PREPARED BY

Mead & Hunt

Initial Study / Mitigated Negative Declaration

Yolo Bypass West Levee Culvert Replacement Project

JUNE 2021

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Appendices

1.0 Project Information

Project Title:	***Yolo Bypass West Levee Culvert Replacement Project***
Lead Agency Name and Address:	***City of Woodland*** ***Utility Engineering*** ***300 First Street*** ***Woodland, CA 95695***
Contact Person and Telephone:	***Mark Miller, Associate Engineer*** ***(530) 661-5968***
Project Location:	***Yolo County, California***
Project Sponsor's Name and Address:	***City of Woodland*** ***Utility Engineering*** ***300 First Street*** ***Woodland, CA 95695***
General Plan Designation:	***Agriculture***
Zoning	***A-N Agricultural Intensive***

SURROUNDING LAND USES AND SETTING:

The City of Woodland's (City's) proposed Yolo Bypass West Levee Culvert Replacement Project (project) would replace three drainage culverts. It affects portions of four parcels (057-180-013, 057-170-003, 057-170-099, and 57-180-002) located in an unincorporated area of eastern Yolo County that is located east of the City of Woodland boundary and north of Interstate 5. The existing culverts are located within the City's Outfall Channel where it intersects the Yolo Bypass West Levee (YBWL) at Levee Mile 1.45, south of the Cache Creek Settling Basin and north of County Road 22 and the Sierra Northern Railroad (**Figures 1-3**).

The City's Outfall Channel drains all the stormwater runoff from the City of Woodland as well as portions of Yolo County and runs along the south side of the Cache Creek Settling Basin. It flows east from the City of Woodland into the Yolo Bypass, the Tule Canal, and the Sacramento River. Agricultural areas surround the project site (**Figures 1-3**).

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

1. Central Valley Flood Protection Board
2. Regional Water Quality Control Board
3. United States Army Corps of Engineers
4. United States Fish & Wildlife Service
5. National Oceanic and Atmospheric Association National Marine Fisheries Service

6. State Historic Preservation Office
7. California Department of Fish and Wildlife
8. Sierra Northern Railroad
9. City of Woodland
10. Yolo Habitat Conservancy
11. Yolo County

HAVE CALIFORNIA NATIVE AMERICAN TRIBES TRADITIONALLY AND CULTURALLY AFFILIATED WITH THE PROJECT AREA REQUESTED CONSULTATION PURSUANT TO PUBLIC RESOURCES CODE SECTION 21080.3.1? IF SO, IS THERE A PLAN FOR CONSULTATION THAT INCLUDES, FOR EXAMPLE, THE DETERMINATION OF SIGNIFICANCE OF IMPACTS TO TRIBAL CULTURAL RESOURCES, PROCEDURES REGARDING CONFIDENTIALITY, ETC.

A Sacred Lands Search and Section 106 consultation outreach list from the Native American Heritage Commission (NAHC) for the project was requested on February 18, 2020. The NAHC responded on February 24, 2020 that the Sacred Lands File search returned negative results. The NAHC provided a list of Native American tribes that may have knowledge of cultural resources within the Area of Potential Effect (APE) for the proposed project, which is defined as construction area for the project (**Figure 3**).

On September 17, 2020, the City of Woodland mailed letters to the tribes included on the California NAHC Native American Consultation List. These tribes consisted of the Yocha Dehe Wintun Nation, Cortina Rancheria-Kletsel Dehe Band of Wintun Indians, and the United Auburn Community of the Auburn Rancheria. The City also sent the same letter to the Desert Cahuilla Indians, the Ione Band of Miwok Indians, the NAHC, and the Rumsey Indian Rancheria of Wintun. The letters provided project information and an invitation to consult in compliance with Section 106 and formal notification in compliance with AB52.

Emails and phone calls to each of the tribes that were sent letters were made on October 5, 2020. The follow-up contact was to ensure that the letters were received and to inquire if there were any concerns regarding the project. On October 19, 2020, a letter was received from Laverne Bill, Cultural Resources Manager for the Yocha Dehe Wintun Nation that identified a cultural interest in the area and requested a field visit. The City met Mr. Bill at the site on November 3, 2020. No other responses were received. A record of the consultation activities is included as **Appendix A**.

2.0 Project Description

2.1 Background

The City's storm drain system collects water through a system of gutters, ditches and catch basins. All drainage water is gravity fed through a system of pipes, ditches, or open channels to one of three storm water lift stations. Water is pumped from the lift stations to the City's Outfall Channel, which runs along the south side of the Cache Creek Settling Basin and flows east into the Yolo Bypass, the Tule Canal, and the Sacramento River.

The City's project would replace three existing culverts in the portion of the Outfall Channel that conveys drainage to the Yolo Bypass. The culverts are the primary drainage outlet for the City, and the existing culverts have exceeded their useful service life and do not meet current Central Valley Flood Protection Board (CVFPB) standards and the United States Army Corps of Engineers (USACE) levee safety standards. Currently, the culverts are not capable of conveying the existing and projected increases in flows associated with the ultimate buildout conditions under the City's adopted General Plan (City 2017a, 2017b). Increased flows in the Outfall Channel could overtop the banks and cause failure of the Outfall Channel embankment. The culverts must be replaced because their failure would adversely affect the structural integrity of the Yolo Bypass levee system.

2.2 Location and Existing Facilities

The proposed project is generally in an unincorporated area of eastern Yolo County east of the City of Woodland boundary and north of Interstate 5 (**Figure 1**). The three existing culverts are located within the City's Outfall Channel where it crosses the YBWL at Levee Mile 1.45, south of the Cache Creek Settling Basin and north of County Road 22 and the Sierra Northern Railroad (**Figure 2**).

Culverts #1 and #2 are in line with the Outfall Channel. Culvert #3 crosses the YBWL north of the Outfall Channel. (**Figure 3**) Culvert #3 connects to the north side of the Outfall Channel at a 45-degee angle, turns to the northeast, and crosses the levee parallel to and north of the two other culverts to discharge approximately 80 feet north of the outlet for the other two culverts in the main Outfall Channel.

2.3 Proposed Project

The City proposes to replace three 48-inch culverts in the City's Outfall Channel with a single cast-in-place concrete culvert with four bays to accommodate projected buildout storm drainage flows of 1,443 cubic feet per second (cfs). The cast-in-place culvert will be approximately 115 feet long, 31 feet wide, and 8 feet tall with four 6-foot by 6-foot bays. Cast-in-place concrete headwalls will be constructed at the inlet and outfall structures. The project site is equivalent to the construction area and is shown on **Figure 3**.

The new culvert will be designed to meet the CVFPB standards and the USACE guidance for the design and construction of levees. The individual bays will be fitted with flap gates at the outfall structure to prevent backflow from the Bypass and will include a gate shaft[1] equipped with emergency isolation slide gates to enable the culverts to be completely sealed in the event of flap gate failure.

[1] Gate shaft can also be referred to as gate well, gate structure, or closure structure.

A five-month construction period is anticipated that includes cofferdam construction and dewatering, excavation and demolition, construction of the new culvert, and cleanup and restoration.

Access and Staging

The total construction area including access and staging areas is approximately 3 acres as shown on **Figure 3**. Construction crews will gain access to the project site by traveling on Interstate 5 County Road 102, and County Road 22. Parking will be available on the north side of County Road 22 at the levee access road or at the adjacent City pump station shown on **Figure 3**. Staging areas will be available within the construction area north and south of the Outfall Channel west of the YBWL and north of the channel on the east of the YBWL.

Cofferdam Construction and Dewatering

A portion of the Outfall Channel on both sides of the YBWL will need to be dewatered during construction. Two cofferdams will be placed in the Outfall Channel, one on either side of the YBWL. Water will be pumped back into the Outfall Channel using appropriate filtration and erosion protection. The total dewatered area will be no more than 7,900 square feet. A temporary bypass pipe will be installed around the dewatered area to enable drainage to flow through the Outfall Channel to the Yolo Bypass.

Excavation and Demolition

Once the channel is dewatered, the YBWL will be excavated to a depth of 23 feet below the levee crown to provide access to Culverts #1 and #2. Excavated material will be stockpiled on site within the staging areas and processed for reuse. The extent of the excavation area is approximately 26,300 square feet. Riparian vegetation and two willow trees within the excavation limits along the Outfall Channel may need to be removed.

Culvert #3 crosses the YBWL approximately 60 to 80 feet north of the other culverts where the levee elevation is approximately 5 feet higher; thus, the culvert is 5 feet deeper relative to ground elevation and would require a much larger excavation footprint to access. To avoid excessive earth moving and disturbance to the YBWL, Culvert #3 will be fully grouted in place, in accordance with CVFPB standards. The concrete headwall and flapgate at Culvert #3 will be removed. Sections of the inlet and outlet of Culvert #3 that are exposed as a result of the excavation for Culverts #1 and #2 may be removed.

Culvert Construction

Once the existing culverts are removed, the cast-in-place culvert, concrete inlet structure, outfall structure with flap gates, and gate shaft with slide gates will be constructed. Approximately 2,100 SF of rock slope protection (RSP) will be placed in the Outfall Channel at the new inlet and outlet structures to dissipate flows and protect against erosion and undermining of the concrete structures.

The levee will be over-excavated and recompacted to provide a stable culvert foundation. Suitable levee embankment material in compliance with California Code of Regulations, Title 23 levee design standards will be used. Waters and USACE EM 1110-2-1913, Design and Construction of Levees, will be used to restore the levee section, with each lift of material keyed into adjacent undisturbed levee embankment. Excavated materials will be

reused to the extent possible or off-hauled to a landfill. The void created with the removal of the Culvert #3 outfall structure will be filled and recontoured to match existing contours. It is anticipated that up to 2,500 cubic yards (cy) of earthen fill will need to be imported to the project site. An earthen material borrow site is available for use at the City's pond site approximately 3.8 miles northwest of the project site along County Road 102 and approximately 1,150 feet north of East Beamer Street (**Figure 2**). Topsoil and organics have been previously stripped at the location; however, the required material will need to be excavated for use.

Cleanup and Restoration

Any waste generated during construction will be disposed of at an off-site facility. Following reconstruction of the levee, the all-weather aggregate base levee access roadway on top of the levee will be reconstructed. The temporary bypass pipe and cofferdams will be removed. The excavated area will be seeded and/or planted and the staging and access areas will be restored to pre-project conditions.

Construction Schedule and Personnel

It is anticipated that construction will take up to 5 months. Equipment to be used includes water trucks, dump trucks, excavator, dozer, compaction roller, crane, backhoe loader, and concrete trucks. Construction will occur during daylight hours with a crew of up to 20 people at the project site at any given time.

2.4 Purpose and Need

The proposed project serves multiple purposes by replacing aging infrastructure, reducing flood risk, and complying with current levee safety standards.

Aging Infrastructure

Three existing corrugated metal pipe (CMP) culverts were constructed around 1970 to connect the City's Outfall Channel outlet to the Yolo Bypass. The average lifespan of CMP pipes in similar environments is up to 50 years. The proposed project would replace the three culverts which have exceeded their useful life, and the northernmost culvert is partially collapsed. The proposed project would replace the aging infrastructure with a cast-in-place concrete box culvert.

Projected Increased Flows

During high flow conditions, the culverts must be carefully monitored so they don't overwhelm and cause a failure of the channel embankments. The City of Woodland General Plan projects an increase of 19,300 new residents, for a total of 75,000 residents through 2035 (City 2017b). The increased development under buildout conditions will lead to increased urban runoff in the City's stormwater drainage system. The General Plan states that the Storm Drainage Master Plan Update will address stormwater and flooding issues. As described in the 2017 update to the City's 2006 *Storm Drainage Facilities Master Plan* (City 2017a), the Outfall Channel outlet to the Yolo Bypass is not capable of conveying the full build-out pumped flow from the City's pump stations without overtopping the railroad embankment south of the Outfall Channel and flooding Interstate 5. In order to accommodate the ultimate flow of 1,443 cfs, the three 48-inch culverts need to be replaced with five 72-inch reinforced concrete pipe (RCP) culverts or conduits with an equivalent flow capacity.

Compliance with Current Levee Safety Standards

The failure of the culverts could adversely affect the integrity of the Yolo Bypass levee system. The replacement drainage culvert(s) and gate shaft will be designed in accordance with the current USACE, CVFPB and Urban Levee Design Criteria (ULDC) guidance for levee penetrations.

The existing culverts do not comply with the USACE Engineer Manual (EM) 1110-2-2902 (USACE 1998), which states that reinforced concrete conduits and pipes should be used for dams, urban levees, and other levees where public safety is at risk or substantial property damage could occur, and CMP culverts should only be used in agricultural or rural areas. The existing CMP culverts will be replaced with a reinforced concrete box culvert to comply with the USACE EM guidelines for reducing public safety risk.

The City's culverts cross the State Plan of Flood Control Levee below the design freeboard, which does not comply with the CVFPB's freeboard criteria. In the absence of backflow prevention and emergency closure measures for levee penetrations exposed to waterside channel floodwaters, the structural integrity of the line of flood protection creates a levee safety hazard and potential high flood hazard.

As described in the USACE EM 1110-2-1913 (USACE 2000), flap gates are typically used where the water is likely to rise suddenly, and that all pipes that penetrate the embankment or foundation of a levee must be provided with devices to assure positive closure. To comply with current engineering guidelines, flap gates will be installed at the downstream end of the culverts, and positive flow closure gates will be installed in a gate shaft at the water side edge of the levee crest to maintain separation between the Outfall Channel and the Yolo Bypass.

3.0 Environmental Factors Potentially Affected

SECTION / CATEGORY	Potentially Significant Impact	Less than Significant Impact with Project Mitigation	Less than Significant Impact	No Impact	Comments
5.1. AESTHETICS	☐	☐	☒	☐	
5.2. AGRICULTURE / FORESTRY RESOURCES	☐	☐	☐	☒	
5.3. AIR QUALITY	☐	☐	☒	☐	Best management practices to control dust and minimize exhaust emissions should be implemented during construction to minimize the potential for air quality impacts.
5.4. BIOLOGICAL RESOURCES	☐	☒	☐	☐	Several mitigation measures will be implemented to reduce potential impacts to species and habitats to a less than significant level.
5.5. CULTURAL RESOURCES	☐	☒	☐	☐	Protocols are included in case buried cultural materials or human remains are encountered during construction.
5.6. ENERGY	☐	☐	☐	☒	
5.7. GEOLOGY / SOILS	☐	☐	☒	☐	Potential for erosion during construction. Best management practices will be developed and implemented for this project including Sediment and Erosion Control Measures and a Storm Water Pollution Prevention Plan (SWPPP).
5.8. GREENHOUSE GAS EMISSIONS	☐	☐	☒	☐	
5.9. HAZARDS / HAZARDOUS MATERIALS	☐	☐	☒	☐	Hazardous materials control BMPS shall be implemented during construction.
5.10. HYDROLOGY / WATER QUALITY	☐	☐	☒	☐	
5.11. LAND USE / PLANNING	☐	☐	☐	☒	
5.12. MINERAL RESOURCES	☐	☐	☒	☐	
5.13. NOISE	☐	☐	☐	☒	
5.14. POPULATION / HOUSING	☐	☐	☐	☒	
5.15. PUBLIC SERVICES	☐	☐	☐	☒	

5.16.	RECREATION	☐	☐	☐	☒	
5.17.	TRANSPORTATION	☐	☐	☐	☒	
5.18.	TRIBAL CULTURAL RESOURCES	☐	☒	☐	☐	Protocols are included in case buried cultural materials or human remains are encountered during construction.
5.19.	UTILITIES / SERVICE SYSTEMS	☐	☐	☐	☒	
5.20.	WILDFIRE	☐	☐	☒	☐	Fire prevention best management practices developed and implemented during construction to reduce the potential for wildfires.
5.21.	MANDATORY FINDINGS OF SIGNIFICANCE	☐	☐	☒	☐	

4.0 Determination

Completed by Lead Agency:

On the basis of this initial study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Mark Miller

City of Woodland
Mark Miller, Associate Engineer

5/31/2021

Date

5.0 Evaluation of Environmental Impacts

5.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a-b) **Less than significant impact**. Yolo County, including the project site, has a rural and agricultural character. The project is located within the Cache Creek subarea of Yolo County, which extends eastward from the community of Capay to the Yolo Bypass. The most prominent visual resource of this subarea is Cache Creek, which is characterized by wetland grasses, rushes, and sedges that grow under a canopy of cottonwoods, willows, oaks, and alders. The eastern end of the creek is restricted by levees and terminates in the Cache Creek Settling Basin immediately north of the project site. There are no scenic highways within the Cache Creek subarea (Yolo County 2009b).

The project site includes riparian vegetation along the existing Outfall Channel, but there are no identified scenic vistas, rock croppings, historical buildings or other scenic resources within the project site and it is not located along a state scenic highway.

c) **Less than significant impact**. The project is the replacement of existing infrastructure and would not conflict with any zoning regulations. Following construction of the proposed project, the visual character of the site would largely remain unchanged. The project site is visible from County Road 22 as you pass over the levee access road, but there is an access gate at the levee road intersection and the project site is not open to the public for recreation. The new concrete headwalls at both the inlet and outlet structures for the proposed culvert will be concrete and visible above ground, however, the tops of the proposed structures will be roughly the same

elevation as the top of bank on the existing channel. The proposed concrete gate shaft platform and handrail will extend approximately 0.5 foot above ground on the west side and 6 feet on the east side of the eastern slope of the YBWL with the top elevation approximately equal to the top of the YBWL. While visible above ground, the overall structure is consistent with other water management infrastructure in the vicinity and will not substantially detract from the viewshed. The elevation of the restored levee roadway will be within 0.5 foot of the existing roadway and these changes will not be noticeable from County Road 22 or the top of the Cache Creek Levee, both of which are closed to public access.

d) **No impact**. The proposed project is not equipped with lights; therefore, no new source of light or glare is associated with the proposed project. No nighttime construction is proposed that would create a temporary source of light or glare.

Mitigation
None.

5.2 Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a) **No impact**. No portion of the project site is located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the Important Farmland in California map prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. The project site is located entirely within lands categorized as Vacant and Disturbed Land as shown on the California Department of Conservation Farmland Mapping and Monitoring Program included as **Figure 4** (CDOC 2020).

b) **No impact**. All of the parcels within the project site are currently zoned as Intensive Agriculture, however none is under a Williamson Act contract (Yolo County 2020, 2020b). No land within the project construction area is actively farmed. The proposed project includes replacement of existing culverts. None of the construction area is used for agriculture; therefore, no land will be removed from agricultural use.

c-e) **No impact**. There are no forestry lands or timberland within or adjacent to the proposed project site that would be affected by construction of the proposed project. The proposed project is the replacement of an existing culvert and would not convert any farmland or forested lands to other uses. There will be **no impact** to agricultural or forest lands.

Mitigation
None.

5.3 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a-b) **Less than significant impact**. The proposed project area lies within the Sacramento Valley Air Basin (SVAB) and is under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). There are national ambient air quality standards (NAAQs) established by the United States Environmental Protection Agency under the Clean Air Act and California Ambient Air Quality Standards (CAAQS) established under the California Clean Air Act (CCAA) and included in **Table 1**. Yolo County is currently classified as a nonattainment area for federal standards pertaining to particulate matter less than 2.5 microns in diameter (PM2.5) and State standards pertaining to particulate matter less than 10 microns in diameter (PM10) standards and is classified as a nonattainment area for both the federal and State ozone standards (YSAQMD 2020; USEPA 2020). Yolo County is classified as in Attainment or Unclassified for all other regulated pollutants. A significant impact would occur if the proposed project would prevent the state from meeting its compliance goals as identified in the State Implementation Plan.

The proposed project does not include any mechanical equipment that would produce emissions; however, project construction will create a temporary source of emissions associated with the use of construction equipment and increased traffic in the project area as construction crews travel to and from the site daily during the five-month construction period. Construction of the project includes import of approximately 2,500 cy of material from a borrow site located approximately 3.8 miles away. Typical haul trucks carry between 9 and 12 cy of material, which would require between 208 and 280 truck trips.[2] Assuming 2 trips per hour, the haul operations

[2] A truck trip is equal to round trip to the borrow site, approximately 7.6 miles.

would add the equivalent of 140 hours for a dump truck and an excavator at the borrow site.

YSAQMD has established project-level thresholds of significance for both operation and construction impacts. **Table 2** presents YSAQMD's thresholds for PM10, carbon monoxide (CO), and the precursors to ozone, which are reactive organic gases (ROG) and nitrogen oxides (NOx). An air quality impact would occur if the proposed project would produce construction emissions that exceeded the YSAQMD thresholds. To determine whether an air quality impact would occur, Project-related construction emissions were quantified using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2 data tables. Construction emissions include, but are not limited to, materials used, number, type, duration, and intensity of construction equipment usage; vehicle miles traveled, ambient meteorological conditions, fuel type; and anticipated quantity of materials consumed. **Table 2** identifies anticipated construction-related impacts as compared to YSAQMD significance thresholds. The calculated construction emissions based on the construction vehicles and duration are well below the thresholds of significance set by the YSAQMD. The equipment list and calculation table are included in **Appendix B**.

As shown on **Table 2**, the proposed project does not exceed the significance thresholds and a significant air quality impact will not occur as a result of temporary construction impacts. To further reduce emissions, the City will require its contractor to implement Best Management Practices (BMPs) to further minimize construction-related emissions, including dust-control measures and measures to reduce equipment exhaust.

Table 1. National and State Ambient Air Quality Standards for Criteria Pollutants

Pollutant	NAAQS Averaging Period	NAAQS Federal Standard	CAAQS Standard
Ozone (O_3)	1-hour	NA	0.09 ppm
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM2.5)	24-hour	35 µg/m3	NA
	Annual	12 µg/m3	12 µg/m3
Particulate Matter (PM10)	24-hour	150 µg/m3	50 µg/m3
	Annual	NA	20 µg/m^3
Carbon Monoxide (CO)	1-hour	35 ppm	20 ppm
	8-hour	9 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1-hour	0.100 ppm	0.18 ppm
	Annual	0.053 ppm	0.03 ppm
Sulfates (SO_x)	24-hour	NA	0.25 ppm
Lead	30-day	NA	1.5 µg/m^3
	Rolling 3-Month	0.15 µg/m^3	NA

Key:
NA = Not applicable
ppm = parts per million
µg/m^3 = micrograms per cubic meter

Sources: CARB 2020, 2020b

Table 2. YSAQMD Thresholds of Significance for Criteria Pollutants of Concern.

Pollutant	Thresholds of Significance	Calculated Construction Emissions Project (5-month duration)
ROG	10 tons/year	0.13 tons
NOx	10 tons/year	1.65 tons
PM10	80 lbs/day = 240 lbs /mo. = 12,000lbs/5 mos.	119 lbs. over 5 months
CO	Violation of a state ambient air quality standard for CO quality	No violations

Source: YSAQMD 2007. CalEEMod Data tables CAPCOA. 2017

c-d) **Less than significant impact**. Sensitive receptors for air quality impacts include residences, schools, daycare centers, playgrounds, and medical facilities. The closest sensitive resources are located more than 3 miles west of the project site within the City of Woodland. While construction operations will result in temporary increased construction equipment and dust, the sensitive receptors are unlikely to perceive any changes.

Best Management Practices

Dust Control Measures. The following dust control measures will be implemented during construction of the project to reduce construction fugitive dust PM10 emissions.

1. All material excavated, stockpiled, or graded shall be sufficiently watered, treated, or covered to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard. Watering should occur at least twice daily, with complete site coverage.
2. All inactive portions of the development site or storage piles shall be covered, seeded, or watered until a suitable cover is established. Alternatively, the applicant may apply County-approved non-toxic soil stabilizers (according to manufacturer's specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
3. Any material transported on- or off-site shall be either sufficiently watered or securely covered to prevent public nuisance, and there must be a minimum of two feet of freeboard in the bed of the transport vehicle.

Minimize Construction Equipment Exhaust. In order to reduce emissions from construction equipment, the following emissions reduction measures will be implemented during construction:

1. All equipment shall be maintained and properly tuned in accordance with manufacturer's specifications.
2. Heavy equipment shall be turned off rather than being allowed to idle for more than five minutes.

Mitigation

None

5.4 Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) 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?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

The City undertook a Biological Resources Evaluation (BRE) for the proposed project in 2020 included as **Appendix C** (Sycamore Environmental 2020). The Field Study area for the BRE covered 11.6 acres including the project site as shown on **Figure 3**. The BRE evaluated potential direct and indirect impacts of the proposed project on biological resources. The BRE included a biological field survey, a botanical survey, and review of lists from the United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) Inventory, CDFW special status wildlife and plants lists.

a-b) **Less Than Significant with Mitigation Incorporated**. The botanical survey for the BRE identified and

classified the natural communities in the Field Survey Area, including the project site, using the methods, land cover types and methods and vegetation alliance membership rules in *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009 as cited in Sycamore Environmental 2020). Natural communities present in the Field Survey Area are shown in **Table 3** and **Figure 5**. Impacts to natural communities within the project site are shown on **Figure 6**.

Table 3. Natural Communities in the Field Survey Area.

NATURAL COMMUNITY/ YOLO HCP/NCCP LANDCOVER TYPE	VEGETATION ALLIANCES (CDFW CODE / RARITY RANK) [1]	SENSITIVE? [2]	ACREAGE [3]
Upland Communities			
California Annual Grassland/ Grassland	*Avena* spp. – *Bromus* spp. Semi-Natural Alliance (42.027.00 / No Rank)	No	3.50
Developed / Disturbed	None recognized	No	3.77
Mixed Willow Alliance/ Valley Foothill Riparian	*Salix exigua* Alliance (61.209.00 / G5 S4)	Yes (Riparian)	0.59
Riparian Scrub/ Valley Foothill Riparian	*Toxicodendron diversilobum* Alliance (37.940.00 / G5 S4)	Yes (Riparian)	0.18
Urban Ruderal	None recognized	No	1.91
Aquatic Communities			
Seasonal Wetland/ Fresh Emergent Wetland	*Eleocharis macrostachya* Alliance (45.230.00 / G4 S4)	Yes (Wetland)	0.16
Cache Creek/ Lacustrine & Riverine	None recognized	Yes (Water)	0.37
Diversion Channel/ Lacustrine & Riverine	None recognized	Yes (Water)	0.18
Outfall Channel/ Lacustrine & Riverine	None recognized	Yes (Water)	0.92
Drainage Ditch/ Lacustrine & Riverine	None recognized	Yes (Water)	0.01
		Total:	**11.59**

Notes:
1. Vegetation alliances based on descriptions and classification methods in Sawyer et al. (2009) and *A Manual of California Vegetation,* Online Version (CNPS 2020b) as cited in Sycamore Environmental 2020. Alliance codes and ranks are from CDFW (2019d) as cited in Sycamore Environmental 2020. Rarity ranks of State (S) 1 – 3 are considered imperiled. Communities may lack recognized alliances if they lack vegetation, occupy a small area, or are dominated by nonnatives.
2 Sensitive natural communities include wetlands, waters, riparian vegetation, and vegetation alliances ranked S1 – S3. Waters listed here are potentially jurisdictional under the Clean Water Act, per the aquatic resources delineation report (Sycamore Environmental 2020b).
3. Acreages were calculated using AutoCAD or ArcMap functions.

Source: Sycamore Environmental 2020. Biological Resource Evaluation, Yolo Bypass West Levee Culvert Replacement Project.

Yolo Habitat Conservation Plan / Natural Community Conservation Plan (Yolo HCP/NCCP) Valley foothill riparian natural community, which includes the mixed willow alliance and riparian scrub, is a special-status natural community in the project site. Other special-status aquatic communities include the seasonal Yolo HCP freshwater emergent wetland, and Yolo HCP Lacustrine and Riverine wetland, which includes Cache Creek, the Diversion Channel, the Outfall Channel and the Drainage Ditch. Cache Creek, the Diversion Channel, the Outfall Channel. and the Drainage Ditch are potential waters of the U.S. and of the State. Impacts to aquatic resources are discussed in item c) below. The California annual grassland is the levee slope. The developed/ disturbed areas are gravel roads, the railroad, and County Road 22 (paved). The urban ruderal consists of nonnative grasses and forbs that are mowed and/or treated with herbicide on the levees and road berms.

Project implementation will result in temporary impacts to 0.13 acre of Valley foothill riparian (0.08 acre of mixed willow alliance and 0.05 acre of riparian scrub (shown as temporary impacts within the Yolo HCP permanent impact fee buffer and as temporary impacts on **Figure 5**), and permanent impacts of 0.01 acre of mixed willow alliance and riparian scrub (132 sq feet and 304 sq. feet, respectively) within the project site (**Figure 5**). Temporary impacts will result from access to install and remove cofferdams, to place RSP, to remove and replace existing culverts, and to install the gate shaft. Permanent impacts will result from installation of a new concrete headwall and flapgate on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel. The second location of permanent impacts is at Culvert #3. The project will remove the concrete headwall and flapgate on Culvert #3 and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. The Yolo HCP/NCCP considers all impacts to Valley oak riparian habitat to be permanent due to the length of time (over one year) required for the habitat to regenerate post-impact. Permanent impact fees are required for all 0.14 acre of impacts to Valley oak riparian.

Impact BIO-A. Temporary impacts to 0.13 acre of Valley foothill riparian (0.08 acre of mixed willow alliance and 0.05 acre of riparian scrub), and permanent impacts to 0.01 acre of mixed willow alliance and riparian scrub (132 sq feet and 304 sq. feet, respectively) within the project site.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP Avoidance and Minimization Measures (AMMs) 1, 3, 5, 6, 8, and 9) will reduce potential impacts to **less than significant**. Implementation of Mitigation Measure **BIO-7**, Avoid and Minimize Effects on Wetlands and Waters (Yolo HCP AMM10), will also reduce potential impact **BIO-A** to Valley foothill riparian.

The results of the database searches and field surveys, including species covered by the Yolo HCP/NCCP, are discussed below.

Special-Status Plants

The Field Survey Area provides suitable habitat for five special-status plants ranked by the CNPS: Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae)*, Pappose tarplant (*Centromadia parryi* ssp. *parryi*), Parry's rough tarplant (*Centromadia parryi* ssp.*rudis*), woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*), and saline clover

(*Trifolium hydrophilum*). A botanical survey was conducted in June 2020 during the evident and identifiable period for these species, and only Parry's rough tarplant was identified.

Approximately 200 individuals of Parry's rough tarplant were documented on the southern bank of Cache Creek near the northern edge of the Field Survey Area (**Figure 5**). Parry's rough tarplant is a CNPS California Rare Plant Rank 4.2 species (a watch list species of limited distribution). Special-status plants listed in the 2017 City of Woodland General Plan are Rank 1.B, California endangered, and federal endangered. The Parry's rough tarplant observed is outside the project site and does not meet the definition of Rare or Endangered under California Environmental Quality Act (CEQA) Guidelines §15125 (c) or §15380.

Special-Status Wildlife

Federal and State lists and the Yolo HCP/NCCP were reviewed to identify special status wildlife that have the potential to occur in or near the project site. The Yolo HCP/NCCP is a comprehensive, county-wide plan to provide for the conservation of twelve sensitive species and the natural communities and agricultural land on which they depend, as well as a streamlined permitting process to address the effects of a range of future anticipated activities on these 12 species. The Field Survey Area includes suitable habitat for seven of the twelve species covered in the Yolo HCP/NCCP: western pond turtle, giant garter snake, Swainson's hawk, white-tailed kite, burrowing owl, least Bell's vireo, and tricolored blackbird. A discussion of these seven species plus other special status species with potential habitat in the Field Survey Area is included below.

Vernal pool fairy shrimp (VPFS, *Branchinecta lynchi*): The VPFS is a federally listed threatened species. The seasonal wetland located in the southern portion of the Field Survey Area provides potentially suitable habitat for VPFS (**Figure 5**). VPFS were not observed during the 2020 biological survey. Construction activities will avoid the seasonal wetland. No impact will occur. Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** (Yolo HCP AMMs 1, 3, 5, 6, 8, 9 and 10) identified for other biological impacts will further prevent potential impacts to VPFS.

Vernal pool tadpole shrimp (VPTS, *Lepidurus packardi*): The VPTS is a federally listed endangered species. A seasonal wetland is located in the southern portion of the Field Survey Area that provides potentially suitable habitat for VPTS. VPTS were not observed during the biological survey. Construction activities will avoid the seasonal wetland. The project will not impact VPTS. Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** (Yolo HCP AMMs 1, 3, 5, 6, 8, 9 and 10) identified for other biological impacts will further prevent potential impacts to VPTS.

North American green sturgeon, southern DPS (sDPS green sturgeon, *Acipenser medirostris*): The sDPS green sturgeon is federally listed threatened species and a State species of special concern. When flooded, the Yolo Bypass, including the portion of the Outfall Channel located within the Bypass within the project site, provides potentially suitable migration and rearing habitat for sDPS green sturgeon. The Yolo Bypass is designated as critical habitat for sDPS green sturgeon.

Construction activities will result in impacts to the Outfall Channel. Temporary impacts will result from diversion

and dewatering activities, construction access, culvert removal and replacement. Permanent impacts to the Outfall Channel will result from installation of a new concrete headwall and flapgates on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel.

The second location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the Culvert #3and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Construction has the potential to temporarily impact water quality. During construction, water quality will be protected by implementation of BMPs (see section 5.10). In-channel work will be conducted between 1 June and 1 November, outside the flood season of 1 November through 15 April as mandated by the CVFPB and when sDPS would not likely be present in Outfall Channel.

Impact BIO-B. Temporary impacts to the sDPS habitat in the Outfall Channel east of the YBWL from diversion and dewatering activities, construction access, culvert removal and replacement.

Impact BIO-C. Permanent impacts to the sDPS habitat in the Outfall Channel east of the YBWL from installation of a new concrete headwall structure and flapgates.

Implementation of Mitigation Measure **BIO-15**, Special-status fish, will reduce potential impacts **BIO-B** and **BIO-C** to a **less than significant** level. Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) and compliance with permit conditions per Mitigation Measure **BIO-7** (Yolo HCP AMM10). Mitigation Measure **BIO-7** requires implementation of applicable wetland/water permit requirements for activities that result in any fill of waters or wetlands including compliance with regulations under the National Pollutant Discharge Elimination System (NPDES) permit, Section 404 of the Clean Water Act, State Water Resources Control Board, Regional Board, and Fish and Game Code Section 1602 regulations. Compliance with Section 404 of the Clean Water Act would include consultation with the NMFS, (not party to the Yolo HCP/NCCP) which will also reduce potential impacts **BIO-B** and **BIO-C** to sDPS green sturgeon to a **less than significant** level.

Steelhead – California Central Valley (CCV steelhead) Distinct Population Segment (DPS, *Oncorhynchus mykiss*); Chinook salmon – Central Valley spring-run (SR Chinook) and Sacramento River winter-run (WR Chinook) Evolutionarily Significant Units (ESU, *Oncorhynchus tshawytscha*): CCV steelhead is federally listed as threatened. The SR Chinook is a state-listed and federally listed threatened species. The WR Chinook is state-listed and federally listed as an endangered species. When flooded, the Yolo Bypass, including the portion of the Outfall Channel located east of the YBWL within the project site, provides potentially suitable migration and rearing habitat for CCV steelhead and SR and WR Chinook. The mixed willow alliance along the banks of the Outfall Channel east of the YBWL provides overhead cover. The Yolo Bypass is designated as critical habitat for CCV steelhead and SR Chinook. The existing culvert flapgates prevent fish access to the Outfall Channel on the west side of the levee.

Construction activities will result in temporary impacts to the Outfall Channel and mixed willow alliance east of the levee. Temporary impacts to the Outfall Channel will result from diversion and dewatering activities and construction access to install and remove cofferdams, excavate and remove existing culverts, construct the new culvert, install RSP, and construct new outlet structure. Mixed willow alliance will be temporarily impacted by access to install and remove cofferdams. Permanent impacts will result from installation of a new concrete headwall and flapgates on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel. The second location of permanent impacts is at Culvert #3. The project will remove the concrete headwall and flapgate on Culvert #3 and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Excavation ang grouting activities at Culvert #3 have the potential to temporarily impact water quality during construction, however, BMPs as discussed in Section 5.10 will be implemented to reduce the potential water quality impacts to less than significant.

Impact BIO-D. Temporary impacts to the CCV steelhead, SR Chinook, and WR Chinook habitat in the Outfall Channel and mixed willow alliance east of the YBWL from diversion and dewatering activities, construction access, culvert removal and replacement.

Impact BIO-E. Permanent impacts to the CCV steelhead, SR Chinook, and WR Chinook habitat in the Outfall Channel and mixed willow alliance east of the YBWL from installation of a new concrete headwall structure and flapgates.

Implementation of Mitigation Measure **BIO-15**, Special-status fish, will reduce potential impacts **BIO-D** and **BIO-E** to a **less than significant** level. Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) and compliance with permit conditions per Mitigation Measure **BIO-7** (Yolo HCP AMM10) – which would include consultation with the National Marine Fisheries Service under the Section 404 permit process (NMFS; not party to the Yolo HCP/NCCP) – will also reduce potential impacts **BIO-D** and **BIO-E** to SR Chinook and WR Chinook to a **less than significant** level.

Sacramento splittail (*Pogonichthys macrolepidotus*): The Sacramento splittail is state species of special concern. Potentially suitable migration, spawning and rearing habitat for this species is present in the Yolo Bypass within the project site when it is flooded. The existing culvert flapgates prevent fish access to the Outfall Channel on the west side of the levee.

