged frog. |
| Foothill yellow-legged frog-North Coast DPS (<i>Rana boylei</i>) | --/SSC | Partly shaded shallow streams with riffles, with a rocky substrate in a variety of habitats; needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Frogs are usually found on stream banks, especially near riffles. | Not present. No suitable habitat onsite. The brackish marsh habitat within Ledge Wood Creek is not considered suitable habitat for Foothill Yellow-legged Frog. |
| Reptiles | | | |
| Western pond turtle (<i>Emys marmorata</i>) | --/SSC | Inhabits freshwater ponds and sluggish streams; occurs from WA to Baja, mostly west of the Sierra crest. | Not present. No CNDDDB records are in the vicinity of the property. Unlikely to occur due to a lack of perennial freshwater. |
| Giant garter snake (<i>Thamnophis gigas</i>) | FT/ST | Utilizes marshes, sloughs, small lakes, low gradient streams, | Not present. Not known to occur in Project Area. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| | | ponds, agricultural wetlands (irrigation and drainage canals) and adjacent uplands. | |
| Birds | | | |
| Great egret (<i>Ardea alba</i>) (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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Snowy Egret (<i>Egretta thula</i>) [Rookery] | --/-- | Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites are situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Black-crowned night-heron (<i>Nycticorax nycticorax</i>) [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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|---|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Great blue heron (<i>Ardea herodias</i>) (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. | Rookery not present. Suitable habitat for a rookery is not found at the site. |
| Golden eagle (<i>Aquila chrysaetos</i>) [nesting and wintering] | --/CFP, WL | Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert. | Not present. Suitable habitat is not found at the site. |
| Ferruginous hawk (<i>Buteo regalis</i>) (wintering) | --/WL | Inhabits open country. Winters in small numbers along California coast and inland valleys. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |
| Swainson's hawk (nesting) (<i>Buteo swainsoni</i>) | --/ST | 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. No suitable nest trees occur at the site. CNDDDB records nesting by this as close as 1.4 miles from the project site. Use of the site for foraging is possible. Preconstruction nesting surveys are warranted. |
| Northern harrier (<i>Circus hudsonius</i>) (nesting) | BCC/SSC | Forages and nests in grasslands, marshes, and agricultural fields; occurs throughout California, concentrated in the Central Valley and coastal valleys. | Nesting possible. Observed onsite during the nesting season by HBG and Vollmar Consulting. Suitable nesting habitat may occur. Expected to use the site as a foraging area in winter. Preconstruction nesting surveys are warranted. |
| White-tailed kite (<i>Elanus leucurus</i>) (nesting) | --/CFP | Nests in dense oaks, willows, other trees; occurs in the Central Valley and adjacent low foothills. | Not present. No suitable nest trees occur at the site. No CNDDDB records in vicinity but likely to be observed foraging over the property. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|--|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Bald eagle (<i>Haliaeetus leucocephalus</i>) (nesting and wintering) | --/SE,CFP | In winter, may be found throughout most of California at lakes, reservoirs, rivers and some rangelands and coastal wetlands. California's breeding habitats are mainly located in mountains and foothill forests near permanent water sources. | Not present. Suitable habitat not present onsite. |
| Peregrine falcon (<i>Falco peregrinus</i>) | --/CFP | 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 found at the site. |
| Prairie falcon (<i>Falco mexicanus</i>)(Nesting) | --/WL | Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Permanent resident and migrant along inner coast and ranges. Nests on cliffs. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|--|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Merlin (<i>Falco columbarius</i>) [wintering] | -/WL | Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc. | Possible in winter. The species may occasionally utilize the site as a winter foraging habitat. |
| California black rail (<i>Laterallus jamaicensis coturniculus</i>) | --/ST,CFP | Inhabits tidal salt and brackish marsh bordering sloughs and large bays. | Not present. No suitable habitat at the proposed development area of the project site. CNDDDB records for sloughs along edge of Suisun Bay and may occur in the portions of the site nearest to Suisun Bay and within areas proposed as a Managed Open Space as part of the project. Preconstruction surveys are warranted if wetland construction must occur during the nesting season. |
| California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>) | FE/SE,CFP | Inhabits tidal salt marsh along larger sloughs and bays in the SF Bay and lower Delta. | Not present. CNDDDB records south and east of the project site. No nesting habitat for the species found at the site; the species may occasionally utilize perennial marsh in the southern portions of the site nearest to Suisun Bay as a winter foraging habitat. Generally, occurs closer to edge of Suisun Bay. |
| Yellow rail (<i>Coturnicops noveboracensis</i>) | BCC/SSC | Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County. | Not present. Suitable habitat is not found at the site. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|--|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Western snowy plover (<i>Charadrius alexandrinus nivosus</i>) (nesting) (coastal population) | FT/SSC | In the San Francisco Estuary, salt pond levees and exposed salt pond beds (playa-like habitat), San Francisco Bay; rare in San Pablo Bay. Typical coastal habitat is on wide, sandy beaches with scattered debris. | Not present. Suitable habitat is not found at the site. |
| Mountain plover (<i>Charadrius montanus</i>) (wintering) | BCC/SSC | Winters in shortgrass plains, plowed fields, arid plains, alkali sink scrub, valley sink scrub, alkali playa, burned and annual grasslands, and open sagebrush areas that are barren or have sparse vegetation. Wintering plovers found in variable elevations but generally in valley bottoms below 300 meters. | Not present. Although Mountain Plovers winter in Solano County (e.g., area around Flannery and Robinson Roads) this species has not been reported as wintering in Project Area. Habitat conditions at the site are not likely to support wintering populations of Mountain Plover. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Long-billed curlew (<i>Numenius americanus</i>) (nesting) | --/WL | An uncommon to fairly common breeder from April to September in wet meadow habitat in northeastern California. Uncommon to locally very common as a winter visitant along the California coast, and in the Central and Imperial Valleys. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. Large numbers remain in some localities in the Central Valley in winter. | Nesting unlikely. The Project Area is not within the nesting range of the species. Long-billed curlews observed in the proposed Managed Open Space area were likely non-breeders lingering through the summer months. |
| Black skimmer (<i>Rynchops niger</i>) (nesting colony) | BCC/SSC | Nests at Salton Sea and San Diego Bay and recently at San Francisco Bay. Nests primarily on gravel bars, low islets, and sandy beaches in unvegetated sites. | Not present. Suitable habitat is not found at the site. |
| California least tern (<i>Sterna antillarum browni</i>) (nesting colony) | FE/SE,CFP | Nests on coastal, sandy, open areas usually around bays, estuaries, and creek and river mouths. Forages in shallow estuaries and lagoons, diving head first into the water after a wide variety of small fish. | Not present. Suitable habitat for a nesting colony is not present onsite. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|---|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Short-eared owl (nest site) <i>(Asio flammeus)</i> | BCC/SSC | Forages and nests in perennial marsh and grassland habitat; occurs in the Central Valley, coast, and east Sierra regions. | Nesting possible. CNDDDB nest site records at Grizzly Island Wildlife Area. This species was not observed onsite, however, the perennial brackish marsh and grasslands on the eastern portion of the study area provide potential foraging and nesting habitat for the species. Preconstruction nesting surveys are warranted. |
| Burrowing owl <i>(Athene cunicularia)</i> (burrow sites) | BCC/SSC | Nests in mammal burrows, rock cavities in grassland and scrub; occurs throughout much of mid and lower California. | Possible. Numerous CNDDDB records in vicinity including one just southwest of the property next to the Cordelia Road. This species was not observed onsite, however, nesting burrows may occur on the property along levee banks and other raised areas that do not become saturated during the winter and spring. Preconstruction surveys are warranted. |
| Loggerhead shrike <i>(Lanius ludovicianus)</i> (nesting) | --/SSC | Habitat includes open areas such as desert, grasslands, and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitat which contains trees, fence posts, utility poles and other perches. | Possible. Observed onsite by HBG and Vollmar Consulting during the nesting season. Loggerhead shrikes use the site for foraging and perching. It is unlikely this species nests onsite due to a general lack of suitable habitat, but some nest sites are available in limited onsite riparian habitat. Preconstruction nesting surveys are warranted. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|--|--|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| Bank swallow (<i>Riparia riparia</i>) (nesting) | --/ST | A migrant found primarily in riparian and other lowland habitats in California west of the deserts. 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 found at the site. |
| Saltmarsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>) | BCC/SSC | Forages and nests in dense fresh and saltwater marsh habitat in the San Francisco Bay and lower Delta. | Not present. Common yellowthroats observed on the property are most likely not of the subspecies that is designated as a species of concern. Salt marsh common yellowthroat range does not extend east of Carquinez Strait. |
| Grasshopper sparrow (<i>Ammodramus savannarum</i>) | --/SSC | Found in dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. | Possible. Non-native grasslands may provide suitable nesting habitat. Preconstruction nesting surveys are warranted. |
| Suisun song sparrow (<i>Melospiza melodia maxillaris</i>) | --/SSC | Forages and nests in dense marsh and scrub habitat along the margins of Suisun Bay. | Present. Observed on site by HBG and Vollmar Consulting foraging in the dense perennial marsh habitat on the eastern portions of the site (not the development area of the project site) during the nesting season. CNDDDB records south of the property along edge of Suisun Bay. May also use the site for nesting. Preconstruction nesting surveys are warranted. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|--|--|---|--|
| SPECIES | STATUS² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| San Pablo song sparrow <i>(Melospiza melodia samuelis)</i> | BCC/SSC | Tidal, brackish, or salt marshes, San Pablo Bay. | Not present. Site is outside the limited range of this species. |
| Tri-colored blackbird <i>(Agelaius tricolor)</i> [Nesting colony] | BCC/ST,SS C | 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. | Possible. Historic CNDDDB records several miles east of the study site. This species was not observed onsite, however, perennial marsh on the property could provide suitable habitat for a nesting colony. Preconstruction nesting surveys are warranted. |
| Mammals | | | |
| Suisun shrew <i>(Sorex ornatus sinuosus)</i> | --/SSC | Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays. | Likely. CNDDDB record immediately east of the southern portion of the property south of Cordelia Road. Likely to occur onsite within perennial marsh in the southern and eastern portions of the property proposed to be included in a Managed Open Space. Mitigation is recommended during construction and operation of the project and for potential loss of refugial habitat due to wetland creation in the proposed Open Space Management Area. |
| Townsend's big-eared bat <i>(Corynorhinus townsendii)</i> | --/SSC | Found in desert scrub and coniferous forests. Roost in caves or abandoned mines and | Not present. Suitable habitat is not found at the project site. |

| Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE | | | |
|---|--|--|---|
| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
| | | occasionally are found to roost in buildings. | |
| Hoary bat (<i>Lasiurus cinereus</i>) | --/-- | Prefers open habitats with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. | Not present. Suitable habitat is not found at the site. |
| Western red bat (<i>Lasiurus blossevillii</i>) | --/SSC | Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. | Not present. Suitable habitat is not found at the site. |
| San Joaquin pocket mouse (<i>Perognathus inornatus</i>) | --/-- | Occurs in dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 meters in the Central and Salinas Valleys. Occurs in shrubby ridge tops and hillsides, characterized as being open, sandy areas with grasses and forbs. Digs burrows for cover. | Not present. Suitable habitat is not found at the project site. |

Table 4. SPECIAL STATUS ANIMAL SPECIES KNOWN TO OCCUR WITHIN A 10-MILE RADIUS OF THE PROJECT SITE

| SPECIES | STATUS ² Federal/ State | HABITAT/RANGE | OCCURRENCE |
|--|--|--|---|
| Salt Marsh harvest mouse (<i>Reithrodontomys raviventris</i>) | FE/SE,CFP | Inhabits pickleweed salt marsh flats in the San Francisco Bay and lower Delta. | Likely. CNDDDB records an occurrence of the species in the perennial marsh habitat on eastern edge of the proposed annexation area (not the development area of the project site). Species may occur in the southern portion of the property nearest to Suisun Bay. Mitigation is recommended during construction and operation of the project and for potential loss of refugial habitat due to wetland creation in the proposed Open Space Management Area. |

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Maps and surrounding areas, information dated March 2023.
2. Status Codes:

| | |
|--|---|
| FE Federally listed Endangered | SE California State-listed Endangered |
| FT Federally listed Threatened | ST California State-listed Threatened |
| FPE Federally Proposed Endangered | SR California State Rare |
| FPT Federally Proposed Threatened | SCE California State Candidate Endangered |
| FC Federal Candidate Species | SCT California State Candidate Threatened |
| BCC USFWS Bird Species of Conservation Concern | CFP California Fully Protected |
| | SSC CDFW Species of Special Concern |
| | WL CDFW Watch List Species |

Appendix E

Grading Plan for Wetland Creation

(To be provided during agency permitting process)

Appendix F

USFWS Biological Opinion and CDFW ITP or CD

(To be provided during agency permitting process)

Appendix G

Maintenance Monitoring Field Form

FORM 1. MAINTENANCE MONITORING FIELD DATA COLLECTION FORM

Project Name: _____

Monitoring Year _____ Date: _____; Time: _____ (AM / PM);

Inspected By: _____; Technical Reviewer: _____; Map Reference:

| INSPECTION ITEM | Maintenance Necessary ¹ | LOCATION ² | DESCRIBE ACTION TO BE TAKEN OR TAKEN |
|--|------------------------------------|-----------------------|--------------------------------------|
| 1. Vegetation Management | | | |
| 2. Site Access Security | | | |
| 3. Fences, Gates, Locks, Signs, and Boundary Markers | | | |
| 4. Fuel Management | | | |
| 5. Mosquito Abatement | | | |
| 6. Other | | | |

¹ Status: No= no maintenance action required; A = Immediate maintenance action required, high priority; B = Maintenance action required, low priority, but need before year end.² Attach location map and photo.

Appendix H

Draft Deed Restriction or Conservation Easement

(To be provided during agency permitting process)

Appendix I

Endowment Costs for Long-Term Management Plan Implementation

(To be provided during agency permitting process)

Huffman-Broadway Group, Inc.

ENVIRONMENTAL REGULATORY CONSULTANTS

523 4TH ST, STE 224, SAN RAFAEL, CA 94901 • 415.925.2000 • www.h-bgroup.com

August 28, 2023

DRAFT

Sent via Email

David Wade
Wade & Associates
Email: dwade@wadeassociates.com

Subject: Reduced Footprint Alternative Impacts and Mitigation Measures

Dear Mr. Wade

The Reduced Footprint Alternative significantly reduces impacts to biological resources including wetlands, Contra costa goldfields habitat, USFWS Subunit 5G designated as critical habitat for Contra costa goldfields, rare plants, foraging habitat for a number of raptors including Swainson's hawk, Short-eared Owl, and northern harrier, and potential impacts to salt marsh harvest mouse and Suisun shrew. This *Reduced Footprint Alternative Impacts and Mitigation Measures* memo supersedes the January 13, 2023 "*Reduced Footprint Alternative*" memo.

Below is a description of the Reduced Footprint Alternative, Environmental Impacts and Mitigation Measures.

1 REDUCED FOOTPRINT ALTERNATIVE PROJECT DESCRIPTION

The Reduced Footprint Alternative proposes to develop approximately 529,708 square feet of building space on approximately 51.83 acres of land. The development area would encompass the northwestern and southwestern portion of Planning Area 1 and consist of two buildings, and one building within all of Planning Area 2. As part of the Reduced Footprint Alternative, improvements will be made to portions of Pennsylvania Avenue and Cordelia Road. Building A will be equipped with approximately 51 dock stalls, and 546 vehicle stalls, and Building B will be equipped with approximately 48 dock stalls, and 285 vehicle stalls. On Planning Area 2 Building C will be equipped with approximately 32 dock stalls, and 269 vehicle stalls.

The development within Planning Area 1 would encompass approximately 38.69 acres and Planning Area 2 would encompass approximately the entire 13.14-acre area for a total of 51.83 acres. The Reduced Footprint Alternative would result in approximately 5.61 acres of wetland impacts, and approximately 46.22 acres of upland annual grassland impacts.



As part of the Reduced Footprint Alternative, approximately 435 acres would be Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. The locations where development would occur under Alternative 2 were specifically selected to avoid a documented population of approximately 102 individual CCG plants in an approximately 0.007-acre area that would be subject to development under the proposed Project, but that would not be developed under Alternative 2. Reducing the development footprint under Alternative 2 would also preserve an additional 42 acres of designated CCG Critical Habitat, which otherwise would be lost to development under the proposed Project (see **Error! Reference source not found.**). Alternative 2 would also preserve approximately 32 acres of wetland habitat that would otherwise be filled due to development under the proposed Project.

Portions of the Managed Open Space would be used to offset impacts to aquatic resources, rare plants, and Swainson's Hawk foraging habitat as a result of the Reduced Footprint Alternative. The Mitigation and Monitoring Plan for the proposed Managed Open Space area, referenced in the DEIR, would be modified to fit the reduced impact mitigation measures presented in Section 2 of this letter report.

2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section analyzes potential direct and indirect, temporary, and permanent, and cumulative impacts to biological resources that have the potential to be affected by implementation of the proposed Reduced Footprint Alternative.

2.1 Impact Analysis

The "Impact Analysis" section will not further analyze the Reduced Footprint Alternative project against thresholds of significance for which no significant impacts have been identified based on technical studies conducted within and in the vicinity of the proposed project site (HBG 2006; HBG 2021; Vollmar 2006; Helm 2021; AWE 2006). Therefore, the following issues are not discussed further in the Reduced Footprint Alternative impact analysis.

1. Monarch Butterfly
2. Delta Green Ground Beetle
3. California Tiger Salamander & Critical Habitat, Central Population
4. Western Spadefoot Toad
5. Special Status Vernal Pool Crustaceans
6. Suisun Marsh Aster
7. Critical Habitat for Suisun Thistle

2.1.1 Special Status Plant Species

Construction of the proposed development area would result in direct impacts to federally listed endangered and CNPS List 1B.1 Contra Costa goldfields, and two CNPS List 1B.2 species: alkali milk-vetch, and saline clover. Additional impacts to 5.61 acres of marginal habitat for Contra Costa goldfields could result from grading for wetland creation in the proposed

Managed Open Space area of the project site. Impacts to special status plants are shown in Figure 2 and impacts to Contra Costa goldfields Critical Habitat Subunit 5G is shown on Figure 3.