Construction activities will result in impacts to the Outfall Channel within the Yolo Bypass, including edge vegetation, east of the YBWL within the excavation limits. Temporary impacts to the Outfall Channel and riparian scrub along its edges will result from diversion and dewatering activities and construction access to install and remove cofferdams, excavate and remove existing culverts, construct the new culvert, install RSP, and construct new outlet structure. The portion of the mixed willow alliance along the edges of the Outfall Channel will be temporarily impacted by excavation activities and access to install and remove cofferdams. Permanent impacts to the Outfall Channel and riparian scrub will result from installation of RSP at the new culvert outlet on the east side

of the levee and placement of earthen fill at the Culvert #3 outlet. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel. The earthen fill is needed to fill the void created by flows through the Culvert #3, which is being partially removed/grouted in place, and preventing erosion of the levee slope. Excavation and grouting activities at Culvert #3 have the potential to temporarily impact water quality during construction, however, BMPs as discussed in Section 5.10 will be implemented to reduce the potential impacts to **less than significant**.

Impact BIO-F. Temporary impacts to the Sacramento splittail habitat in the Outfall Channel and riparian scrub east of the YBWL from diversion and dewatering activities, construction access, culvert removal and replacement.

Impact BIO-G. Permanent impacts to the Sacramento splittail in the Outfall Channel and riparian scrub east of the YBWL from installation of a new concrete headwall structure and flapgates.

Implementation of Mitigation Measure **BIO-15**, Special-status fish, will reduce potential impacts **BIO-F** and **BIO-G** to a **less than significant** level. Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) and compliance with permit conditions per Mitigation Measure **BIO-7** (Yolo HCP AMM10) will also minimize these impacts **BIO-F** and **BIO-G** to a **less than significant** level.

Western pond turtle (WPT, *Emys marmorata*): The WPT is a State species of special concern that is addressed by the Yolo HCP/NCCP. Cache Creek, the Outfall Channel, and the Diversion Channel provide potential aquatic habitat for WPT. Large woody debris along the shoreline where the Diversion Channel meets the Outfall Channel provides suitable basking habitat. Based on the slope, lack of cover, and vegetation on the levee, turtle nests are not likely to occur in the project site.

Construction activities will result in impacts to the Outfall Channel. Areas of large woody debris are in the Diversion Channel, which is outside of the project site and will not be affected by the proposed project. Temporary impacts will result from diversion and dewatering activities and construction access to install and remove cofferdams, excavate and remove existing culverts, construct the new culvert, install RSP, and construct new inlet and outlet structures. Permanent impacts will result from installation of a new concrete inlet structure and outlet structure with flapgates on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The second location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the Culvert #3 and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Excavation and grouting activities at Culvert #3 have the potential to temporarily impact water quality during construction, however, BMPs as discussed in Section 5.10 will be implemented to reduce the potential impacts to less than significant.

Impact BIO-H. Temporary impacts to the WPT habitat in the Outfall Channel from diversion and dewatering activities, construction access, culvert removal and replacement.

Impact BIO-I. Permanent impacts to the WPT habitat in the Outfall Channel from installation of a new concrete

inlet and outlet structures, flapgates, and fill placed after Culvert #3 is removed.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** (Yolo HCP AMMs 1, 3, 5, 6, 8, 9 and 10), Mitigation Measure **BIO-8**, Cover Trenches and Holes during Construction and Maintenance (Yolo HCP AMM4), and Mitigation Measure **BIO-10**, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle (Yolo HCP AMM14) will reduce impacts **BIO-H**, **BIO-I** to a **less than significant** level.

Giant garter snake (GGS, *Thamnophis gigas*): GGS is a federally listed threatened and Yolo HCP/NCCP-covered species. Potentially suitable aquatic habitat for GGS occurs in the Outfall Channel, Cache Creek and the Diversion Channel. Potentially suitable upland basking and overwintering habitat occurs in the upland areas surrounding the aquatic habitat. Under the Yolo HCP/NCCP, work in GGS habitat should occur only during its May 1 through October 1 active season. The City has been authorized to extend work in GGS habitat through November 1 by the Yolo Habitat Conservancy, USFWS, and CDFW (Tschudin 2020).

Construction activities will result in impacts to the Outfall Channel and surrounding uplands. Temporary impacts to the Outfall Channel and surrounding uplands will result from diversion and dewatering activities and construction access install and remove cofferdams, excavate and remove existing culverts, construct the new culvert, install RSP, and construct new inlet and outlet structures. Construction staging will also temporarily impact grassland habitat around the Outfall Channel, Cache Creek, and the Diversion Channel. Permanent impacts will result from installation of a new concrete intake structure and headwall and flapgates on the east side of the levee. RSP will be placed around the headwalls to reduce and minimize any possible erosion. Another location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the Culvert #3 and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Excavation and grouting activities at Culvert #3 have the potential to temporarily impact water quality during construction; however, BMPs discussed in Section 5.10 will be implemented to reduce the potential impacts to less than significant.

Impact BIO-J. Temporary impacts to the GGS aquatic habitat in the Outfall Channel from diversion and dewatering activities, construction access, culvert removal and replacement. Temporary impacts to GGS upland basking and overwintering habitat in the upland areas surrounding the aquatic habitat.

Impact BIO-K. Permanent impacts to the GGS aquatic in the Outfall Channel from installation of a new concrete inlet and outlet structures, flapgates, and fill placed after Culvert #3 is removed.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** (Yolo HCP AMMs 1, 3, 5, 6, 8, 9 and 10), Mitigation Measure 1 (Yolo HCP AMM4), and Mitigation Measure **BIO-9**, Minimize Take and Adverse Effects on Habitat of Giant **BIO-8** Garter Snake, (Yolo HCP AMM15) will reduce impacts **BIO-J** and **BIO-K** to a **less than significant** level.

Tricolored blackbird (*Agelaius tricolor*): The tricolored blackbird is a state-listed threatened species that is addressed by the Yolo HCP/NCCP. Annual grassland, urban ruderal, seasonal wetland, and riparian scrub

provide foraging habitat for this species. The riparian scrub and dense patches of thistles within the annual grassland provide potentially suitable nesting habitat for this species.

Construction activities will result in impacts to annual grassland, riparian scrub, and ruderal habitat Temporary impacts will result from construction staging; activities and construction access to install cofferdams, RSP, the new culvert and gate shaft, and to remove the existing culverts and cofferdams. Permanent impacts to the annual grassland and urban ruderal habitat will result from the new culvert and gate shaft installation (**Figure 6**). RSP placed around the new concrete headwall on the east side of YBWL to reduce and minimize any possible erosion will result in permanent impacts to annual grassland and riparian scrub. The second location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the Culvert #3 and will fill and recontour the void below it to match existing contours, which will permanently impact annual grassland and riparian scrub. The section of pipe that remains in the levee will be filled with grout and left in place.

Impact BIO-L. Temporary impacts to the foraging habitat for tricolored blackbird from diversion and dewatering activities, construction access, culvert removal and replacement activities within annual grassland, riparian scrub, and ruderal habitat.

Impact BIO-M. Permanent impacts to the foraging habitat for tricolored blackbird in annual grassland and urban ruderal habitat new culvert and gate shaft installation.

Implementation of Mitigation Measure **BIO-13.** Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird, (Yolo AMM21) will reduce impacts **BIO-L** and **BIO-M** to a **less than significant** level.

Burrowing owl (*Athene cunicularia*): Burrowing owl is a CA state-listed threatened and Yolo HCP/NCCP-covered species. Foraging habitat occurs in the annual grassland and urban ruderal areas within the project site. Yolo HCP AMM 18, Minimize Take and Adverse Effects on Western Burrowing Owl, requires a Yolo HCP/NCCP-qualified biologist conduct planning-level surveys and identify western burrowing owl habitat within or adjacent to (i.e., within 500 feet of) a covered activity. If burrowing owls are not found during the planning-level survey, then pre-construction surveys are not needed. Neither burrowing owls nor suitable burrows were found during the planning-level survey conducted by Yolo HCP/NCCP-qualified biologists. Burrowing owls and their nests will not be affected by the Project. Yolo HCP AMM18, Minimize Take and Adverse Effects on Western Burrowing Owl (Yolo HCP AMM18) states that if burrowing owls are identified within or adjacent to (within 500 feet of) the project area during the planning-level survey, the project proponent will minimize activities that will affect occupied habitat as follows, by implementing pre-construction surveys and other AMMs. If burrowing owls are not found during the planning-level survey, then pre-construction surveys are not needed. Yolo HCP/NCCP qualified biologists conducted a planning-level survey and determined that burrowing owls and their nests were not present within 500 feet of the Field Survey Area (**Figure 7**). The project has complied with this AMM and no further mitigation is required.

Swainson's hawk (*Buteo swainsoni*) and White-tailed kite (*Elanus leucurus*): The Swainson's hawk is a state-listed threatened species, and white-tailed kite is a fully protected species in California. Both are addressed

by the Yolo HCP/NCCP. Yolo HCP AMM 16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite, requires a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Swainson's hawks were observed foraging over the Field Survey Area during the 17 June 2020 planning-level survey. One active Swainson's hawk nest was observed outside of the project site, approximately 850 feet to the northwest in the Cache Creek Settling Basin (**Figure 7**). White-tailed kites were not observed in the Field Survey Area during the planning-level surveys. No potential white-tailed kite nests were observed in the Field Survey Area or within 1,320 feet. Some trees within the mixed willow alliance surrounding the Outfall Channel in the Yolo Bypass provide marginal nesting habitat for white-tailed kite. The annual grassland provides foraging habitat for white-tailed kite and Swainson's hawk. Swainson's hawk may also forage in riparian scrub, and urban ruderal areas.

Construction activities will impact the mixed willow alliance surrounding the Outfall Channel and annual grassland foraging habitat (**Figure 6**). Construction activities in proximity to active nests may disturb nesting birds and cause nest abandonment or may result in mortality of individual birds.

Impact BIO-N. There is foraging habitat for Swainson's hawks and white-tailed kites within the mixed willow alliance habitat and grassland within the project site that may be temporarily impacted by construction activities. Nesting habitat for Swainson's hawks and white-tailed kites is located within 1,320 feet of the project site and could be impacted by construction activities if a nest is present.

Implementation of Mitigation Measure **BIO-11**, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite (Yolo AMM16) will minimize impact **BIO-N** to a **less than significant** level.

Northern harrier (*Circus cyaneus*): Northern harrier is a State species of special concern. Open, treeless portions of the riparian scrub and annual grassland provide marginal nesting habitat for northern harrier. The annual grassland, seasonal wetland, and urban ruderal areas provide foraging habitat.

Construction activities will impact annual grassland, riparian scrub, and urban ruderal habitat. Temporary impacts will result from construction staging; activities and construction access to install cofferdams, RSP, the new culvert and gate shaft, and to remove the existing culverts and cofferdams. Permanent impacts to the annual grassland and urban ruderal habitat will result from the new culvert and gate shaft installation. Installation of RSP at the new culvert outlet on the east side of the levee and placement of earthen fill at the Culvert #3 outlet will result in permanent impacts to annual grassland and riparian scrub. Construction activities in proximity to active nests may disturb nesting birds and cause nest abandonment or may result in mortality of individual birds.

Impact BIO-O. Temporary impacts to the marginal nesting and foraging habitat for northern harrier from diversion and dewatering activities, construction access, culvert removal and replacement activities within annual grassland, riparian scrub, and ruderal habitat.

Impact BIO-P. Permanent impacts to marginal nesting and foraging habitat for northern harrier in annual grassland and ruderal habitat for the new culvert and gate shaft installation and permanent impacts to riparian scrub from installation of the new culvert placement of earthen fill at the Culvert #3 outlet.

Implementation of Mitigation Measure **BIO-14**, MBTA Birds and Birds of Prey, will reduce impacts **BIO-O** and **BIO-P** to a **less than significant** level.

Song sparrow "Modesto Population" (Modesto song sparrow, *Melospiza melodia*): The Modesto song sparrow is a State species of special concern. The riparian scrub and mixed willow alliance provide suitable nesting habitat. The annual grassland provides suitable foraging habitat for Modesto song sparrow.

Construction activities will result in impacts to annual grassland, riparian scrub, and mixed willow alliance. Temporary impacts will result from construction staging; and activities and construction access to install cofferdams, RSP, the new culvert and gate shaft, and to remove the existing culverts and cofferdams. Permanent impacts will result from installation of a new concrete headwall and flapgates on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel. The second location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the northern channel and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Construction activities in proximity to active nests may disturb nesting birds and cause nest abandonment or may result in mortality of individual birds.

Impact BIO-Q. Temporary impacts to Modesto song sparrow nesting habitat in mixed willow alliance and foraging habitat within annual grassland, riparian scrub from construction staging and construction activities and access to install cofferdams, RSP, the new culvert and gate shaft, and to remove the existing culverts and cofferdams.

Impact BIO-R. Permanent impacts to Modesto song sparrow nesting habitat in mixed willow alliance and foraging habitat within annual grassland, riparian scrub for gate shaft installation. Permanent impacts to riparian scrub and mixed willow alliance from installation of the new culvert inlet and outlet structures, RSP, and placement of earthen fill at the Culvert #3 outlet.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) and Mitigation Measure **BIO-14**, MBTA Birds and Birds of Prey, will reduce impacts **BIO-Q** and **BIO-R** to a **less than significant** level.

Least Bell's vireo (*Vireo bellii pusillus*): Least Bell's vireo is a federally listed endangered species that is addressed by the Yolo HCP/NCCP. Potentially suitable nesting and foraging habitat occurs in the mixed willow alliance and riparian scrub along the Outfall Channel and within 500 feet of the project site.

Construction activities will impact mixed willow alliance and riparian scrub shrub along the Outfall Channel.

Temporary impacts will result from construction staging; and activities and construction access to install cofferdams, RSP, the new culvert, and to remove the existing culverts and cofferdams. Permanent impacts will result from installation of a new concrete headwall and flapgate on the east side of the levee. RSP will be placed around the headwall to reduce and minimize any possible erosion. The RSP is needed to prevent erosion of the levee slopes at the new culvert when there are high flows in the Outfall Channel. The second location of permanent impacts is at the Culvert #3. The project will remove the concrete headwall and flapgate on the Culvert #3and will fill and recontour the void below it to match existing contours. The section of pipe that remains in the levee will be filled with grout and left in place. Construction activities in proximity to active nests may disturb nesting birds and cause nest abandonment or may result in mortality of individual birds.

Impact BIO-S. Temporary impacts to Least Bell's vireo nesting. and foraging habitat within mixed willow alliance and riparian scrub from construction staging and construction activities and access to install cofferdams, RSP, the new culvert, and to remove the existing culverts and cofferdams.

Impact BIO-T. Permanent impacts to Least Bell's vireo nesting and foraging habitat within mixed willow alliance and riparian scrub from installation of the new culvert inlet and outlet structures, RSP, and placement of earthen fill at the Culvert #3 outlet.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) and Mitigation Measure **BIO-12** Minimize Take and Adverse Effects on Least Bell's Vireo (Yolo AMM 19), will reduce these impacts **BIO-S** and **BIO-T** to **less than significant**.

c) **Less Than Significant with Mitigation Incorporated**. Aquatic features identified within the Field Survey Area are included in **Table 4** and **Figure 5** (Sycamore Environmental 2020b).

Table 4. Aquatic Features in the Field Survey Area.

Feature	Hydrology/ Cowardin Classification1	Length (ft)	Avg. Width (ft)	Area (ac)
Outfall Channel	Perennial / R2UB3Km	888	45.0	0.92
Cache Creek	Intermittent / R4UB	232	69.7	0.37
Diversion Channel	Intermittent / R4UB	292	26.5	0.18
Drainage Ditch	Intermittent / R4UB2Km	166	3.0	0.01
Seasonal Wetland	-- / PEM1C	--	--	0.16
Total Wetlands and Waters:		**--**	**--**	**1.64**

Notes

[1] Classification according to Cowardin et al. (1979) as cited in Sycamore 2020b and the Corps aquatic resource table.

R2UB3Km = Riverine, lower perennial, unconsolidated bottom, mud, artificially flooded, managed.

R4UB = Riverine, intermittent, unconsolidated bottom.

R4UB2Km = Riverine, intermittent, unconsolidated bottom, sand, artificially flooded, managed.

Feature	Hydrology/ Cowardin Classification1	Length (ft)	Avg. Width (ft)	Area (ac)
PEM1C = Palustrine, emergent, persistent, seasonally flooded				
Source: City of Woodland. 2020b. Aquatic Resource Delineation, Yolo Bypass West Levee Culvert Replacement Project.				

The Outfall Channel, Cache Creek, Diversion Channel, and Drainage Ditch are potential waters of the United States and state in the Field Survey Area. The Seasonal Wetland is a potential water of the state. Construction activities will impact the Outfall Channel. Construction will avoid other potential waters of the United States and/or states.

The Outfall Channel is classified as riverine in the Yolo HCP/NCCP. Biological resources including riverine habitat are protected under Goal 7.B (Maintain and Protect Biological Resources) of the Sustainability Conservation and Open Space Element, City of Woodland General Plan.

The project will result in 0.17 acre of temporary impacts (both within and outside HCP/NCCP permanent impact buffer) and 0.08 acre of permanent impacts to the Outfall Channel (**Figure 6**). Temporary impacts would result from the installation of a cofferdam and dewatering and diverting the Outfall Channel during construction. RSP placement at the inlet and outlet of the new culvert and earthen fill placed at the outlet of the existing Culvert #3. As mentioned in b) above, the RSP is needed to prevent erosion of the levee slopes at the new culvert. The earthen fill is needed to fill the void created by flows through the Culvert #3. Construction has the potential to temporarily impact water quality. During construction, water quality will be protected by implementation of BMPs as discussed in Section 5.10. In-channel work will be conducted between 1 June and 1 November, during low flows, to minimize impacts to federally listed salmonids and giant garter snake. The work window is outside the flood season of 1 November through 15 April as mandated by the CVFPB.

Impact **BIO-U.** The project will result in 0.17 acre of temporary impacts and 0.08 acre of permanent impacts to the Outfall Channel.

Implementation of Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** (Yolo HCP AMMs 1, 3, 5, 6, 8, and 9) will reduce potential impacts to **less than significant**. Obtaining and complying with permits required by implementation of Mitigation Measure **BIO-7**, Avoid and Minimize Effects on Wetlands and Waters (Yolo HCP AMM10), will reduce impact **BIO-U** to the Outfall Channel to a **less than significant** level.

d) **Less Than Significant**. Construction activities could temporarily disrupt movement of fish or mammal species that occur in or adjacent to the project site. Although construction disturbance may temporarily hinder wildlife movements within the project area, the impact is less than significant due to its short-term nature.

The flapgates on the existing southern Outfall Channel culverts currently block access to fish and other aquatic organisms to the storm drain channel west side of the levee. Culvert #3 is higher than the Culverts #1 and #2 and

partially collapsed, which precludes passage of fish and other aquatic organisms. Construction of the new culverts with flapgates will function similarly to the existing culverts with flapgates.

e) **Less Than Significant**. Construction may require removal of some riparian vegetation within the excavation limits and up to two willow trees (*Salix gooddingii*) in areas proposed for RSP installation and construction access. Biological resources, including tree canopy, are protected under Goal 7.B (Maintain and Protect Biological Resources) of the Sustainability Conservation and Open Space Element, City of Woodland General Plan.

Removed trees and vegetation would be replaced as required by permit conditions included in Mitigation Measure **BIO-7**, Avoid and Minimize Effects on Wetlands and Waters (Yolo AMM 10). This would limit impacts to tree canopy to a less than significant level.

f) **No impact**. The project is a "covered activity" under the HCP/NCCP. The project will be implemented in compliance with permit requirements and conditions as well as avoidance and minimization measures that are listed in the HCP/NCCP. As applicable, the project will pay mitigation fees for the acreage of land-cover types that are permanently and temporarily impacted by the project and implement project-specific AMMs. The project specific Yolo HCP/NCCP AMMs that apply to the project are AMMs 1, 3, 4, 5, 6, 8, 9, 10, 14, 15, 16, 18, 19, and 21 which are described below and noted below with the associated mitigation measures as applicable. The project will not conflict with the Yolo HCP/NCCP.

Mitigation
Implementation of the following mitigation measures would reduce the above impacts to a *less-than-significant* level. Mitigation Measures are adopted from the standard avoidance and minimization measures (AMMs) included in the Yolo HCP/NCCP. Vernal pool fairy shrimp, vernal pool tadpole shrimp, special-status fish species, northern harrier, and Modesto song sparrow are not covered by the Yolo HCP/NCCP, but are covered by the mitigation measures listed below, including Mitigation Measures **BIO-14**, MBTA Birds and Birds of Prey, and **BIO-15**, Special-status Fish that would reduce project impacts to these species to a **less than significant** level.

General Mitigation Measures

Includes wildlife species and sensitive land cover types Valley Foothill Riparian (riparian scrub and mixed willow alliance), Lacustrine/Riverine (Outfall Channel, Cache Creek, Diversion Channel, Drainage Ditch), and Fresh Emergent Wetland (Seasonal Wetland).

BIO-1: Establish Buffers (Yolo HCP AMM1). Project proponents shall design projects to avoid and minimize direct and indirect effects of permanent development on the sensitive natural communities and covered species habitat by providing buffers, as stipulated in the relevant sensitive natural community Mitigation Measures and covered species Mitigation Measures. On lands owned by the project proponent, the project proponent will establish a conservation easement to protect the buffer permanently if that land is being offered in lieu of development fees. The project proponent will design buffer zones adjacent to permanent residential development projects to control access by humans and pets.

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full buffer), the development will not encroach farther into the space between the development and the sensitive natural community.

This Mitigation Measure does not apply to seasonal construction buffers for covered species. A lesser buffer than is stipulated in the Mitigation Measures may be approved by the Yolo Habitat Conservancy (Conservancy), USFWS, and CDFW if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose.

BIO-2: Confine and Delineate Work Area (Yolo HCP AMM3). Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

BIO-3: Control Fugitive Dust (Yolo HCP AMM5). Workers will minimize the spread of dust from work sites to natural communities or covered species habitats on adjacent lands.

BIO-4: Conduct Worker Training (Yolo HCP AMM6). All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities and covered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the Environmentally Sensitive Area (ESA) and Natural Community Conservation Planning Act permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

BIO-5: Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas (Yolo HCP AMM8). Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species, or are easily restored to prior or improved ecological functions (e.g., grassland and agricultural land). Construction staging and other temporary work areas located outside of project footprints will be sited in areas that avoid adverse effects on the following:

- Valley foothill riparian and fresh emergent wetland land cover types.
- Occupied western burrowing owl burrows.
- Nest sites for covered bird species and all raptors, including noncovered raptors, during the breeding season.

Project proponents will follow specific Mitigation Measures for sensitive natural communities and covered species in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint, project proponents will conduct surveys to determine if any of the biological resources listed above are present.

Within 1 year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

BIO-6: Establish Resource Protection Buffers around Sensitive Natural Communities (Yolo HCP AMM9). The resource protection buffers for each sensitive natural community where impacts can be avoided are as follows.

- Valley foothill riparian: One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser resource protection buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in Mitigation Measure 1-1 (Yolo HCP AMM1). Transportation or utility crossings may encroach into this sensitive natural community provided effects are minimized and all other applicable Mitigation Measures are followed.
- Lacustrine and riverine: Outside urban planning units, 100 feet from the top of banks. Within urban planning units, 25 feet from the top of the banks.
- Fresh emergent wetland: Fifty feet from the edge of the natural community.

BIO-7: Avoid and Minimize Effects on Wetlands and Waters (Yolo HCP AMM10).
Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under NPDES permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Regional Board, and Fish and Game Code Section 1602 regulations. Other than requirements for resource protection buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species, the Yolo HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the USACE, State Board, Regional Board, and CDFW.

Giant Garter Snake

BIO-8: Cover Trenches and Holes during Construction and Maintenance (Yolo HCP AMM4). To prevent injury and mortality of giant garter snake, workers will cover open trenches and holes associated with implementation of covered activities that affect habitat for this species or design the trenches and holes with escape ramps that can be used during non-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

BIO-9: Minimize Take and Adverse Effects on Habitat of Giant Garter Snake (Incorporates applicable portions of Yolo HCP AMM15). Yolo HCP AMM 15 is modified to reflect that this project is a capital project that modifies aquatic habitat on both side of a levee. Reference to ongoing maintenance from Yolo HCP AMM 15 is not included. Because the project proponent will affect GGS habitat, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of 2 weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through November 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger. The work window extension beyond the Yolo HCP/NCCP requirements of 1 October was authorized by the USFWS, CDFW, and the Conservancy in November 2020 (Tschudin 2020). In-channel work will be limited to June 1 through November 1 per Mitigation Measure 1-15, Special-status Fish.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) beginning as early as April 15 and extending through September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. Project dewatering will begin June 1, as early as allowed by work windows to project special-status fish. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- As mentioned in Mitigation Measure 1-4 (Yolo HCP AMM6), conduct environmental awareness training for all construction personnel.
- A qualified biologist will prepare a giant garter snake relocation plan that must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.
- If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor, USFWS, and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the workday to ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.
- Employ the following management practices to minimize disturbances to habitat.
    - Install temporary fencing mentioned in Mitigation Measures 1-2 and 1-6 (Yolo HCP AMMs 3 and 9).
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay

bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.

- Include GGS habitat and identification information in the environmental awareness training for all personnel involved in maintenance activities.
- To avoid collapses when re-sloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW.

Western Pond Turtle

BIO-10: Minimize Take and Adverse Effects on Habitat of Western Pond Turtle (Yolo HCP AMM14). If western pond turtle upland habitat will be affected by the project and there is a moderate to high likelihood of western pond turtle nests within the disturbance area, a qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance and will move out of harm's way any turtles or hatchlings found.

Yolo HCP/NCCP qualified biologists assessed western pond turtle upland habitat affected by the project and determined that turtle nests are not likely to occur within the disturbance area. However, a qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance and will move out of harm's way any turtles or hatchlings found.

Tricolored Blackbird, Swainson's Hawk, Northern Harrier, White-tailed Kite, and Least Bell's Vireo

BIO-11: Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite (Yolo HCP AMM16). If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct pre-construction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during pre-construction surveys, a 1,320-foot initial temporary nest resource protection buffer shall be established. If project related activities within the temporary nest resource protection buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest resource protection buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot resource protection buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit

term, but they must be removed when not occupied by Swainson's hawks.

For covered activities that involve pruning or removal of a potential Swainson's hawk or white-tailed kite nest tree, the project proponent will conduct pre-construction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during pre-construction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged, and the nest is no longer active.

BIO-12: Minimize Take and Adverse Effects on Least Bell's Vireo (Yolo HCP AMM19). The project will encroach within 500 feet of least Bell's vireo habitat. There are no breeding season records for the species within 0.25 mile of the covered activity within the previous 3 years. A qualified biologist will conduct planning-level surveys for active territories, consistent with USFWS (2001) guidelines, during the breeding season (April 1 to July 15). Operations and maintenance activities that do not occur during the breeding season and do not affect least Bell's vireo habitat are not required to conduct surveys or record searches, and no further avoidance or minimization is necessary for such activities.

- If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within 0.25 mile of the covered activity within the previous 3 years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat, unless the Conservancy, USFWS, and CDFW approve a shorter distance.
- If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not the species was detected during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct pre-construction surveys, consistent with USFWS (2001) guidelines, during the same season when the activity will occur. If active territories are found, the project proponent will avoid activity within 500 feet of the habitat from April 1 to July 15. This resource protection buffer may be reduced with approval from the Conservancy, USFWS, and CDFW.
- The project proponent will avoid disturbance of previous least Bell's vireo territories (up to 3 years since known nest activity) during the breeding season unless the disturbance is to maintain public safety. Least Bell's vireo uses previous territories; disturbance during the breeding season may preclude birds from using existing unoccupied territories.
- The required resource protection buffer may be reduced in areas where barriers or topographic relief features are adequate for protecting the nest from excessive noise or other disturbance. Conservancy staff members will coordinate with the wildlife agencies and evaluate exceptions to the minimum resource protection buffer distance on a case-by-case basis. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.
- If occupied territories are identified, a qualified biologist will monitor construction activities in the vicinity of all active territories to ensure that covered activities do not affect nest success.

BIO-13: Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird (Yolo HCP AMM21). The project cannot avoid tricolored blackbird habitat. A qualified biologist will check records maintained by the

Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous 5 years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.

If an active tricolored blackbird colony is present or has been present within the last 5 years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot resource protection buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Northern harrier, Modesto song sparrow, and other birds Protected under the MBTA and FGC

BIO-14: MBTA Birds and Birds of Prey

- If any site disturbance or construction activity for any phase of development begins outside the February 1 to August 31 breeding season, a preconstruction survey for active nests shall not be required.

- If any site disturbance or construction activity for any phase of development is scheduled to begin between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey for active nests from publicly accessible areas within 14 days prior to site disturbance or construction activity for any phase of development. The survey area shall cover the construction site and the area surrounding the construction site, including a 100-foot radius for MBTA birds, and a 500-foot radius for birds of prey. If an active nest of a bird of prey, MBTA bird, or other protected bird is not found, then further mitigation measures are not necessary. The preconstruction survey shall be submitted to the City of Woodland Community Development Department for review.

- If an active nest of a bird of prey, MBTA bird, or other protected bird is discovered that may be adversely affected by any site disturbance or construction or an injured or killed bird is found, the project applicant shall immediately:
    - Stop all work within a 100-foot radius of the discovery.
    - Notify the City of Woodland Community Development Department.
    - Do not resume work within the 100-foot radius until authorized by the biologist.
    - The biologist shall establish a minimum 500-foot ESA around the nest if the nest is of a bird of

prey, and a minimum 100-foot ESA around the nest if the nest is of an MBTA bird other than a bird of prey. The ESA may be reduced if the biologist determines that a smaller ESA would still adequately protect the active nest. Further work may not occur within the ESA until the biologist determines that the nest is no longer active.

Results of the preconstruction survey shall be submitted for review and approval by the Community Development Department.

sDPS Green Sturgeon, CCV Steelhead, SR Chinook, WR Chinook, and Sacramento Splittail

BIO-15: Special-status Fish (Incorporates applicable portions of Yolo HCP AMMs 3, 6, 9, and 10)
The project applicant shall implement the following measures to avoid or minimize impacts to special-status fish species.

- **15a. Install Fencing and/or Flagging to Protect Sensitive Biological Resources.** The fencing described in **BIO-2** and **BIO-6** (Yolo HCP AMMs 3 and 9) will be high-visibility. Fence installation will be directed and monitored by a qualified biologist and will be field fitted to account for onsite topography, substrate, etc. The City or contractor will ensure that the fencing is maintained throughout the duration of the construction period. If the fencing is removed, damaged, or otherwise compromised during the construction period, construction activities will cease until the fencing is repaired or replaced. The Project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs.

- **15b. Conduct Mandatory Environmental Awareness Training for Construction Personnel.** The environmental training mentioned in **BIO-4** (Yolo HCP AMM6) above will also cover the following general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction:
  - Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
  - All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project site.
  - To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.

- **15c. Retain a Qualified Biologist to Conduct Monitoring During Construction in Sensitive Habitats.** A qualified biologist will be retained by the City to monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation) within or immediately adjacent to ESAs (e.g., riparian vegetation, Outfall Channel, and active bird nests). The purpose of monitoring is to ensure that measures are properly implemented to avoid and minimize effects on sensitive biological resources and to

verify that the project complies with all applicable permit requirements and agency conditions of approval. The biologist will verify that ESA fencing remains in place during construction and that construction personnel, equipment, or runoff/sediment from the construction area do not enter ESAs.

- **15d. Protect Water Quality and Minimize Sedimentation Runoff in the Outfall Channel.** In addition to complying with the plans mentioned in **BIO-7** (Yolo HCP AMM10), the project will comply with all construction site BMPs specified in the Water Pollution Control Plan (WPCP) or Stormwater Pollution Prevention Plan (SWPPP) and any other permit conditions to minimize the introduction of construction-related contaminants and mobilization of sediment in the Outfall Channel. These BMPs will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-storm water management, and waste management practices. The BMPs will be based on the best conventional and best available technology. The primary elements of the WPCP/SWPPP include the following:
    - Description of site characteristics – including runoff and streamflow characteristics and soil erosion hazard – and construction procedures.
    - Guidelines for proper application of erosion and sediment control BMPs.
    - Description of measures to prevent and control toxic materials spills.
    - Description of construction site housekeeping practices.

  In addition to these primary elements, the WPCP/SWPPP will specify that the extent of soil and vegetative disturbance will be minimized by control fencing or other means and that the extent of soil disturbed at any given time will be minimized. The WPCP/SWPPP must be retained at the construction site.

  The BMPs will be selected to achieve maximum sediment removal. The BMPs will represent the best available technology that is economically achievable. The City will conduct routine inspections of the construction area to verify that the BMPs are properly implemented and maintained. The BMPs will include, but are not limited to:
    - Use only equipment in good working order and free of dripping or leaking engine fluids when working in and around the Outfall Channel. Perform all vehicle maintenance and refueling at least 50 feet from the Outfall Channel. Conduct any necessary equipment washing where the water cannot flow into the Outfall Channel.
    - Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, gutters, or Outfall Channel: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, and asphalt.
    - Prevent project-related discharge of turbid water to the Outfall Channel by filtering the discharge using a filter bag, diverting the water to a settling tank or infiltration areas, and/or treating the water in a manner to ensure compliance with water quality requirements prior to discharging water to the Outfall Channel.
    - Dispose of any surplus concrete rubble, asphalt, or other rubble from construction at a local landfill.
    - Dewatering operation discharge, if needed, and runoff from disturbed areas must conform to the water quality requirements of the waste discharge permit issued by the Central Valley Regional Water Quality Control Board (RWQCB).

- Apply temporary erosion control measures through the duration of construction, such as sandbagged silt fences; measures will be removed after the working area is stabilized or as directed by the engineer. Soil exposure will be minimized through use of temporary BMPs, groundcover, and stabilization measures. Exposed dust-producing surfaces will be sprinkled daily, if necessary, until wet; this measure will be controlled to avoid producing runoff.
- Conduct periodic maintenance of erosion and sediment control measures.
- Plant an appropriate seed mix of native or naturalized species on disturbed areas upon completion of construction.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways. Side slopes will not be steeper than 2:1. All stockpile areas will be surrounded by a filter fabric fence and interceptor dike.
- Contain soil and filter runoff from disturbed areas by berms, vegetated filters, silt fencing, straw wattles, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from the disturbed area.
- Use other temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas as necessary.
- Avoid earth or organic material from being deposited or placed where it may be directly carried into the Outfall Channel.

- The project will obtain verification from the Corps that the work is authorized under Section 404 and 408 of the Clean Water Act (CWA). The project will obtain a 401 water quality certification from the Central Valley RWQCB and Streambed Alteration Agreement from CDFW that may contain additional BMPs and water quality measures to ensure the protection of water quality.

- **15e. Limit All In-Channel Activities to 1 June to 1 November.** The City will require the contractor to conduct all in-channel activities between 1 June and 1 November, unless earlier or later dates for in-channel construction activities are approved by CDFW and NMFS. In-channel construction is defined as creek bank and channel bed construction below the OHWM, including the installation of the temporary diversion/dewatering structure, excavation, and grading activities. By requiring contractors to adhere to these dates for in-channel construction, the project will avoid and minimize project effects on fish.

- **15f. Utilize Acceptable Fish Screens During Dewatering Activities.** To avoid minimize the potential for aquatic species entrainment, pump intakes will be placed away from complex vegetated banks that may contain habitat for these species. The project will implement the use of a screen in accordance with the NMFS (1997) Juvenile Fish Screen Criteria for Pump Intakes.

5.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

a-b) **Less Than Significant with Mitigation Incorporated.** The APE for cultural resources was defined as the construction area for the project as shown on **Figure 3**. A literature search including both archaeological and built-environment studies and previously documented resources was conducted on March 2, 2020. A field survey was conducted in the APE on September 10, 2020, to identify resources in the built environment as well as an intensive pedestrian survey to identify archeological resources. The results of the literature search, field surveys, and analysis are documented in a cultural resources report that was prepared for this project and summarized herein (Mead & Hunt 2020).

No built environment cultural resources were previously documented within the APE; however, three resources were previously recorded within 0.5-mile radius of the APE: Conaway Junction, the Northern Electric Railway Route Historic District, and the Northern Electric Trestle. One resource was identified within the APE that is over 50 years of age, the YBWL3: Segment 5204001123 of the YBWL. YBWL3 is the section of the YBWL that crosses through the project site. YBWL3 was evaluated for National Register eligibility under criteria established in the National Register Bulletin *How To Apply the National Register Criteria for Evaluation*, and was also evaluated for California Register eligibility under criteria established in Public Resources Code § 5024.1(c). The evaluation findings recommend YBWL3 is eligible for listing in the National Register and California Register; therefore, YBWL3 qualifies as a Historic Property under Section 106 and a Historical Resource under CEQA. The project activities were assessed for potential impacts to YBWL3 under the Criteria for Adverse Effect under Section 106 (36 CFR § 800.5), and for potential to cause a Substantial Adverse Change under CEQA (PRC Section 5020.1(q)). The assessment concluded that the project activities would cause neither an Adverse Effect under Section 106 nor a Substantial Adverse Change under CEQA.

No prehistoric or historic archaeological resources were identified during the pedestrian survey. Although the APE was determined to be moderately sensitive for archaeological resources, it has been previously disturbed, and it is unlikely any potentially unknown subsurface archeological resources would be exposed during project activities (Mead & Hunt 2020). In the event that any cultural materials are discovered during construction, the implementation of mitigation measure **CUL-1** would minimize the potential for any adverse effects to less than

significant.

I**mpact CUL-A.** Discovery of Unanticipated Cultural Materials

c) **Less Than Significant with Mitigation Incorporated.** There are no documented human remains within the APE. In the event that human remains are discovered during project activities, the implementation of mitigation measure **CUL-2** would minimize the potential for any adverse effects to less than significant.

I**mpact CUL-B.** Discovery of Unknown Human Remains.

Mitigation

CUL-1: Unanticipated Discovery If previously unknown cultural materials are discovered during construction activities work in the area will cease and the City shall make reasonable effort to avoid or minimize adverse effects and the procedures specified in 36 CFR §800.13(3) shall be followed.

CUL-2: Human Remains Discovery
If human remains are discovered anywhere on the site, work shall immediately stop in the vicinity of the discovery and the Yolo County Coroner will be contacted. The coroner will determine if the human remains are subject to his/her authority within 48 hours. If the coroner determines the human remains are not subject to his/her authority, the Coroner shall call the NAHC in Sacramento within 24 hours of his/her determination (Health and Safety Code 7050.5(b-c). The NAHC will identify the person(s) it believes to be the "Most Likely Descendant" of the deceased Native American. The Most Likely Descendant may inspect the discovery and recommend means for treating or disposing, with appropriate dignity, the human remains and associated grave goods within 48 hours of being granted access to the discovery (Public Resources Code Section 5097.98).

5.6 Energy

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion

a) **No Impact**. Operation of the proposed project will not require the use of energy resources; however, construction activities will require the use of fossil fuels. Construction vehicles and equipment will consume petroleum products such as gasoline and diesel, and water will be used for dust suppression. However, construction activities will be temporary, and all materials are readily available and will not involve wasteful, inefficient, or unnecessary consumption.

b) **No Impact**. The proposed project does not conflict with any state or local plans regarding renewable energy or energy efficiency.

Mitigation
None.

5.7 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Discussion

ai -aiv, c) **No impact**. The project site is not located within an Alquist-Priolo Earthquake Fault Zone. The nearest active faults in Yolo County are more than 18 miles west of the project site. The nearest inactive fault is the Dunnigan Hills Fault, which is more than 11 miles northwest of the project site. Additionally, concrete structures will be designed for seismic loading and slope stability using standard construction methods. Likewise, the project site is not within a liquefaction or landslide zone (CDOC 2020b, Yolo County 2009).

b) **Less Than Significant Impact**. Three soil types underlie the project area outside of the Outfall Channel itself,

which is characterized as water. The soil types include:

- Willows clay, 0 percent slopes, MLRA 17 – in YBWL and railroad levee areas
- Maria silt loam, flooded – area north of Outfall Channel and west of YBWL
- Clear Lake soils, flooded – Area east of YBWL (NRCS 2020)

Willows clay has a low soil erodibility factor, Maria silt loam has a moderately low soil erodibility factor, and Clear Lake soils have a moderate soil erodibility factor (NRCS 2020). Construction activities would involve excavation, filling and grading of soils, which would expose areas to potential erosion during construction. The City will require its contractor to implement BMPs during construction to further reduce the potential for soil erosion and water quality impacts. Erosion and sedimentation BMPs are discussed in Section 5.10, Hydrology and Water Quality.

d) **Less Than Significant Impact.** Willows clay is classified as an expansive soil and located within the project site (Yolo County 2020, NRCS 2020). However, the soils underlying the outfall structure are not considered expansive. The placement of the culvert and backfill through the levee will be in accordance with USACE levee design standards EM 1110 -02-2902 and EM 1110 -02-1913 (USACE 1998,200).

e) **No impact**. The proposed project does not include any structures that would generate wastewater or require installation of a septic system.

f) **No impact**. No unique paleontological resources, sites, or unique geologic feature have been identified within the project site.

Best Management Practices
See BMPs in Section 5.10.

Mitigation
None.

5.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a-b) **Less Than Significant Impact.** The City of Woodland's 2035 Climate Action Plan includes a set of strategies to guide the City of Woodland in reducing greenhouse gas (GHG) emissions. None of the goals identified in the plan specifically relates to the temporary construction emissions that would occur as part of the proposed project. However, the plan presents objectives such as "increased use of alternative-fuel vehicles" and "reduced emissions from vehicle idling and other equipment" (City 2017c).

GHG emissions can be addressed through measures which reduce consumption of fossil fuels in vehicles and structures. While the project does not exceed the threshold for GHGs, best management practices implemented for Air Quality would also reducer GHG emissions.

Mitigation
None.

5.9 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Discussion

a – b): **Less Than Significant Impact**. The Proposed project includes grading activities and the construction of a new box culvert and outfall structure. Construction vehicles and equipment will require the use of petroleum fuels, such as gasoline and diesel. Small quantities of fuel will be available on site, and an accidental release could occur when equipment is refueled. BMPs to reduce the potential for exposure to waterways will be included in the SWPPP discussed in Section 5.10. All hazardous materials and wastes would be handled, transported, and disposed of according to all applicable federal, state, and local regulations. Likewise, the use of fuels, lubricants, and oils is consistent with current agricultural activities surrounding the project site.

Operation of the proposed project does not require the use of hazardous materials.

c) **No impact**. No schools are located within one-quarter mile of the project site.

d) **No impact**. The EnviroStor Database maintained by the California Department of Toxic Substances Control was reviewed. The nearest state response site is Wilbur Ellis, which is located more than 3 miles west of the project site. The southern levee of the Cache Creek Settling Basin is located immediately north of the project site. The Cache Creek Settling Basin is listed as an evaluation site for the historic use of mercury. Cache Creek flows through the Settling Basin into the Yolo Bypass from the Cache Creek Watershed to the north of the project site (DTSC 2020). The 2009 evaluation concluded that mercury loads are higher in the basin inflows than in the outflows and soil mercury levels were considered low when compared to United States Environmental Protection Agency Regional Screen Levels or drinking water Maximum Contaminant Levels and as such are not likely to affect workers at the project site. The Proposed project will not affect the Cache Creek Settling Basin or the surrounding levee. No potential interaction between the proposed project and this site is anticipated. The proposed project will not create a significant hazard to the public or the environment.

e) **No impact**. The proposed project site is located in the Airport Influence Area for the Sacramento International Airport, which is approximately 3.5 miles east of the project site. The project would not require the use of tall equipment and will not result in a change in land use to affect airport operations. The proposed project site is located within the Airport Noise Zone as defined in the Airport Land Use Compatibility Plan (ALUCP), however there are no noise sensitive uses at the project site.

f-g) **No impact**. The proposed project includes the replacement of an existing culvert and would not interfere with an adopted emergency response plan or emergency evacuation plan. The project site is not located within a state responsibility area or very high fire hazard severity zone and will not include any activities that would it expose people or structures to a significant risk of fire (CalFire 2020).

Best Management Practices

Hazardous Materials Control

The following hazardous materials control BMPS shall be implemented during construction:

1. Vehicles and equipment shall be inspected daily for oil, fuel, and other leaks. Leaking equipment shall be repaired immediately or removed from the job site.
2. All workers shall be informed of the importance of preventing spills and appropriate storage and handling procedures, and measures to take in the event of an accidental release. The phone number for the agency overseeing hazardous materials and clean up shall be provided.

Mitigation

None.

5.10 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in a substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Discussion

a) **Less than significant impact.** Water quality issues will be limited to those related to construction activities. The implementation of BMPs including development and implementation of a sediment and erosion control plan and development and implementation of a SWPPP would minimize the potential for soil erosion and water quality impacts. These BMPs are sufficient to make these potential impacts less than significant. The proposed project does not include any waste discharges.

b) **No impact**. The project is the replacement of an existing culvert for a surface water drainage channel. While the project will increase capacity of the culvert, it does not include any activities that would affect groundwater recharge or management.

ci-civ) **Less than significant impact**. The project consists of replacement of three existing culverts with a concrete box culvert. Construction activities would involve excavation, filling and grading of soils, which would expose areas to potential erosion during construction. Likewise, grouting activities at Culvert #3 have the potential to temporarily impact water quality during construction. Grading activities will be performed in accordance with Yolo County standards and the City will require its contractor to implement BMPs during construction to further reduce potential impacts of erosion or siltation on or off site. Areas disturbed during construction will be restored and seeded. The City will be required to prepare a SWPPP to comply with the conditions of the NPDES general stormwater permit for construction activities. Aside from construction activities, the proposed project is designed for stability and stormwater flows would not exceed the capacity of the Outfall Channel or result in erosion or siltation on- or off site.

The replacement culvert would not increase the rate or amount of surface runoff or result in flooding. The project does not result in additional stormwater but replaces drainage infrastructure designed to accommodate existing and projected drainage flows in accordance with development projected in the City of Woodland General Plan and Storm Drainage Facilities Master Plan (City 2017a, 2017b). The project does not include any activities that would redirect, impinge, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. On the contrary, the proposed culvert would remove an existing flow restriction in the Outfall Channel at the YBWL preventing potential localized flooding at the project site and allowing additional drainage to flow from the Outfall Channel into the Yolo Bypass. The Yolo Bypass is designed for flood water with a carrying capacity that makes the incremental increased volume of water moved through the Outfall Channel over the duration of flood events insignificant. The proposed project will not add sources of polluted runoff.

d) **No impact**. The project site is included within the bounds of Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map Nos. 06113C0470H, dated May 16, 2012. The project site is entirely located within flood hazard zone A (FEMA 2012). The project would increase the capacity of the existing Outfall Channel culvert so that it can accommodate existing and projected drainage flows in accordance with development projected in the City of Woodland General Plan and Storm Drainage Facilities Master Plan (City 2017a, 2017b). The project will lessen the risk of flood hazards by removing the impingement of flows through the Outfall Channel at the YBWL. The project site is not located in an area that would be affected by a tsunami or seiche.

e) **No impact**. The proposed project is located within the jurisdiction of the Central Valley RWQCB's Water Quality Control Plan for the Sacramento River Basin and the Putah Creek subbasin (SWRCB 2018) and within the Sacramento Valley, Yolo County groundwater subbasin (5-021), as designated in the Department of Water Resources (DWR) Bulletin 118 (DWR 2016). The proposed project would not affect the implementation of the water quality control plan or the groundwater sustainability plan as no new water sources or discharges would be

developed as part of the Project.

Best Management Practices

Provide Sediment and Erosion Control Measures during Construction Activities. To minimize soil erosion, sediment and erosion control best management practices will be developed and implemented during construction activities. Disturbed areas will be seeded following construction (see Mitigation Measures BIO-7 and BIO-15).

Storm Water Pollution Prevention Plan. A SWPPP will be developed and implemented for this project to minimize potential impacts to water quality (see Mitigation Measures BIO-7 and BIO-15). The SWPPP will include a description of construction activities, identification of any potential pollutant sources, handling and disposal of solid waste, chemicals, potential pollutants, and hazardous materials to be used and methods for safekeeping, clean out and disposal of ready-mix concrete, storage and dispensing of fuel and lubricants, methods for spill prevention and control and description of any BMPs that will be implemented to control and reduce the pollutants identified.

Construction contractors will adhere to California erosion and sediment control programs as required by the SWPPP developed for the project.

Mitigation

None.

5.11 Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion

a-b) **No impact**. The proposed project is located in an unincorporated area of Yolo County that is characterized by agriculture and zoned for intensive agriculture (Yolo County 2020, 2020b.). The proposed culvert replacement would not occur in or divide an established community.

The proposed project will replace aging infrastructure; the project does not propose a change in land use and will not conflict with the County's adopted General Plan, zoning ordinances, or other adopted policies or regulations.

Mitigation
None.

5.12 Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

Discussion

a-b). **Less Than Significant Impact**. The primary mineral resources extracted in Yolo County are aggregate and natural gas. The project site is not located in an area that is mapped for aggregate resources. Although the project is located within the Conway Ranch gas field, no active gas wells are mapped within the field (CGS 2018, Yolo County 2009b, CalGEM 2020). Additionally, the project includes replacement of existing infrastructure and does not include new feature that could affect ongoing operation or development of the gas field. Neither construction nor operation of the project will result in any significant impacts to known mineral resources.

Mitigation
None.

5.13 Noise

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a-b) **No impact**. The proposed project is located in an unincorporated area of Yolo County that is zoned for intensive agricultural use. Yolo County does not have a noise ordinance. Acceptable noise exposure levels vary by land use (Yolo County 2009). Noise-sensitive land uses include residential, lodging, schools, and hospitals. The proposed project would produce temporary construction noise; however, the nearest noise-sensitive land use is a residence located approximately 2.4 miles east of the project site. Neither construction noise nor groundborne vibrations from construction activities affect this land use.

c) **No impact**. The project is not located within 2 miles of an airport. The nearest airport is the Sacramento International Airport, which is 3.5 miles from the project site.

Mitigation
None.

5.14 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (forexample, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a-b) **No impact**. The proposed project would replace existing culverts to accommodate current and projected peak drainage flows as identified in the adopted City of Woodland Storm Drainage Facilities Master Plan Update. The Storm Drain Facilities Master Plan Update is consistent with and accommodates the anticipated growth identified in the City's adopted General Plan (City 2017a, 2017b). The construction and operation of the proposed project will not induce any unplanned growth population growth.

The proposed project will be constructed in an agricultural area, and the nearest residence is located approximately 2.4 miles from the project site. The proposed project will not displace people or housing.

Mitigation
None.

5.15 Public Services

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

ai-aiv) **No impact**. The proposed project will replace aging drainage infrastructure culverts. The proposed project will not create new facilities or enable the development of new facilities to increase in population. Because there will be no increase in population, there will be no increase in demand for public services including fire, police, schools, parks, and other facilities.

Mitigation
None.

5.16 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a-b) **No impact**. The proposed project is a utility replacement project to accommodate existing and projected drainage flows from the City of Woodland in accordance with the adopted plans. The proposed project will not induce population growth to increase the use of existing recreational facilities. The project does not include the construction or expansion of recreational facilities.

Mitigation
None.

5.17 Transportation

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Discussion

a-d) **No impact.** The proposed project includes replacement of an existing culvert and the restoration of the gated levee access road to pre-project conditions. The proposed project does not include any work within public access roads and will not conflict with any program, plan or policy addressing circulation or transit, will not conflict with CEQA Guidelines § 15064.3, subdivision (b), will no increase geometric design hazards or existing roadways, or impact emergency access.

The proposed project will increase traffic in the project vicinity during the construction period, but the additional trucks will be less than 10 per day and will not create congestion on local roads to prevent or reduce emergency access.

Mitigation
None.

5.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Discussion

A Sacred Lands Search and Section 106 consultation outreach list from the NAHC for the project was requested on February 18, 2020. The NAHC responded on February 24, 2020 that the Sacred Lands File search returned negative results. The NAHC provided a list of Native American tribes that may have knowledge of cultural resources within the Area of Potential Effect (APE) for the proposed project, which is defined as construction area for the project (**Figure 3**).

On September 17, 2020, the City of Woodland mailed letters to the tribes included on the California NAHC Native American Consultation List. These tribes consisted of the Yocha Dehe Wintun Nation, Cortina Rancheria-Kletsel Dehe Band of Wintun Indians, and the United Auburn Community of the Auburn Rancheria. The City also sent the same letter to the Desert Cahuilla Indians, the Ione Band of Miwok Indians, the NAHC, and the Rumsey Indian Rancheria of Wintun. The letters provided project information and an invitation to consult in compliance with Section 106 and formal notification in compliance with AB52.

Emails and phone calls to each of the tribes that were sent letters were made on October 5, 2020. The follow-up contact was to ensure that the letters were received and to inquire if there were any concerns regarding the

project. On October 19, 2020, a letter was received from Laverne Bill, Cultural Resources Manager for the Yocha Dehe Wintun Nation that identified a cultural interest in the area and requested a field visit. The City met Mr. Bill at the site on November 3, 2020. The City and Yocha Dehe discussed tribal monitoring during construction of the project. No other responses were received. A record of the consultation activities and standard Yocha Dehe monitoring agreement are included as **Appendix A.**

ai-aii) **Less Than Significant with Mitigation Incorporated.** A cultural resources report was prepared for the project that included the results of the consultation, literature review, and pedestrian survey conducted for the project (Mead & Hunt 2020). No tribal resources were identified. Although the APE was determined to be ***moderately sensitive*** for archaeological resources, the site has been previously disturbed, and it is unlikely that unknown subsurface archeological resources would be exposed during project activities (Mead & Hunt 2020) Implementation of mitigation measure **CUL-1** described above would address any tribal cultural resources discovered during construction.

Mitigation
See **CUL-1** in Section 3.5.

5.19 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

a) **Less than Significant.** The project will replace existing culverts to accommodate existing and projected drainage flows from the City of Woodland identified in the City of Woodland General Plan and City of Woodland Storm Drainage Facilities Master Plan (City 2017a, 2017b). The existing drainage patterns and Outfall Channel will remain unchanged with the exception of the proposed culvert. Several best management practices and mitigation measures have been discussed in previous sections to deal with the temporary construction impacts. The project does not include any activities that would require or result in expanded water, wastewater treatment electric power, natural gas, or telecommunications facilities.

b-c) **No impact**. The project does not include any activities that would require or result in expanded water, wastewater treatment electric power, natural gas, or telecommunications facilities

d-e) **Less than Significant.** The project will generate solid waste and construction debris including old culvert material, concrete, etc. This material will be transported off site for recycling or disposal. Yolo County Central Landfill is located approximately 6 miles south of the project site. It accepts construction waste and has adequate

capacity for waste generated by the proposed project (Calrecycle 2021).

Mitigation
None.

5.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion

a, d) **No impact**. The project will replace an existing culvert to accommodate existing and projected drainage flows from the City of Woodland. The project will not interfere with an emergency response plan or emergency evacuation plan. The replacement of existing infrastructure will not expose people or structures to significant risks such as downstream flooding or landslides, post-fire slope instability, or drainage changes.

b-c) **Less than Significant**. The project is surrounded by maintained levees and agricultural lands. The project site is not located within a fire hazard area and will not include any activities that would it expose people or structures to a significant risk of wildfires (CalFire 2020). Construction will not block public roadways or generate sparks beyond what is possible under existing conditions with farming and maintenance equipment. The project is located in an undeveloped area not far from the City of Woodland. Flammable fuels will be used in construction equipment and sparks could be generated during construction. Best management practices will be implemented during construction to reduce the potential risk of wildfires during construction.

Best Management Practice
Fire Prevention Requirements
To minimize the potential for wildfires, fire prevention best management practices developed and implemented during construction activities including:

1. No burning will take place on this project.
2. Welding, air-arc gouging, oxy-acetylene cutting, and grinding of pipe, steel or rebar is referred to as Hot

Work. Grinding/saw cutting of concrete/shotcrete surfaces is also considered Hot Work. Hot work will be monitored at all times. Areas where hot work is being performed will be cleaned to mineral soil, and all brush, duff and other organics will be cleared a minimum of 10 feet away. Work pieces will be allowed to cool before being moved and will be cooled before the site is closed each night. Extinguishers will be maintained at all sites where hot work is being performed. A shovel and a five-gallon supply of water will also be available.

3. Smoking may only be done in vehicles, on roads, or areas cleared to mineral soil for a diameter of at least three feet.
4. Vehicles and equipment can be ignition sources resulting from hot exhaust sparks, catalytic converters, hot brakes, and vehicle fires. Equipment used on the site will be maintained with spark arrestors as appropriate. Fire extinguishers will be maintained on all vehicles.

Mitigation

None.

5.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) **Less than significant.** The project would not substantially degrade the quality of the environment; 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 reduce the number or restrict the range of an endangered, rare, or threatened species. As evaluated in Section 3.4, Biological Resources, the project impacts on biological resources would be less than significant with mitigation incorporated.

b) **Less than significant.** The project would result in no impacts or less-than-significant impacts on aesthetics, agricultural and forestry, air quality, cultural resources, energy, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and services systems, and wildfire. Additionally, mitigation measures will be implemented as best management practices to further reduce the potential for any impacts to air quality and cultural resources. The project would result in less than significant impacts to biological resources and geology and soils with mitigation incorporated mainly related to the temporary construction of the replacement culvert and would not result in any cumulatively considerable impacts.

c) **Less than significant.** The proposed project would result in less than significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly.

Mitigation
None.

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FIGURES

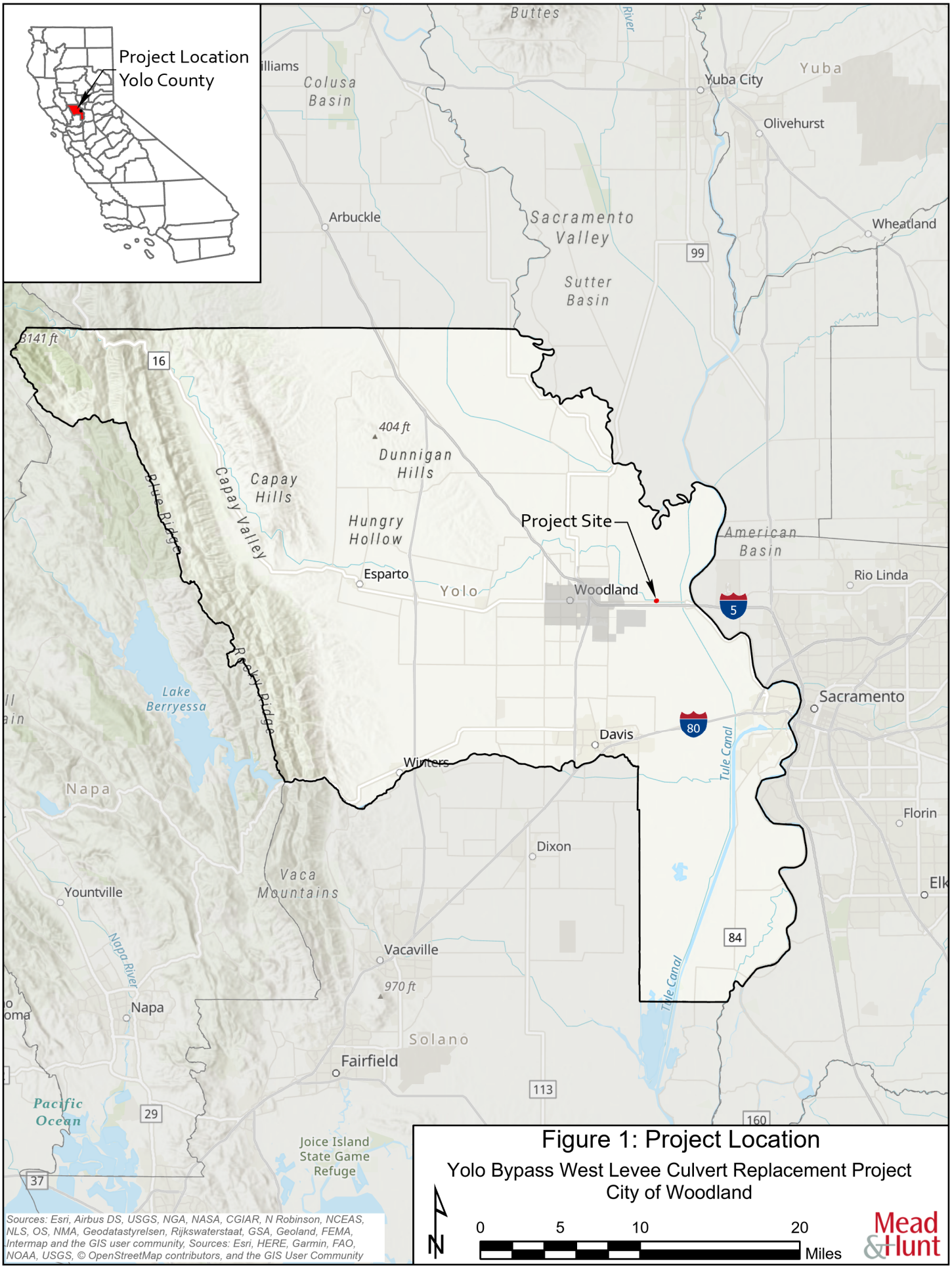


Figure 1: Project Location

Yolo Bypass West Levee Culvert Replacement Project
City of Woodland

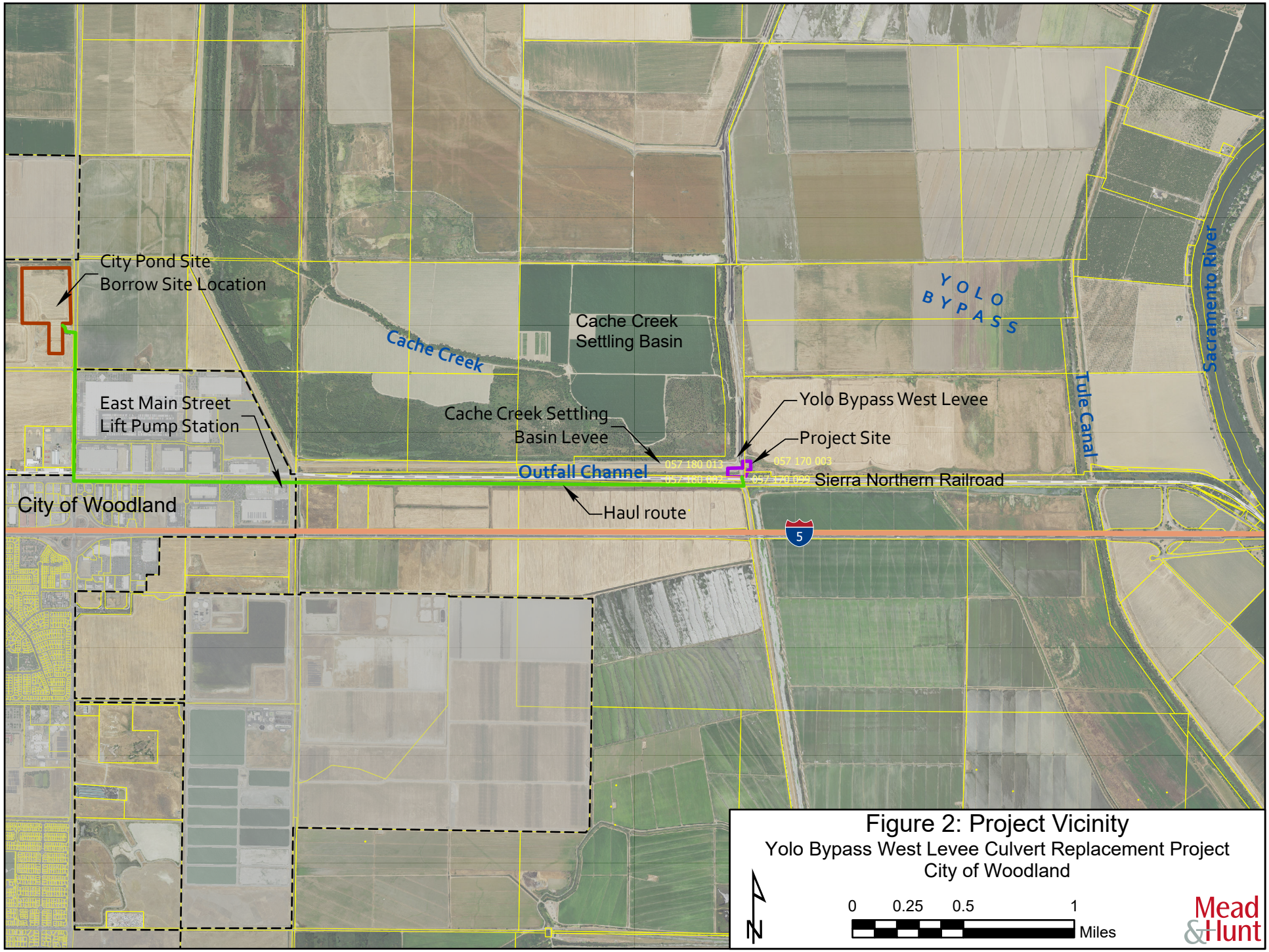


Figure 2: Project Vicinity

Yolo Bypass West Levee Culvert Replacement Project

City of Woodland

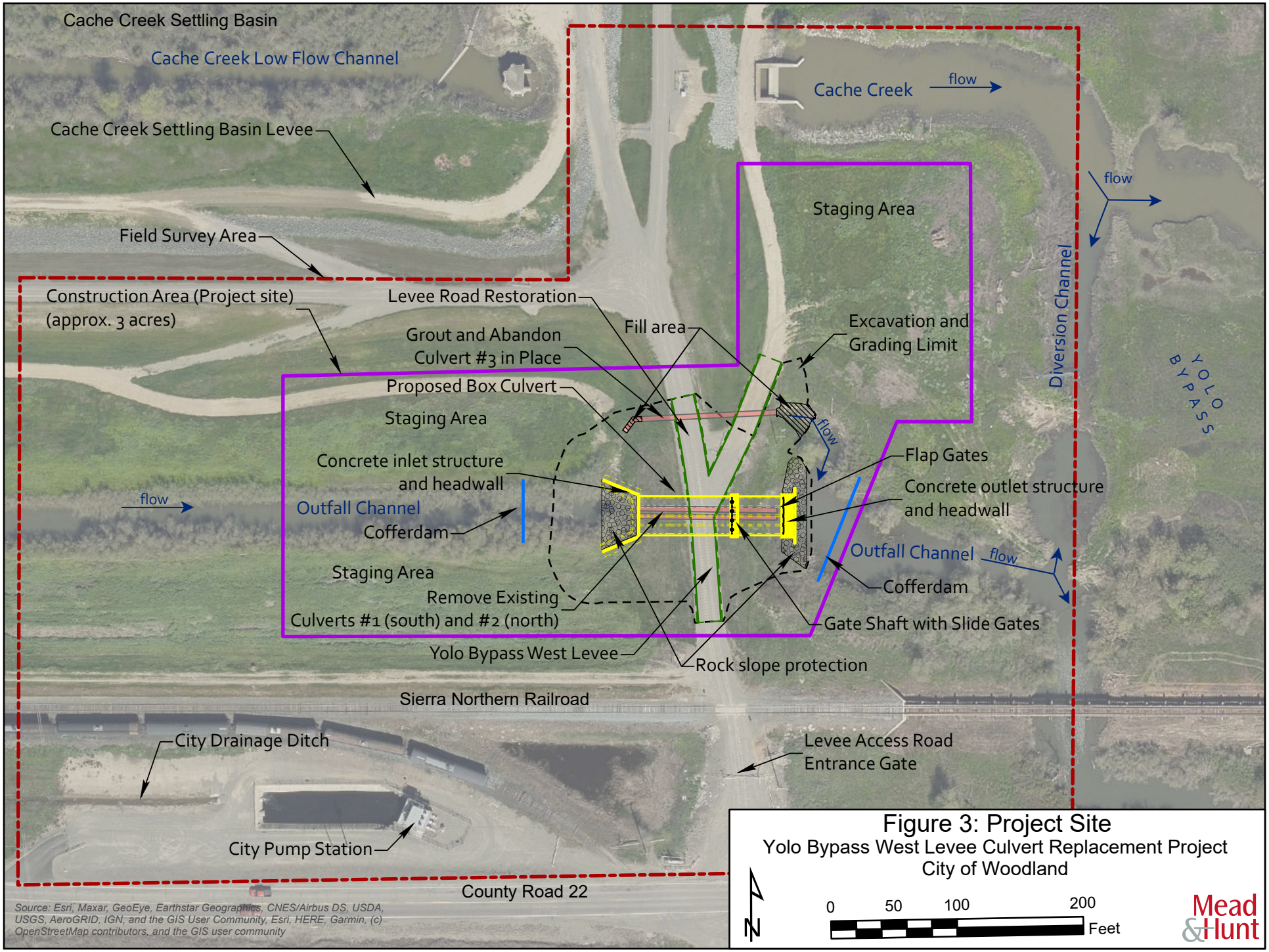
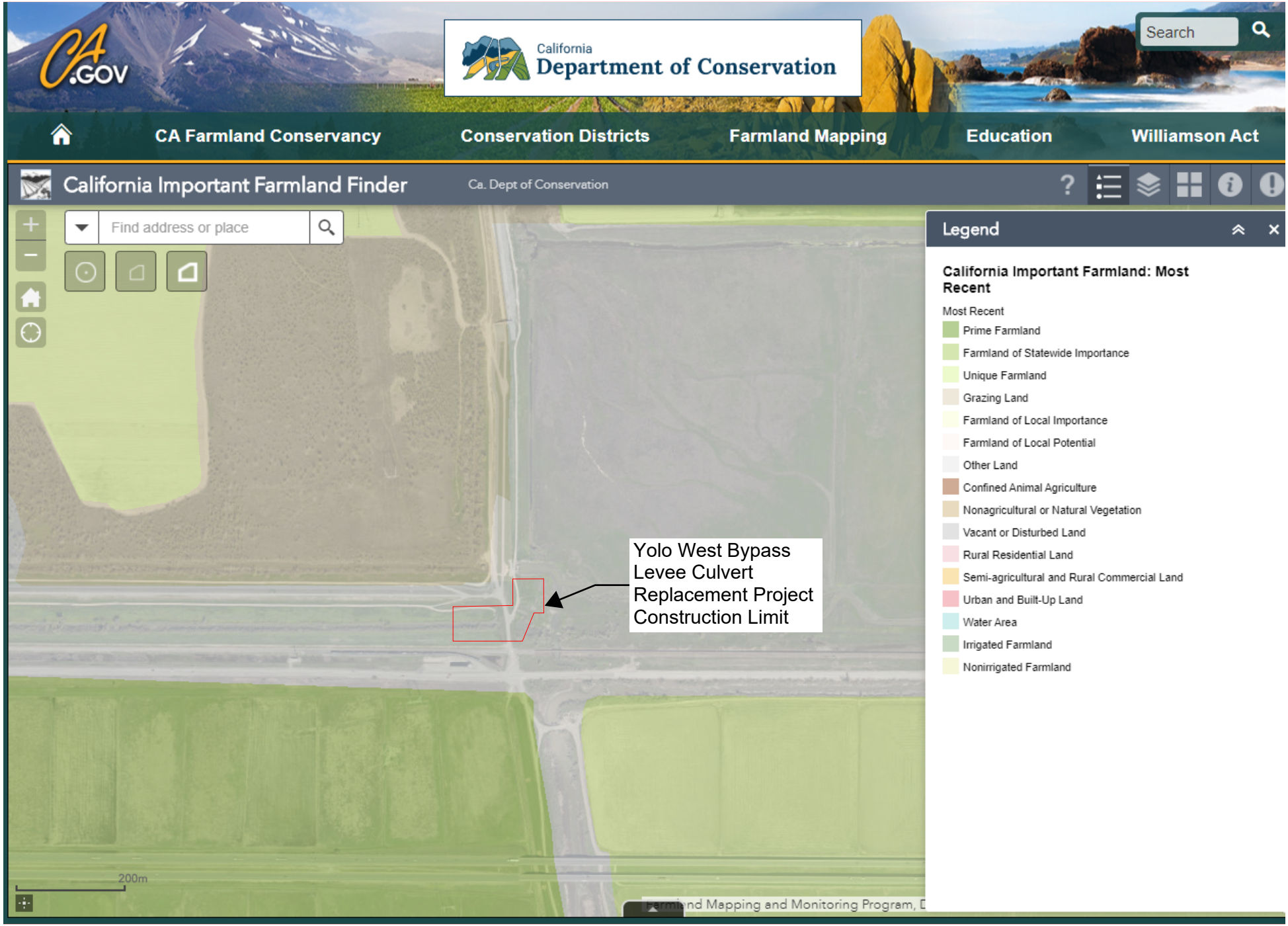


Figure 3: Project Site

Yolo Bypass West Levee Culvert Replacement Project

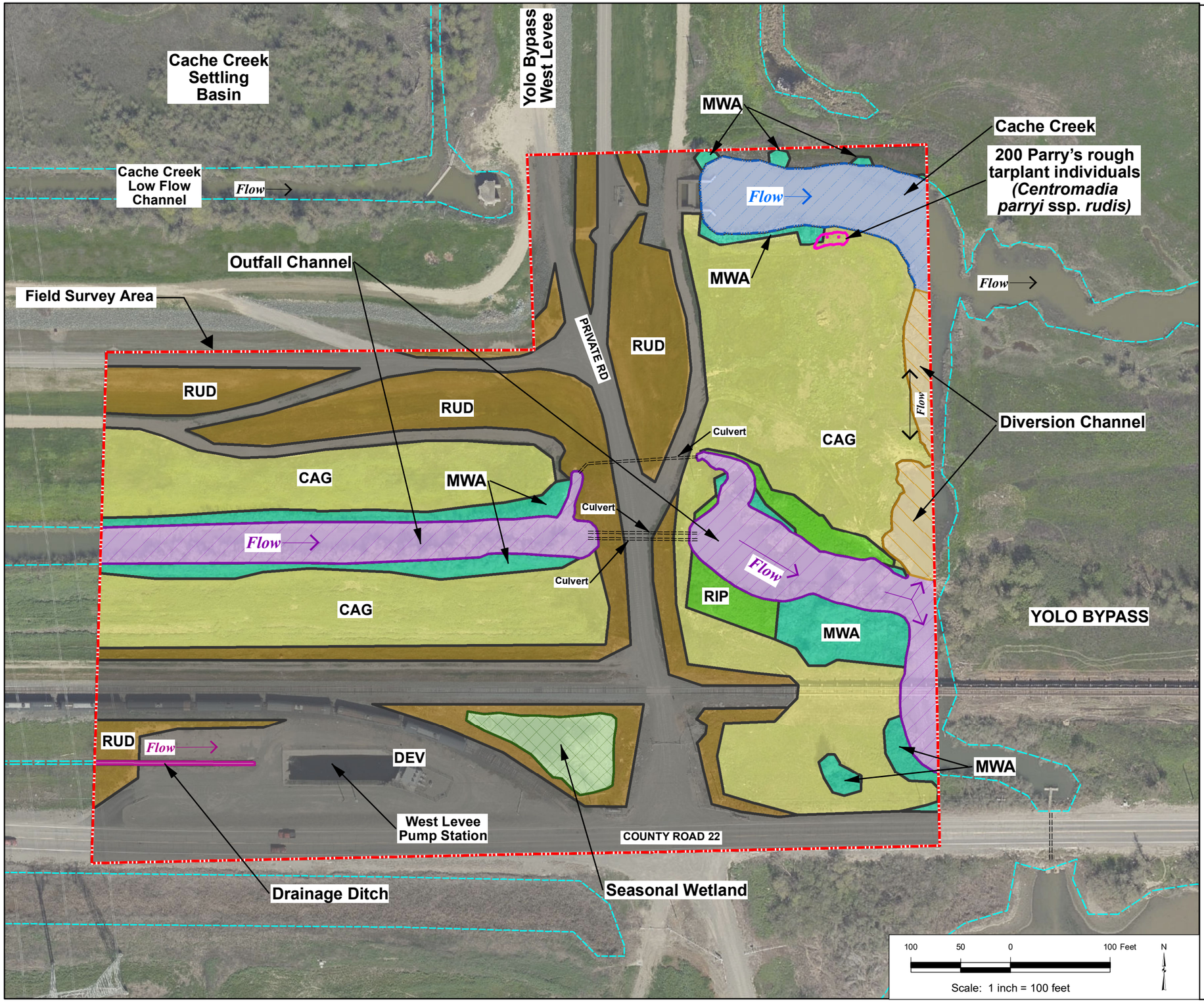
City of Woodland

Figure 4. California Important Farmland



Source: California Department of Conservation Farmland Mapping and Monitoring Program

Figure 5. Biological Communities



Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
18 June 2020

DRAFT

- Biological Study Area (BSA; 11.59 ac)
- Biological Community Boundary
- Diversion Channel
- Cache Creek
- Seasonal Wetland
- Drainage Ditch
- Outfall Channel
- California Annual Grassland (CAG)
- Developed / Disturbed (DEV)
- Mixed Willow Alliance (MWA)
- Urban Ruderal (RUD)
- Riparian Scrub (RIP)

Symbol	Biological Community	Area (ac)
Upland		
CAG	California Annual Grassland	3.50
DEV	Developed / Disturbed	3.77
MWA	Mixed Willow Alliance	0.59
RIP	Riparian Scrub	0.18
RUD	Urban Ruderal	1.91
Aquatic		
--	Seasonal Wetland	0.16
--	Cache Creek	0.37
--	Diversion Channel	0.18
--	Outfall Channel	0.92
--	Drainage Ditch	0.01
	Total	**11.59**

Note:
OHWM of aquatic features shown outside of BSA for illustrative purposes only.