Impact 1 Contra Costa Goldfields & Critical Habitat. Development of the proposed project would directly impact approximately 61 individual Contra Costa goldfields plant over an approximately 0.02-acre area of occupied habitat for Contra Costa goldfields, approximately 5.61 acres of unoccupied marginal habitat for Contra Costa goldfields, and indirect impacts associated with wetland grading in the proposed Managed Open Space area. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment. In addition, development of the Reduced Footprint Alternative would impact 51.83 acres of the 737-acre Critical Habitat Subunit 5G. These impacts would be potentially **significant**.

Mitigation Measure 1a: Establish New Contra Costa goldfields Habitat and Populations.

The project applicant shall establish/create a minimum of 0.016 acre (1:1 ratio) of Contra Costa goldfields habitat with the performance standard of supporting a minimum of 51 individual Contra Costa goldfield plant at least 2 out of the 10 years of monitoring period. Establishing new populations of Contra Costa goldfields shall be done in consultation with USFWS and CDFW and with approval from these agencies and may be accomplished by collecting seed from extant populations and salvaging seed and topsoil from occupied Contra Costa goldfields habitat within the proposed development impact area. As described in the Mitigation and Monitoring Plan for the proposed Managed Open Space area, the new Contra Costa goldfields populations would occur in the established/created wetlands within the proposed Managed Open Space area of the project site, adjacent to the existing large population within the Pescadero silty clay loam soil type. A plan for collecting seed and establishing a new population shall be coordinated with the USFWS during the ESA Section 7 consultation process, as described in the Mitigation and Monitoring Plan.

Mitigation Measure 1b: Preserve and Manage Contra Costa goldfields Habitat.

The project applicant shall preserve and manage the Contra Costa goldfields occupied habitat in the proposed Managed Open Space area as described in the Mitigation and Monitoring Plan. The Open Space Management Area contains an approximately 17-acre area of occupied CCG seasonal wetlands in the southwestern area of the project site supporting over 8,000 individual Contra Costa goldfields plants within the Pescadero silty clay loam soil, a 0.007-acres area of occupied habitat supporting 30 individuals on the unimpacted area of Planning Area 1 and a 0.344-acre area of occupied habitat supporting 365 individual plants in the northern area east of Pennsylvania Road, all of which will be preserved within the Managed Open Space area. In addition to the 17.344 acres of occupied CCG. To ensure a no-net-loss of CCG Critical Habitat specific to the Reduced Footprint Alternative a minimum of 51.83 acres CCG Critical Habitat Subunit 5G will be preserved and managed within the Managed Open Space. Management actions to protect and enhance Contra Costa goldfields occupied habitat shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance

practices to authorizing agencies. Protection and management of the created and preserved occupied Contra Costa goldfields habitat shall continue in perpetuity as described in the Mitigation and Monitoring Plan.

Mitigation Measure 1c: Establish and Manage 5.61 Acres of Wetland Habitat.

To ensure a no-net-loss of potential Contra Costa goldfields habitat the project applicant shall establish 5.61 acres of in-kind wetland habitat within the proposed Managed Open Space area of the project site, prior to or concurrent with project construction. The established/created wetlands shall be implemented, and performance standards shall be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space area . Management actions to be implemented to manage, protect, and enhance wetlands and associated rare plant populations shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created wetlands shall continue in perpetuity as described in the Mitigation and Monitoring Plan. Prior to site mobilization the project applicant shall secure approval of detailed construction plans for wetland mitigation in the Managed Open Space from USFWS, CDFW, RWQCB and BCDC.

Mitigation Measure 1d: Install Construction Fencing.

To avoid direct or indirect impacts to occupied Contra Costa goldfields habitat during grading activities within the Development Area and proposed Managed Open Space area, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied Contra Costa goldfields habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the Contra Costa goldfields populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measures 1e Limit Introduction and Spread of Invasive Species.

To reduce and limit the spread of invasive nonnative plant species on the project site from invasive or noxious weeds, construction vehicles and equipment shall be cleaned inside and out before arrival at the project site. Exterior cleaning shall consist of pressure washing vehicles and equipment, with close attention paid to the tracks, feet, and/or tires and on all elements of the undercarriage. Vehicle cabs shall be swept out, and refuse shall be disposed of at an approved off-site location. If vehicles are driven in areas of invasive or noxious weeds already present in portions of the project site, vehicles shall be cleaned before moving from infested areas to areas that are weed-free.

Significance after Mitigation

Implementation of these mitigation measures would offset permanent impacts to occupied Contra Costa goldfields habitat and would ensure that Contra Costa goldfields occupied habitat, which supports nearly 99 percent of the Contra Costa goldfields within the project site, is preserved and managed for Contra Costa goldfields in perpetuity. The measures described above would ensure no-net loss of potential Contra Costa goldfields habitat area, Contra Costa goldfields Critical Habitat, or threat to the recovery of Contra Costa goldfields. This mitigation will reduce potential impacts to Contra Costa goldfields to a **less-than-significant** level.

Impact 2 Alkali Milk-Vetch. Development of the proposed project would directly impact approximately 6 individual alkali milk-vetch plants over an approximately 0.007-acre area of occupied habitat for alkali milk-vetch, 5.17 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch, and indirect impacts associated with wetland grading in the proposed Managed Open Space area. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant**.

Mitigation Measure 2a: Preserve and Establish Alkali Milk-Vetch Habitat.

Within the proposed Managed Open Space portion of the project site, the project applicant shall (1) preserve a minimum of 0.007 acre of seasonally saturated annual grassland habitat occupied with a minimum of 6 alkali milk-vetch plants, and (2) establish/create the equivalent of 5.17 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of seasonally saturated annual grassland habitat within the proposed Managed Open Space portion of the project site as mitigation for the loss of potential habitat for the Contra Costa goldfields would also serve as mitigation for the loss of potential alkali milk-vetch habitat. Topsoil from occupied alkali milk-vetch habitat within the proposed development area shall be collected and used to inoculate the established/created seasonally saturated annual grassland.

Mitigation Measure 2b: Install Construction Fencing.

To avoid direct or indirect impacts to occupied alkali milk-vetch habitat during grading activities within the Development Area and proposed Managed Open Space area, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied alkali milk-vetch habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the alkali milk-vetch populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 2a and 2b would avoid and offset permanent impacts to occupied alkali milk-vetch habitat and ensure there is no-net loss of potential alkali milk-vetch habitat and avoid indirect impacts during grading activities. Mitigation Measure 1e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to alkali milk-vetch to a **less-than-significant** level.

Impact 3 Saline Clover. Development of the proposed project would directly impact approximately 141 individual saline clover plants over a 0.37 acres area of occupied habitat for saline clover, approximately 5.17 acres of unoccupied seasonally saturated annual grassland and 0.30 acres of vernal pool habitat, and indirect impacts associated with wetland grading in the proposed Development Area and Managed Open Space area. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant**.

Mitigation Measure 3a: Preserve and Establish Saline Clover Habitat.

Within the proposed Managed Open Space portion of the project site, the project applicant shall (1) preserve a minimum of 0.37 acres of saline clover habitat occupied with a minimum of 141 individual plants; and (2) establish the equivalent of 5.17 acres of unoccupied seasonally saturated annual grassland and 0.30 acres of vernal pool habitat. The preservation and establishment/creation of seasonally saturated annual grassland habitat within the proposed Managed Open Space portion of the project site as mitigation for the loss of potential habitat for the Contra Costa goldfields would also serve as mitigation for the loss of potential saline clover habitat. Topsoil from occupied saline clover habitat within the proposed development area of the project site shall be collected and used to inoculate the established/created vernal pools and seasonally saturated annual grassland.

Mitigation Measure 3b: Install Construction Fencing.

To avoid direct or indirect impacts to occupied saline clover habitat during grading activities within the Development Area and proposed Managed Open Space area, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied saline clover habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the saline clover populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 3a and 3b would avoid and offset permanent impacts to occupied saline clover habitat, ensure there is no-net loss of potential saline clover habitat

area, and avoid indirect impacts during grading activities. Mitigation Measure 1e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to saline clover to a **less-than-significant** level.

2.1.2 Special Status Animal Species

Impact 4 Northern Harrier and Short-Eared Owl. Grading or vegetation removal associated with construction of the proposed project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space area, could result in disruption of northern harrier or short-eared owl nesting. This impact would be potentially significant.

Northern harriers and short-eared owls have not been documented nesting on the project site, but suitable nesting habitat for the northern harrier 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 the summer (breeding season) during site reconnaissance of the property by HBG. Suitable breeding habitat for short-eared owl also occurs on the project site, particularly in the eastern portion of the annexation area east of Pennsylvania Avenue and in the area south of Cordelia Road. If a northern harrier or short-eared owl were found to be nesting on the project site during the construction period, potential impacts to either of these species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Disturbances to nest sites for these special status species are possible either during grading or vegetation removal for project construction within the proposed development area of the project site or from grading required for creation of mitigation wetlands within the proposed Managed Open Space area in the southern portion of the project site. Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or abandonment of eggs or young) would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code and would be a **potentially significant** impact.

Mitigation Measure 4a: Preconstruction Nesting Survey.

A qualified biologist shall conduct a preconstruction nesting survey for northern harrier and short-eared owl if construction is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance by walking transects through all suitable habitat (grassland, seasonal wetlands, and swales) within the proposed development area and the proposed Managed Open Space area of the project site.

Mitigation Measure 4b: Implement Non-Disturbance Buffers.

If an active northern harrier or short-eared owl nest is detected during the surveys, the nest site shall be protected by implementing a minimum 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 shall be extended onto the project site and demarcated where it intersects the project site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that northern harriers or short-eared owls 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.

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing a northern harrier or short-eared owl active nest, thus reducing potential impacts to **less than significant**.

Impact 5 Swainson's Hawk. Project construction would result in the loss of 51. acres of Swainson's hawk foraging habitat. Construction activities and could disturb nesting Swainson's hawk if individuals of this species were found to be nesting near project construction activities. Therefore, this impact would be **potentially significant**.

Development of the project would permanently remove approximately 51.83 acres of non-native grasslands and seasonal wetlands that provide suitable foraging habitat for Swainson's hawks. No nesting habitat would be directly affected by the proposed project because no trees occur on the project site, and no large trees capable of supporting nesting by Swainson's hawk occur in the immediate project vicinity. Some trees are located within 0.25 miles of the project site, including trees within the offsite riparian habitat of Ledgewood Creek, but none of these trees appeared to be of suitable size or stature to support nesting by Swainson's hawk. If Swainson's hawks were found to be nesting near project construction during the nesting season, potential impacts to this species could occur, including disturbance to nesting birds, nest abandonment and possible mortality of eggs or nestlings. These impacts would be **potentially significant**.

Mitigation Measure 5a: Preserve Swainson's Hawk Foraging Habitat.

To offset impacts to 51.83 acres of Swainson's hawk foraging habitat, a minimum of 51.83 acres of annual grassland and seasonal wetlands within the Managed Open Space area shall be preserved in perpetuity by a deed restriction or conservation easement that would provide compensation acreage suitable for foraging by Swainson's hawk at a ratio of approximately 1:1. The preserved 51.83 acres of Swainson's hawk foraging habitat would be enhanced by grazing the Managed Open Space area to control the buildup of thatch.

Mitigation Measure 5b: Preconstruction Nesting Surveys.

Preconstruction surveys for Swainson's hawk shall be conducted prior to initiation of project construction activities. Surveys shall follow CDFW guidelines for conducting surveys for Swainson's hawk (SHTAC 2000). These preconstruction surveys shall 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. If no nesting Swainson's hawk are found during the first two required survey periods (Survey Period II and III) starting March 20 and extending to April 20, then project construction may commence. If during the third survey period (June 10 to July 30) Swainson's hawks are found to be nesting in the project vicinity and construction has commenced, the project applicant shall consult CDFW to determine whether the nesting Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site and

setbacks can be reduced or whether additional measures are needed to avoid adversely affecting nesting activities.

Mitigation Measure 5c: Implement Nest Buffer.

If Swainson's hawks are found to be nesting within 0.25 miles of project construction, a non-disturbance buffer shall be established to keep all construction activities a minimum of 0.25 miles from the nest site (CDFW 1994). The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified biologist.

Significance after Mitigation

Implementation of these mitigation measures would compensate for the loss of Swainson's hawk foraging habitat and would avoid adverse effects on Swainson's hawks nesting near the project site. These measures would reduce potential impacts on Swainson's hawks to **less than significant**.

Impact 6 Burrowing Owl. Construction of the project, including the proposed development area or for creation of wetlands within the proposed Managed Open Space area of the project, could impact burrowing owls if found to be present in or near areas of construction. These impacts are **potentially significant**.

No burrowing owls or their burrows have been observed on the site by HBG wildlife biologists or other biologists studying the site over a 20-year period. The nearest record of burrowing owl in the CNDDDB is a 2006 report of an occupied burrow off the site adjacent to Cordelia Road. Portions of the on-site grasslands are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present, but much of the site consists of wetlands that have saturated soils during at least a portion of the year that would not be conducive to creation of ground squirrel dens nor occupation by burrowing owl. The species could occur along levee banks and other raised areas that do not become saturated during the winter and spring. 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. Disturbances to either nesting or wintering burrowing owl could occur during grading or vegetation removal within the proposed development area of the project site or from grading required for creation of mitigation wetlands within the proposed Managed Open Space area of the project site. Loss of active burrowing owl burrows or disturbances to nesting or wintering burrowing owl would be **potentially significant**.

Mitigation Measure 6a: Preconstruction Burrowing Owl Nesting Surveys.

Pre-construction surveys for burrowing owls shall be conducted prior to any ground-disturbance for construction of the project at the proposed development area of the project site or for construction of mitigation wetlands within the proposed Managed Open Space area of the project site. The pre-construction surveys will be conducted within 14 days prior to the onset of any ground disturbing activities. Surveys shall be conducted by a qualified raptor biologist following CDFW survey methods (CDFG 2012) to establish the status of burrowing owl on the project site.

Mitigation Measure 6b: Avoid Impacts to Occupied Burrows.

If preconstruction surveys determine that burrowing owls occupy the project site during the non-breeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone in consultation with CDFW. During the non-breeding season, If a qualified raptor biologist determines in consultation with CDFW that an occupied burrow(s) may be impacted even with implementation of non-disturbance buffers, the project applicant shall consult CDFW to determine if a passive relocation effort and implementation of a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW guidelines (CDFG 2012) is appropriate to avoid impacts. Implementation of such a Burrowing Owl Exclusion Plan would likely require habitat mitigation consistent with the requirements of the 2012 CDFW Staff Report.

If burrowing owls are found to be present on the project site during the breeding season (February 1 to August 31), the project applicant shall consult CDFW and implement the CDFW recommended avoidance protocol (CDFG 2012) whereby occupied burrows will be avoided with a no-disturbance buffer.

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing an active burrowing owl nest and avoid harming a burrowing owl during the nonbreeding season. These measures would reduce potential impacts to burrowing owls to **less than significant**.

Impact 7 California Black Rail. Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space portion of the project site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present. This impact would be **potentially significant**.

The CNDDDB contains records of California black rail south of the site in marsh habitat bordering Suisun Bay and associated sloughs. These rails may occur along slough channels with dense perennial marsh habitat in the southern portion of the project area closest to Suisun Marsh and within the perennial marsh habitat on the eastern portion of the annexation area that provides low to medium quality foraging and nesting habitat for the species. No habitat for this species is found within the proposed development area of the project site; therefore, no direct impacts to California black rail would result from construction of the proposed project.

Mitigation wetlands are proposed to be constructed within the proposed Managed Open Space area of the project site, both within the eastern portion of the annexation area and within the proposed Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh (see Appendix C, Figure 19). Though the created wetlands are proposed to be constructed in uplands, some proposed locations for wetland creation are close enough to areas of marsh habitat that disturbances to nesting California black rail, if present, are possible. Although no direct impacts to the marsh habitat of California black rail would occur, if a

California black rail was nesting in or near the work area for wetland construction, an individual could be disturbed by the operation of equipment and the activities of work crews conducting construction activities at that site. Such indirect disturbance could cause individuals to disperse, could result in harassment, harm or even mortality, or could cause individuals to remain more susceptible to predation during high tide events. Noise and other disturbances could disrupt nesting and breeding activity, as well as behaviors associated with foraging and other essential activities engaged in by the species. Construction activity near nests could cause nest abandonment, reduced care for young or eggs, or increased dispersal with subsequent potential increases in predation. Therefore, this impact would be **potentially significant**.

Mitigation Measure 7a: Preconstruction Nesting Surveys.

If construction work is proposed during the black rail nesting season (February 1 through August 31) pre-construction surveys for nesting California black rail shall be conducted to determine whether proposed construction activities are to occur within 700 feet of a California black rail nest and to determine if setbacks are warranted to protect nesting California black rail from indirect impacts. Surveys shall be conducted using the methodology described in *Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges* (Wood et al. 2017), or a variation thereof as approved by CDFW. If the surveys detect the presence of a California black rail nest, or the activity center of vocalizing California black rails, a non-disturbance buffer or other appropriate avoidance measures shall be established in consultation with CDFW.

Significance after Mitigation

Implementation of this mitigation measure would avoid disturbance of nesting California black rail, thus reducing potential impacts to **less than significant**.

Impact 8 Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. Grading or vegetation removal associated with construction of the project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space area of the project site, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of are present.

Direct and indirect impacts to nesting populations of state species of concern including loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or tricolored blackbird could occur through habitat removal or disturbance of potential nest sites during construction. Disturbances to nesting activities are possible either during grading or vegetation removal for construction of the project, including within the proposed development area, or from grading for creation of mitigation wetlands within the proposed Managed Open Space area in the southern portion of the project site. Impacts on nesting birds, including these special status species, include visual or auditory disturbance from construction noise and human presence. These types of disturbance could result in nest abandonment or failure by deterring birds from preferred nest and foraging sites, and/or distracting adults from tending to their eggs or young. These impacts would be **potentially significant**.

Mitigation Measure 8a: Preconstruction Nesting Surveys.