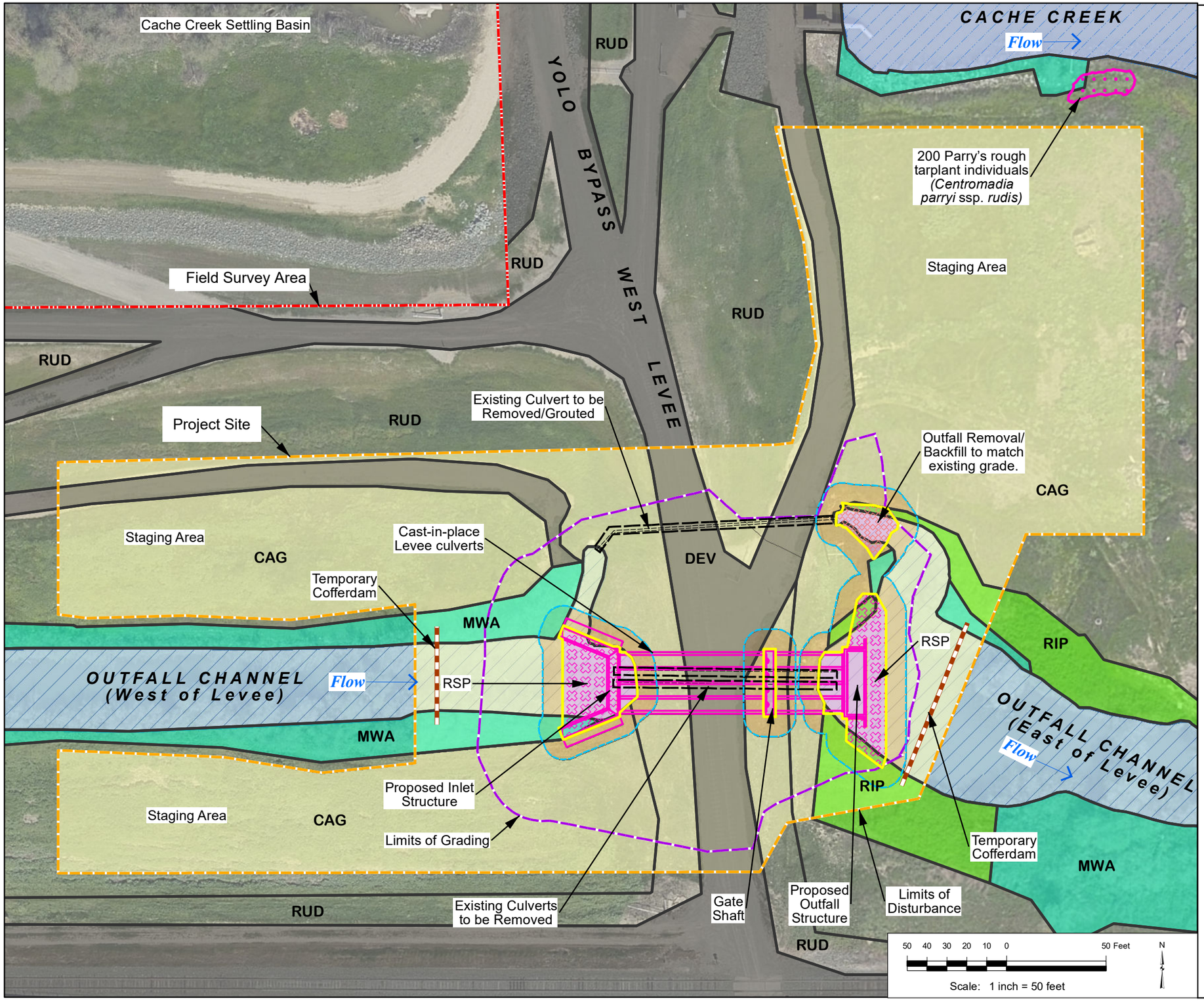
SYCAMORE Environmental Consultants, Inc.

Topographic Basemap:
CAD: ACAD-2020-2-11 County Road 22 Topo (Master).dwg
By Mead and Hunt (Recv'd: 3 Mar. 2020)

Aerial Photograph: 13 April 2018
Woodland Orthos, City of Woodland Imagery
ESRI Arcmap Basemap World Imagery layer

19088WoodlandYoloBypass_Fig4BioresMap_Sht1of2.mxd

Figure 6. Biological Impacts



Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
9 February 2021

DRAFT

Proposed Project Impacts

- Biological Study Area (BSA; 11.59 ac)
- Biological Community Boundary
- Cache Creek
- Outfall Channel
- Developed / Disturbed (DEV)
- Mixed Willow Alliance (MWA)
- Riparian Scrub (RIP)
- Proposed Culvert and Structures
- Limits of Grading
- Rock Slope Protection (RSP)
- Limits of Disturbance
- Permanent Impact
- Permanent 10-ft Buffer
- Temporary
- Yolo HCP 10-ft Permanent Impact Fee Buffer

Symbol	Land Cover Type	Permanent Impact Fee (ac)	Permanent Impact Fee Buffer (ac)	Temporary Impact Fee (ac) [1]
CAG	Grassland	<0.01 ac (154 sf)	0.05	1.49
MWA / RIP	Valley foothill riparian (Mixed Willow Alliance / Riparian Scrub)	0.01	0.03	0.10
--	Lacustrine/ riverine (Outfall channel)	0.08	0.04	0.13
DEV	Developed	--	<0.01 ac (164 sf)	0.33
RUD	Urban Ruderal	<0.01 ac (223 sf)	0.04	0.27

[1] Temporary impacts to Valley foothill riparian are calculated as permanent fees in the Yolo HCP/NCCP

SYCAMORE Environmental Consultants, Inc.

Plan and Profile Design:
65% Submittal Yolo Bypass West Levee
Culvert Replacement Project Volume 2 (June 2020)
CAD: 65 percent Drawing Linework - Revised.zip
By Mead and Hunt (Recvd: 11 Nov. 2020)

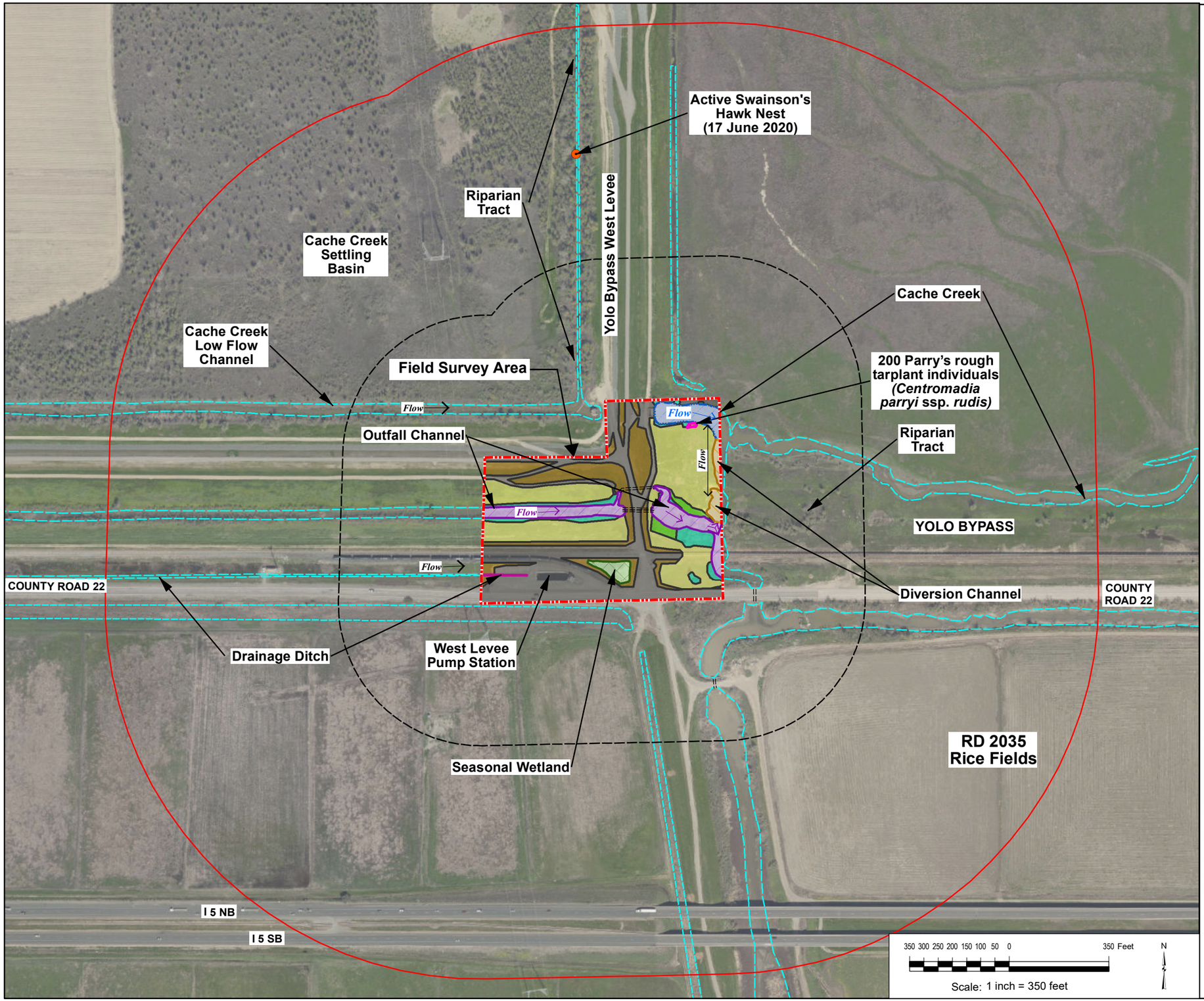
Aerial Photograph: 13 April 2018
Woodland Orthos, City of Woodland Imagery
ESRI Arcmap Basemap World Imagery layer

19088WoodlandYoloBypass_Fig3ImpactMap_20201120.mxd

Figure 7. Surrounding Biological Resources

Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
18 June 2020

DRAFT



- Biological Study Area (BSA; 11.59 ac)
- 500 ft Buffer
- 1,320 ft Buffer
- Biological Community Boundary
- Diversion Channel
- Cache Creek
- Seasonal Wetland
- Drainage Ditch
- Outfall Channel
- California Annual Grassland (CAG)
- Developed / Disturbed (DEV)
- Mixed Willow Alliance (MWA)
- Urban Ruderal (RUD)
- Riparian Scrub (RIP)

Note:
OHWM of aquatic features shown outside of BSA for illustrative purposes only.

SYCAMORE Environmental Consultants, Inc.

Topographic Basemap:
CAD: ACAD-2020-2-11 County Road 22 Topo (Master).dwg
By Mead and Hunt (Recv'd: 3 Mar. 2020)

Aerial Photograph: 13 April 2018
Woodland Orthos, City of Woodland Imagery
ESRI Arcmap Basemap World Imagery layer

19088WoodlandYoloBypass_Fig4BioresMap_Sht2of2.mxd

Appendices

APPENDIX A – TRIBAL CONSULTATION SUMMARY

APPENDIX B – CONSTRUCTION VEHICLE EQUIPMENT LIST AND EMMISSIONS CALCULATIONS

APPENDIX C – BIOLOGICAL RESOURCES EVALUATION

Appendix A – Tribal Consultation Summary

Communication Summary Log

Project:	**Woodland Yolo Bypass**
Regulation:	**CEQA, NEPA, Section 106 NHPA**
Lead Agency:	**CEQA: City of Woodland; NEPA & Section 106 NHPA: USACE**

Date	From	Affiliation	To	Affiliation	Mode	Summary / Conclusion
02/18/20	Laurel Zickler-Martin	InContext	NAHC	NAHC	Email	Request for Sacred Lands File Search and Native American Contacts List
02/24/20	NAHC	NAHC	Laurel Zickler-Martin	InContext		NAHC responded that a search of their Sacred Lands File in the Project vicinity was negative. The NAHC provided a list of individuals they recommended be contacted because of their knowledge of cultural resources in the Project region.
09/17/20	Mark Miller	City of Woodland	Charlie Wright	Cortina Rancheria-Kletsel Dehe Band of Wintun Indians	Letter	Section 106 Invitiation to Consult and AB52 Notification
			Gene Whitehouse	United Auburn Indian Community of the Auburn Rancheria		
			Anthony Roberts	Yocha Dehe Wintun Nation		
			Torres Martinez	Desert Cahuilla Indians		
			Madam or Sir	Ione Band of Miwok Indians		
			Madam or Sir	Miwok Maidu United Auburn Indian Community of the Auburn Rancheria		

Communication Summary Log

Project:	**Woodland Yolo Bypass**
Regulation:	**CEQA, NEPA, Section 106 NHPA**
Lead Agency:	**CEQA: City of Woodland; NEPA & Section 106 NHPA: USACE**

Date	From	Affiliation	To	Affiliation	Mode	Summary / Conclusion
			Madam or Sir	Native American Hertige Commission		
			Madam or Sir	Rumsey Indian Rancheria of Wintun		
			Leland Kinter	Yocha Dehe Wintun Nation		
09/28/20	Trish Fernandez	InContext	Kathy Harryman	Yolo County Historical Socieity		Section 106 Invitation to Consult
			Madam or Sir	Gibson Historical Museum		
			Madam or Sir	Yolo County Historical Museum		
10/05/20	Maira Ramirez	InContext	Charlie Wright	Cortina Rancheria Kletsel Dehe Band of Wintun Indians	Phone	follow-up on Section 106 outreach and AB52 notifications
			Gene Whitehouse	United Auburn Indian Community of the Auburn Rancheria	Email/Phone	
			Anthony Roberts	Yocha Dehe Wintun Nation		
			Torres Martinez	Desert Cahuilla Indians		
			Madam or Sir	Ione Band of Miwok Indians		
10/05/20	Info Ione Band of Miwok Indians	Ione Band of Miwok Indians	Cultural Committee IBMI	Ione Band of Miwok Indians	Email	Follow up email was forwarded internally to the cultural committee

Communication Summary Log

Project:	**Woodland Yolo Bypass**
Regulation:	**CEQA, NEPA, Section 106 NHPA**
Lead Agency:	**CEQA: City of Woodland; NEPA & Section 106 NHPA: USACE**

Date	From	Affiliation	To	Affiliation	Mode	Summary / Conclusion
10/19/20	Laverne Bill	Yocha Dehe Wintun Nation	InContext	InContext	Letter	Expressed interest on the Project Area and requested a site visit
10/27/20	Marieke Armstrong	Mead and Hunt	Laverne Bill	Yocha Dehe Wintun Nation	Email	A site visit (in regard to above request) was scheduled for 11/03/2020
11/05/20	Maira Ramirez	InContext	Kathy Harryman	Yolo County Historical Socieity	Email	follow-up on 09/28/2020 letter
			Madam or Sir	Gibson Historical Museum	Email/Phone	
			Madam or Sir	Yolo County Historical Museum	Email	
11/06/20	Alison Flory	Gibson Historical Museum	Maira Ramirez	InContext	Email	Response to email sent on 09/28/2020. No significant cultural resources were identified at this site. Requested that if any archaeological specimens are found at the site, to notify the curator of the Yolo County Historical Collection, as a possible repository for any culturally significant items.

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: **Woodland** **Date:** 2/18/2020

County: **Yolo**

USGS Quadrangle Name: **Gray's Bend 7.5'**

Township: **10N** **Range:** **3E** **Section(s):** **29, 30, 31, 32**

Company/Firm/Agency: **InContext**

Street Address: **4070 Bridge St., Ste. 7**

City: **Fair Oaks, CA** **Zip:** **95628**

Phone: **916.241.9285**

Email: **lzicklermartin@incontext.co**

Project Description:

Culvert replacement along Yolo Bypass Levee.

PLEASE NOTE: we do not have a fax machine - please send results letter via email.

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 24, 2020

Laurel Zickler-Martin, MA
InContext

Via Email to: lzicklermartin@incontext.co

Re: Woodland Project, Yolo County

Dear Ms. Zickler-Martin:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
February 24, 2020

Cortina Rancheria - Kletsel Dehe Band of Wintun Indians
Charlie Wright, Chairperson
P.O. Box 1630 Wintun / Patwin
Williams ,CA 95987
(530) 473-3274 Office
(530) 473-3301 Fax

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road Maidu
Auburn ,CA 95603 Miwok
bguth@auburnrancheria.com
(530) 883-2390 Office
(530) 883-2380 Fax

Yocha Dehe Wintun Nation
Anthony Roberts, Chairperson
P.O. Box 18 Wintun (Patwin)
Brooks ,CA 95606
aroberts@yochadehe-nsn.gov
(530) 796-3400
(530) 796-2143 Fax

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed:
Woodland Project, Yolo County.

City of Woodland

COMMUNITY DEVELOPMENT DEPARTMENT
(530) 661-5820

300 FIRST STREET
(530) 406-0832 FAX

WOODLAND, CA 95695
http://www.cityofwoodland.org

September 17, 2020

Cortina Rancheria – Kletsel Dehe Band of Wintun Indians
Attn: Charlie Wright, Chairperson
P O Box 1630
Williams, CA 95987

Re: Section 106 Invitation to Consult / AB52 Notification
Yolo Bypass West Levee Culvert Replacement Project
City of Woodland

Dear Mr. Wright:

The City of Woodland (City) proposes to design and construct new levee culverts to replace the existing culverts which convey drainage from the City and some surrounding areas to the Yolo Bypass. The culverts are the sole drainage outlet for the City, and the existing culverts are beyond their useful service life. The failure of the culverts could adversely affect the integrity of the Yolo Bypass West Levee system. The replacement drainage culverts and closure structures will be designed in accordance with the current United States Army Corps of Engineers (USACE), Central Valley Flood Protection Board (CVFPB), and Urban Levee Design Criteria guidance for levee penetrations. Due to federal approval, USACE will provide oversight to ensure compliance with Section 106 of the National Historic Preservation Act (NHPA) as well as other federal laws and regulations.

The purpose of this letter is to provide preliminary project information to initiate Section 106 consultation pursuant to the NHPA and provide formal notification of a proposed project as required under the California Environmental Quality Act (CEQA), specifically Public Resources Code (PRC) 21080.3.1 and Chapter 532 Statutes of 2014 (i.e., AB 52). With this letter, we are also requesting information you may have regarding sites, traditional cultural properties, values, or other cultural resource considerations within the project area so this information may be incorporated into the planning phase of the project.

Please respond within 30 days pursuant to PRC 21080.3.1(d) if you would like to consult on this project. In addition, please provide a designated lead contact person if you have not already provided that information to the City. Please respond to me, Mark Miller, regarding this project at

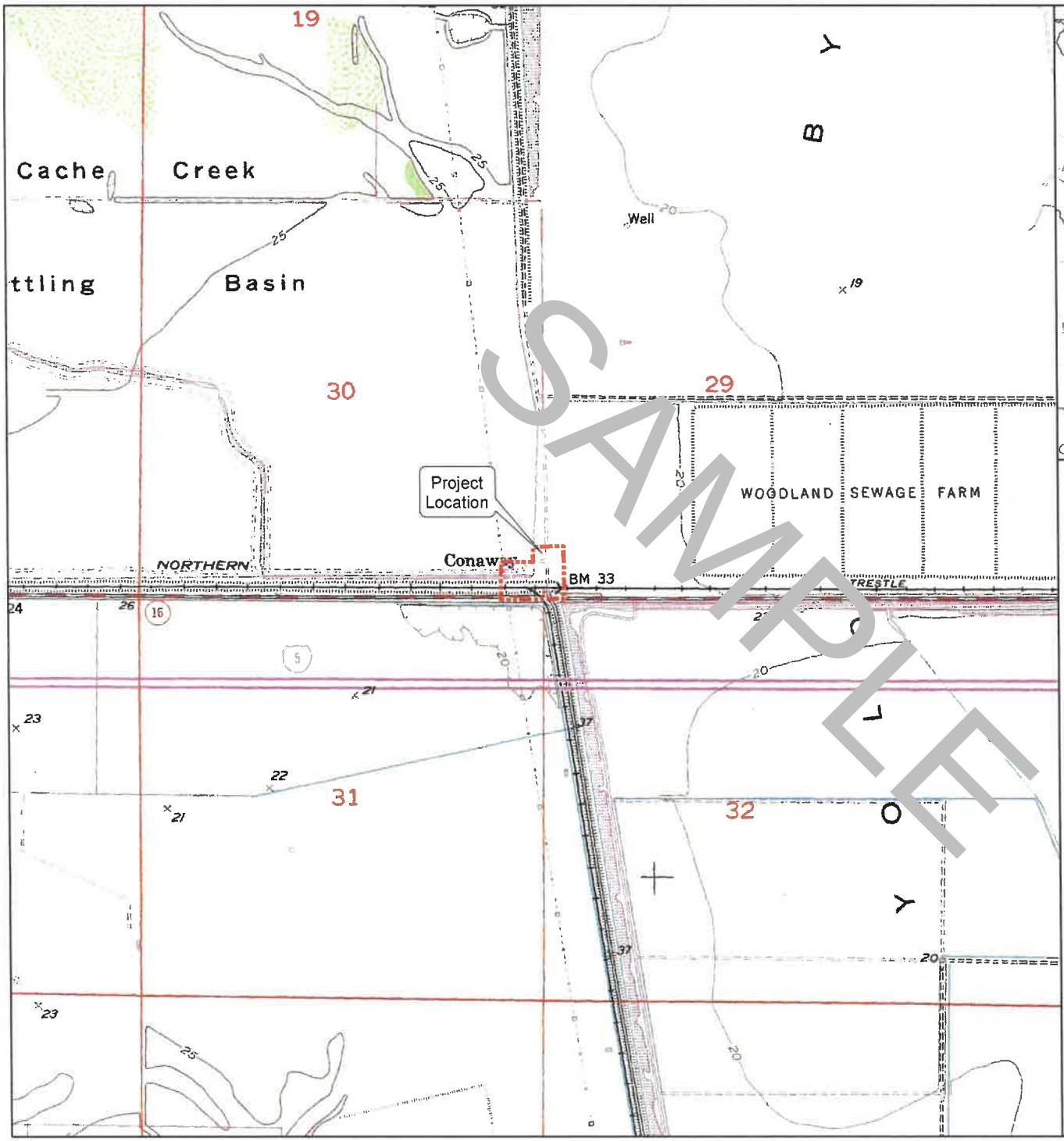
530.661.5968 or mark.miller@cityofwoodland.org. I can be reached at the following mailing address: City of Woodland, Attn: Mark Miller, 300 First Street, Woodland, CA 95695.

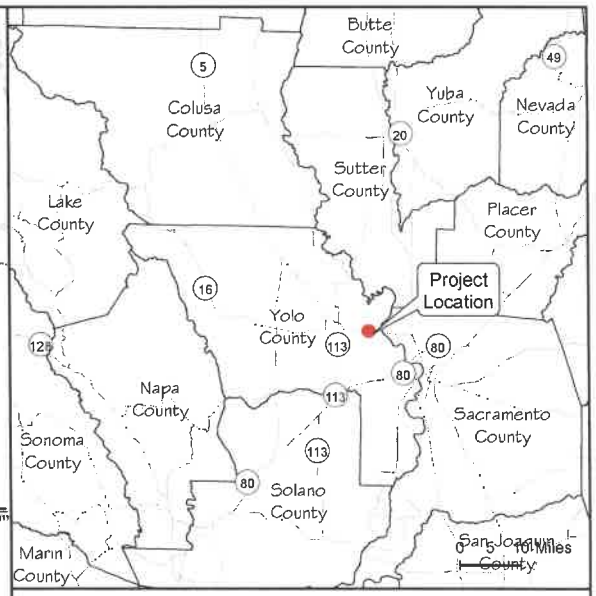
InContext is the cultural resources consultant representing the City and will be following up this letter with a phone call or email. You may contact Trish Fernandez at InContext if you have general questions at tfernandez@incontext.com or 530.409.8612.

Sincerely,

Mark Miller
Assistant Engineer

Enc: Project Map





Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
8 June 2020

Figure 1. Location Map

Project Location

2,000 1,000 0 2,000 Feet

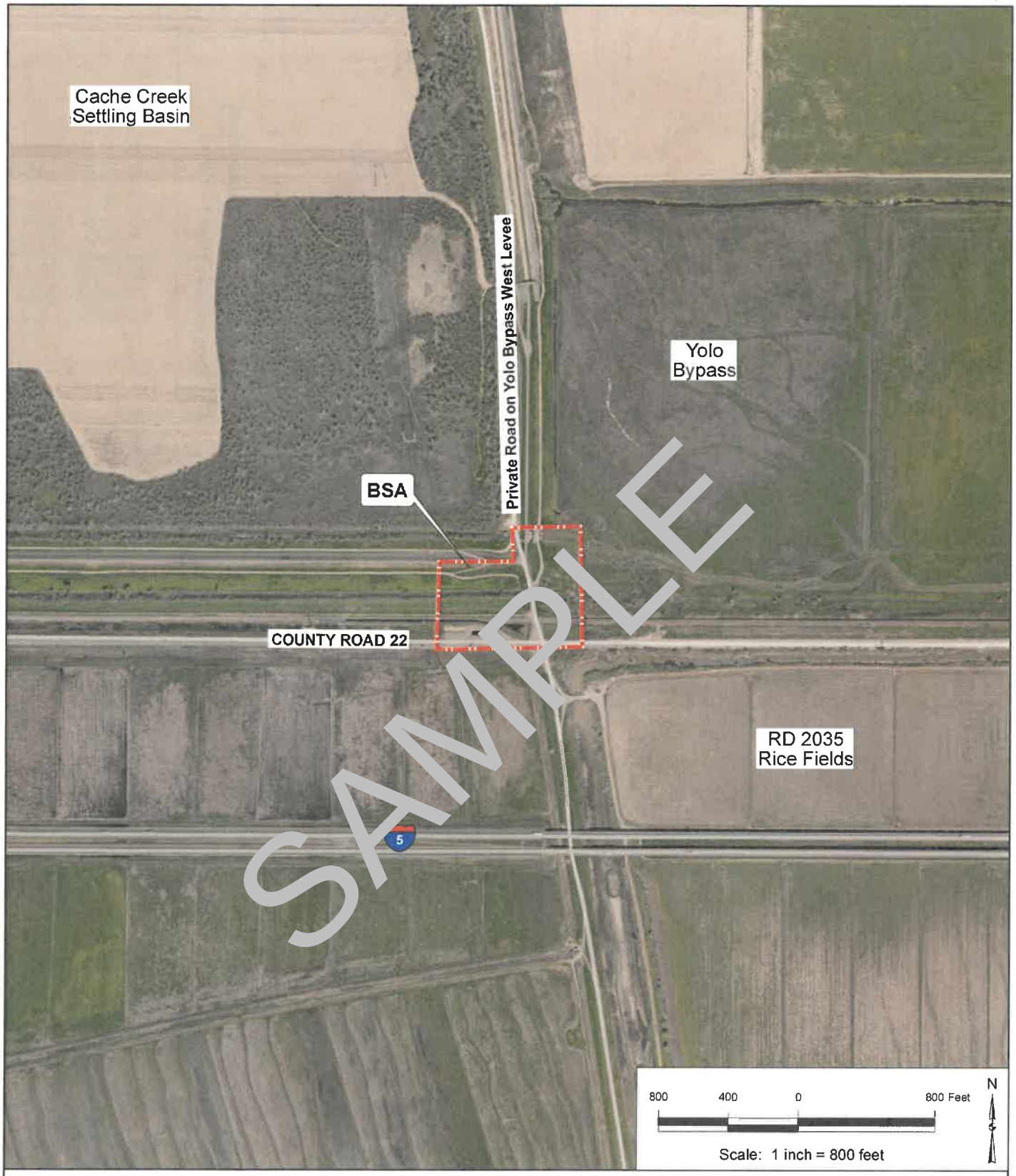
Scale: 1 inch = 2,000 feet

N

SYCAMORE
Environmental
Consultants, Inc.

Grays Bend, CA (Revised 1975)
USGS 7.5' Quadrangle Topographic DRG
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
CA Spatial Library (CASIL)
o_nw0202.sid

19088WoodlandYoloBypass_Fig1LocationMap.mxd



Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
8 June 2020

SYCAMORE
Environmental
Consultants, Inc.

Biological Study Area (BSA; 11.59 ac)

Aerial Photograph:
13 April 2018
Yolo County Orthos, Yolo County 2018
ESRI Arcmap Basemap Layer
Yolo County Road Centerlines (13 June 2017)

Figure 2. Aerial Photograph

19088WoodlandYoloBypass_Fig2AerialPhoto.mxd

InContext
Cultural Resources Solutions

September 28, 2020

Gibson Historical Museum
625 Court Street
Woodland, CA 95695

Re: **Section 106 Outreach**
Yolo Bypass Culvert Replacement Project
City of Woodland
InContext No. 8075-1975

Dear Sir or Madame:

InContext is in the process of conducting a cultural resource study for the proposed project referred to above in Yolo County (see attached map).

We have completed a records search with the Northwest Information Center and a pedestrian survey of the project limits. No significant cultural resources have been identified as a result of these efforts. The City has initiated outreach with interested Native American tribes and we await the results of that consultation.

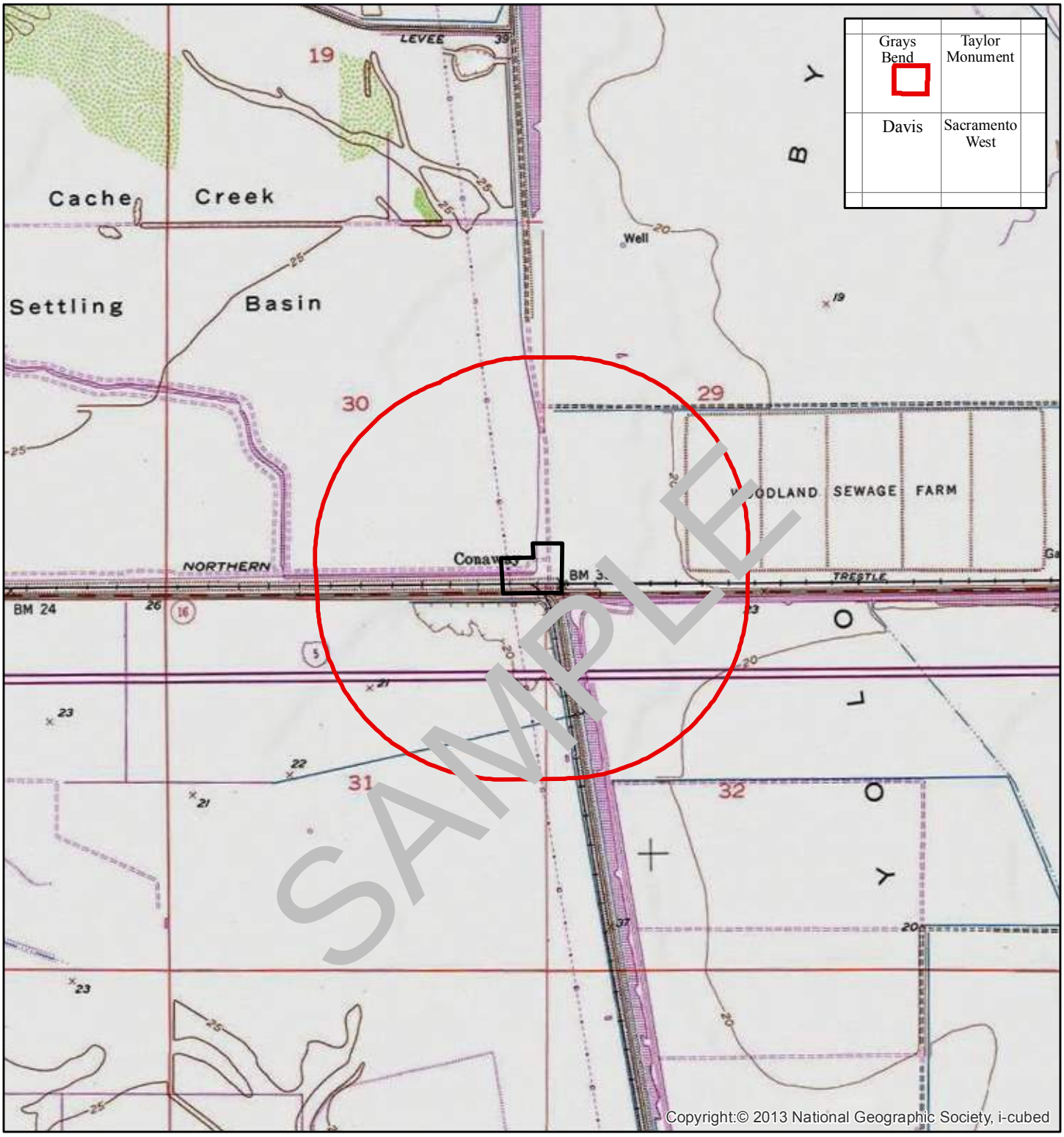
Please let me know if you have any concerns, questions, or information regarding the potential for this project to impact resources important to history. Please feel free to call (530.409.8612) or email me (tfernandez@incontext.co) with any questions or information. Thank you very much for your valuable assistance.

Sincerely,

Trish Fernandez, M.A., RPA
Principal Investigator

Enc: Project Map

InContext
P.O. Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co



Woodland Project Area

Yolo County, CA
Grays Bend USGS Quadrangle, 7.5' Series, 1978.
T10N, R3E, Section 30, 31, and Wetlands Land Grant (Presumed T10N, R3E, Section 29, 32).