If construction will occur during the nesting season (February 1 through August 31) in the proposed development area of the project site or for construction of mitigation wetlands within the proposed Managed Open Space area of the project site, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to any ground-disturbance. Surveys shall be conducted by a qualified biologist to search for nesting of loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony. If the surveys find an active tricolored blackbird colony CDFW shall be consulted to develop an appropriate non-disturbance buffer. If nests of loggerhead shrike, Suisun song sparrow, or grasshopper sparrow are found, appropriate buffer zones determined by the qualified biologist shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. The buffer shall be marked with orange construction fencing. The size of buffer zones shall be determined per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation

Implementation of this mitigation measure would avoid disturbing a nesting loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony, thus reducing potential impacts to a level considered less than significant pursuant to CEQA.

Impact 9 Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew.

The CNDDDB reports that a salt marsh harvest mouse was trapped in the perennial brackish marsh in the eastern portion of the annexation area (east of Pennsylvania Avenue) in 1986. No habitat for salt marsh harvest mouse or Suisun shrew occurs within the proposed development area of the project site, but it is assumed that salt marsh harvest mouse and Suisun shrew could occur within suitable habitat in the eastern portion of the proposed annexation area or within the area south of Cordelia Road within the proposed Managed Open Space portion of the project site.

No habitat loss for salt marsh harvest mouse or Suisun shrew would occur from construction within the proposed development area or the proposed Managed Open Space portion of the project site, as no habitat for these species occurs in these areas. However, both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of brackish marsh. Grading to establish wetlands in the southern portion of the site may impact salt marsh harvest mouse and Suisun shrew, that could occur in uplands adjacent to brackish marsh habitat, especially during extreme high tides. These impacts would be **potentially significant**.

Mitigation 9a: Worker Environmental Awareness Training.

All workers involved in the clearing of vegetation or other construction activities associated with the proposed development area and creation of mitigation wetlands within the proposed Managed Open Space portion of the project site, shall participate in a training session led by a qualified biologist prior to initiation of work. This training session shall include information on the ecology and identification of salt marsh harvest mouse and Suisun shrew. The training shall also include information related to the Endangered Species Act and penalties associated with harm done to an individual of a listed species and the need to stop work and inform the on-site biologist in the event of a potential sighting.

Mitigation Measure 9b: Vegetation Removal and Installation of Exclusion Fencing.

Proposed construction work areas in areas immediately adjacent to brackish marsh habitat shall be protected with exclusion fencing to ensure that individuals of salt marsh harvest mouse or Suisun shrew do not wander into the work area during the construction period. The fence shall be established in all areas subject to construction disturbance within a minimum of 50 feet from the brackish marsh habitat. Exclusion fencing shall be made of a material that does not allow small mammals to pass through, such as a properly installed silt fence buried at least 6 inches below the ground surface and with stakes facing toward the work area, so small mammals use the stakes to make their way over the fence and out of the work area rather than into it.

Prior to installation of the exclusion fence described above, efforts should be made to ensure that salt marsh harvest mouse and Suisun shrew are not present in areas of salt or brackish marsh or immediately adjacent uplands subject to potential impact from construction of created mitigation wetlands within the proposed Open Space Management Area. Prior to removal of vegetation, a qualified biologist will walk the work zone to ensure no nests of harvest mouse or Suisun shrew are present. Once vegetation removal is complete and it is assured that salt marsh harvest mouse and Suisun shrew are not present within the construction zone, the temporary exclusion fencing will be placed around the defined work area prior to the start of construction activities to prevent salt marsh harvest mouse or Suisun shrew from moving into construction areas. A biological monitor approved by USFWS and CDFW shall be present during vegetation clearing and installation of the exclusion fence. If vegetation clearing is conducted by grazing animals the biological monitor does not have to be present during the grazing activity.

Mitigation Measure 9c: Biological Construction Monitoring.

A qualified biologist shall remain on-site during all work involving vegetation clearing and ground disturbance associated with construction of the mitigation wetlands within the Managed Open Space to help ensure that no salt marsh harvest mouse or Suisun shrew are harmed. The biological monitor shall check the integrity of the exclusion fence, search for salt marsh harvest mouse or Suisun shrew that may have wandered into the work area and monitor construction to ensure impacts to the species do not occur. If a salt marsh harvest mouse is found on the site within the work area, construction should be halted until it appears that the individual has left the project area of its own volition. If a Suisun shrew is found in the work

area, the individual should be relocated outside of the work area after coordination with CDFW regarding appropriate relocation methodologies.

Impact 10 Loss of Upland Refugia. Project construction would convert 5.61 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the project site. This conversion of upland habitat to seasonal wetlands could result in potential indirect impacts to salt marsh harvest mouse, the Suisun marsh, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events.

Project construction would convert 5.61 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the project site, resulting in indirect impacts to wildlife which rely on upland refugia habitat adjacent to the tidal marsh. If sea levels continue to rise beyond the 2050 predictions, upland refugia habitat with higher topographic elevations would become more critical adjacent to the tidal marsh. Suitable habitat for salt marsh harvest mouse and Suisun shrew can be found in brackish marsh areas of Suisun Marsh in the southern portion of the project site.

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of high marsh, and also use these areas as upland refugia during high tides. The upland annual grassland habitat within the proposed Managed Open Space portion of the project site is relatively flat but currently offers sufficient topography to provide upland refugia during high tides. The proposed wetland mitigation described below would convert approximately 38 acres of upland annual grasslands adjacent to tidal marsh areas to seasonal wetlands within the proposed Managed Open Space portion of the project site. During the winter and early spring, portions of the 5.61 acres of wetlands in the proposed Managed Open Space portion of the project site would be ponded for several days to several weeks at a time and therefore not available as upland refugia habitat. For this reason, grading to establish wetlands in the southern portion of the site as per the Mitigation and Monitoring Plan during high tides may impact the salt marsh harvest mouse and Suisun shrew by exposing them to increased levels of predation. Precautions need to be taken to ensure that either direct or indirect impacts to salt marsh harvest mice or Suisun shrew that may wander near the construction area during project implementation of the Mitigation and Monitoring Plan, especially during extreme high tides, do not occur. Therefore, this impact would be **potentially significant**.

Mitigation Measure 10a: Create Upland Refugia in Managed Wetland.

To offset potential loss of upland refugia for salt marsh harvest mouse, Suisun shrew and any other species that need cover during high tide events, soil from the excavation of the established seasonal wetlands would be used to raise the topographic elevation of portions of the upland areas within the Managed Open Space adjacent to the perennial brackish tidal marsh. Detailed design plans, including a Vegetation Planting Plan, for the upland refugia in the Managed Open Space shall be developed in consultation with USFWS.

Significance after Mitigation

Implementation of this mitigation measure will provide upland refugia in the proposed Managed Open Space portion of the project site for salt marsh harvest mouse, Suisun shrew, and any other species that need cover during high tide events and will reduce this potential impact to **less than significant**.

Impact 11 Nesting Birds. The removal of vegetation during the February 1 to August 31 breeding season for the proposed project could result in mortality of nesting avian species if they are present. Therefore, this impact would be **potentially significant**.

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 31 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 500 feet or more for raptors and 250 feet for passerines (songbirds) and other bird species. .

Habitats within the project site were shown to support a number of bird species during field surveys conducted by HBG over a period of 20 years. The on-site 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 4.8 could possibly nest within the vegetation in the on-site 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. Therefore, this impact would be **potentially significant**.

Mitigation Measure 11a: Preconstruction Nesting Surveys.

If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 14 days prior to the onset of construction activity. Nesting bird surveys shall cover the project footprint in addition to a 500-foot buffer beyond the boundaries of the footprint.

Mitigation Measure 11b: Nest Zone Buffers.

If bird nests are found, appropriate non-disturbance buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Buffer zones shall be 500 feet for raptors and 250 feet for passerines, and other bird species. The size of the buffer zone may be modified per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Implementation of Mitigation Measures 11a and 11b will avoid and minimize potential impact nesting avian species, thus reducing potential impacts to less than significant.

Impact 12 Special Status Fish Species. Project construction activities could result in potential water quality impacts in LedgeWood Creek and other waterways and could adversely affect to special status fish species. This impact would be **potentially significant**.

Fish species including the Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run and the spring run Chinook salmon and the Sacramento River winter run of Chinook Salmon have the potential to occur in LedgeWood Creek. LedgeWood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough and these fish could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur on the in the tidal sloughs within the Managed Open Space area and the lower reach of LedgeWood Creek adjacent to the southern portions of the property and a slough that runs through the eastern portion of the annexation area to the southern portion of the project area. Therefore, this waterway is hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species. The proposed project is located outside LedgeWood Creek and the slough channels.

Off-site migration of soil leading to possible siltation of salmon streams can produce excessive siltation and adverse impacts to special status fish species, such as covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature.

Implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and BMPs, would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. For example, silt fence and straw wattles would be installed along portions of the project site to prevent water pollutants from migrating offsite. In addition, vegetation would only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates shall be stabilized as quickly as possible to prevent erosion and runoff.

With implementation of BMPs and the SWPPP grading, excavation, placement of fill material, and other ground-disturbing activities associated with construction activities would avoid erosion sedimentation and introduction of potential contaminants in LedgeWood Creek and other aquatic resources.

Mitigation Measure 12a: Implement SWPPP and BMPs.