0 0.5 Miles
0 1 Kilometers

N W E S

1:24,000

InContext
Cultural Resources Solutions

Maira Ramirez

From: Maira Ramirez
Sent: Monday, October 5, 2020 4:20 PM
To: 'aroberts@yochadehe-nsn.gov'
Cc: Trish Fernandez; 'mark.miller@cityofwoodland.org'
Subject: Section 106 Invitation to Consult/ AB52 Notification
Attachments: Yocha Dehe Wintun Nation.pdf

Hello Mr. Roberts,

I am emailing you to follow up in regard to the letter sent to you on September 17, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact California Indian Tribal resources.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez
Admin

New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co

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COMMUNICATION RECORD

Project No: 1971	Project Name: Woodland	Conducted by: Maira Ramirez				
Consultant Name: Charlie Wright	Title: Chairperson	Entity/Tribe: Cortina Rancheria - Kletsel Dehe Band of Wintun Indians				
Date: 10/5/2020	Time: 3:52	Mode:	Phone 530-473-3274	Email	Text	Mtg

*

Purpose: follow-up Sec 106 Invitation to Consult / AB52 Notification

Summary/Results:
Not available, left Message for call back.
No Call back - 10/22/20

Project No:	Project Name:	Conducted by:				
Consultant Name: Gene Whitehouse	Title: Chairperson	Entity/Tribe: United Auburn Indian Community of Auburn Rancheria				
Date: 10/5/2020	Time: 3:52	Mode:	Phone 530-883-2390	Email bguth@auburnrancheria.com	Text cc: AStarkey@auburnRancheria.com	Mtg

Purpose: Sec 106 Invitation to Consult / AB52 Notification

Summary/Results:
No response. MR 10/22/2020

Project No:	Project Name:	Conducted by:				
Consultant Name: Anthony Roberts	Title: Chairperson	Entity/Tribe: Yocha Dehe Wintun Nation				
Date: 10/5/2020	Time: 3:52	Mode:	Phone 530-796-3400	Email arobertsa@yochadehe-nsn.gov	Text	Mtg

Purpose: Sec 106 Invitation to Consult / AB52 Notification

Summary/Results: Letter received in response 10/19/2020
- Tribe has concerns of impact on unknown Cultural Resources

InContext
Cultural Resources Solutions

COMMUNICATION RECORD

Project No:	Project Name:	Conducted by:				
~~Consultant Name:~~ Torres Martinez Desert	Title: Chairperson	Entity/Tribe: Desert Cahuilla Indians				
Date: 10/5/2020	Time: 3:52	Mode:	Phone 760-397-0300	Email thomas.tochez@torresmartinez-nsn.gov	Text	Mtg

Purpose: Sec 106 Invitation to Consult / AB52 Notification

Summary/Results: No response. MK 10/22/2020

Project No:	Project Name:	Conducted by:				
Consultant Name:	Title:	Entity/Tribe: Rumsey Indian Rancheria of Wintun ~~Miwok Maidu United Auburn Indian Community Of Auburn Rancheria~~				
Date:	Time:	Mode:	Phone	Email	Text	Mtg

Purpose:

Summary/Results:

Project No: 1971	Project Name: Woodland	Conducted by: Maira Ramirez				
Consultant Name:	Title:	Entity/Tribe: Ione band of Miwok Indians				
Date: 10/5/2020	Time: 3:52	Mode:	Phone 209-245-5800	Email info@ionemiwok.net	Text	Mtg

Purpose: Sec 106 Invitation to Consult / AB52 Notification

Summary/Results: Was forwarded to the Cultural Committee Members 10/5/2020 (See folder for email).-MK

No response. MK 10/22/2020

Maira Ramirez

From: Maira Ramirez
Sent: Thursday, November 5, 2020 10:59 AM
To: ya@yoloarts.org
Subject: Section 106 Outreach- Yolo Bypass Culvert Replacement Project
Attachments: HS Yolo Bypass - Gibson.pdf

Hello,

I am emailing you to follow up in regard to the letter sent to you on September 28, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact resources important to history.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez, Admin

New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co

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COMMUNICATION RECORD

Project No: 1975	Project Name: Woodland	Conducted by: Maira Ramirez				
Consultant Name:	Title:	Entity/Tribe: Gibson Historical Museum				
Date: 11/5/2020	Time:	Mode:	Phone 530-309-6964	Email ya@yolocarts.org	Text	Mtg

Purpose: Section 106 outreach - Follow up

Summary/Results: email Sent:

Project No: 1975	Project Name: Woodland	Conducted by: Maira Ramirez				
Consultant Name: Kathy Harryman	Title: Board President	Entity/Tribe: Yolo County Historical Society				
Date: 11/5/2020	Time: 10:36 am	Mode:	Phone	Email Khwoodland@aol.com	Text	Mtg

Purpose: Section 106 outreach - Follow up

Summary/Results: email Sent:

Project No: 1957	Project Name: Woodland	Conducted by: Maira Ramirez				
Consultant Name:	Title:	Entity/Tribe: Yolo County Historical Museum				
Date: 11/5/2020	Time: 10:26 am	Mode: ~~530-666-1045~~ disconnected	Phone	Email YCHMoffice@sbcglobal.net	Text	Mtg

Purpose: Section 106 outreach - Follow up

Summary/Results: called - phone disconnected
email Sent:

Roberto Mora

From: Info Ione Band of Miwok Indians <info@ionemiwok.net>
Sent: Monday, October 5, 2020 4:54 PM
To: CulturalCommittee IBMI
Cc: Maira Ramirez
Subject: Fw: Section 106 Invitation to Consult/ AB52 Notification
Attachments: Ione Band of Miwok Indians.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Cultural Committee Members,

Please see the attached letter and email regarding the City of Woodland.

Warm regards,
Anne Boyd
Administrative Assistant
9252 Bush Street
P.O. Box 699
Plymouth, CA 95669
Office: (209) 245-5800

From: Maira Ramirez <admin@incontext.co>
Sent: Monday, October 5, 2020 4:14 PM
To: Info Ione Band of Miwok Indians <info@ionemiwok.net>
Cc: Trish Fernandez <tfernandez@incontext.co>; mark.miller@cityofwoodland.org <mark.miller@cityofwoodland.org>
Subject: Section 106 Invitation to Consult/ AB52 Notification

Hello,

I am emailing you to follow up in regard to the letter sent to you on September 17, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact California Indian Tribal resources.

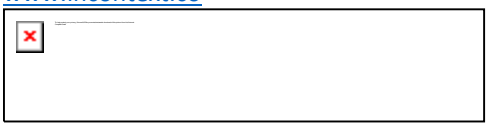
Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez
Admin

New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co



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RECEIVED OCT 19 2020

YOCHA DEHE
CULTURAL RESOURCES

September 28, 2020

InContext Cultural Resources Solutions
Attn: Laurel Zickler-Martin, Cultural Resources Specialist
4070 Bridge Street
Fair Oaks, CA 95628

RE: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Dear Ms. Zickler:

Thank you for your project notification dated, January 24, 2020, regarding cultural information on or near the proposed Yolo Bypass West Levee Culvert Replacement Project, Yolo County. We appreciate your effort to contact us and wish to respond.

The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area.

Based on the information provided, the Tribe has concerns that the project could impact unknown cultural resources. Additionally, Yocha Dehe Wintun Nation requests a site visit to the project area to evaluate our cultural concerns.

Please contact the following individual to coordinate a date and time for the site visit.

Laverne Bill, Cultural Resources Manager
Yocha Dehe Wintun Nation
Office: (530) 723-3891
Email: lbill@yochadehe-nsn.gov

Please refer to identification number YD – 03052020-02 in any correspondence concerning this project.

Thank you for providing us with this notice and the opportunity to comment.

Sincerely,

Tribal Historic Preservation Officer

Roberto Mora

From: Laverne Bill <LBill@yochadehe-nsn.gov>
Sent: Tuesday, October 27, 2020 5:19 PM
To: 'Marieke Armstrong'; Trish Fernandez
Cc: Mark Miller; Tim Busch; Jeff Kashiwada
Subject: RE: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Lets try for11/3 about 9am.

Laverne Bill
Cultural Resource Manager

Yocha Dehe Wintun Nation
PO Box 18 | Brooks, CA 95606
p 530.796.3400 | c 530.723.3891
f 530.796.2143
lbill@yochadehe-nsn.gov
www.yochadehe.org

From: Marieke Armstrong <marieke.armstrong@meadhunt.com>
Sent: Tuesday, October 27, 2020 4:28 PM
To: Laverne Bill <LBill@yochadehe-nsn.gov>; 'Trish Fernandez' <tfernandez@incontext.co>
Cc: Mark Miller <Mark.Miller@cityofwoodland.org>; Tim Busch <Tim.Busch@cityofwoodland.org>; Jeff Kashiwada <Jeff.Kashiwada@meadhunt.com>
Subject: RE: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

[Warning External Sender]

Laverne,

Below please find the City's and Mead & Hunt's availability for a site visit for the first two weeks of November. Hopefully, one of these times will fit into your schedule. Please respond back to all with your preference, so we can put something on the calendar.

11/2 – all morning or after 3p
11/3 – all day
11/9 – all morning or after 3:30p
11/10 – available until 11a or after 3:30p (The City may also be available mid-day without Mead & Hunt.)

Thank you, Marieke

MARIEKE ARMSTRONG

ENVIRONMENTAL PLANNER
Mead & Hunt
Direct: 916-993-4627 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Laverne Bill <LBill@yochadehe-nsn.gov>
Sent: Thursday, October 22, 2020 5:32 PM
To: 'Trish Fernandez' <tfernandez@incontext.co>
Cc: Marieke Armstrong <marieke.armstrong@meadhunt.com>
Subject: RE: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

That would be great if we could do the first two week of November that would be great. Thanks.

Laverne Bill
Cultural Resource Manager

Yocha Dehe Wintun Nation
PO Box 18 | Brooks, CA 95606
p 530.796.3400 | c 530.723.3891
f 530.796.2143
lbill@yochadehe-nsn.gov
www.yochadehe.org

From: Trish Fernandez <tfernandez@incontext.co>
Sent: Wednesday, October 21, 2020 7:00 AM
To: Laverne Bill <LBill@yochadehe-nsn.gov>
Cc: Marieke Armstrong <marieke.armstrong@meadhunt.com>
Subject: Fwd: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Hi Laverne. The City requests 48 hour notice of your visit and has offered a representative to meet you there. Please confirm receipt of this email and let me know if you'd like a City rep to meet with you.

Thank you.

Sent from my iPhone

Begin forwarded message:

> **From:** Marieke Armstrong <marieke.armstrong@meadhunt.com>
> **Date:** October 20, 2020 at 3:04:47 PM PDT
> **To:** Trish Fernandez <tfernandez@incontext.co>
> **Cc:** Jeff Kashiwada <Jeff.Kashiwada@meadhunt.com>, Chad Moffett <chad.moffett@meadhunt.com>, Roberto Mora <rmora@incontext.co>, Brian Matuk <Brian.Matuk@meadhunt.com>
> **Subject: RE: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02**
>
> Trish,
>
> I forwarded your correspondence to the City. Please respond to the Yocha Dehe that they may visit the site, but to please provide 48-hours notice to us so that we may let the City know and they can provide

notice to landowners and farmers. Furthermore, can you please offer them a City and/or engineer's representative at their request to join them on site should they have questions regarding the project.

Thanks, Marieke

MARIEKE ARMSTRONG
ENVIRONMENTAL PLANNER
Mead & Hunt
Direct: 916-993-4627 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Trish Fernandez <tfernandez@incontext.co>
Sent: Saturday, October 17, 2020 8:10 AM
To: Marieke Armstrong <marieke.armstrong@meadhunt.com>
Cc: Jeff Kashiwada <Jeff.Kashiwada@meadhunt.com>; Chad Moffett <chad.moffett@meadhunt.com>; Roberto Mora <rmora@incontext.co>
Subject: FW: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Good morning Yolo Bypass Mead & Hunt Team.

FYI: we received a response from our February 2020 RFI letter to the Yocha Dehe. The email below is our response. They are only requesting a field visit at this point. I recommend they conduct this field visit on their own, since the area is easy to identify and access. I do not foresee them having any concerns after the field visit. I have not sent their response or mine to the City, as I assume that should be done by your team if you so decide.

Please let me know if you have any questions or instructions.

Thank you.

Trish Fernandez, M.A., RPA
New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
Cell: 530.409.8612
Office: 916.241.9285
www.incontext.co

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From: Trish Fernandez
Sent: Saturday, October 17, 2020 8:05 AM
To: 'Laverne Bill' <LBill@yochadehe-nsn.gov>
Subject: FW: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Good morning, Laverne.

I hope you are doing well. We received the attached letter and email below from the Yocha Dehe Wintun Nation on October 14, 2020. The response is in reference to our letter sent in February of this year. However, additional outreach has been sent to the tribe from the City of Woodland (see attached email and letter) specifically in reference to Section 106 and AB52.

I understand you would like to coordinate a field visit to the project location. Could you please clarify if you would also like to consult on this project in regard to AB52?

Thank you very much and I look forward to hearing from you. Please feel free to call me at anytime.

Trish Fernandez, M.A., RPA
New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
Cell: 530.409.8612
Office: 916.241.9285
www.incontext.co

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From: Roberto Mora <rmora@incontext.co>
Sent: Thursday, October 15, 2020 4:19 PM
To: Trish Fernandez <tfernandez@incontext.co>
Subject: Fw: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Hello Trish

I received this email from Yocha Dehe

From: Victoria Delgado <VDelgado@yochadehe-nsn.gov>
Sent: Wednesday, October 14, 2020 11:42 AM
To: Roberto Mora <rmora@incontext.co>
Subject: Yolo Bypass West Levee Culvert Replacement Project YD-03052020-02

Hello Mr. Mora,

We sent over our response to your letter dated February 24, 2020, in regards to the project listed above.

However, our letter was returned to sender due to having your old address. I was able to locate your new PO box address and I will send the letter your way. In the meantime, I am attaching the letter to this email, in the case that this requires a quick response.

Kind Regards,
Victoria Delgado
CRD Administrative Assistant

Yocha Dehe Wintun Nation
PO Box 18 | Brooks, CA 95606
p 530.796.0118 | f 530.796.2143
vdelgado@yochadehe-nsn.gov
www.yochadehe.org

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Maira Ramirez

From: Maira Ramirez
Sent: Thursday, November 5, 2020 10:38 AM
To: khwoodland@aol.com
Subject: Section 106 Outreach- Yolo Bypass Culvert Replacement Project
Attachments: HS Yolo Bypass - Yolo HS.pdf

Hello, Ms. Harryman.

I am emailing you to follow up in regard to the letter sent to you on September 28, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact resources important to history.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez, Admin

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8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co

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Maira Ramirez

From: Maira Ramirez
Sent: Thursday, November 5, 2020 10:34 AM
To: ychmoffice@sbcglobal.net
Subject: Section 106 Outreach- Yolo Bypass Culvert Replacement Project
Attachments: HS Yolo Bypass - Yolo Museum.pdf

Hello,

I am emailing you to follow up in regard to the letter sent to you on September 28, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact resources important to history.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez, Admin

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8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co

InContext
Cultural Resources Solutions
A small, woman- and minority-owned business

Maira Ramirez

From: Maira Ramirez
Sent: Thursday, November 5, 2020 10:59 AM
To: ya@yoloarts.org
Subject: Section 106 Outreach- Yolo Bypass Culvert Replacement Project
Attachments: HS Yolo Bypass - Gibson.pdf

Hello,

I am emailing you to follow up in regard to the letter sent to you on September 28, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact resources important to history.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

Respectfully,

Maira Ramirez, Admin

New Address!
8000 California Avenue
PO Box 2462
Fair Oaks, CA 95628
916.241.9285
www.incontext.co

InContext
Cultural Resources Solutions
A small, woman- and minority-owned business

Maira Ramirez

From: Alison Flory <aflory@yoloarts.org> <aflory@yoloarts.org>
Sent: Friday, November 6, 2020 10:57 AM
To: Maira Ramirez
Subject: Re: Section 106 Outreach- Yolo Bypass Culvert Replacement Project

Hello Maira,

I spoke with the Curator of the Yolo County Historical Collection and she identified no "significant cultural resources" at the site of the proposed project. However, in the future, if there are archeological specimens found at the site as the project proceeds, please notify Iulia Bodeanu, iulia.bodeanu@yolocounty.org, Curator of the Yolo County Historical Collection, as a possible repository for any culturally significant items.

Regards,
Alison

Alison Flory
Executive Director
YoloArts
c- 916.599.2305
aflory@yoloarts.org

YoloArts offices are open by appointment. Check our website www.yoloarts.org for updates and ongoing YoloArts and Gibson House Property modified in-person and virtual programming. If you have any questions, contact us at ya@yoloarts.org.

From: Maira Ramirez <admin@incontext.co>
Date: Thursday, November 5, 2020 at 10:59 AM
To: "YoloArts <ya@yoloarts.org>" <ya@yoloarts.org>
Subject: Section 106 Outreach- Yolo Bypass Culvert Replacement Project

Hello,

I am emailing you to follow up in regard to the letter sent to you on September 28, 2020 (see attached).

The letter provides information regarding a proposed project and requests that you contact us with any questions, concerns, or information regarding the project's potential to impact resources important to history.

Please confirm you have received the letter or this email and contact us as soon as possible if you have questions, concerns, or information as stated above.

Thank you for your time and consideration.

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Maira Ramirez, Admin

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A small, woman- and minority-owned business

Standard Monitoring Agreement
Between
Yocha Dehe Wintun Nation
And

This MONITORING AGREEMENT ("Agreement") is made and entered into as of , , by and between the **Yocha Dehe Wintun Nation,** a federally recognized Indian tribe ("Yocha Dehe" or "Tribe") on the one hand, and **(hereinafter "Contractor")** on the other hand**.** Yocha Dehe and Contractor are collectively referenced hereinafter as the "Parties".

I. RECITALS

A. **Subject Matter:** This Agreement concerns the use and/or development of real property located within the area of , and which is the subject of development by Contractor. The development is commonly known as , hereinafter referenced as the "Project" and is described in Attachment I of this Agreement. As used herein, the Area of Potential Effect (or APE) includes .

B. **Purpose:** The purpose of this Agreement is to establish fee schedules and terms for the use of Yocha Dehe tribal monitors for the Project; establish protocols for the relationship between Yocha Dehe and the Contractor; formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items and any cultural artifacts, in the event that any are found in conjunction with the Project's development, including archaeological studies, excavation, geotechnical investigations, grading and any ground disturbing activity. This Agreement is entered into as mitigation under the California Environmental Quality Act ("CEQA") and/or the National Environmental Policy Act ("NEPA") and Section 106 of the National Historic Preservation Act ("Section 106"), and any such mitigation may be a condition of approval for said Project.

C. **Cultural Affiliation:** The Tribe traditionally occupied, and can trace its historical ties to, land in the Project's Area of Potential Effect ("APE" or "Project Area"). The Project is within the boundaries of the Yocha Dehe Linguistic Territory. Thus, cultural resources identified in the APE are related to the history and tradition of the Yocha Dehe Wintun Nation and Patwin speaking peoples. Yocha Dehe has designated its Cultural Resources Department to act on its behalf with respect to the provisions of this Agreement. Any Native American human remains, grave goods, ceremonial items, and cultural items or artifacts that are found in conjunction with the development of this Project shall be treated in accordance with the Provisions of this Agreement.

II. TERMS

A. **Incorporation of Recitals:** All of the foregoing recitals are accurate and are incorporated in this Agreement by reference.

B. **Term:** This Agreement shall be effective as of the date of execution and it shall remain in effect until the Project's completion.

C. **Scope of Services and Specifications:** Given the nature and sensitivity of archaeological sites and cultural resources that are or may be within the Project area (a map of which is shown and attached hereto as Attachment I). Yocha Dehe shall provide tribal monitoring and consultation for the Project during the archaeological investigations and all ground disturbing activities required for the Project. Yocha Dehe monitors will work in collaboration with the archaeologists, inspectors, project managers and other consultants hired/employed by the Contractor.

D. **Fee Schedule:**
The fee schedule for the use of Yocha Dehe Wintun Nation monitors and staff is as follows;

Native American Monitoring	$65.00 hourly rate (per monitor)
Native American Monitoring-Hazwoper	$100.00 hourly rate (per monitor)
Tribal Historic Preservation Officer/ Cultural Resources Director (4 hour minimum)	$200.00 (per hour)
Tribal Executives (4 hour minimum)	$200.00 (per hour)
Cultural Resources Manager (4 hour minimum)	$175.00 (per hour)
Overtime (over 8 hrs in a day)	$112.50 hourly rate (per monitor)
Weekend and Holiday Hours	$112.50 hourly rate Saturday; and $150.00 hourly rate Sunday and Holiday
Cultural Sensitivity Training	$250.00 one time charge
Administrative Fee	15% of Invoice

Yocha Dehe's monitors will bill for time spent traveling to and from any Project site. In addition, Yocha Dehe shall be reimbursed for all costs associated with travel to and from the Project. Eligible items for cost reimbursement shall include, but not be limited to, mileage (or fuel purchases, at the submitter's election), hotel, and per diem (GSA rate).

E. **Coordination with County Coroner's Office**. In the event human remains are discovered on or near the Project site during its development, Contractor shall immediately contact the Coroner, the Yocha Dehe Cultural Site Protection Manager, the Cultural Resources Manager, Cultural Committee Chairman, the Tribal Chairman and/or the Yocha Dehe Cultural Resources Director. In order to facilitate this Agreement's implementation, the appropriate County Coroner's Office shall be provided a copy of this Agreement either before any earth disturbing activities or upon request of the Tribe. Yocha Dehe agrees to provide Contractor the needed contact information in order to comply with this provision. The Coroner shall be asked by the Contractor to determine if the remains are (1) human, (2) prehistoric, and further, the Contractor shall request the Coroner notify the State of California's Native American Heritage Commission in the event the remains are determined to

be Native American. The Contractor will compensate the Coroner for reasonable fees and costs, if applicable and required by the County Coroner's office.

F. Most Likely Descendant (MLD): The Yocha Dehe Wintun Nation as the MLD for any Human Remains, Associated Funerary Objects and Artifacts found within the exterior boundaries of the Yocha Dehe Wintun Nation Linguistic Territory. Human Remains have been discovered within the Yocha Dehe Wintun Nation Linguistic Territory on occasion and in all of those cases, the Native American Heritage Commission ("NAHC") designated the Yocha Dehe Wintun Nation as the Most Likely Descendent ("MLD") under California Public Resources Code section 5097.98.

G. Treatment and Disposition of Remains. Where Native American human remains are discovered during the Project's development, and where Yocha Dehe has been designated the Most Likely Descendant (MLD), the following provisions shall apply to the Parties:

I. The Tribe shall be allowed, under California Public Resources Code sections 5097.98 (a) and 21083.2 and State CEQA Guidelines section 15064.5 (e), to: (1) inspect the site of the discovery; and (2) make recommendations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

II. The Tribe shall complete its inspection within twenty-four (24) hours of receiving notification from either the Contractor or the NAHC, as required by California Public Resources Code section 5097.98 (a). The Parties agree to discuss, in good faith, what constitutes "appropriate dignity" as that term is used in the applicable statutes.

III. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code sections 5097.98 (a) and (b) and 21083.2 and State CEQA Guidelines section 15064.5 (e).

IV. The Parties are aware that Yocha Dehe may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. Should Yocha Dehe recommend reburial of the human remains and associated ceremonial and cultural items (artifacts) on or near the site of their discovery, the Contractor shall make good faith efforts to accommodate the Tribe's request.

V. The term "human remains" encompasses more than human bones because Yocha Dehe's traditions periodically necessitated the ceremonial burning of human remains, and monitors shall make recommendations for removal of cremations. Grave goods are those artifacts associated with any human remains. These items and the soil, in an area encompassing up to two (2) feet in diameter around the burial, and other funerary remnants and their ashes, are to be treated in the same manner as human bone fragments or bones that remain intact

H. Treatment and Disposition of Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Tribe. Contractor agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the Project site to the MLD for appropriate treatment, unless Contractor is ordered to do otherwise by a court or agency of competent jurisdiction. In addition, the Tribe requests the return

of all other cultural items (artifacts) that are recovered during the course of archaeological investigations on or adjacent to the Project site. Where appropriate (from the perspective of Yocha Dehe), and agreed upon in advance by Yocha Dehe, certain analyses of certain artifact types will be permitted, which may include, but which may not necessarily be limited to, shell, bone, ceramic, stone and/or other artifacts.

I. **Ownership Relinquishment.** Contractor waives any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. If examination of cultural artifacts by an entity or individual other than the MLD is necessary, that entity or individual shall return said artifacts to the MLD within thirty (30) days, or any other agreed upon time frame from the initial recovery of the items.

J. **The Description of Work.** Description of work for Yocha Dehe monitors for the grading and ground disturbing operations at the Project site is provided in **Attachment II** to this Agreement and incorporated herein by this reference. **Section I of Attachment II specifies the duties and responsibilities of the identified tribal monitoring crew and other specified parties. Section II of Attachment II identifies the geographical area over which the tribal monitoring crew shall oversee cultural resource mitigation and monitoring in accordance with California Public Resources Code section 21083.2 (c) and (k). Sections III and IV of Attachment II mandate compensation of the tribal monitoring crew by the Contractor**.

K. **Confidentiality.** Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The County Coroner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). Moreover, all records relative to consultation between the Parties shall be confidential and not subject to public disclosure as required by the California Public Records Act, Cal. Govt. Code § 6250 et seq.

Executed by:

Yocha Dehe Wintun Nation	(Company Name)
Signature: _____	Signature: _____
Print Name: _____	Print Name: _____
Title: Tribal Historic Preservation Officer	Title: _____
Date: _____	Date: _____

ATTACHMENT I

[Insert Tract Map for Project Name]

Attachment II

NATIVE AMERICAN MONITORING OF GRADING AND GROUND DISTURBING ACTIVITIES

I. **Specifications:** Given the nature and sensitivity of the archaeological sites and cultural resources that are in or may be within the Project area, the Yocha Dehe Wintun Nation, a federally recognized Indian tribe and the Most Likely Descendant as identified by the Native American Heritage Commission, shall provide the tribal monitoring, consultation and facilitation for this Project during the archeological investigations, and all ground disturbing activities for the Project. Yocha Dehe's monitors will work in concert with the archaeologists and Project engineers hired/employed by Contractor. The tribal monitors or Project archaeologists will be empowered to halt all earthmoving equipment in the immediate area of discovery when cultural items or features are identified until further evaluation can be made in determining their significance. It is understood that all surface and subsurface artifacts of significance shall be collected and mapped during this operation following standard archaeological practices.

After discovery of cultural items or features' discussions between the tribal monitors and project archaeologist will occur to determine the significance of the situation and best course of action for avoidance, protection of resources, and/or data recovery, as applicable.

II. **Project to be Monitored:** Monitoring shall encompass the area known as and shall be known as the Project area. It is agreed that monitoring shall be allowed for all archaeological studies, excavations, and groundbreaking activities occurring in conjunction with the development of the Project.

III. **Project Crew Size:** The Parties to this Agreement project the need for a tribal monitoring crew size to be determined by the Cultural Site Protection Manager, in accordance with Yocha Dehe Wintun Nation Cultural Law. If the scope of the work changes (*e.g.*, inadvertent discoveries of cultural resources or simultaneous grading of area that requires multiple tribal monitors), additional tribal monitors may be required. Developer agrees to directly compensate Yocha Dehe for all of the work performed by the tribal monitors. The compensation rate shall be made directly from Contractor to the Tribe in accordance with Section IV. If human remains are found, the coordination of the reburial of those remains and any associated cultural and ceremonial items shall be conducted in accordance with Sections III and IV of this Agreement.

IV. **Insurance and Indemnity:** Yocha Dehe shall provide the tribal monitoring crew for the Project and shall be responsible for coordinating the tribal monitors' activities on the Project. The Tribe recognizes that dangerous conditions may exist on the work site, particularly during grading operations, and agrees to assume responsibility for the safety of the tribal monitoring crew while the crew remains on the Project site. The Tribe possesses the necessary insurance to cover any bodily injury or property damage that

may be suffered by the tribal monitors and proof of such insurance shall be made available to Contractor upon request.

V. **Compensation:** Contractor shall directly compensate the Tribe in accordance with the following compensation rates and procedures. Invoices will be submitted on a monthly basis and shall be paid within 30 days of submittal to assure timely tribal monitor compensation and to further assure that tribal monitoring will not be terminated for the Project.

A minimum half-day charge ("show up" time) shall be charged to Contractor for unannounced work stoppages of the tribal monitors that are not due to actions by Yocha Dehe.

VI. **Rights of Access/Stoppage/Consultation Upon Discovery:** Contractor shall provide Yocha Dehe tribal monitors with unencumbered access to the Project site as reasonably necessary for the monitors to effectively perform the services required by this Agreement. The tribal monitors and/or project archaeologist will be empowered to halt all earthmoving equipment in the immediate area of discovery when cultural items or features are identified until further evaluation can be made in determining their significance. It is understood that all surface and subsurface artifacts, Native American human remains, funerary objects, items of cultural patrimony, and any other cultural items shall be treated in accordance with an agreed upon artifact treatment and disposition plan.

After discovery of cultural items or features, discussions between the tribal monitors and project archaeologist will occur to determine its significance and the best course of action for avoidance, protection of resources, and/or data recovery, as applicable. While determinations will be mostly in the field, Yocha Dehe's tribal monitors may need to seek further guidance from the Most Likely Descendent, Yocha Dehe Tribal Council and/or the Cultural Resources Committee. If this rare occurrence should arise, Yocha Dehe reserves the right to request a 30-day stoppage of work.

Where circumstances warrant, the Contractor may be required, at its sole expense, to provide security personnel or remove unnecessary persons from the Project site. For example, where the safety of tribal monitors is at risk due to controversy or other circumstances surrounding a particular Project's development, security personnel would be provided at the Contractor's expense and members of the public excluded from the site. Likewise, where the protocol for the treatment of Native American human remains, funerary objects, artifacts, or items of cultural patrimony deems culturally required or appropriate, Contractor agrees unnecessary personnel will leave the site during the relevant time period.

Appendix B – Construction Vehicle Equipment List and Emissions Calculations

Construction Vehicle Emissions

(g/bhp-hr)

	year	HP low	HP High	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	Co2	CH4	
Water Truck (other equip)	2010	251	500	0.480247	0.404	3.20434	5.78616	0.005	0.219	0.201	530.8514	0.155	
Dump Truck	2010	16	25	0.963	0.806	2.507	4.804	0.007	0.271	0.271	568.299	0.072	
Excavator	2010	501	750	0.327987	0.276	1.53784	4.52996	0.005	0.149	0.138	520.4269	0.151	
Dozer	2010	751	1000	12.178	0.814	4.027	8.149	0.005	0.29	0.29	568.299	0.073	
Compaction Roller	2010	251	500	0.682816	0.574	4.92169	7.52047	0.005	0.313	0.288	533.878	0.155	
Crane	2010	1001	9999	0.387608	0.326	1.00751	6.39903	0.005	0.151	0.139	524.505	0.153	
Backhoe Loader	2010	501	750	0.330642	0.278	1.80487	4.39795	0.005	0.153	0.141	517.4169	0.151	
Cement Truck	2010	16	25	5.056	1.119	3.049	5.286	0.007	0.346	0.346	568.299	0.101	

Source: California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMOD) Appendix D. Default Data Tables. October 2017. Available online at http://www.caleemod.com/

Grams - Project Total

Equipment Use	Equipment	Hours	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	Co2	CH4	
1 truck-10 hours-35 days	Water Truck (other equip)	350	42,190	35,491	281,501	508,314	439	19,239	17,658	46,635,295	13,617	
3 trucks -10 hours-8 days + 140 hrs for haul	Dump Truck	380	5,855	4,900	15,243	29,208	43	1,648	1,648	3,455,258	438	
1-10 hours-8 days = 140 hrs at borrow site	Excavator	220	36,151	30,421	169,501	499,292	551	16,423	15,210	57,361,453	16,643	
1-10 hours-5 days	Dozer	50	457,284	30,566	151,214	305,995	188	10,890	10,890	21,339,627	2,741	
1-10 hours-3 days	Compaction Roller	30	5,142	4,322	37,060	56,629	38	2,357	2,169	4,020,101	1,167	
1-10 hours-1 day	Crane	10	3,880	3,263	10,085	64,054	50	1,512	1,391	5,250,295	1,532	
1-10 hours-1 day	Backhoe Loader	10	1,657	1,393	9,042	22,034	25	767	706	2,592,259	757	
2 trucks-4visits (10hrs)- 9 days	Cement Truck	180	14,561	3,223	8,781	15,224	20	996	996	1,636,701	291	
	GRAND TOTAL		566,718.72	113,579.28	682,427.42	1,500,750.46	1,353.57	53,830.52	50,668.31	142,290,989.96	37,184.95	

Pounds - Project Total

Equipment Use	Equipment	Hours	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	Co2	CH4	
1 truck-10 hours-35 days	Water Truck (other equip)	350	93	78	621	1,121	1	42	39	102,813	30	
3 trucks -10 hours-8 days + 140 hrs for haul	Dump Truck	380	13	11	34	64	0	4	4	7,618	1	
16 ppl-10 hours-13 days = 140 hrs at borrow site	Excavator	220	80	67	374	1,101	1	36	34	126,460	37	
1-10 hours-5 days	Dozer	50	1,008	67	333	675	0	24	24	47,046	6	
1-10 hours-3 days	Compaction Roller	30	11	10	82	125	0	5	5	8,863	3	
1-10 hours-1 day	Crane	10	9	7	22	141	0	3	3	11,575	3	
1-10 hours-1 day	Backhoe Loader	10	4	3	20	49	0	2	2	5,715	2	
2 trucks-4visits (10hrs)- 9 days	Cement Truck	180	32	7	19	34	0	2	2	3,608	1	
	GRAND TOTAL		1,249	250	1,504	3,309	3	119	112	313,698	82	

Tons - Project Total

Equipment Use	Equipment		TOG	ROG	CO	NOX	SO2	PM10	PM2.5	Co2	CH4	
1 truck-10 hours-35 days	Water Truck (other equip)	350	0.05	0.04	0.31	0.56	0.00	0.02	0.02	51.41	0.02	
3 trucks -10 hours-8 days + 140 hrs for haul	Dump Truck	380	0.01	0.01	0.02	0.03	0.00	0.00	0.00	3.81	0.00	
1-10 hours-8 days = 140 hrs at borrow site	Excavator	220	0.04	0.03	0.19	0.55	0.00	0.02	0.02	63.23	0.02	
1-10 hours-5 days	Dozer	50	0.50	0.03	0.17	0.34	0.00	0.01	0.01	23.52	0.00	
1-10 hours-3 days	Compaction Roller	30	0.01	0.00	0.04	0.06	0.00	0.00	0.00	4.43	0.00	
1-10 hours-1 day	Crane	10	0.00	0.00	0.01	0.07	0.00	0.00	0.00	5.79	0.00	
1-10 hours-1 day	Backhoe Loader	10	0.00	0.00	0.01	0.02	0.00	0.00	0.00	2.86	0.00	
2 trucks-4visits (10hrs)- 9 days	Cement Truck	180	0.02	0.00	0.01	0.02	0.00	0.00	0.00	1.80	0.00	
	GRAND TOTAL		**0.62**	**0.13**	**0.75**	**1.65**	**0.00**	**0.06**	**0.06**	**156.85**	**0.04**	

Appendix C – Biological Resources Evaluation

Biological Resources Evaluation
and
Botanical Inventory Report

for

Yolo Bypass West Levee Culvert Replacement Project

Woodland, CA

Prepared by:

Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831
Phone: 916/ 427-0703
Contact: Mike Bower, M.S.

Prepared for:

Mead & Hunt, Inc.
180 Promenade Circle, Suite 240
Sacramento, CA 95834
Phone: 916-993-4627
Contact: Marieke Armstrong

December 2020

Biological Resources Evaluation and Botanical Survey
for the
Yolo Bypass West Levee Culvert Replacement Project
Woodland, CA

Table of Contents

Figures

Tables

Appendices

I. SUMMARY OF FINDINGS AND CONCLUSIONS

This biological resources evaluation (BRE) documents baseline biological resources for the Yolo Bypass West Levee Culvert Replacement Project. The 11.59-acre Biological Study Area (BSA) is located two miles east of the City of Woodland in an unincorporated, predominantly agricultural area of Yolo County, California. Biological, botanical, and wetland surveys were conducted in February 2020. Vegetation in the BSA consists of California annual grassland, urban ruderal, mixed willow alliance, riparian scrub, and seasonal wetland.

The BSA provides potential habitat for the following special-status wildlife species: vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), North American green sturgeon southern DPS (*Acipenser medirostris*), California Central Valley steelhead DPS (*Oncorhynchus mykiss*), Central Valley spring-run Chinook salmon ESU (*Oncorhynchus tshawytscha*), Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*), Sacramento splittail (*Pogonichthys macrolepidotus*), western pond turtle (*Emys marmorata*), giant garter snake (*Thamnophis gigas*), tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), song sparrow (*Melospiza melodia*), Least Bell's vireo (*Vireo bellii pusillus*), and nesting raptors and birds of prey. Numerous protected raptors were observed foraging over the BSA during the biological survey. One active Swainson's hawk nest was observed approximately 850 feet north of the BSA in the Cache Creek Settling Basin on 17 June 2020. No other special-status wildlife species were observed during the surveys.

The BSA provides potential habitat for the following four special-status plant species: Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*; CNPS Rank 1B.1), pappose tarplant (*Centromadia parryi* ssp. *Parryi*; CNPS Rank 1B.2), woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*; CNPS Rank 1B.2), and saline clover (*Trifolium hydrophilum*; CNPS Rank 1B.2). These four special-status plants were not observed in the BSA during protocol botanical surveys conducted on 27 February and 17 June 2020, during the evident and identifiable period. An estimated 200 Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) were observed near the northern edge of the BSA during fieldwork on 17 June 2020. Parry's rough tarplant is a California Rare Plant Rank 4.2 species (Watch List). Parry's rough tarplant is common locally and regionally. Parry's rough tarplant does not meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) or §15380.

Sensitive natural communities in the BSA include mixed willow alliance, riparian scrub, seasonal wetland, Cache Creek, Diversion Channel, Outfall Channel, and Drainage Ditch.