As discussed in Section 4.10.3 of this EIR (Hydrology and Water Quality), the project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges. The SWPPP shall provide guidance for measures to protect environmentally sensitive areas, and to prevent and minimize stormwater and non-stormwater discharges. Protective measures shall include the following, at a minimum:

- Discharge of pollutants into storm drains or watercourses from vehicle and equipment cleaning will be prohibited.
- Maintenance and refueling areas for equipment will be located a minimum of 50 feet from active stream channels in predesignated staging areas, except at an established commercial gas station or vehicle maintenance facility.
- Spill containment kits will be maintained on-site at all times during construction operations and/or staging or fueling of equipment.
- Dust control measures will include the use of water trucks and dust palliatives to control dust in excavation-and-fill areas, and to cover temporary stockpiles when weather conditions warrant such action.
- Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment.
- Permanent erosion control measures, such as biofiltration strips and swales to receive stormwater discharges from the highway or other impervious surfaces, will be implemented to the maximum extent practicable.
- Construction Site Management Practices. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
 - Routes and boundaries of roadwork will be clearly marked before initiation of construction or grading.
 - All equipment will be maintained to prevent leaks of automotive fluids, such as gasoline, oils, or solvents, and a spill response plan will be prepared.
 - Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is located at least 100 feet from wetlands and aquatic habitats.
 - Before construction activities begin, the contractor, in consultation with a qualified biologist and in accordance with the project plans, will clearly demarcate environmentally sensitive areas adjacent to the project footprint. Temporary fencing

will be installed along the perimeter of all environmentally sensitive areas that are to be avoided; will remain in place throughout the duration of construction and will be fully maintained and inspected daily when project activities are underway. Repairs to the fencing will be made within 24 hours of identifying the need for repair. After construction is completed, the fencing will be completely removed.

- Restrict Vehicles and Construction to Designated Work Areas. All construction equipment will be restricted to operating within the designated work areas, staging areas, and access routes. The limits of designated work areas and staging areas (i.e., project footprint) will be clearly marked before beginning construction.

2.1.3 Riparian Habitat

Impact 13 Riparian Habitat. Construction activities near the riparian corridor of LedgeWood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with project operation could also adversely affect wildlife in the riparian corridor. These impacts would be **potentially significant**.

No riparian habitat would be directly affected by the proposed project. However, the western boundary of the proposed development area of the project site is adjacent to LedgeWood Creek. Construction activities could result in degradation of water quality and sensitive habitat areas and adversely affect wildlife activities through increased erosion and sedimentation, spills during vehicle refueling, or disposal of food and trash. Project development and activities during project operation could reduce the value of wildlife habitat in the riparian corridor and potentially disrupt wildlife activities and movement in the riparian zone. These impacts would be **potentially significant**.

Mitigation Measure 13a: Construction Best Management Practices.

Construction activities shall be implemented using the following BMPs to protect LedgeWood Creek:

Vehicle Fueling and Maintenance. All fueling and maintenance of vehicles and other equipment as well as locations of staging areas shall occur at least 100 feet from the edge of the riparian area of LedgeWood Creek. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Proper Waste Disposal . Food, trash, and other solid wastes shall be disposed of in contained, covered refuse containers, and regularly removed from the construction site.

Mitigation Measure 13b: Riparian Corridor Protection Zone.

The project applicant shall establish a riparian corridor buffer zone protected with permanent fencing before construction. The western boundary of the proposed development area of the project site and the fence line adjacent to LedgeWood Creek shall be set back a minimum of 50 feet from the top of the bank or outside edge of riparian vegetation, whichever distance is

greater. To improve vertical structure of the riparian canopy and wildlife habitat values, the project applicant shall plant native trees spaced a maximum of 100 feet apart adjacent to the fence line within the project property boundary. The project applicant shall provide funding in perpetuity for security and coordination with law enforcement to address encampments within the 50-foot buffer along the fence line on the Project property boundary. Funding shall also be provided to remove trash from illegal dumping within the project property boundary.

Significance after Mitigation

Mitigation Measure 13a provides BMPs to avoid direct and indirect impacts to Ledgewood Creek and its riparian habitat. Mitigation Measures 13b will create a 50-foot fenced buffer from Ledgewood Creek riparian habitat and will provide management funding. Currently Ledgewood Creek and its riparian habitat is subject to disturbance from encampments along the creek and associated pedestrian and vehicular activities which potentially interferes with wildlife movements and activities such as foraging and nesting. In addition, the trash the encampments generate, along with illegal dumping of household trash (appliances, old fiberglass boat, furniture, and many types of plastics) within this buffer likely contributes to trash entering Ledgewood Creek, and eventually Peytonia Slough. Establishment of a riparian setback from Ledgewood Creek, along with funding to coordinate with law enforcement and to clean up the trash generated from illegal dumping and encampments, would serve to protect the stream from current activities that result in environmental degradation. These measures would reduce impacts to less than significant.

2.1.4 Wetlands

Impact 14 Wetlands. Grading activities would result in the permanent placement of fill material into 5.17 acres of Seasonally Saturated Annual Grassland; and 0.30 acres of Vernal Pools; 0.14 acres of Alkali Seasonal Wetlands. In addition, grading within the Managed Open Space to establish/create wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands. These impacts would be **potentially significant**.

Development of the proposed project within the proposed development area would result in permanent impacts to 5.61 acres of wetlands considered Waters of the U.S and Waters of the State. The location of wetland impacts associated with the proposed project within the proposed development area is shown in Figure 1, and the acreage of impacts to each wetland is summarized below in Table 1. Grading within the Managed Open Space to create wetlands could also adversely affect the hydrology of existing wetlands. These wetland impacts would be **significant**.

Table 1 Impacted and Unimpacted Wetlands by Vegetation Community

| Vegetation Community/Wetland Habitat Type | Total Wetland Acreage by Habitat Type | Unimpacted Wetlands (ac) | Impacted Wetlands (ac) |
|--|--|---------------------------------|-------------------------------|
| <i>Seasonally Saturated Annual Grassland</i> | 78.88 | 73.74 | 5.14 |
| <i>Vernal Pool</i> | 19.76 | 19.46 | 0.30 |
| <i>Akali Seasonal Wetland</i> | 46.41 | 46.27 | 0.14 |
| <i>Perennial Brackish Marsh</i> | 176.27 | 176.27 | 0 |
| Property Totals | 321.32 | 315.71 | 5.61 |

These impacts would require that the project applicant apply for and obtain an Individual Permit from the San Francisco District of USACE for the placement of fill material within approximately 5.61 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. 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. For the USACE permit to be valid, the project applicant will apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction for much of the project area and a BCDC permit will be required.

Mitigation Measure 14a: Secure Permits and Implement All Permit Conditions.

The project applicant shall coordinate with the San Francisco District USACE, the San Francisco Bay RWQCB and the BCDC to obtain proper permits for the placement of fill material within approximately 5.61 acres of wetlands and implementation of the Mitigation and Monitoring Plan. The project applicant shall coordinate with the San Francisco Bay Conservation Development Commission to obtain proper permits for work associated with the implementation of the Mitigation and Monitoring Plan, which includes construction of mitigation wetlands in the Managed Open Space portion of the project site within the Suisun Marsh primary and Secondary Management Areas. The project applicant shall implement all conditions required in these permits. The Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay RWQCB, San Francisco District USACE, and BCDC for review as part of the permitting process with these agencies.

Mitigation Measure 14b: Wetland Establishment and Performance Monitoring.

At a minimum the project applicant shall establish/create wetlands at a 1:1 ratio to include 5.17 acres of Seasonally Saturated Annual Grassland; 0.30 acres of Vernal Pools; and 0.14 acres of Alkali Seasonal Wetlands concurrent with project construction. Performance standards for the established/created wetlands will be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space. If the permits

described above specify additional wetland mitigation beyond that described in the Mitigation and Monitoring Plan, the project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the proposed development area. If no mitigation banks are available that service the proposed development area of the project site, the project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 14c: Avoid Impacts to Existing Wetlands in Managed Open Space.

To ensure detailed construction plans will avoid potential indirect impacts to existing wetlands and special status plants and wildlife, the project applicant shall obtain detailed topographic plans, at minimum of 0.5-foot contours, before implementing the proposed wetland creation activities. This topographic information will be used to conduct a water balance study to determine if construction of the created wetlands in the proposed Managed Open Space could adversely affect ponding and/or soil saturation in adjacent existing wetlands. This study would supplement the “Adequate Hydrology Determination” presented in the Mitigation and Monitoring Plan for the proposed Managed Open Space. If it is determined there is an adverse effect on the hydrology of existing wetlands due to grading within the Managed Open Space to establish wetlands that would reduce the extent of the wetlands, construction plans will be modified to avoid alterations to the hydrology of existing wetlands.

Mitigation Measure 14d: Limit Staging Areas and Access Routes.

To avoid potential impacts to preserved wetlands during construction of the proposed project, including the proposed development area and construction of mitigation wetlands of the proposed Managed Open Space area, the number of access routes, and number and size of staging areas shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly marked/flagged. These areas shall be outside of wetland areas and other sensitive areas proposed for preservation.

Mitigation Measure 14e. Implement Mitigation and Monitoring Plan.

To compensate for loss of wetlands and impacts to rare plant populations the project applicant shall implement the Mitigation and Monitoring Plan for the proposed Managed Open Space portion of the project site, which has been 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 referenced Mitigation and Monitoring plan may be modified based on recommendations from the USACE, USFWS, and RWQCB during the permitting process. In summary, the Mitigation and Monitoring Plan will:

- Establish within the Managed Open Space a minimum of 5.17 acres of Seasonally Saturated Annual Grassland; 0.30 acres of Vernal Pools; and 0.14 acres of Alkali Seasonal Wetlands.

- Provide financial assurances to ensure a high level of confidence that the Mitigation and Monitoring Plan will be successfully completed, in accordance with applicable performance standards.
- Design ecological performance standards to assess whether the Mitigation and Monitoring 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.
- Monitor the site for a minimum of 10 years to determine if the Mitigation and Monitoring Plan is meeting the performance standards.
- Protect the approximately 434.81 acre Managed Open Space in perpetuity using a site protection instrument such as a deed restriction or conservation easement, and provide an endowment sufficient to fund the Mitigation and Monitoring Plan's Long-Term Management Plan; and
- 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 Mitigation and Monitoring Plan specifically to minimize these potential effects.

The Mitigation and Monitoring Plan shall include a site protection instrument (e.g., deed restriction or conservation easement[s]) that will restrict use of the proposed Managed Open Space portion of the project site to offset impacts to wetlands and impacts to rare plants and shall include a long-term endowment funded by the proposed project to manage the entire 434.81 -acre Managed Open Space in perpetuity (see Property Analysis Record in the Mitigation and Monitoring Plan, in Appendix C).

Significance after Mitigation

The proposed project would protect 434.81 acres within the eastern portion of the annexation area east of Pennsylvania Avenue and south of Cordelia Road; this area would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately 331.67 acres of this 434.81 -acre Managed Open Space is currently within the Suisun Marsh Protection Plan jurisdiction. However, the proposed Managed Open Space provides additional benefits to enhance the quality and diversity of Suisun Marsh wildlife habitats beyond that provided by the Suisun Marsh Protection Plan. The site protection instrument would create new freshwater wetlands and will provide a sanctuary for wildfowl during hunting season by excluding duck hunting, and foster implementation of Suisun Marsh Protection Plan policies and goals such as managing agricultural lands to support waterfowl and enhancements of wildlife habitat. The project would create a long-term endowment to provide funding to support regular site inspections, maintenance actions and sustained stewardship to:

- manage vegetation grazing practices to be compatible with wildlife habitat enhancement and rare plant protections
- implement invasive plant inspections and undertake remedial actions
- clean up dump sites and remove trash before it enters waterways
- prevent damage from homeless encampments
- maintain fences, gates, and signage

In addition, Managed Open Space will add protection to approximately 103.14 acres to the 434.81 -acre Managed Open Space which is not currently within the Suisun Marsh Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge for wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67 acres are within the primary and Secondary Management Areas of the Suisun Marsh.

Implementation of the proposed Managed Open Space in accordance with Mitigation Measures 14a through 14e would therefore offset permanent impacts to the 5.17 acres of Seasonally Saturated Annual Grassland; 0.30 acres of Vernal Pools; and 0.14 acres of Alkali Seasonal Wetlands and ensure there is no-net loss of wetland area, thus reducing potential impacts to less than significant.

2.1.5 Conservation and Protection Plans

Impact 17 Conservation and Protection Plan Conflicts. Because the proposed reduced footprint project would not conflict with the provisions of any adopted habitat conservation plan, and because management of project area that falls within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan’s goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats, this impact would be **less than significant**.

The Solano Multispecies Habitat Conservation Plan (SMHCP) has been in draft form for approximately 20 years. The SMHCP has not yet been adopted and currently there are no proposals to adopt this conservation plan in the foreseeable future. Therefore, the proposed project poses no conflict with an adopted conservation plan. If the SMHCP is approved prior to obtaining all permits and approvals for the proposed project, the project applicant will ensure that the project’s mitigation measures are consistent with the avoidance, minimization and mitigation measures described in the SMHCP.

The proposed project is consistent with the provisions and objectives of the Suisun Marsh Protection Plan. The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh wildlife habitats and to assure retention of upland areas adjacent to the Suisun Marsh in uses compatible with its protection. All portions of the project site that overlap with the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan’s goals of preserving and enhancing the quality and diversity of Suisun Marsh

wildlife habitats. The project would bring funding and additional management oversight for 393.24 acres of the Suisun Marsh and adjacent uplands, a site protection instrument, and a long-term endowment fund would provide resources to manage the 434.81-acre proposed Managed Open Space area within the project site with the goal of protecting and enhancing wildlife habitat.

The public acquisition recommendations in the Suisun Marsh Protection Plan specify acquisition of lands within and adjacent to the marsh close to population centers like Suisun City so that these lands can be managed as wildlife habitat and provide refuge areas to protect wildfowl, especially during hunting season. Approximately 103.14 acres of the 434.81-acre proposed Managed Open Space of the project site is currently outside of the Suisun Marsh Protection Plan's jurisdiction. The proposed project would provide new protections for these 103.14 acres because it would be managed in perpetuity as wildlife habitat in the proposed Managed Open Space area and would provide refuge to wildfowl, consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.67 acres are within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan. Because the proposed project would not conflict with the provisions of any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, this impact would be **less than significant**.

If you have any questions or need additional information, please contact me at rperrera@h-bgroup or 415.385.4106.

Sincerely,

Robert F. Perrera
Senior Wetland Regulatory Scientist

Enclosure/s:

Figures 1-3

Figures 1-3

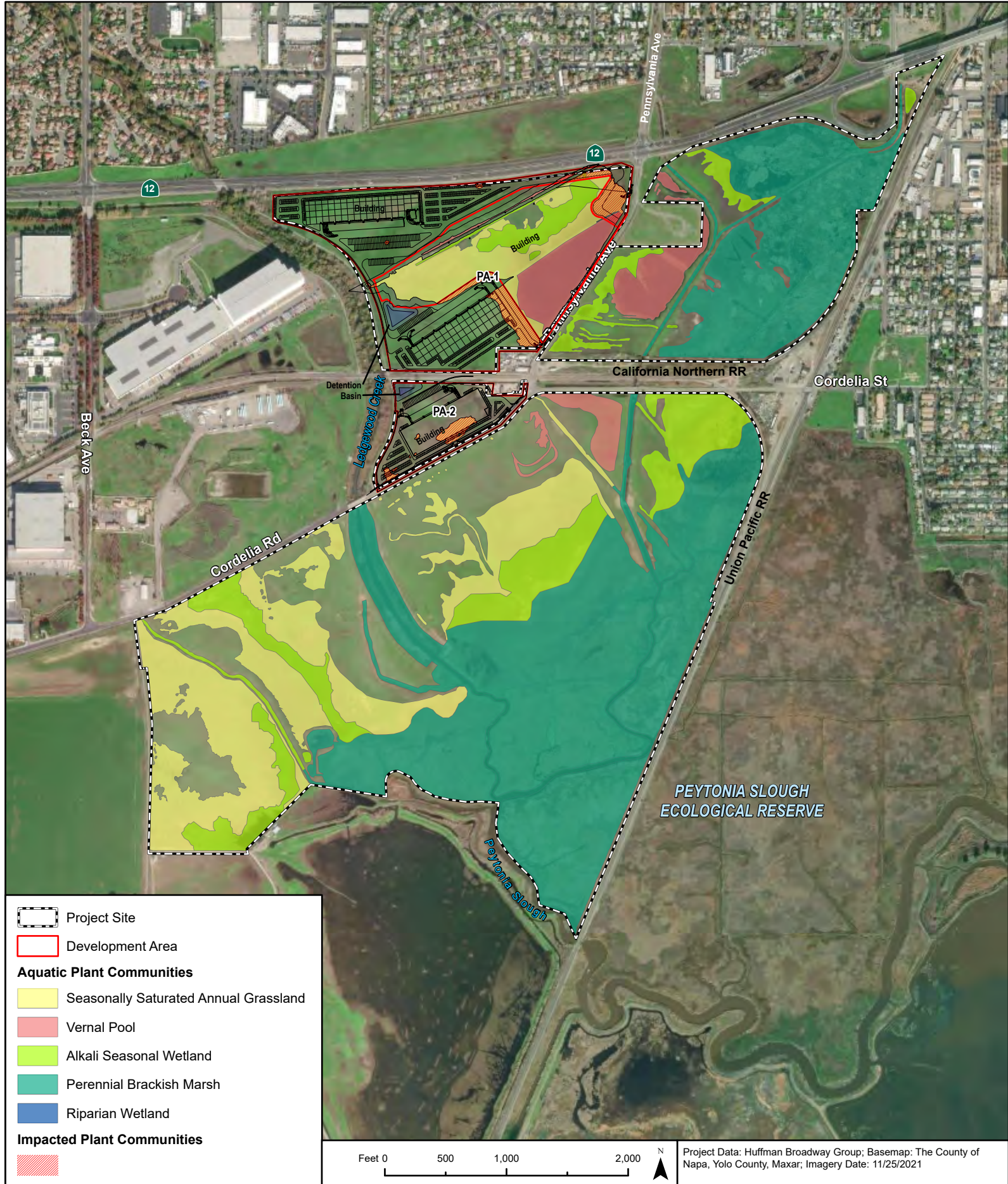























Figure 1. Reduced Footprint Alternative Aquatic Resource Impact
 Highway 12 Logistics Center Project
 Solano County, California