The Project will acquire coverage under the Yolo HCP/NCCP. Vegetation was classified and mapped in accordance with Yolo HCP land cover type definitions. Covered species with potential to occur include western pond turtle, giant garter snake, tricolored blackbird,

burrowing owl, Swainson's hawk, white-tailed kite, and Least Bell's vireo. Avoidance and minimization measures from the Yolo HCP/NCCP apply to covered species. Species not covered include vernal pool fairy shrimp, vernal pool tadpole shrimp, green sturgeon, California Central Valley steelhead DPS, Central Valley spring-run Chinook salmon ESU, Sacramento River winter-run Chinook salmon ESU, Sacramento splittail, northern harrier, and song sparrow. Mitigation measures for these species are proposed as necessary.

II. INTRODUCTION

A. Purpose of Report

The purpose of this report is to document baseline biological resources in the Yolo Bypass West Levee Culvert Replacement Project (Project) Biological Study Area (BSA). Mitigation measures are proposed where necessary. This report may be used in support of permit applications, including application for Yolo Habitat Conservation Plan (HCP) / Natural Community Conservation Plan (NCCP) coverage, and in the California Environmental Quality Act (CEQA) review process. This report does not identify or analyze project impacts.

B. Project Location

The 11.59-acre BSA is located at the intersection of County Road 22 and the Yolo Bypass West Levee near the City of Woodland in unincorporated Yolo County, CA. The BSA consists of the following seven assessor's parcel numbers (APN) 057-180-12, 057-180-13, 057-170-03, 057-180-02, 057-170-99, 057-190-01, and 057-200-01. The BSA is on the Grays Bend USGS topographic quad (Section 30 T10N, R2E, Mt. Diablo Base and Meridian; Figure 1) and is on the border of the Upper Cache (Hydrological Unit Code [HUC] 18020116) and Lower Cache Creek (HUC 18020163) Hydrologic Units. The geographic coordinates of the BSA are 38.677544° north, 121.672981° west (WGS84), and the UTM coordinates are 615,430 meters east, 4,281,830 meters north, Zone 10N (WGS84). Figure 2 is a 13 April 2018 aerial photo of the BSA and surrounding area.

C. Project Proponent

Mark Miller, Assistant Engineer
300 First Street
Woodland, CA 95695
Phone: 530-661-5968
Email: mark.miller@cityofwoodland.org

D. Project Description

The Yolo Bypass West Levee Culvert Replacement Project (Project) consists of the replacement of three culverts in the City of Woodland's Outfall Channel, which conveys drainage from the City to the Yolo Bypass. The culverts are the primary drainage outlet for the City, and the existing culverts are beyond their useful service life and do not meet current levee safety standards. The culverts are located within the City's Outfall Channel where it crosses the Yolo Bypass West Levee at Levee Mile 1.45, south of the Cache Creek Settling Basin and north of County Road 22 and the Sierra Northern Railroad, in an unincorporated area of Yolo County, two miles east of the City of Woodland.

Two of the existing culverts are in line with the Outfall Channel, whereas the third crosses the Yolo Bypass West Levee north of the Outfall Channel. The third culvert connects to the

north side of the Outfall Channel at a 45-degee angle, turns to the east and crosses the levee parallel to and north of the two other culverts, and discharges approximately 80 feet north of the outlet for the other two culverts in the main Outfall Channel.

The City proposes to replace three 48-inch culverts in the City's Outfall Channel with a cast-in-place concrete culvert with four bays to accommodate projected build-out storm drainage flows of 1,443 cfs. The cast-in-place culvert will be approximately 115 feet long, 31 feet wide and 8 feet tall with four 6-foot by 6-foot bays. Cast-in-place concrete headwalls will be constructed at the inlet and outfall structures. The new culvert will be designed to meet the Central Valley Flood Protection Board (CVFPB) standards and the U.S. Army Corps of Engineers (Corps) guidance for design and construction of levees. The individual bays will be fitted with flap gates at the outfall structure to prevent backflow from the bypass and will include a closure structure equipped with emergency isolation slide gates to enable the culverts to be completely sealed in the event of flap gate failure.

Access and Staging

Access to the project site is via existing roads, namely County Road 22, which intersects the a network of gravel roads at the Yolo Bypass West Levee. Staging areas are available north and south of the Outfall Channel west of the Yolo Bypass West Levee and north of the channel on the east side of the levee.

Dewatering

A portion of the Outfall Channel on both sides of the Yolo Bypass West Levee will need to be dewatered during construction. The dewatering will be performed by the contractor in accordance with applicable environmental permit conditions. The dewatering may be performed with cofferdams and bypass pipes. Once the channel work area is isolated, the water will be pumped out.

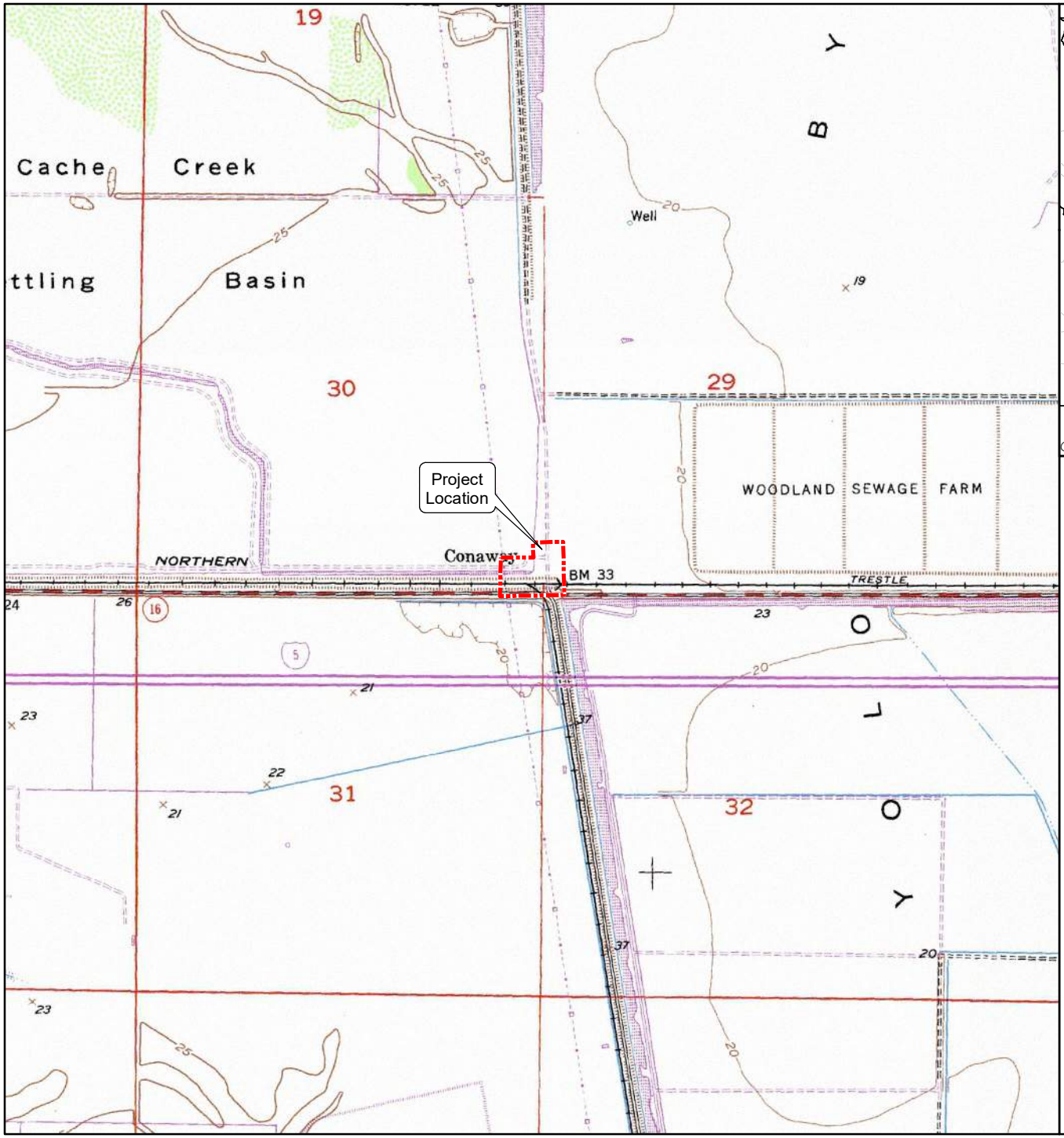
Construction

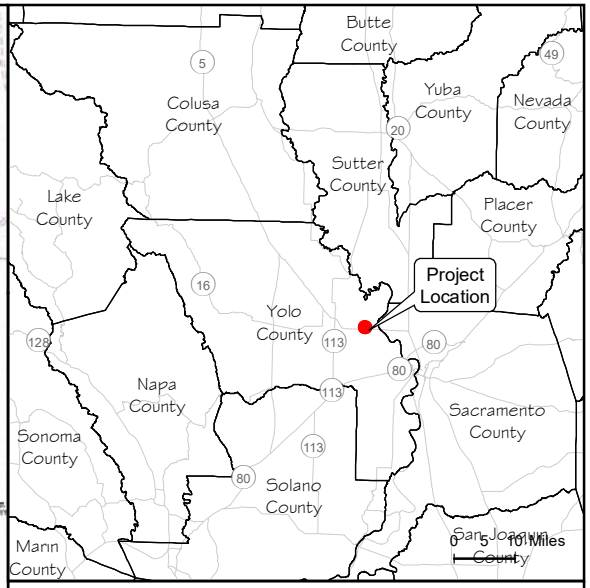
Once the work area in the Outfall Channel is dewatered, the Yolo Bypass West Levee will be excavated to a depth of 23 feet below the levee crown to provide access to two southern culverts. Excavated material will be stockpiled on site and processed for reuse. Some clearing of riparian vegetation along the Outfall Channel will be required. To avoid excessive earth moving and disturbance to the Yolo Bypass West Levee, most of the third culvert will be fully grouted in place, in accordance with CVFPB standards. Sections of the inlet and outlet of the third culvert that are accessible as a result of the excavation for the other two culverts will be removed. Approximately 328 sq. ft of the Outfall Channel at the northern culvert east outfall will be backfilled to match the existing grade.

Once the existing culverts are removed, the new levee culverts will be installed. The culverts and cast-in-place concrete inlet, outfall, and gate closure structure will be constructed. The levee will be over-excavated and recompacted to provide a stable culvert foundation. Suitable levee embankment material will be used to restore the levee section, with each lift of material keyed into adjacent undisturbed levee embankment. The all-

weather aggregate base roadway on top of the levee will be reconstructed, and disturbed areas restored. It is anticipated that construction will take up to 5 months. Materials used to dewater the channel will be removed, and the staging and access areas will be restored to pre-project conditions. Temporarily disturbed areas will be seeded and/or planted as required by permit conditions.

Project design and construction methods have not been finalized and may change during environmental permitting.





Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
8 June 2020

Figure 1. Location Map

Project Location

2,000 1,000 0 2,000 Feet

Scale: 1 inch = 2,000 feet

N

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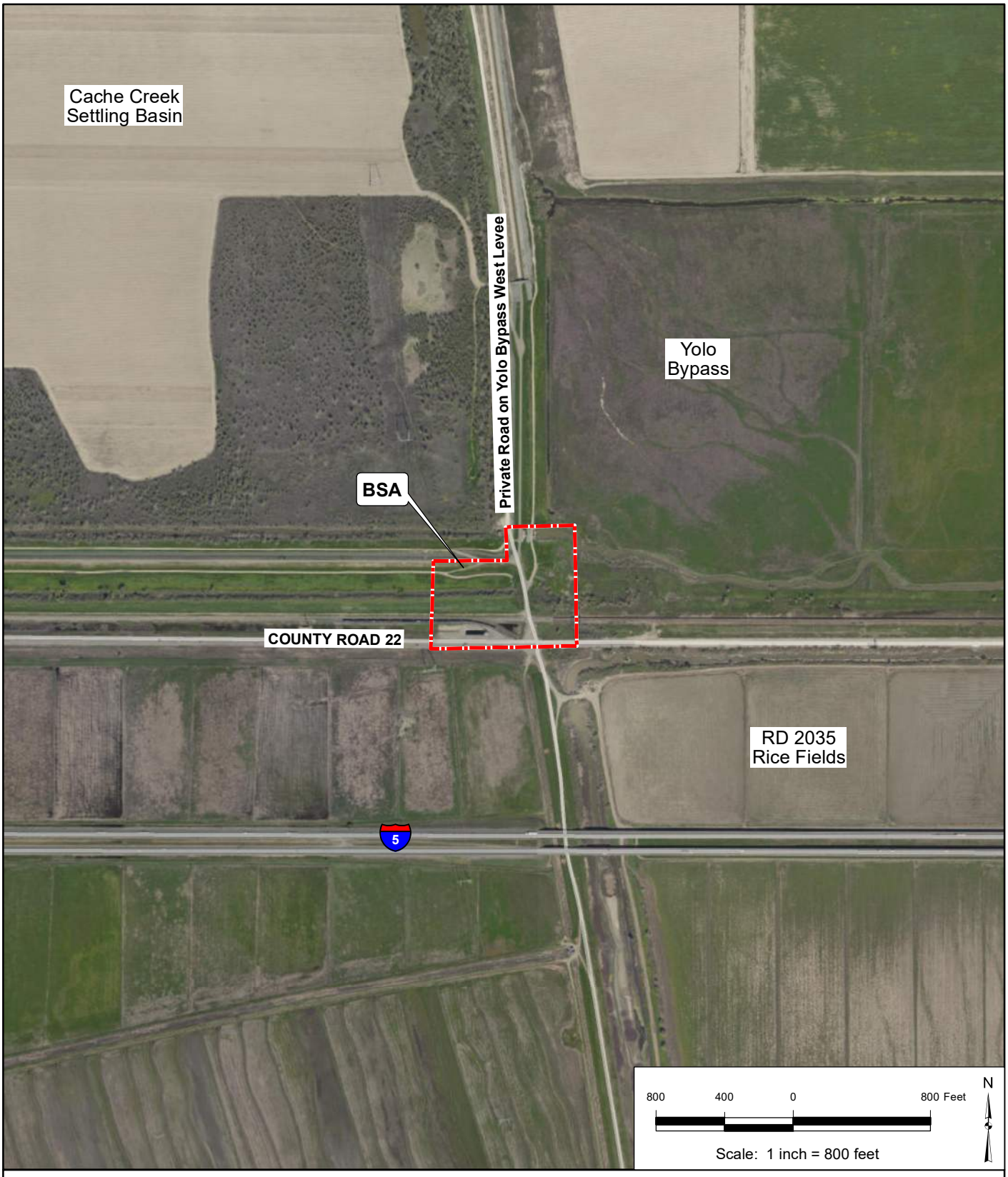
Grays Bend, CA (Revised 1975)
USGS 7.5' Quadrangle Topographic DRG
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
CA Spatial Library (CASIL)
o_nw0202.sid

19088WoodlandYoloBypass_Fig1LocationMap.mxd



Yolo Bypass West Levee
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Biological Study Area (BSA; 11.59 ac)

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Aerial Photograph:
13 April 2018
Yolo County Orthos, Yolo County 2018
ESRI Arcmap Basemap Layer
Yolo County Road Centerlines (13 June 2017)

Figure 2. Aerial Photograph

19088WoodlandYoloBypass_Fig2AerialPhoto.mxd

III. STUDY METHODS

A. Studies Conducted

Studies included a general biological field survey, a botanical survey, and an aquatic resource survey. Sensitive natural communities including rare vegetation alliances and aquatic resources were mapped. Data from state and federal agencies; maps, aerial photographs, and published literature were reviewed and analyzed. An evaluation of biological resources was conducted to determine if any state or federal-listed special-status plant or wildlife species or their habitat could occur in and/or be affected by the Project.

B. Biological Study Area

The approximately 11.59-acre BSA is shown on Figures 1 through 4. The BSA boundary was constructed from a conceptual map of the project provided by Mead & Hunt in October 2019. The BSA includes the areas anticipated to be disturbed by the project, including the culverts proposed for replacement, adjacent portions of the canal/constructed channel (Outfall Channel) conveyed by the culverts, potential construction access routes, and proposed staging areas. As required for coverage under the Yolo HCP/NCCP, areas within up to 1,320 feet of the Project were evaluated for certain covered species habitat elements. The physical and biological conditions in the BSA are discussed in Section IV (Environmental Setting).

C. Literature and Database Review

Sycamore Environmental obtained lists from the U.S. Fish and Wildlife Service (USFWS Sacramento Office, official list dated 16 December 2020, Consultation Code 08FBDT00-2021-SLI-0055; and USFWS San Francisco Bay-Delta Office, official list dated 16 December 2020, Consultation Code 08ESMF00-2021-SLI-0565) and the National Marine Fisheries Service (NMFS; official list dated 19 May 2020) that identify federal-listed species and critical habitat that could potentially occur in or could be affected by the Project. The California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) Inventory were queried for known records of special-status species in the vicinity of the BSA, on the Grays Bend quad and eight surrounding USGS quads. Table 1 lists the nine USGS quads evaluated. Official lists and database query results are in Appendix A.

Table 1. USGS Quads Evaluated.

Eldorado Bend	Knights Landing	Verona
Woodland	**Grays Bend**	Taylor Monument
Merritt	Davis	Sacramento West

Lists of CDFW special-status species reviewed included Special Animals (CDFW 2019c), State and Federally Listed Endangered and Threatened Animals of California (CDFW 2019c), Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2019b), and State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2019a).

D. Survey Dates and Personnel

Biological and botanical fieldwork was conducted on 27 February 2020 by Sycamore Environmental biologists Mike Bower, M.S, and Monica Coll, B.A. A second botanical survey covering special-status plants during their evident and identifiable period was conducted on 17 June 2020 by Mr. Bower and Kalia Schuster, M.S. During the 17 June 2020 survey, the BSA and surrounding 1,320 feet was also searched a second time for potential burrowing owl burrows and active raptor nests.

E. Field Survey Methods

Biological Survey

The biological survey was performed by walking through the BSA while looking for special-status wildlife species, their sign, and their habitat. Areas adjacent to the BSA were also inspected for sensitive habitat features, such as elderberry (*Sambucus* sp.) shrubs, sensitive aquatic habitat, and habitat for Yolo HCP/NCCP covered species. The location of protected biological resources and important habitat features were recorded on field maps and/or with a sub-meter accurate GPS unit. Wildlife species observed in the BSA are listed in Appendix C.

Botanical Survey

The botanical survey followed USFWS (2000) and CDFW (2018) guidelines, where applicable. The botanical survey was "floristic," meaning that every plant taxon found was identified to the taxonomic level necessary to determine rarity and listing status. The survey was conducted by botanists familiar with the local flora and special-status plant taxa with potential to occur. Plant species were either identified on-site or were collected and identified later using dichotomous keys in the Jepson Manual, 2nd ed. (Baldwin et al., eds. 2012). Plant species observed in the BSA are listed in Appendix C. Approximately eight person-hours were spent in the field during the February 2020 survey. Approximately eight person-hours were spent in the field during the June 2020 survey. The botanical survey included classification and mapping of natural communities according to Yolo HCP/NCCP land cover type definitions, and methods and vegetation alliance membership rules in *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009). The CDFW (2019d) *California Natural Community List* was reviewed to verify vegetation alliance rarity ranks and determine if any sensitive vegetation alliances or associations occur.

Aquatic Resource Survey

An aquatic resource survey was conducted in accordance with standard U.S. Army Corps of Engineers Wetland Delineation Manual methods (Corps 1987). The results of a

concurrently prepared aquatic resources delineation report (Sycamore Environmental 2020) have been incorporated.

F. Mapping

Sycamore Environmental mapped observed biological resources with a handheld TDC-100 Global Positioning System (GPS) unit equipped with an R-1 receiver, and with a Trimble Nomad5 equipped with an Empower Module. The GPS data were exported to Google Earth, where feature boundaries were completed with the aid of photographs and field notes. The GPS data and Google Earth polygons were exported to ArcGIS and aligned with the aerial imagery to create Figure 4. The 13 April 2018 aerial photo in Figures 2 – 4 was downloaded from ESRI ArcMap.

G. Problems Encountered and Limitations That May Influence Results

Dry conditions can affect the ability to detect some plant species, particularly annual plants, which may not germinate if precipitation is not sufficient to trigger germination. Existing field conditions were drier than normal preceding the botanical surveys in February and June 2020 (see discussion of weather conditions in Section IV.B). However, the vegetation did not appear to be affected by the dry conditions, probably because ample precipitation (7+ inches) was recorded earlier in the wet season. The dry conditions did not substantially influence the results of the surveys.

The general biological survey may not necessarily have detected cryptic, fossorial, migratory, aestivating, or nocturnal wildlife species. Such species with habitat in the BSA could be present in or periodically utilize suitable habitat in the BSA even if not observed during a general biological survey. Sign of such species (potentially occupied burrows, feathers, excrement, carcasses, etc.) was recorded if observed.

IV. ENVIRONMENTAL SETTING

The BSA is located in a rural area two miles east of the City of Woodland, in an unincorporated portion of Yolo County. The elevation in the BSA ranges from 21 to 45 feet above sea level. The area surrounding the BSA consists mostly of cultivated and fallow agricultural land and Yolo Bypass/Cache Creek floodplains. The BSA is centered on the Outfall Channel where it flows through three existing culverts in the Yolo Bypass West Levee into the Yolo Bypass. A second east-west aligned levee occurs along the southern edge of the Cache Creek Settling Basin, and intersects the Yolo Bypass West Levee in the BSA. The BSA is bordered to the east by the Yolo Bypass, to the south by County Road 22 (a paved, two lane road), to the west by ruderal lands and the Cache Creek Settling Basin, and to the north by Cache Creek, which passes through the Yolo Bypass West Levee through a flow control structure located immediately north of the BSA. At the eastern edge of the BSA a channel periodically diverts flow from Cache Creek southward to canals and agricultural fields located south of the BSA. Numerous gravel roads occur atop the levees and berms in and around the BSA. An east-west aligned railroad track passes through the BSA. The track is situated atop an earthen berm in areas west of the Bypass, and atop a trestle within the Bypass. A pump facility for treated effluent occurs in the southern portion of the BSA.

A. Soils

Three soils units occur in the BSA (Figure 3, NRCS 2020b): 1) Clear Lake Soils, Flooded, 2) Maria Silt Loam, Flooded, and 3) Willows Clay. Soil descriptions summarized below are from the Natural Resources Conservation Service (NRCS 2020a). Reported colors are for moist soil.

Clear Lake Soils, Flooded

The Clear Lake Series soils are in flood basins, flood plains and in swales of drainageways. The soils formed in fine textured alluvium derived from igneous, metamorphic and sedimentary rocks. This series is poorly drained with negligible to high runoff and slow to very slow permeability. Soil horizons present in a typical profile of Clear Lake Series soils are as follows:

Ag—0 to 13 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist, few fine faint redoximorphic concentrations; strong medium granular structure at the surface and strong very coarse prismatic structure below when dry, massive when wet; very hard, firm, very sticky and very plastic; many fine roots; common very fine and fine pores; grass seeds, grass and burned plant remains in cracks and along cleavage planes; neutral (pH 7.0); gradual wavy boundary.

Bssg1—13 to 19 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist; strong coarse prismatic structure when dry, massive when wet; extremely hard, very firm, very

sticky and very plastic; many fine roots; many very fine and fine pores; many slickensides; grass remains in cracks and along cleavage planes; moderately alkaline (pH 8.0); clear wavy boundary.

Bssg2—19 to 45 inches; dark gray (N 4/0) clay, very dark gray (N 3/0) moist; strong coarse prismatic structure; extremely hard, very firm, very sticky and very plastic; few roots; few very fine and fine pores; many slickensides; few fine iron-manganese concretions; smooth pressure faces on peds; slightly calcareous; moderately alkaline (pH 8.0); diffuse irregular boundary.

Maria Silt Loam, Flooded

The Maria Series soils are on nearly level alluvial fans at elevations of 15 to 18 feet. The soils formed in formed in mixed sedimentary alluvium. Depth to mottles is less than 20 inches. This series is naturally poorly drained, but due to stream channel realignment and deepening and protection by levees, many areas have altered drainage. Surface runoff is very slow and permeability is moderate to moderately slow. Soil horizons present in a typical profile of Maria Series are as follows:

Ap1—0 to 8 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, slightly sticky, plastic; few very fine roots; few very fine tubular pores; slightly effervescent, disseminated lime; moderately alkaline (pH 8.2); diffuse boundary.

Ap2—8 to 13 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, slightly sticky, plastic; few very fine roots; common very fine tubular pores; slightly effervescent, disseminated lime; moderately alkaline (pH 8.2); clear wavy boundary.

B21—13 to 23 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; few fine distinct reddish yellow (7.5YR 6/8) mottles, dark brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky, plastic; common very fine roots; many very fine tubular pores; slightly effervescent, disseminated lime; moderately alkaline (pH 8.2); gradual wavy boundary.

Willows Clay

The Willows Series soils are in nearly level flood basins in intermountain valleys and large valleys at elevations of 20 feet to as much as 1,700 feet. The soils formed in alluvium from mixed rock sources. This series is poorly drained with slow permeability. Soil horizons present in a typical profile of Willows Series are as follows:

Apg—0 to 4inches: gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; many fine prominent strong brown (7.5YR 5/6) mottles, yellowish brown (10YR 5/6) moist;

granular structure; extremely hard, very firm, sticky and very plastic; common very fine roots; many very fine pores; neutral (pH 6.6); abrupt smooth boundary.

Bssg—4 to 13 inches (10 to 33 cm); gray (5Y 5/1) clay, very dark gray (5Y 3/1) moist; many fine prominent strong brown (7.5YR 5/6) mottles, yellowish brown (10YR 5/6) moist; strong very coarse prismatic structure; extremely hard, very firm, sticky and very plastic; many fine roots; few very fine pores; many prominent intersecting slickensides; neutral (pH 6.7); clear smooth boundary.

Bknssg—13 to 28 inches (33 to 71 cm); olive gray (5Y 4/2) clay, very dark gray (5Y 3/1) moist; strong very coarse prismatic structure; very hard, very firm, sticky and very plastic; common fine roots; many very fine pores; many prominent intersecting slickensides; slightly effervescent with segregated lime in soft masses; moderately alkaline (pH 8.4); diffuse boundary.

B. Weather Conditions

Fieldwork was conducted on 27 February and 17 June 2020. The weather was sunny, clear, and calm on both days. Precipitation preceding the surveys was calculated using data from the nearby Woodland Gauge (WDL). From 1 October 2019 through 27 February 2020, the WDL gauge received 7.27 inches of rain, 57% of the average precipitation for that period (CDEC 2020). From 1 October 2019 through 17 June 2020, the nearby Woodland Gauge received 11.75 inches of rain, 70% of the average precipitation for that period (CDEC 2020). The Woodland Gauge is located approximately 9 miles west of the BSA at similar elevation and would be expected to receive similar amounts of precipitation as the BSA. Existing field conditions were drier than normal preceding the surveys in February and June 2020. Vegetation did not appear to be affected by the dry conditions, probably because ample precipitation (7+ inches) was recorded earlier in the wet season. The dry conditions did not substantially influence the results of the surveys.

Yolo Bypass West Levee
Culvert Replacement Project
City of Woodland, CA
8 June 2020

Figure 3. Soils Map

Biological Study Area (BSA; 11.59 ac)

Soil Boundary

Soil Mapping Units (in the BSA)

Cn:	Clear Lake soils, flooded
Mc:	Maria silt loam, flooded
W:	Water
Wb:	Willows clay

1,000 0 1,000 Feet

N

Scale: 1 inch = 1,000 feet

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Aerial Photograph: 13 April 2018
Yolo County Orthos, Yolo County 2018
ESRI Arcmap Basemap Layer
Soils Data: Soil Survey Geographic (SSURGO)
database for Yolo County, CA (27 Feb. 2007)
USDA, NRCS

19088WoodlandYoloBypass_Fig3SoilsMap.mxd

C. Natural Communities

Natural communities are defined by species composition and relative abundance. Natural communities described below correlate where applicable with *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009), and the most recent *California Natural Communities List* (CDFW 2019d). Natural communities are shown on Figure 4 and their acreages are in Table 2. Photographs of the BSA are in Appendix D. Mapping of natural communities in this report follows the land cover type mapping required by the Yolo HCP/NCCP.

Table 2. Natural Communities.

NATURAL COMMUNITY	VEGETATION ALLIANCES (CDFW CODE / RARITY RANK) [1]	SENSITIVE? [2]	ACREAGE [3]
Upland Communities			
California Annual Grassland	*Avena* spp. – *Bromus* spp. Semi-Natural Alliance (42.027.00 / No Rank)	No	3.50
Developed / Disturbed	None recognized	No	3.77
Mixed Willow Alliance	*Salix exigua* Alliance (61.209.00 / G5 S4)	Yes (Riparian)	0.59
Riparian Scrub	*Toxicodendron diversilobum* Alliance (37.940.00 / G5 S4)	Yes (Riparian)	0.18
Urban Ruderal	None recognized	No	1.91
Aquatic Communities			
Seasonal Wetland *HCP: Fresh Emergent Wetland*	*Eleocharis macrostachya* Alliance (45.230.00 / G4 S4)	Yes (Wetland)	0.16
Cache Creek *HCP: Lacustrine & Riverine*	None recognized	Yes (Water)	0.37
Diversion Channel *HCP: Lacustrine & Riverine*	None recognized	Yes (Water)	0.18
Outfall Channel *HCP: Lacustrine & Riverine*	None recognized	Yes (Water)	0.92
Drainage Ditch *HCP: Lacustrine & Riverine*	None recognized	Yes (Water)	0.01
		Total:	**11.59**

[1] Vegetation alliances based on descriptions and classification methods in Sawyer et al. (2009) and A Manual of California Vegetation, Online Version (CNPS 2020b). Alliance codes and ranks are from CDFW (2019d). Rarity ranks of State (S) 1 – 3 are considered imperiled. Communities may lack recognized alliances if they lack vegetation, occupy a small area, or are dominated by nonnatives.

[3] Sensitive natural communities include wetlands, waters, riparian vegetation, and vegetation alliances ranked S1 – S3. Waters listed here are potentially jurisdictional under the Clean Water Act, per the aquatic resources delineation report (Sycamore Environmental 2020).

[3] Acreages were calculated using AutoCAD or ArcMap functions.

Yolo Bypass West Levee
Culvert Replacement Project
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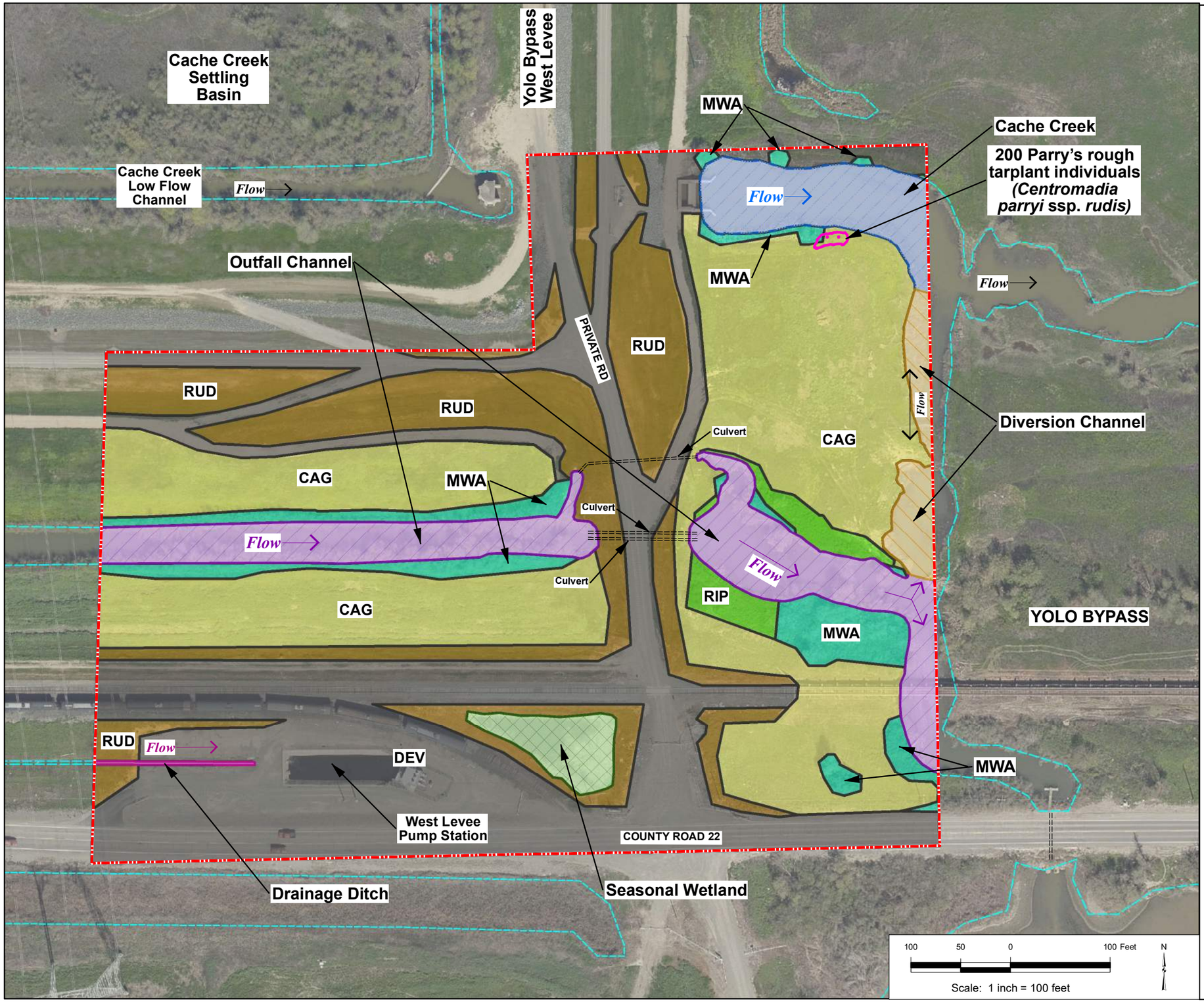
Figure 4.
Biological Resources Map,
Sheet 1 of 2



- Biological Study Area (BSA; 11.59 ac)
- Biological Community Boundary
- Diversion Channel
- Cache Creek
- Seasonal Wetland
- Drainage Ditch
- Outfall Channel
- California Annual Grassland (CAG)
- Developed / Disturbed (DEV)
- Mixed Willow Alliance (MWA)
- Urban Ruderal (RUD)
- Riparian Scrub (RIP)

Symbol	Biological Community	Area (ac)
Upland		
CAG	California Annual Grassland	3.50
DEV	Developed / Disturbed	3.77
MWA	Mixed Willow Alliance	0.59
RIP	Riparian Scrub	0.18
RUD	Urban Ruderal	1.91
Aquatic		
--	Seasonal Wetland	0.16
--	Cache Creek	0.37
--	Diversion Channel	0.18
--	Outfall Channel	0.92
--	Drainage Ditch	0.01
	Total	**11.59**

Note:
OHWM of aquatic features shown outside of BSA for illustrative purposes only.

SYCAMORE Environmental Consultants, Inc.

Topographic Basemap:
CAD: ACAD-2020-2-11 County Road 22 Topo (Master).dwg
By Mead and Hunt (Recv'd: 3 Mar. 2020)

Aerial Photograph: 13 April 2018
Woodland Orthos, City of Woodland Imagery
ESRI Arcmap Basemap World Imagery layer

19088WoodlandYoloBypass_Fig4BioresMap_Sht1of2.mxd

Yolo Bypass West Levee
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City of Woodland, CA
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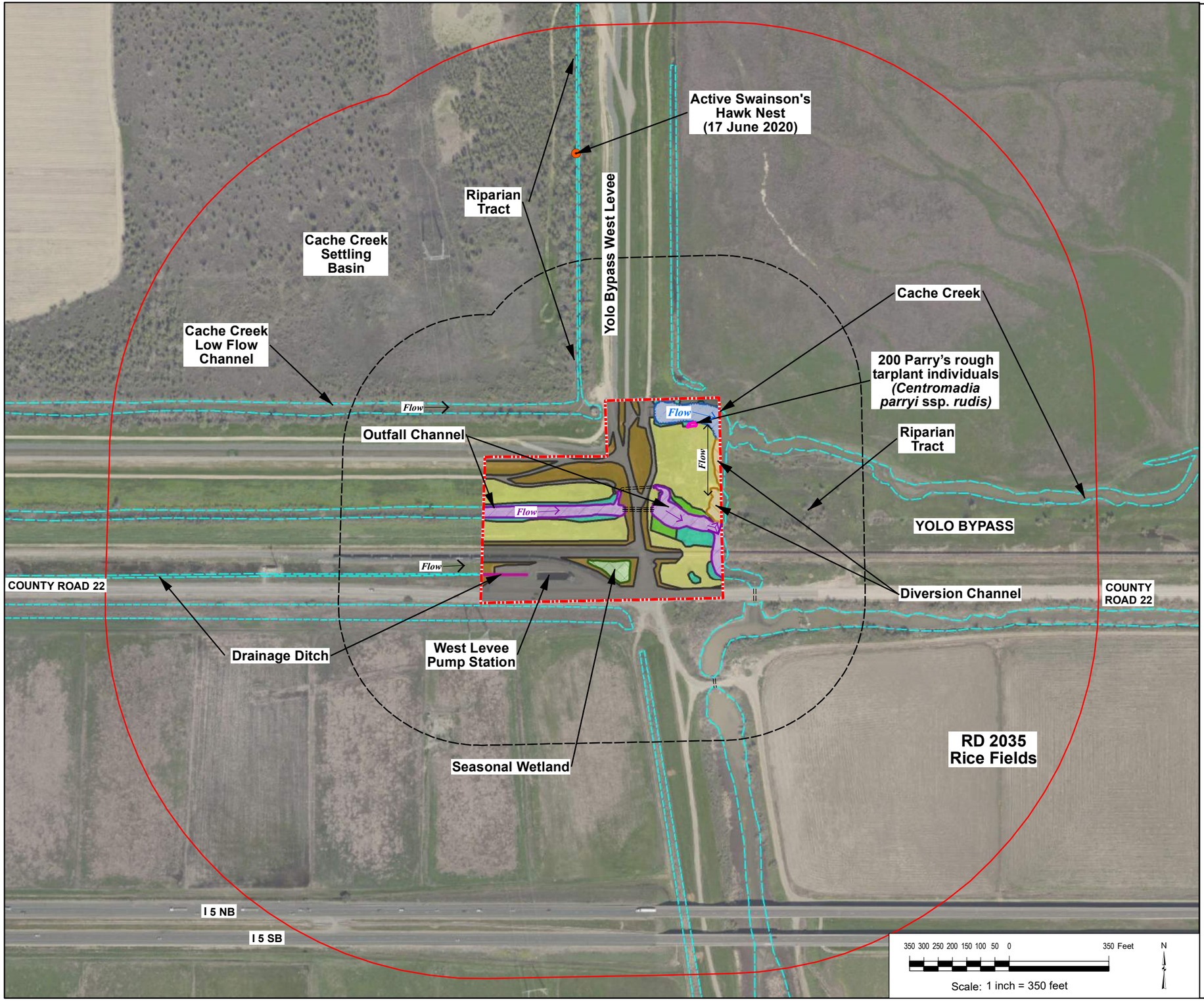
DRAFT

Figure 4.
Biological Resources Map,
Sheet 2 of 2



350 300 250 200 150 100 50 0 350 Feet

Scale: 1 inch = 350 feet

N

- Biological Study Area (BSA; 11.59 ac)
- 500 ft Buffer
- 1,320 ft Buffer
- Biological Community Boundary
- Diversion Channel
- Cache Creek
- Seasonal Wetland
- Drainage Ditch
- Outfall Channel
- California Annual Grassland (CAG)
- Developed / Disturbed (DEV)
- Mixed Willow Alliance (MWA)
- Urban Ruderal (RUD)
- Riparian Scrub (RIP)

Note:
OHWM of aquatic features shown outside of BSA for illustrative purposes only.