Huffman-Broadway Group, Inc.
 ENVIRONMENTAL REGULATORY CONSULTANTS

-  Plant Survey Boundary, 2021-2022
-  Development Area
- Plant Communities**
-  Seasonally Saturated Annual Grassland
-  Vernal Pool
-  Alkali Seasonal Wetland
-  Perennial Brackish Marsh
-  Riparian Wetland
- Rare Plant Occurrences**
-  Alkali Milkvetch Points
-  Contra Costa Goldfields
-  Delta Tule Pea
-  Heckard's Pepper-grass
-  Suisun Marsh Aster
-  Long-styled Sand Spurry
-  Saline Clover
-  Area of Occurrence of Contra Costa Goldfields
-  Area of Occurrence of Delta Tule Pea
-  Area of Occurrence of Heckard's Pepper-grass
-  Area of Occurrence of Suisun Marsh aster
-  Area of Occurrence of Alkali Milkvetch
-  Area of Occurrence of Saline Clover
-  Impacted Plant Communities

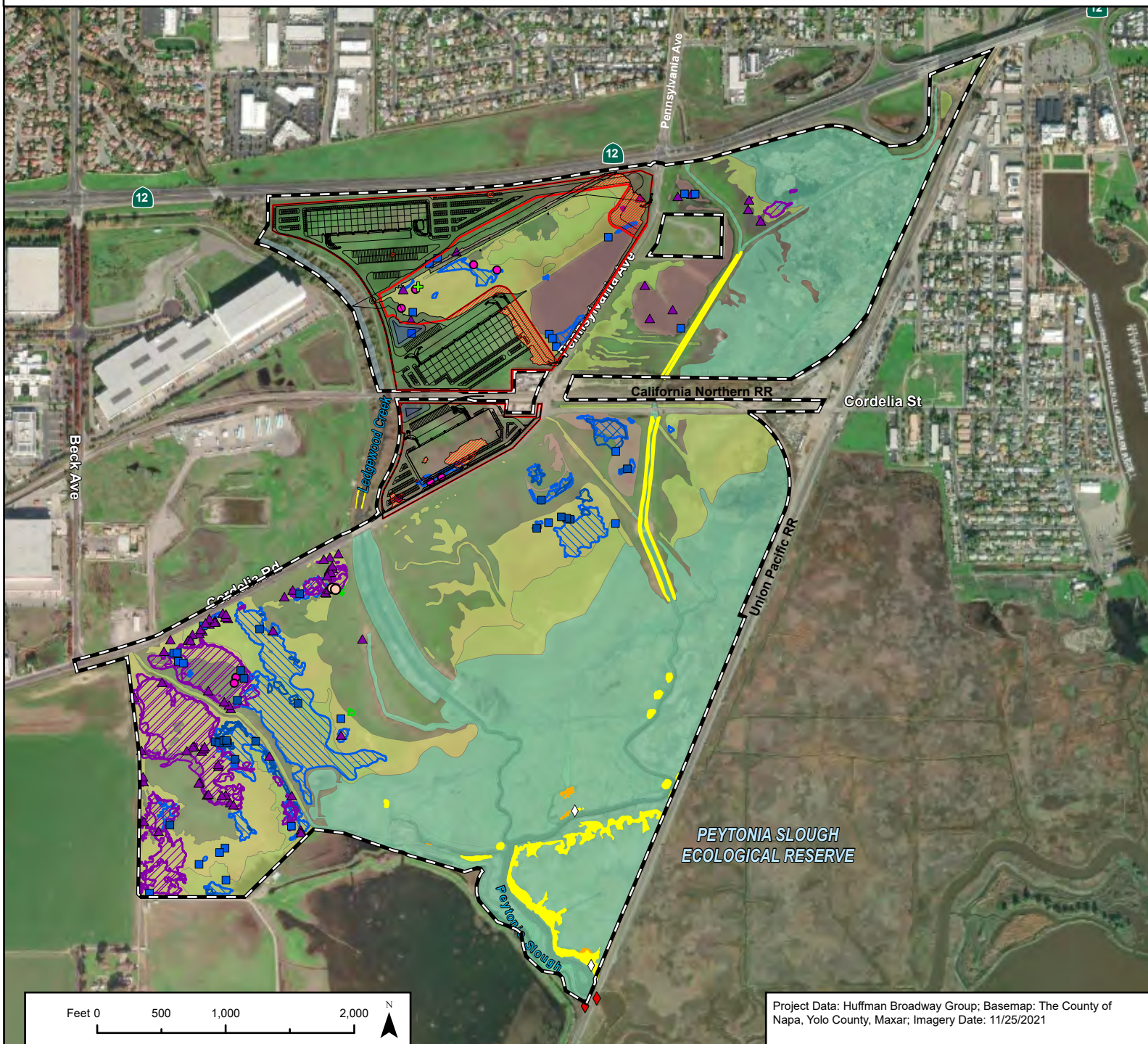


Figure 2. Reduced Footprint Alternative Special Status Plant Impact
 Highway 12 Logistics Center Project
 Solano County, California

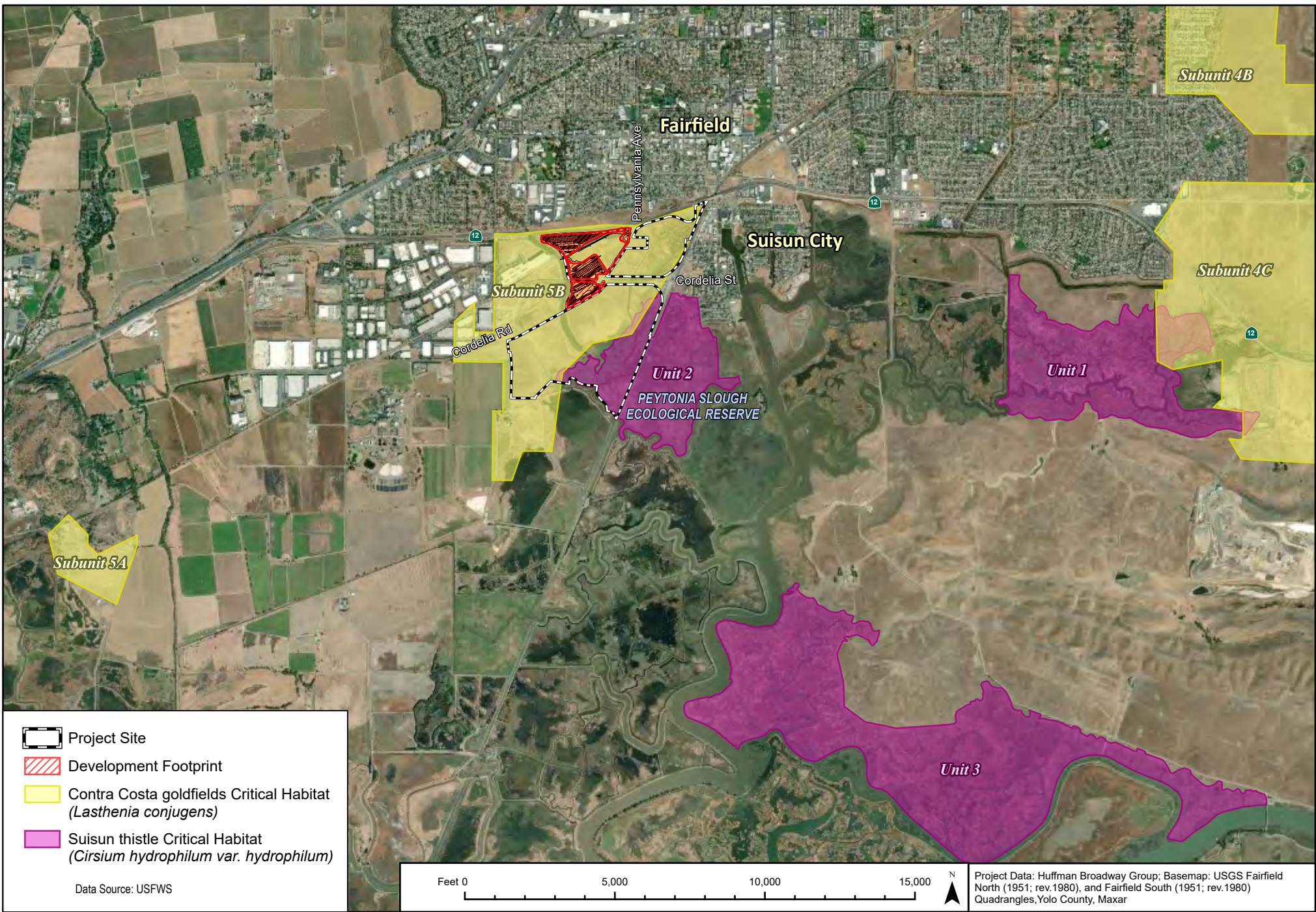


Figure 3. Reduced Footprint Alternative CCG Subunit 5B Impact
 Highway 12 Logistics Center Project
 Solano County, California