SYCAMORE Environmental Consultants, Inc.

Topographic Basemap:
CAD: ACAD-2020-2-11 County Road 22 Topo (Master).dwg
By Mead and Hunt (Recv'd: 3 Mar. 2020)

Aerial Photograph: 13 April 2018
Woodland Orthos, City of Woodland Imagery
ESRI Arcmap Basemap World Imagery layer

19088WoodlandYoloBypass_Fig4BioresMap_Sht2of2.mxd

1. California Annual Grassland

A total of 3.50 acres of California annual grassland occurs in the BSA (Figure 4; Appendix D, Photos 9 and 11). California annual grassland occurs on the terraces located north and south of the Outfall Channel on both sides of the Yolo Bypass West Levee. This community is dominated by nonnative grasses including bromes (*Bromus diandrus*, *B. hordeaceous*) Italian rye grass (*Festuca perennis*) and wild oat (*Avena* sp.), and by native and nonnative herbs including cocklebur (*Xanthium strumarium*), black mustard (*Brassica nigra*), milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*), California burclover (*Medicago polymorpha*), poison hemlock (*Conium maculatum*), perennial pepperweed (*Lepidium latifolium*), prickly lettuce (*Lactuca serriola*), prickly sow thistle (*Sonchus asper*), and lamb's quarters (*Chenopodium album*). Other native species present include alkali-mallow (*Malvella leprosa*), and sunflower (*Helianthus annuus*). This community contains over 60% relative cover of nonnative grasses (mainly rye grass and bromes) and less than 10% relative cover of native herbs, and thus meets the membership rules for the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance (no rarity rank; Sawyer et al. 2009; CNPS 2020b). Vegetation in this community is periodically mowed. Soil and vegetation in this community has been disturbed in the past. The California annual grassland in the BSA is not a sensitive natural community.

2. Developed/Disturbed

A total of 3.77 acres of developed/disturbed land occurs in the BSA (Figure 4). The areas of developed/disturbed land consist of the gravel levee road and surrounding gravel access roads, the railroad, County Road 22 (paved), and the majority of the gravel area in the southwest corner of the BSA surrounding the Drainage Ditch. Developed/disturbed areas have been heavily modified, and generally lack vegetation. Developed/disturbed land is not a sensitive natural community.

3. Mixed Willow Alliance

A total of 0.59 acre of mixed willow alliance occurs in the BSA (Figure 4; Appendix D, Photos 1, 2, and 5). This community occurs along Cache Creek and the Outfall Channel. This community is dominated by Hinds' willow (*Salix exigua* var. *hindsiana*), Goodding's black willow (*Salix gooddingii*), and arroyo willow (*Salix lasiolepis*). Understory vegetation is sparse to absent. Species observed in the understory include western goldenrod (*Euthamia occidentalis*), sedge (*Carex* sp.), and many of the same nonnative species observed in the California annual grassland. The mixed willow alliance is a near monoculture of Hinds' willow where it occurs along the upstream portion of the Outfall Channel outside the Yolo Bypass. The mixed willow alliance located in the Yolo Bypass is a mixture of Hinds' willow, Gooding's black willow, arroyo willow, and box elder (*Acer negundo*). Portions of this community meet the membership rules for the *Salix exigua* Shrubland Alliance (State Rarity Rank S4; Sawyer et al. 2009; CNPS 2020b). Rip-rap and large cobble have been placed along the banks of the Outfall Channel and Cache Creek

throughout much of the area mapped as mixed willow alliance. This community is an upland riparian community. Mixed willow alliance is a sensitive natural community.

4. Riparian Scrub

A total of 0.18 acre of riparian scrub occurs in the BSA (Figure 4; Appendix D, Photos 2 and 7). This community occurs intermittently along the downstream portion of the Outfall Channel within the Yolo Bypass. The community is dominated by native riparian shrubs such as poison oak (*Toxicodendron diversilobum*), California rose (*Rosa californica*) and native perennial grasses and herbs including sedge (*Carex* sp.), western goldenrod, and beardless wild rye (*Elymus triticoides*). Trees and tall willows are generally absent. Disturbed, open portions of this community contain many of the same nonnative species observed in the California annual grassland. Portions of this community meet the membership rules for *Toxicodendron diversilobum* Shrubland Alliance (State Rarity Rank S4; Sawyer et al. 2009; CNPS 2020b). This community is an upland riparian community. Riparian scrub is a sensitive natural community.

5. Urban Ruderal

A total of 1.91 acre of urban ruderal vegetation occurs in the BSA (Figure 4; Appendix D, Photo 11). Urban ruderal vegetation occurs on the levees and berms supporting roads and railroads. This community is dominated by nonnative annual grasses and forbs including bromes (*Bromus* spp.), bisnaga (*Ammi visnaga*), Italian thistle, stinkwort (*Dittrichia graveolens*), and greenstem filaree (*Erodium moschatum*). Soils are imported and/or disturbed. Vegetation in this community is mowed and/or treated with herbicide. Urban ruderal is not a sensitive natural community.

6. Seasonal Wetland

A 0.16-acre seasonal wetland occupies a small basin created by intersecting levee, road, and railroad berms near the southern boundary of the BSA (Figure 4; Appendix D, Photo 10). Vegetation in the wetland is dominated by hydrophytic common spikerush (*Eleocharis macrostachya*) and meets the membership rules for the *Eleocharis macrostachya* Herbaceous Alliance (State Rarity Rank S4; Sawyer et al. 2009; CNPS 2020b). No water flows into or out of the basin. On 27 February 2020, up to 3 inches of water were observed in the deepest parts of the seasonal wetland. The wetland was dry across most of its extent during fieldwork in February, and completely dry throughout on 17 June 2020. The seasonal wetland is a potential Clean Water Act jurisdictional wetland (Sycamore Environmental 2020). Inundated portions of the seasonal wetland were searched for amphibians and invertebrates during fieldwork. No sensitive amphibians or aquatic invertebrates were observed. The seasonal wetland corresponds with the Fresh Emergent Wetland land cover type under the Yolo HCP/NCCP. The seasonal wetland is a sensitive natural community.

7. Cache Creek

A 0.37-acre portion of Cache Creek occurs at the northern edge of the BSA (Figure 4; Appendix D, Photo 11). Cache Creek originates at Clear Lake, approximately 54 miles northwest of the BSA. Within the BSA, Cache Creek is an intermittent tributary that flows from west to east through the Yolo Bypass West Levee via a flow control structure. Cache Creek flows into the Tule Canal approximately 1.5 miles east of the BSA, then southward into the Sacramento River. Flows in Cache Creek are controlled and managed for irrigation diversions, including diversion through a channel on the east edge of the BSA (Diversion Channel described below). Within the BSA, the banks of Cache Creek are armored with rock slope protection. Invasive purple loosestrife (*Lythrum salicaria*) is abundant on the banks. Mixed willow alliance riparian vegetation occurs in a few small patches along the portion of the Cache Creek in the BSA. The creek bed is composed of mud and silt. No vegetation was observed on the creek bed in February. Patches of ludwigia (*Ludwigia* sp.) were observed on the bed of the creek in June 2020. Cache Creek was flowing during fieldwork on 27 February and 17 June 2020. Cache Creek is a Clean Water Act jurisdictional water (Sycamore Environmental 2020). The extent of Cache Creek mapped in the BSA corresponds with the Lacustrine and Riverine (Riverine) land cover type under the Yolo HCP/NCCP. Cache Creek is a sensitive natural community.

8. Outfall Channel

A 0.92-acre portion of the Outfall Channel occurs near the center of the BSA (Figure 4; Appendix D, Photos 1, 2, 3, 4, 5 and 12). The Outfall Channel flows from west to east through three existing culverts in the Yolo Bypass West Levee. The primary source of water for the canal is stormwater and irrigation runoff from the City of Woodland. The channel may receive water diverted from Cache Creek at locations upstream of the BSA. After flowing into the Yolo Bypass, water in the Outfall Channel flows either 1) southward into an off-site canal south of County Road 22 outside the BSA, or 2) northward through the Diversion Channel (described below) into Cache Creek. In either case, water in the Outfall Channel not diverted for irrigation ultimately flows into the Sacramento River.

The bed and banks of the Outfall Channel are mostly earthen. Concrete rip-rap occurs on the bank of the channel in the vicinity of the culverts that pass through the levee. Large cobble occurs along the banks in some locations. The banks of the Outfall Channel are generally bordered to the north and south with dense riparian vegetation consisting of mixed willow alliance and riparian scrub. Riparian vegetation is absent in the immediate vicinity of the culvert inlets and outlets at the base of the levee. The channel bed is composed of mud and silt. No vegetation was observed on the bed of the creek in February. A couple small (roughly 10 x 10 ft) patches of cattail (*Typha* sp) were observed on the bed of the creek in June. The Outfall Channel was flowing through the two southernmost culverts during fieldwork on 27 February and 17 June 2020. No flow was observed passing through the northernmost culvert, which occurs on a smaller side channel of the Outfall Channel (Figure 4; Appendix D, Photo 5). Flow in the main portion of the Outfall Channel through the two southern culverts is perennial, based on historic aerial photograph review. Flapgates

occur on all three culvert outlets (Appendix D, Photo 17). The Outfall Channel is Clean Water Act jurisdictional water (Sycamore Environmental 2020). The extent of the Outfall Channel mapped in the BSA corresponds with the Lacustrine and Riverine (Riverine) land cover type under the Yolo HCP/NCCP. The Outfall Channel is a sensitive natural community.

9. Diversion Channel

A 0.18-acre portion of the Diversion Channel occurs at the eastern edge of the BSA (Figure 4; Appendix D, Photo 6). The Diversion Channel serves as a connection between Cache Creek and the Outfall Channel. The Diversion Channel is managed in order to periodically divert flows from, or deposit flows in, Cache Creek. Depending on irrigation needs, water in Cache Creek is diverted southward into the Diversion Channel, ultimately to canals and agricultural ditches located south of the BSA. Water in the Diversion Channel ultimately flows to the Sacramento River, although the pathway varies based on the time of year, and diversion.

The bed and banks of the Diversion Channel are earthen and eroding along most of their length. The bed was mostly unvegetated in February, and mostly vegetated with cattail, rice cutgrass (*Leersia oryzoides*), ludwigia, and other hydrophytic grasses in June 2020. The banks are patchily vegetated with herbs such as cocklebur, willow-herb (*Epilobium ciliatum*), and purple loosestrife (Appendix D, Photo 14). No woody riparian vegetation occurs along the Diversion Channel. Flow in the Diversion Channel is intermittent based on historical aerial photograph review. During fieldwork in February 2020, water was flowing from the Outfall Channel, north through the Diversion Channel, into Cache Creek. During fieldwork in June 2020, a berm had been placed in the Diversion Channel, blocking all flow in the Diversion Channel (Appendix D, Photo 13). Based on aerial photograph review, water in the Diversion Channel will periodically flow in the opposite direction, delivering water from Cache Creek south into the Outfall Channel. This southerly diversion typically occurs during summer and fall (approximately May to October/November). An apparently relict flow control structure occurs on the Diversion Channel, about midway between Cache Creek and the Outfall Channel. To the south of the control structure, near point where the Diversion Channel joins with the Outfall Channel, an earthen barrier that blocks all flow is often present. The earthen barrier appeared to have been recently removed during fieldwork on 27 February 2020, allowing water in the Outfall Channel to flow north through the Diversion Channel into Cache Creek. The berm was in place, blocking all flow on 17 June 2020. The Diversion Channel is a potential Clean Water Act jurisdictional water (Sycamore Environmental 2020). The extent of the Diversion Channel mapped in the BSA corresponds with the Lacustrine and Riverine (Riverine) land cover type under the Yolo HCP/NCCP. The Diversion Channel is a sensitive natural community.

10. Drainage Ditch

A 0.01-acre portion of a Drainage Ditch occurs in the southwest portion of the BSA (Figure 4). The ditch was constructed in 1988 as part of the West Levee Pump Station Improvement

Project. The ditch collects surface runoff from the west between CR 22 and the Sierra Northern Railway tracks and delivers it to the West Levee Pump Station, where it is combined with effluent piped to the pump facility from the Water Pollution Control Facility located a couple miles to the southwest (pers. comm., M. Miller, City of Woodland). Water in the Drainage Ditch enters the pump facility in the southern portion of the BSA, and is pumped northeast into the Yolo Bypass through underground culverts into an unnamed channel located north of and outside the BSA (pers. comm., John Brennan). Outside the BSA, the unnamed channel then flows northward in an open ditch, and then eastward to the Tule Canal, which ultimately flows into the Sacramento River (pers. comm., John Brennan). The Drainage Ditch was flowing during fieldwork on 27 February 2020. The bed and banks of the Drainage Ditch are earthen. The area surrounding the Drainage Ditch is heavily disturbed and treated with herbicide; little to no vegetation is present around the portion of the Drainage Ditch in the BSA. No riparian corridors occur along the Drainage Ditch in the BSA. The extent of the Drainage Ditch mapped in the BSA corresponds with the Lacustrine and Riverine (Riverine) land cover type under the Yolo HCP/NCCP. The Drainage Ditch is a potential Clean Water Act jurisdictional feature, and is thus a sensitive natural community.

D. The Existing Level of Disturbance

Most of the BSA has experienced a high level of disturbance. Topography, drainage, and much of the soils have been modified by the Yolo Bypass West Levee, and the elevated road and railroad berms present in the BSA. Vegetation on and adjacent to the levees is periodically mowed and has been subject to numerous fires in recent years based on historical aerial photos. Much of the Yolo Bypass West Levee slopes burned between 27 February and 17 June 2020. Spoils piles have been placed on the terrace north of the Outfall Channel and west of the levee. Areas north of the Outfall Channel within the Yolo Bypass have been used for stockpiling/staging, and appear to have been graded in the past. The Diversion Channel at the eastern edge of the BSA is opened and closed via the breaching of a temporary berm with heavy equipment in order to manage water supply to the canal located south of the BSA. Numerous gravel access roads occur on and along the levee and around the pump station.

V. BIOLOGICAL RESOURCES IN THE STUDY AREA

A. Determination of Special-Status Species in the Study Area

USFWS file data, CNDDB/CNPS records, and field surveys were used to determine the special-status species that could occur in the BSA. A field survey was conducted to determine whether habitat for special-status species identified in the file data is present in the BSA. Special-status species for which suitable habitat is present in the BSA are listed in Table 3.

Table 3. Special-Status Species and Natural Communities with Potential to Occur.

Special-Status Species	Common Name	Federal Status [a]	State Status [a] & other codes [b]	Source [c]	Habitat Present? / Species Observed?
Invertebrates					
Branchinecta lynchi	Vernal pool fairy shrimp	CH, T	--	1, 2	Yes/No
Lepidurus packardi	Vernal pool tadpole shrimp	CH, E	--	1, 2	Yes/ No
Fish					
Acipenser medirostris	Green sturgeon	CH, T	SSC	1	Yes/No
Oncorhynchus mykiss	California Central Valley steelhead DPS	CH, T	--	1, 2	Yes/No
Oncorhynchus tshawytscha	Central Valley spring-run Chinook salmon ESU	CH, T	T	1, 2	Yes/No
Oncorhynchus tshawytscha	Sacramento River winter-run Chinook salmon ESU	CH, E	E	1, 2	Yes/No
Pogonichthys macrolepidotus	Sacramento splittail	--	SSC	2	Yes/No
Reptiles					
Emys marmorata	Western pond turtle	--	SSC	2	Yes/No
Thamnophis gigas	Giant garter snake	T	T	1, 2	Yes/No
Birds					
Agelaius tricolor	Tricolored blackbird	--	T	2	Yes/No
Athene cunicularia	Burrowing owl	--	SSC	2	Yes/No
Buteo swainsoni	Swainson's hawk	--	T	2	Yes/**Yes**
Circus cyaneus	Northern Harrier	--	SSC	2	Yes/**Yes**
Elanus leucurus	White-tailed kite	--	FP	2	Yes/No
Melospiza melodia	Song sparrow, "Modesto Population"	--	SSC	2	Yes/No
Vireo bellii pusillus	Least Bell's vireo	E	E	2	Yes/No
Nesting Birds (MBTA or CA FGC regulated)		--	--	3	Yes/**Yes**
Plants			**/ CNPS List [b]**		
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	--	--/1B.1	2	Yes/No
Centromadia parryi ssp. *parryi*	Pappose tarplant	--	--/1B.2	2	Yes/No
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	--	--/4.2	3	Yes/ **Yes**
Hibiscus lasiocarpos var. *occidentalis*	Woolly rose-mallow	--	--/1B.2	2	Yes/No
Trifolium hydrophilum	Saline clover	--	--/1B.2	2	Yes/No

[a] **Listing Status:** Federal status determined from USFWS letter. State status determined from CDFW (2019a,b,c). Codes used in table are: **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; ***** = Possibly extinct.

[b] **Other Codes:** Other codes determined from USFWS letter; CDFW (2019a,b,c). Codes used in table are as follows:

SSC = CDFW Species of Special Concern; **FP** = CDFW Fully Protected; **Prot** = CDFW Protected; **CH =** Critical habitat designated.

CNPS List (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution

CNPS List Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3 =** Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

[c] **Source: 1** = USFWS letter. **2** = CNDDB. **3 =** Observed or included by Sycamore Environmental.

B. Special-Status Species not in the Project Study Area

Special-status species for which suitable habitat is not present, or whose distributional limits preclude the possibility of their occurrence in the BSA, are not discussed in Section V of this report. An evaluation of these species is in Appendix B.

C. Evaluation of Special-Status Wildlife Species

1. Invertebrates

Vernal pool fairy shrimp (*Branchinecta lynchi*)

HABITAT AND BIOLOGY: Vernal pool fairy shrimp occur primarily in vernal pools, seasonal wetlands, and similar aquatic features that fill with water during fall and winter rains and dry up in spring and summer. They are most commonly found in small (less than 0.05 acre), clear to tea-colored vernal pools with mud, grass, or basalt bottoms in unplowed grasslands (USFWS 2005b). When aquatic habitat dries, offspring persist as cysts (desiccation-resistant embryos) in the pool substrate until the return of winter rains and appropriate temperatures allow some of the cysts to hatch. Cysts require water temperatures of 50° F or lower to hatch (USFWS 2007a). Vernal pool fairy shrimp have been found in pools with water temperatures between 40 and 73 °F. Immature and adult shrimp perish when water temperatures rise to approximately 75 °F (USFWS 2007a). The vernal pool fairy shrimp can reach sexual maturity in as few as 18 days at optimal conditions of 68 degrees °F and can complete its life cycle in as little as 9 weeks (USFWS 2005b). Although there are many observations of the environmental conditions where vernal pool fairy shrimp have been found, there have been no experimental studies investigating the specific habitat requirements of this species (USFWS 2005b).

RANGE: Vernal pool fairy shrimp are known to occur from Shasta County south through the Central Valley. They also occur in the Coast Range from Solano County south to San Benito County. Other populations are known from San Luis Obispo, Santa Barbara, and Riverside counties, and Jackson County of southern Oregon (USFWS 2005b).

KNOWN RECORDS: There are two CNDDB records of vernal pool fairy shrimp within the nine-quad area surrounding the BSA. The closest record (Occurrence #707) is from 2008, approximately 9.7 miles northeast of the BSA. Two cysts were collected in a man-made intermittent pool with vernal pool indicator plants.

HABITAT PRESENT IN THE BSA: The seasonal wetland located in the southern portion of the BSA provides potentially suitable habitat for this species.

DISCUSSION: Vernal pool fairy shrimp were not observed in the BSA during the biological survey. The seasonal wetland contained up to 3 inches of water during fieldwork in February. The seasonal wetland was dry during fieldwork in June. No aquatic invertebrates were observed in the seasonal wetland. The seasonal wetland is a created feature isolated from other potential vernal pool fairy shrimp habitat. The seasonal wetland is unlikely to be occupied by vernal pool fairy shrimp.

MITIGATION MEASURES: The Yolo HCP requires implementation of the following general Project Avoidance and Minimization Measures (AMMs). AMM #3 requires workers to confine land clearing to the minimum area necessary, restrict movement of heavy equipment to and from the project site, and clearly identify work area boundaries and environmentally sensitive areas. AMM #5 requires workers to minimize the spread of dust from work sites to natural communities. AMM #6 requires all construction personnel to participate in a worker environmental training program by a qualified biologist. AMM #8 requires staging and temporary work areas be located within the Project footprint or in areas that do not support habitat for covered species. Additionally, a qualified biologist will be retained by the City to monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation) within or immediately adjacent to environmentally sensitive areas (e.g., riparian vegetation, Outfall Channel, and active bird nests). The biologist will verify that fencing remains in place during construction and that construction personnel, equipment, or runoff/sediment from the construction area do not enter sensitive areas.

The Yolo HCP also requires implementation of AMM #1 (Establish Buffers) and #9 (Establish Buffers Around Sensitive Natural Communities) for projects within 50-250 feet of sensitive natural communities, depending on the community. The seasonal wetland is a fresh emergent wetland that requires a 50-foot avoidance buffer under AMM #9. No impacts are proposed within 50 feet of the seasonal wetland.

- Implement Yolo HCP AMMs #1 (Establish Buffers), #3 (Confine and Delineate Work Area), #5 (Control Fugitive Dust), #6 (Conduct Worker Training), #8 (Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas), and #9 (Establish Buffers Around Sensitive Natural Communities).
- Retain a qualified biologist to conduct monitoring during construction in sensitive habitats.

Vernal pool tadpole shrimp (*Lepidurus packardi*)

HABITAT AND BIOLOGY: Vernal pool tadpole shrimp inhabit a wide variety of vernal pool habitats. Their diet consists of organic debris and living organisms, such as fairy shrimp and other invertebrates (USFWS 2007b). This species has been collected in vernal pools ranging from 6.5 square feet to 88 acres in size. Some of these vernal pools may be too small to remain inundated for the entire life cycle, but the vernal pool tadpole shrimp may be able tolerate temporary drying conditions. Vernal pool tadpole shrimp have been found in pools with water temperatures ranging from 50 to 84 °F. After winter rains fill their vernal pool habitats, dormant vernal pool tadpole shrimp cysts may hatch in as little as 4 days. Vernal pool tadpole shrimp generally take 3 to 4 weeks to mature. Additional cysts produced by adult tadpole shrimp during the wet season may hatch without going through a dormant period (USFWS 2005b).

RANGE: Vernal pool tadpole shrimp are known from Shasta County to Tulare County, California, from elevations between approximately 10 and 500 feet. (USFWS 2005a)

KNOWN RECORDS: There are five CNDDB records of vernal pool tadpole shrimp within the nine-quad area surrounding the BSA. The closest record (Occurrence #298) is from 2017, approximately 3.2 miles southwest of the BSA. Four adults were captured with a dipnet in one pool within the alkaline grasslands preserve southeast of Woodland. Vernal pool tadpole shrimp adults have been detected in the pools within this area of the preserve since 2011.

HABITAT PRESENT IN THE BSA: The seasonal wetland located in the southern portion of the BSA provides potentially suitable habitat for this species.

DISCUSSION: Vernal pool tadpole shrimp were not observed in the BSA during the biological survey. The seasonal wetland contained up to 3 inches of water during fieldwork. No aquatic invertebrates were observed in the seasonal wetland. The seasonal wetland was dry during fieldwork in June. The seasonal wetland is a created feature surrounded by man-made berms, and isolated from other potential vernal pool crustacean habitat. The seasonal wetland is unlikely to be occupied by vernal pool tadpole shrimp.

MITIGATION MEASURES: The mitigation measures listed above for vernal pool fairy shrimp will protect vernal pool tadpole shrimp.

2. Fish

North American green sturgeon, southern DPS (*Acipenser medirostris*)

HABITAT AND BIOLOGY: The southern distinct population segment of North American green sturgeon (hereafter, 'sDPS green sturgeon') is federally threatened and a state species of special concern. The sDPS green sturgeon is an anadromous, iteroparous (reproducing many times over the course of its life) fish known to spawn only in the Sacramento and Feather Rivers (NMFS 2015). During spawning runs, adult sDPS green sturgeon enter the San Francisco Bay between mid-February and early May and migrate rapidly up the Sacramento River (NMFS 2020a). Spawning occurs from April through early July (NMFS 2015) in cool sections of the upper Sacramento River with deep, turbulent flows, and clean, hard substrate such as cobble (Moyle 2002, NMFS 2020a). Pools greater than 16 ft deep with high associated turbulence and upwelling are critical for adult green sturgeon spawning and for summer holding within the Sacramento River (Corwin and Poytress 2008). Green sturgeon migration behavior is directly influenced by water temperature and velocity. Green sturgeon have been recorded migrating upstream in the Sacramento River when water temperatures are between 50 and 60 degrees Fahrenheit and river flow is between 10,000 and 50,000 cubic feet per second (Heublein et al. 2008). Water temperature has a major impact on green sturgeon growth and development. Eggs and larvae are particularly sensitive to temperature. These stages grow optimally at around 59°F and exhibit reduced growth, deformities, or death at temperatures lower than 52°F and higher than 68°F (CDFW 2020). In fall, post-spawn adults move down the river and re-enter the ocean. After

hatching, larvae and juveniles migrate downstream toward the Sacramento-San Joaquin Delta and estuary (NMFS 2020a). Juvenile sDPS green sturgeon rear and feed in fresh and estuarine waters from 1 to 4 years prior to dispersing into marine waters as subadults (NMFS 2009). Juveniles in the San Francisco Estuary feed on opossum shrimp and amphipods (Moyle 2002). Juvenile sDPS green sturgeon are believed to occur throughout the Delta and the San Francisco, Suisun, and San Pablo bays throughout all months of the year (NMFS 2009). After migrating to the ocean, sDPS green sturgeon move seasonally along the West Coast, congregating in bays and estuaries in Washington, Oregon, and California during the summer and fall months (NMFS 2020a).

In freshwater riverine systems, the primary constituent elements identified as essential for the conservation of the sDPS green sturgeon are (NMFS 2009):

1) Sufficient food resources for larval (riverine only), juvenile, subadult, and adult life stages.
2) Substrates suitable for egg deposition and development (e.g., bedrock sills and shelves, cobble and gravel, or hard clean sand, with interstices or irregular surfaces to "collect" eggs and provide protection from predators, and free of excessive silt and debris), larval development (e.g., interstices providing refuge), and subadults and adults (e.g., substrates for holding and spawning).
3) A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages.
4) Suitable water quality, including temperature, salinity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages.
5) A migratory pathway necessary for the safe and timely passage within riverine and estuarine habitats.
6) Deep (more than 16 feet) holding pools for both upstream and downstream holding of adult or subadult fish, with adequate water quality and flow.
7) Sediment quality (i.e., chemical characteristics) necessary for normal behavior, growth, and viability of all life stages.

RANGE: The sDPS green sturgeon are thought to spawn only in the Sacramento River, including accessible lower portions of its larger tributaries like the Feather River (NMFS 2015). In marine waters, the sDPS green sturgeon ranges from Mexico to at least Alaska and forages in estuaries and bays ranging from San Francisco Bay to British Columbia. They are observed infrequently in the San Joaquin River, but there is no evidence of spawning in the San Joaquin River (NMFS 2020a). Critical habitat for the sDPS green sturgeon occurs in coastal marine waters from Monterey Bay, California north to the Strait of Juan de Fuca, Washington; freshwater riverine habitats in the Sacramento River, Lower Feather River, and Lower Yuba River; the Sacramento San Joaquin Delta; and coastal bays and estuaries in San Francisco Bay, San Pablo Bay, Suisun Bay, Humboldt Bay in California (NMFS 2009).

KNOWN RECORDS: There are no CNDDB records of green sturgeon within the 9-quad area surrounding the BSA. Green sturgeon are known to occur in the Sacramento River and the Yolo Bypass when it is flooded. Adult and juvenile sturgeon may become trapped at Fremont Weir and nearby channels and ponds such as Tule Pond when flood waters recede. Biologists continue to rescue these fish (NMFS 2019).

HABITAT PRESENT IN THE BSA: When flooded, the Yolo Bypass (including the portion of the Outfall Channel located within the Bypass within the BSA) provides potentially suitable migration and rearing habitat for sDPS green sturgeon.

DISCUSSION: Adult and juvenile sDPS green sturgeon may migrate through the portion of the Yolo Bypass located in the BSA when the Bypass is flooded. The flapgates on the existing culverts likely block fish passage upstream into portions of the Outfall Channel located outside of the Yolo Bypass. The Yolo Bypass does not flood every year, and the duration of flooding generally varies from a few days to a few months in winter and spring. When flooded, the Yolo Bypass provides a potential corridor for adult and juvenile sDPS green sturgeon to migrate to and from spawning habitat in the Sacramento River. Juveniles may use the shallow, productive, and protected off-channel habitat in the flooded bypass for rearing and feeding (NMFS 2009). The Yolo Bypass, Cache Creek, and the Outfall Channel contain muddy/silty substrate, and do not provide the deep, turbulent flows or substrate necessary for spawning. When the Yolo Bypass is not flooded, no sDPS green sturgeon individuals of any life stage would be expected to be present. During the summer and fall, the Outfall Channel and Cache Creek experience high temperatures and low flows (USGS 2020), making these features unsuitable for sDPS green sturgeon.

MITIGATION MEASURES: Fish are not covered by the Yolo HCP. Coverage under the Yolo HCP requires payment of a Wetlands Fee for impacts to wetlands, riparian, and riverine land cover types. Covered projects within 100 feet of either the top of bank of a riverine land cover type, or within 100 feet of the canopy of riparian vegetation (including riparian scrub and mixed willow alliance land cover types) must implement Yolo HCP AMMs #1 (Establish Buffers) and #9 (Establish Buffers around Sensitive Natural Communities), establishing resource protection buffers. Avoidance buffers may be reduced in size with approval from the Conservancy and wildlife agencies. Yolo HCP AMM #10 requires implementation of applicable wetland/water permit requirements, including the National Pollutant Discharge Elimination System (NPDES) permit, Section 404 of the Clean Water Act, State Water Resources Control Board, Regional Board, and Fish and Game Code Section 1602 regulations.

The following mitigation measures are recommended to protect special-status fish species, including sDPS green sturgeon and its critical habitat:

- The Project shall acquire Yolo HCP coverage and pay applicable Wetland Fees for impacts to wetlands, riparian, and riverine land cover types. Alternatively, the Yolo HCP allows for aquatic resource restoration in-lieu of payment of the Wetlands Fee.
- No work shall be conducted when the Yolo Bypass is flooded. In-channel work shall be restricted to the period of 1 June through 1 November, when listed fish species are

not expected to be present, unless USFWS and NMFS approve in-channel work outside of this period.

- Utilize acceptable fish screens during dewatering activities. To avoid minimize the potential for aquatic species entrainment, pump intakes will be placed away from complex vegetated banks that may contain habitat for these species. The Project will implement the use of a screen in accordance with the NMFS (1997) Juvenile Fish Screen Criteria for Pump Intakes.
- Implement Yolo HCP AMM #10 (Avoid and Minimize Effects on Wetlands and Waters).
- General Project mitigation measures, and mitigation measures listed above for vernal pool fairy shrimp will protect sDPS green sturgeon.

California Central Valley steelhead DPS (*Oncorhynchus mykiss*)

HABITAT AND BIOLOGY: The California Central Valley steelhead DPS (hereafter 'CCV steelhead') is a federal threatened species. CCV steelhead is an anadromous salmonid, although individuals may be capable of completing their life cycle entirely in freshwater systems (NMFS 1998). CCV steelhead are winter-run steelhead that migrate from the ocean to freshwater spawning streams at the onset of increased river flows brought on by the arrival of winter rain. Adults enter fresh water in August, with a peak in late September-October, after which they hold until flows in tributaries are high enough for spawning (Moyle 2002). Spawning occurs in small tributaries on coarse (0.4 to 5.1-inch diameter) gravel beds in riffle areas, usually at the tail of a pool or in a riffle (McGinnis 1984). After spawning, adult steelhead swim gradually downstream and return to the ocean. Steelhead may spawn up to 4 times during their lifetime, albeit with high (50 to 75 percent) mortality between reproductive events (Moyle 2002).

Eggs hatch in 3 to 4 weeks and fry emerge from gravel 2 to 3 weeks later. Fry initially live in quiet waters close to shore. For the first year or two of life, steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, where there is ample cover from riparian vegetation or undercut banks, and where invertebrate life is diverse and abundant. Stream-dwelling individuals feed mostly on drifting aquatic organisms and terrestrial insects, but they will also take active bottom invertebrates and fish. After steelhead leave their home streams, they feed on estuarine invertebrates and marine krill. As they increase in size, fish gradually become more important to their diet (Moyle 2002).

Steelhead require one to three years of freshwater rearing before migrating to the ocean. They typically remain at sea for one to four growing seasons before returning to freshwater to spawn (McEwan and Jackson 1996). Juvenile steelhead require areas with overhead cover and low light levels and velocity refuges with adjacent high flows. Juvenile emigration can occur year-round, but primarily December through early May with a peak in mid-March. A much smaller peak can occur in the fall (McEwan and Jackson 1996). Optimal immigration and holding temperatures have been reported to range from 46°F to

52°F (NMFS 2014) and optimal temperatures for juvenile CCV steelhead growth ranges from 57°F to 66°F (NMFS 2019).

The primary constituent elements identified as essential for the conservation of Pacific salmon and steelhead in California are (NMFS 2005):

1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning incubation and larval development.
2) Freshwater rearing sites with a) water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; b) water quality and forage supporting juvenile development; and c) natural cover such as shade, submerged and overhanging large wood, log jams, and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
4) Estuarine areas free of obstruction and excessive predation with: a) water quality, quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; b) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and c) juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

RANGE: The CCV steelhead distinct population segment (DPS) includes all naturally spawned anadromous populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries. This DPS includes two artificial propagation programs: the Coleman National Fish Hatchery, and Feather River Hatchery steelhead hatchery programs (NMFS 2006). Although CCV steelhead are not commonly captured in the Yolo Bypass, both adults and juveniles have been observed in the Yolo Bypass during CDFW, Reclamation, and DWR monitoring programs (NMFS 2019). Cache Creek in Yolo County is considered part of the CCV steelhead historical distribution, but is no longer considered suitable migration or rearing habitat (NMFS 2014). According to NMFS (2013), the Cache Creek Settling Basin blocks CCV steelhead from migrating any farther west up Cache Creek.

KNOWN RECORDS: There are five CNDDB records of CCV steelhead DPS within the nine-quad area surrounding the BSA. The closest record (Occurrence #28) is from 2012, approximately 2 miles east of the BSA in the Sacramento River. An average of 132 fish have been captured yearly from 1998 to 2012 by rotary screw trap sampling efforts.

HABITAT PRESENT IN THE BSA: When flooded, the Yolo Bypass (including the portion of the Outfall Channel located within the Bypass within the BSA) provides potentially suitable migration and rearing habitat for CCV steelhead.

DISCUSSION: CCV steelhead is known to occur in the lower Sacramento River and the Yolo Bypass (when flooded). The flapgates on the existing culverts likely block fish passage upstream into portions of the Outfall Channel located outside of the Yolo Bypass. Adult and juvenile CCV steelhead may be present in the portion of the Yolo Bypass located in the BSA when the bypass is flooded. The Yolo Bypass does not flood every year, and the duration of flooding generally varies from a few days to a few months in winter and spring. Presence would coincide with high flow events (NMFS 2019). Out-migrating juveniles could occur in the Yolo Bypass, but only while weirs on the Sacramento River are overtopping, and the Yolo Bypass is flooded. When the Yolo Bypass is not flooded, no CCV steelhead individuals of any life stage would be expected to be present. During the summer and fall, the Outfall Channel and Cache Creek experience high temperatures and low flows (USGS 2020), making these features unsuitable for CCV steelhead. There is no spawning habitat in the BSA.

MITIGATION MEASURES: The mitigation measures listed above for sDPS green sturgeon will protect CCV steelhead.

Central Valley spring-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)

HABITAT AND BIOLOGY: Central Valley spring-run Chinook salmon ESU (hereafter 'SR Chinook') is a state and federal threatened species. SR Chinook is an anadromous and semelparous (reproducing only once before dying) salmonid. As a 'stream-type' salmon, SR Chinook depend upon year-round, cool, freshwater habitat for both adults (which arrive in spring and mature while over-summering in foothill streams) and juveniles (which regularly spend more than a year in rivers before out-migration). SR Chinook spawning and rearing habitat is restricted to the higher elevation portions of the Central Valley, where cool summer temperatures can be found in snow melt-fed rivers (Moyle 2002, Moyle et al. 2015).

SR Chinook migrate into the Sacramento River as immature fish from March through September with a peak in May-June. Spawning occurs in late August through October with a peak in mid-September (Moyle et al. 2015). Spawning requires suitable substrate (gravel and small cobble with low silt content) and cold, clear, well-oxygenated water. Juveniles emerge in November through March and reside in streams for approximately 3-15 months before emigrating to the Pacific Ocean (Moyle et al. 2015). After emerging, juveniles seek areas of shallow, low-velocity water. Many juveniles may be dispersed downstream in high flow events (Moyle 2002). As they grow larger, juveniles move to deeper and faster water. Juvenile SR Chinook migrate downstream at all times of the year, with peaks in winter and spring (Moyle 2002). While in fresh water, juvenile Chinook salmon are opportunistic drift feeders that eat a wide variety of terrestrial and aquatic insects. Larger fish feed increasingly on other fish.

The primary constituent elements identified as essential for the conservation of Pacific salmon and steelhead in California are (NMFS 2005):

1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning incubation and larval development.
2) Freshwater rearing sites with a) water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; b) water quality and forage supporting juvenile development; and c) natural cover such as shade, submerged and overhanging large wood, log jams, and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
4) Estuarine areas free of obstruction and excessive predation with: a) water quality, quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; b) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and c) juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

RANGE: The SR Chinook ESU includes all naturally spawned populations of SR Chinook in the Sacramento River and its tributaries, including the Feather River, as well as the Feather River Hatchery spring-run Chinook program (NMFS 2005). This includes unobstructed perennial tributaries to the Sacramento River. Cache Creek in Yolo County was historically accessible to salmonids, but is no longer considered suitable migration or rearing habitat (NMFS 2014). According to NMFS (2013), the Cache Creek Settling Basin blocks salmonids from migrating any farther west up Cache Creek

KNOWN RECORDS: There are two CNDDB records for SR Chinook salmon on the nine quads centered on the BSA. The closest CNDDB record (Occurrence #5) is located approximately 8.0 miles northeast of the BSA in the Feather River. The occurrence extends from river mile 0 of the lower Feather River to river mile 67 at the Feather River Hatchery. A total of 127 adults were observed during redd surveys and 61 juveniles were observed during seining surveys in 2015.

HABITAT PRESENT IN THE BSA: When flooded, the Yolo Bypass (including the portion of the Outfall Channel located within the Bypass within the BSA) provides potentially suitable migration and rearing habitat for SR Chinook salmon.

DISCUSSION: SR Chinook salmon is known to occur in the lower Sacramento River and the Yolo Bypass (when flooded). The Yolo Bypass does not flood every year, and the duration of flooding generally varies from a few days to a few months in winter and spring. The flapgates on the existing culverts likely block fish passage upstream into portions of the

Outfall Channel located outside of the Yolo Bypass. It is rare for the bypass to flood during SR Chinook peak migration from May to June (Sommer et al. 2001). SR Chinook adults could occur in the Yolo Bypass during the early months of upstream migration in March and April. Suitable spawning and rearing conditions require water temperatures of 14°C (57°F) or less (Yates et al. 2008). Juveniles could use the portion of Cache Creek within the BSA as rearing habitat from November through April before water temperatures exceed the lethal limit (USGS 2020). SR Chinook may use the Yolo Bypass floodplain as rearing habitat from December to April (Sommer et al. 2001). Out-migrating juveniles could occur in the Yolo Bypass, but only while weirs on the Sacramento River are overtopping, and the Yolo Bypass is flooded. When the Yolo Bypass is not flooded, no SR Chinook individuals of any life stage would be expected to be present. Chinook salmon require 0.75 to 4.0 inches in diameter of loose gravel to create a redd for successful spawning (NMFS 2014). There is no suitable spawning gravel located within the BSA.

MITIGATION MEASURES: The mitigation measures listed above for sDPS green sturgeon will protect SR Chinook salmon.

Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)

HABITAT AND BIOLOGY: The Sacramento River winter-run Chinook salmon ESU (hereafter 'WR Chinook') is a federal and state endangered species. WR Chinook is an anadromous and semelparous (reproducing only once before dying) salmonid. As a 'stream-type' salmon, WR Chinook depend upon year-round, cool, freshwater habitat for both adults, which arrive in spring and mature while over-summering in foothill streams, and juveniles, which may spend more than a year in rivers before out-migration (Moyle 2002, Moyle et al. 2015).

WR Chinook migrate into the Sacramento River as immature fish from December through July with a peak in March. Spawning occurs in late April through early August with peak spawning in May and June. WR Chinook arrive in the upper Sacramento River several weeks to several months prior to spawning and hold in deep pools while undergoing sexual maturation (Moyle 2002).

Spawning requires suitable substrate (gravel and small cobble with low silt content) and cold, clear, well-oxygenated water (Moyle 2002). In general, suitable water temperatures for WR Chinook spawning and incubation occur only upstream of Red Bluff Diversion Dam. In most years, water temperatures downstream of the diversion dam are too warm for egg incubation during the months WR Chinook spawn (NMFS 1992). WR Chinook eggs and fry require water below 57°F; water temperatures above 62°F result in complete mortality of developing eggs and pre-emergent fry (NMFS 1992). Juveniles emerge in July-October and reside in streams for approximately 5 to 10 months before emigrating to the Pacific Ocean (Moyle 2002). After they have emerged, juveniles seek and are found in areas of shallow water and low velocities; many are dispersed downstream in high flow events (Moyle 2002). As they grow larger, juveniles move to deeper and faster water.

While in fresh water, juvenile Chinook salmon are opportunistic drift feeders that eat a wide variety of terrestrial and aquatic insects. Juvenile WR Chinook migrate downstream in September-January; they do not spend much time in the estuary before entering the Pacific Ocean (Moyle 2002). Out-migrating WR Chinook smolts in estuaries generally feed in schools within saltmarshes, mudflats, and other intertidal habitats. As smolts increase in size, fish become more dominant in their diet (NMFS 1992).

Physical and biological features that are essential for the conservation of winter-run Chinook include (NMFS 1993):

1) Access from the Pacific Ocean to appropriate spawning areas in the upper Sacramento River.
2) Clean gravel for spawning substrate.
3) Adequate river flows for successful spawning, incubation of eggs, fry development and emergence, and downstream transport of juveniles.
4) Water temperatures between 42.5 and 57.5°F for successful spawning, egg incubation, and fry development.
5) Habitat areas and adequate prey that are not contaminated.
6) Riparian habitat that provides for successful juvenile development and survival.
7) Access to the Pacific Ocean for emigrating juveniles.

RANGE: The WR Chinook ESU includes all naturally spawned populations of WR Chinook in the Sacramento River and its tributaries, as well as two artificial propagation programs: 1) WR Chinook from the Livingston Stone National Fish Hatchery (NFH) and 2) WR Chinook in a captive broodstock program at Livingston Stone NFH and the University of California Bodega Marine Laboratory. In 2005, the WR Chinook ESU was represented by a single extant naturally spawning population that had been completely displaced from its historical spawning habitat by the construction of Shasta and Keswick dams. Remaining spawning habitat is artificially maintained by cold water releases from the Shasta Dam reservoir (NMFS 2005). Cache Creek in Yolo County was historically accessible to salmonids, but is no longer considered suitable migration or rearing habitat (NMFS 2014). According to NMFS (2013), the Cache Creek Settling Basin blocks salmonids from migrating any farther west up Cache Creek.

KNOWN RECORDS: There is one CNDDB record for WR Chinook salmon on the 9 quads centered on the BSA. The record (Occurrence #2) is located approximately 11.1 miles southeast of the BSA in the Barge Canal near its connection with the Sacramento River. A total of 36 adults and 11 juveniles were captured between December 2003 and January 2004.

HABITAT PRESENT IN THE BSA: When flooded, the Yolo Bypass (including the portion of the Outfall Channel located within the Bypass within the BSA) provides potentially suitable migration and rearing habitat for WR Chinook salmon.

DISCUSSION: WR Chinook salmon is known to occur in the lower Sacramento River and the Yolo Bypass (when flooded). The flapgates on the existing culverts likely block fish passage upstream into portions of the Outfall Channel located outside of the Yolo Bypass. The portion of the Yolo Bypass located within the BSA, including the portions of Cache

Creek and the Outfall Channel located within the Bypass, may serve as migratory habitat for WR Chinook from December to April with a peak in March. Suitable spawning and rearing conditions require water temperatures of 14°C (57°F) or less (Yates et al. 2008). The portion of Cache Creek within the BSA would only be suitable for rearing from November to April before water temperatures exceed the lethal limit (USGS 2020). WR Chinook salmon may use the Yolo Bypass floodplain as rearing habitat from December through April. Out-migrating juveniles could occur in the Yolo Bypass, but only while weirs on the Sacramento River are overtopping, and the Yolo Bypass is flooded. When the Yolo Bypass is not flooded, no WR Chinook individuals of any life stage would be expected to be present. Chinook salmon require 0.75 to 4.0 inches in diameter of loose gravel to create a redd for successful spawning (NMFS 2014). There is no suitable spawning gravel located within the BSA.

MITIGATION MEASURES: The mitigation measures listed above for sDPS green sturgeon will protect WR Chinook salmon.

Sacramento splittail (*Pogonichthys macrolepidotus*)

HABITAT AND BIOLOGY: Sacramento splittail is a state species of special concern. Sacramento splittail is a large, iteroparous minnow of backwater slough areas. The basic life history pattern for the remaining Delta/Suisun Marsh population is: (1) from November through February adults migrate upstream in pulses in response to flow events; (2) adults spawn on floodplains (e.g. Yolo Bypass or Cosumnes River floodplain) or flooded edge habitats in March and April and then migrate back downstream; (3) embryos and larvae remain in flooded vegetation for 3-6 weeks during March and April; (4) in April and May, as flood waters recede, juveniles leave flooded areas and move downstream; and (5) juveniles rear in estuarine marshes for 1-2 years before spawning for the first time. The Petaluma/Napa population is less typical in that spawning can occur in brackish water (up to 5 ppt salinity) and juveniles can rear in water up to 14 ppt salinity (Moyle et al. 2015). Most individuals migrate between brackish-water rearing habitats in the San Francisco Estuary and freshwater floodplain and river-edge spawning habitat just above the estuary on a near-annual basis (Moyle et al. 2015).

Flooded vegetation is required for spawning and rearing (USFWS 2010), with some experts noting that submerged annual vegetation is required (Moyle et al. 2015). Spawning occurs in water between 3.3 and 6.6 feet deep in tidal fresh and brackish water habitats of estuarine marshes and sloughs, floodplains inundated for long periods of time, and slow-moving, shallow reaches of large rivers (USFWS 2003, 2010). Approximately 30 days of inundation are required for successful spawning on large floodplains such as the Yolo Bypass (USFWS 2010). Fertilized embryos stick to plants and larvae remain in and among plants for the first few days of life (Moyle et al. 2015).

Embryos hatch in 3-7 days. Most larvae remain in shallow, weedy areas near spawning sites for 10-14 days before beginning to move into deeper offshore habitat as swimming ability

increases. Larvae feed mainly on zooplankton, shifting to small crustaceans and insect larvae as body size increases USFWS (2010). Splittail are benthic foragers (USFWS 2010).

RANGE: Splittail is largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the Sacramento-San Joaquin estuary. During wet years they may migrate up the Sacramento River as far as Red Bluff Diversion Dam and into the lower Feather and American Rivers. Splittail are rarely found more than 6 to 12 miles above the upstream boundaries of the Delta (Moyle 2002). The most important known spawning areas are the Yolo and Sutter bypasses and the Cosumnes River floodplain; however, splittail that are ready to spawn have been found in areas as diverse as the Petaluma River, Suisun Marsh, Sacramento River and lower Tuolumne River (Moyle et al. 2015).

KNOWN RECORDS: There is one CNDDB record of Sacramento splittail in the nine-quad area surrounding the BSA. The record (Occurrence #1) is located approximately 2 miles east of the BSA. Sacramento splittail were observed along approximately 65 miles of the Sacramento River during an angler survey conducted from 1991 to 1995.

HABITAT PRESENT IN THE BSA: There is potentially suitable migration, spawning and rearing habitat for this species in the Yolo Bypass within the BSA when it is flooded.

DISCUSSION: Sacramento splittail are known to occur in the lower Sacramento River and the Yolo Bypass (when flooded). The flapgates on the existing culverts likely block fish passage upstream into portions of the Outfall Channel located outside of the Yolo Bypass. Adult Sacramento splittail could spawn in the Yolo Bypass from December to May when the bypass is flooded. Splittail may rear in the portion of the Yolo Bypass within the BSA particularly in wet years when adults are likely to spawn farther upstream. However, most of the time splittail rear in the tidal upper estuary downstream from the BSA. Adults migrating downstream after spawning could pass through the Yolo Bypass in March and April, with juveniles following in April and May, as long as the weirs along the Sacramento River are overtopping. Cache Creek and the Outfall Channel lack emergent vegetation required for spawning.

MITIGATION MEASURES: The mitigation measures listed above for sDPS green sturgeon will protect Sacramento splittail.

3. Reptiles

Western pond turtle (*Emys marmorata*)

HABITAT AND BIOLOGY: Western pond turtle (WPT) is a state species of special concern. WPT is associated with permanent or nearly permanent water in a wide variety of habitat types, such as ponds, lakes, streams, irrigation ditches, and permanent pools along intermittent streams. It is tolerant of brackish water, and has occasionally been observed in sea water (Thomson et al. 2016). WPT require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks (CWHR 2020).

Adults remain active year-round in warmer climates and overwinter in upland burrows safe from high winter flows in colder climates (Thomson et al. 2016). Two distinct habitats may be used for oviposition. Along large slow-moving streams, eggs are deposited in nests constructed in sandy banks. Along foothill streams, females may climb hillsides, sometimes traveling up to 325 feet to find a suitable nest site. Nests have been observed in many soil types from sandy to very hard. Usually, soil must be at least 4 inches deep for nesting. Nests must have a relatively high internal humidity for eggs to develop and hatch properly. Depending on local conditions, 3 to 11 eggs are typically laid from March to August, with young emerging approximately 73 to 80 days later (CWHR 2020).

RANGE: WPT occurs throughout California west of the Sierra-Cascade crest. They are absent from desert regions, except along the Mojave River and its tributaries. Elevation range extends from near sea level to 4,690 feet (CWHR 2020).

KNOWN RECORDS: There are three CNDDB records of WPT within the nine-quad area surrounding the BSA. The closest record (Occurrence #1216) is from 2009, approximately 3.5 miles northeast of the BSA. Four juveniles were observed at a nest, and one adult was observed in the same location approximately one week later.

HABITAT PRESENT IN THE BSA: Cache Creek, the Outfall Channel, and the Diversion Channel provide potential aquatic habitat for WPT. Large woody debris along the shoreline where the Diversion Channel meets the Outfall Channel provides suitable basking habitat.

DISCUSSION: WPT were not observed in the BSA during biological surveys. WPT could be present in Cache Creek or the Outfall Channel and may use shoreline woody debris, existing rip-rap, and mud banks for basking. The levee slope is steep, lacks cover, and the vegetation is maintained. The levee slope is thus unlikely to be used by WPT for nesting.

MITIGATION MEASURES: WPT is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #1 (Establish Buffers), #9 (Establish Buffers around Sensitive Natural Communities) for projects within 100 feet of lacustrine and riverine habitat. See section V. C. 2. for details. Under AMM #4, any holes or trenches associated with the project will be covered during nonwork hours to prohibit wildlife from entering the hole. Any holes that are not covered will have an escape ramp during nonwork hours to prevent wildlife from becoming trapped. AMM #14 requires a biologist to assess the likelihood of turtle nest occurring within the Project disturbance area. If turtle nests are likely, a biologist will monitor all ground-disturbing activities and relocate turtles as necessary. Based on the slope, lack of cover, and vegetation on the levee, turtle nests are not likely to occur in the area of disturbance.

- Implement Yolo HCP AMMs #1 (Establish Buffers), #4 (Cover Trenches and Holes during Construction and Maintenance), #9 (Establish Buffers around Sensitive Natural Resources), and #14 (Minimize Take and Adverse Effects on Habitat of Western Pond Turtle).

Giant garter snake (*Thamnophis gigas*)

HABITAT AND BIOLOGY: Giant garter snake (GGS) is a federal and state threatened species. GGS historically inhabited natural wetlands, but now mostly inhabit agricultural wetlands and other waterways, such as irrigation and drainage canals, riceland, marshes, sloughs, ponds, small lakes, low gradient streams with silt substrates, and adjacent uplands. The three habitat components most important to GGS are (USFWS 2017a):

1) A fresh-water ***aquatic component*** with protective emergent vegetative cover that will allow foraging.
2) An ***upland component*** near the aquatic habitat that can be used for thermoregulation and for summer shelter in burrows, and,
3) An ***upland refugia component*** that will serve as winter hibernacula.

Aquatic Component. GGS requires and is consistently observed in association with aquatic habitat. Ideal aquatic habitat exhibits the following characteristics (USFWS 2017a):

1) Water present from March through November.
2) Slow moving or static water flow with mud substrate.
3) Presence of emergent and bankside vegetation that provides cover from predators and may serve in thermoregulation.
4) Available prey in the form of small amphibians and small fish.
5) Thermoregulation (basking) sites with supportive vegetation such as folded tule clumps immediately adjacent to escape cover.
6) The absence of large predatory fish.
7) Absence of recurrent flooding, or where flooding is probable, the presence of upland refugia.

Upland Component. Although predominantly an aquatic species, GGS can be found in upland areas near the aquatic habitat component during the active spring and summer seasons. Upland habitat must occur adjacent to suitable aquatic habitat. Upland habitat is used for basking to regulate body temperature, for cover, and as a retreat into mammal burrows and crevices in the soil during ecdysis (shedding of skin) or to avoid predation. GGS have been observed using burrows as much as 164 feet from the edge of suitable aquatic habitat. Ideal upland habitat exhibits the following characteristics (USFWS 2017a):

1) Availability of bankside vegetation cover, typically tule (*Scirpus* spp., *Schoenoplectus* sp.) or cattail (*Typha* spp.), for screening from predators.
2) Availability of more permanent shelter, such as bankside cracks or crevices, holes, or small mammal burrows.
3) Free of poor grazing management practices (such as overgrazed areas).

Upland Winter Refugia Component. Around October 1, snakes move underground into mammal burrows, crevices, or other voids in the earth to avoid potentially lethal cool autumn and winter temperatures. Overwintering locations have been documented up to 820

feet from the edge of summer aquatic habitat. Overwintering locations are typically above the flood elevation, in locations with sunny exposures along south and west facing slopes (USFWS 2017a).

GGS begin emerging from overwintering refugia around April 1 (as early as March 1 in some years and locations) and are typically foraging actively by 15 April. The breeding season begins after emergence from overwintering sites, approximately March through May, and resumes briefly in September. Females brood young internally and give birth to live young from late July through early September. Young scatter immediately into dense cover, absorb their yolk sacs, and begin feeding on their own (USFWS 2017a).

Most of the snake's natural habitat has been lost, which is why many giant garter snakes live in rice fields. Rice fields provide hundreds of thousands of acres of habitat for the species. GGS are generally absent from larger rivers and from wetlands with sand, gravel or rock substrates. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and lack of aquatic prey (USFWS 2017b).

RANGE: GGS is endemic to wetlands in the Central Valley of California. Historically, GGS inhabited the Sacramento and San Joaquin valleys from the vicinity of Chico, in Butte County, southward to Buena Vista Lake near Bakersfield, in Kern County. The historic distribution extended eastward to the foothills of the Sierra Nevada and westward to the foothills of the Coast Range (USFWS 2017a). The current (extant) range of the GGS extends from Chico in Butte County southward to the Mendota Wildlife Area in Fresno County. GGS have been observed at elevations ranging from 3 to 40 feet in the Sacramento Valley (USFWS 2012). The GGS Recovery Plan (USFWS 2017a) recognizes nine separate populations of GGS that coincide with riverine flood basins and tributary streams: Butte Basin, Colusa Basin, Sutter Basin, American Basin, Yolo Basin, Cosumnes-Mokelumne Basin, Delta Basin, San Joaquin Basin, and Tulare Basin. These basin-wide populations coincide with Recovery Units identified by USFWS (2012). The basin-wide populations (and recovery units) occur in Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Kings, Madera, Merced, Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties. Extant populations of GGS are known from Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo counties (USFWS 2017a). Studies conducted by Hansen (1988) in Sacramento, Sutter, Butte, Colusa, and Glenn counties, showed that GGS populations were distributed in areas where rice was grown.

KNOWN RECORDS: There are 118 CNDDB records of giant garter snake within the nine-quad area surrounding the BSA. The closest record (Occurrence #322) from 2011, is mapped overlapping the BSA. The mapped occurrence begins 350 feet south of the BSA and extends north about 150 feet into the BSA. One female GGS was captured, marked, PIT tagged and released. Based on the location description, the snake was captured from the canal south of County Road 22, approximately 100 feet south of the BSA. According to CNDDB, the snake was captured from a canal with mud/silt substrate and dense cattail and bulrush vegetation.

HABITAT PRESENT IN THE BSA: Potentially suitable aquatic habitat for GGS occurs in the Outfall Channel, Cache Creek and the Diversion Channel. Potentially suitable upland basking and overwintering habitat occurs in the upland areas surrounding the aquatic habitat.

DISCUSSION: No GGS were observed in the BSA during biological surveys. GGS could occur in Cache Creek, the Outfall Channel, and the Diversion Channel. These features typically contain water with suitable prey during much of the GGS active season. These features are hydrologically connected to canals in the Yolo Bypass that are known to be occupied by GGS (e.g., Willow Slough). The lack of emergent vegetation and the presence of dense riparian vegetation along much of the Outfall Channel and portions of Cache Creek limit habitat suitability. The open uplands around these features could be used for basking. No burrows or soil cracks that could serve as winter hibernacula were observed within the BSA during the biological survey. Such refuge features may nonetheless be present.

The canal where the GGS was captured in 2011 (CNDDB Occurrence #322) was surveyed from County Road 22 during the biological survey. The canal still had suitable GGS habitat with densely vegetated cattail and bulrush (Appendix D, Photo 8).

MITIGATION MEASURES: GGS is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #1 (Establish Buffers), #9 (Establish Buffers around Sensitive Natural Communities) for projects within 100 feet of lacustrine and riverine habitat. See section V. C. 2. for details. To prevent injury and mortality of giant garter snake, Yolo HCP AMM #4 (Cover Trenches and Holes during Construction and Maintenance) must be implemented. See WPT mitigation measures above for details. The Yolo HCP requires implementation of AMM #15 (Minimize Take and Adverse Effects on Habitat of Giant Garter Snake) for projects within 200 feet of suitable GGS aquatic habitat. AMM #15 requires, among other measures, 1) a GGS preconstruction survey, 2) that construction be limited to the period of 1 May through 1 October, 3) dewatering of aquatic habitat between 15 April and 30 September to encourage GGS to leave the site on their own, 4) environmental awareness training, 5) a GGS relocation plan, 6) installation of temporary barrier fencing along aquatic habitat.

In November 2020, the YHC and wildlife agencies authorized an extension of the work window in AMM #15 from 1 May through 1 October to 1 May through 1 November.

- Implement Yolo HCP AMM #1 (Establish Buffers), #9 (Establish Buffers around Sensitive Natural Communities), AMM #4 (Cover Trenches and Holes during Construction and Maintenance) and #15 (Minimize Take and Adverse Effects on Habitat of Giant Garter Snake).

4. Birds

Tricolored blackbird (*Agelaius tricolor*)

HABITAT AND BIOLOGY: Tricolored blackbird is a state threatened species. Tricolored blackbirds form the largest breeding colonies of any North American inland bird species

(Shuford and Gardali 2008). Colonies vary in size from a minimum of about 50 nests to over 20,000 in an area of 10 acres or less (CWHR 2020). Nesting colonies are of concern to CDFW (2019c).

Basic breeding site requirements are open, accessible water; a protected nesting substrate, including either flooded, thorny, or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few kilometers of the nesting colony. Historically, most colonies nested in freshwater marshes dominated by cattails or tules, while some colonies nested in nettles, thistles, and willows. However, the use of freshwater marshes as breeding colony sites has decreased. Since the 1970s, an increasing percentage of colonies have been reported in Himalayan blackberry and thistles, with some of the largest colonies in silage and grain fields near dairies in the San Joaquin Valley. Other less commonly used nesting vegetation include safflower, tamarisk, elderberry, western poison oak, giant reed, riparian scrublands, and riparian forests (Shuford and Gardali 2008).

Ideal foraging conditions for this species are created when shallow flood irrigation, mowing, or grazing keeps the vegetation less than 6 inches tall. Preferred foraging habitats include crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields, as well as annual grasslands, cattle feedlots, and dairies. Tricolored blackbirds also forage in native habitats, including wet and dry vernal pools and other seasonal wetlands, riparian scrub habitats, and open marsh borders. Proximity to suitable foraging habitat appears important for the establishment of colony sites (Shuford and Gardali 2008).

RANGE: In California, tricolored blackbird breeding occurs in the Sacramento and San Joaquin valleys, the foothills of the Sierra Nevada south to Kern County, the coastal slope from Sonoma County south to the Mexican border, and sporadically on the Modoc Plateau. Tricolored blackbirds are a permanent resident in California, but make extensive migrations and movements within their range, both in the breeding season and in winter. Individuals usually move north after first nesting efforts (March-April) in the San Joaquin Valley and Sacramento County to new breeding locations in the Sacramento Valley, northeastern California, and rarely Oregon, Nevada, and Washington (Shuford and Gardali 2008).

KNOWN RECORDS: There are 23 CNDDB records of tricolored blackbird within the nine-quad area surrounding the BSA. The closest record (Occurrence #118) is from 1971, approximately 2.0 miles north of the BSA. A flock of approximately 150 birds was observed. CDFW considers this population extirpated as of 1991. The nearest CNDDB record presumed extant (Occurrence #120) is located approximately 2.2 miles to the southwest. According to eBird.org there has been one observation of confirmed nest-building behavior approximately 1.5 miles southeast of the BSA within the past two years.

HABITAT PRESENT IN THE BSA: The annual grassland, urban ruderal, seasonal wetland, and riparian scrub provide foraging habitat for this species. The riparian scrub and dense patches of thistles within the annual grassland provide potentially suitable nesting habitat.

DISCUSSION: Tricolored blackbirds were not observed during the biological survey of the BSA. Tricolored blackbirds may forage in BSA. Tricolored blackbirds could nest in the

dense patches of thistle and in the riparian scrub surrounding the channels and creek. There are no known nesting colonies within 1,300 feet of the Project at present, or within the last five years.

MITIGATION MEASURES: Tricolored blackbird is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #21 (Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird) for projects within 1,300 feet of suitable nesting and foraging habitat. The closest project impacts are located within 1,300 feet of suitable nesting and foraging habitat. AMM #21 requires a preconstruction survey between 1 March and 30 July to determine if an active tricolored blackbird colony is present. If an active tricolored blackbird colony is present or has been present within the last five years the Project will avoid areas within 1,300 feet of the colony, unless a shorter distance is approved by the Conservancy, USFWS, and CDFW.

- Implement Yolo HCP AMM # 21 (Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird).

Burrowing owl (*Athene cunicularia*)

HABITAT AND BIOLOGY: Burrowing owl is a state species of special concern. Nesting sites are of concern to CDFW (2019c). Burrowing owls primarily inhabit open, dry grassland and desert habitats, such as grasses, forbs, and open shrub stages of pinyon-juniper and ponderosa pine habitats (CWHR 2020, Shuford and Gardali 2008). Main habitat components include burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation (Shuford and Gardali 2008). Burrowing owls most commonly use ground squirrel burrows, but they may also use badger, coyote, and fox holes or dens; or human-made structures such as culverts, piles of concrete rubble, pipes and nest boxes (CWHR 2020; Shuford and Gardali 2008). An active nest chamber is often lined with excrement, pellets, debris, grass and feathers (CWHR 2020). This species also thrives in highly altered human landscapes. In agricultural areas, owls nest along roadsides, under water conveyance structures, and near and under runways and similar structures. In urban areas, burrowing owls persist in low numbers in highly developed parcels, busy urban parks, and adjacent to roads with heavy traffic. In the Imperial Valley, owls are able to excavate their own burrows in soft earthen banks of ditches and canals (Shuford and Gardali 2008).

Burrowing owls are a semi-colonial species that breed in California from March through August, though breeding can begin as early as February and extend into December (Shuford and Gardali 2008; CWHR 2020). A large proportion of adults show strong nest site fidelity. Burrowing owls typically feed on a broad range of insects, but also on small rodents, birds, amphibians, reptiles, and carrion. Foraging usually occurs close to their burrow (Shuford and Gardali 2008).

RANGE: Burrowing owls are a year-round resident in most of California, particularly in the Central Valley, San Francisco Bay region, Carrizo Plain, and Imperial Valley (Shuford and Gardali 2008). This species is generally absent from the humid coastal counties north of

Marin County and from mountainous areas above 5,300 feet (Shuford and Gardali 2008; CWHR 2020).

KNOWN RECORDS: There are 35 CNDDB record of burrowing owl within the nine-quad area surrounding the BSA. The closest record (Occurrence #813) is from 2006, approximately 4.4 miles northeast of the BSA. Two adults and one juvenile were observed outside of a burrow at the north end of the Sacramento International Airport. The closest eBird.org burrowing owl sighting (no evidence of nesting) was recorded approximately 1.0 mile east of the BSA in 2013. The closest eBird.org sighting of a potential nest was recorded approximately 2.2 miles southwest of the BSA in 2019.

HABITAT PRESENT IN THE BSA: Foraging habitat occurs in the annual grassland and urban ruderal areas within the BSA. No potential burrow sites were observed in the BSA.

DISCUSSION: No burrowing owls, or sign of burrowing owl were observed during biological surveys. No burrows were observed on the levee. No California ground squirrels were observed during the biological surveys and no suitable burrows were identified. Suitable burrows are unlikely to become established in the BSA and areas within 500 feet due to levee maintenance activities and periodic flooding of areas within the Yolo Bypass, the Cache Creek settling basin, and along the Outfall Channel. Burrowing owl may forage in the BSA. No potential nesting habitat was observed in the BSA or within 500 feet.

MITIGATION MEASURES: Burrowing owl is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #18 (Minimize Take and Adverse Effects on Western Burrowing Owl) for projects within 500 feet of suitable habitat. AMM #18 requires surveys by a qualified biologist. If burrowing owl is detected, additional AMMs are required. No active burrows are allowed to be disturbed during the breeding season. Baseline surveys conducted in February and June 2020 may satisfy the survey requirements under AMM #18. The Yolo HCP requires implementation of AMM #8 (Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas) when siting temporary work areas outside of permanent project footprints. Temporary work areas must be sited in areas that avoid adverse effects on occupied burrows. See section V. C. 1 for details.

- Implement Yolo HCP AMM #8 (Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas) and #18 (Minimize Take and Adverse Effects on Western Burrowing Owl).

Swainson's hawk (*Buteo swainsoni*)

HABITAT AND BIOLOGY: Swainson's hawk is a state threatened species. Swainson's hawks nest in open riparian habitat, in scattered trees, or in small groves in sparsely vegetated flatlands. Nesting areas are usually located near water, but are occasionally found in arid regions. Typical habitat includes open desert, grassland, or cropland containing scattered, large trees or small groves (CWHR 2020). Swainson's hawk breeds from late March to late October (CWHR 2020). They forage in adjacent grasslands, suitable grain or alfalfa fields,

or in livestock pastures, feeding on rodents, small mammals, small birds, reptiles, large arthropods, amphibians, and, rarely, fish (Bloom 1980; CWHR 2020).

RANGE: Swainson's hawk is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert (CWHR 2020). Swainson's hawks breed and forage in the California's Central Valley in spring and summer. Migrating individuals move south through the southern and central interior of California in September and October, some migrating as far as South America (CWHR 2020).

KNOWN RECORDS: There are 426 CNDDB record of Swainson's hawk within the nine-quad area surrounding the BSA. The closest record (Occurrence #1702) is from 2000, approximately 1.4 miles east of the BSA. An active nest site was observed in a cottonwood tree surrounded by row crops. There are no closer sightings of Swainson's hawk associated with nesting recorded in eBird.org.

HABITAT PRESENT IN THE BSA: Some trees within the mixed willow alliance surrounding Outfall Channel provide marginal nesting habitat for Swainson's hawk. The annual grassland, riparian scrub, and urban ruderal areas provide foraging habitat.

DISCUSSION: Swainson's hawks were observed foraging over the BSA during the 17 June 2020. One active Swainson's hawk nest was observed outside of the BSA, approximately 850 feet to the northwest in the Cache Creek Settling Basin (see location on Figure 4, Sheet 2, and Photo 18 in Appendix D). The nest was near the top of an approximately 60-foot-tall Goodding's black willow (*Salix gooddingii*). One adult Swainson's hawk was observed sitting in the nest. A second adult was observed soaring and diving in the vicinity of the nest. A separate stick nest was observed roughly 750 feet northwest of the BSA near the top of a utility line tower. The second nest is too small to be that of a Swainson's hawk, and showed no signs of activity. No other potential raptor nests were observed in the BSA or within 1,320 feet of the BSA during the survey. Most trees within the BSA are approximately 10 to 15 feet tall. These shorter trees are unlikely to be used for raptor nesting, especially with taller more suitable trees in the vicinity. A few trees within the mixed willow alliance in the Yolo Bypass are taller, broader and more likely to provide suitable nesting habitat. Swainson's hawk may forage in the BSA. In future years, Swainson's hawk could nest in the taller trees located at the eastern edge of the BSA in the Yolo Bypass, or in any number of larger trees located outside the BSA, within 1,320 feet.

MITIGATION MEASURES: Swainson's hawk is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) for projects within 1,320 feet of nesting habitat. Under AMM #16, a qualified biologist will conduct a preconstruction survey for active nests within 15 days prior to construction, between 15 March and 30 August. If active nests are found, a 1,320-foot avoidance buffer is required around the nests. While the nest is active, Project related activities will only be allowed if nest monitoring determines the Swainson's hawks are not exhibiting agitated behavior.

- Implement Yolo HCP AMM #16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite).

Northern harrier (*Circus cyaneus*)

HABITAT AND BIOLOGY: Northern harriers breed and forage in a variety of open (treeless) habitats that provide adequate vegetative cover, an abundance of suitable prey, and scattered hunting, plucking, and lookout perches such as shrubs and fence posts. In California, such habitats include freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands, vernal pool complexes, weed fields, ungrazed or lightly grazed pastures, low-growing crop fields, sagebrush flats, and desert sinks (Shuford and Gardali 2008). Northern harriers feed mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and rarely on fish (CWHR 2020).

Northern harriers nest on the ground, mostly at marsh edge of emergent wetlands or along rivers or lakes (CWHR 2020), and generally within patches of dense vegetation in undisturbed areas (Shuford and Gardali 2008). They may also nest in grasslands, grain fields, or on sagebrush flats several miles from water. Nests are built of large mounds of sticks on wet areas, and a smaller cup of grasses on dry sites. Breeding occurs from April to September, with peak activity occurring June through July. Single clutches are produced annually. The nestling period lasts about 53 days (CWHR 2020).

RANGE: Northern harriers occur from annual grassland up to lodgepole pine and alpine meadow habitats. They can occur at elevations as high as 10,000 feet in the eastern Sierra Nevada mountains. Northern harriers breed from sea level to 5,700 feet in the Central Valley and southern Sierra Nevada, and up to 3,600 feet in northeastern California. Northern harriers are a permanent resident of the northeastern Modoc plateau and coastal areas and a less common resident of the Central Valley (Shuford and Gardali 2008, CWHR 2020).

KNOWN RECORDS: There is one CNDDB record of northern harrier within the nine-quad area surrounding the BSA. The record (Occurrence #51) is from 2015, approximately 7.3 miles southwest of the BSA. A nesting pair and one nestling were detected in a wheat field on the north side of County Road 29. There are no closer sightings of northern harrier associated with nesting according to eBird.org.

HABITAT PRESENT IN THE BSA: Open, treeless portions of the riparian scrub and annual grassland provide marginal nesting habitat for northern harrier. The annual grassland, seasonal wetland, and urban ruderal areas provide foraging habitat.

DISCUSSION: One northern harrier was observed foraging over the BSA and surrounding area during the 27 February 2020 biological survey. The potential nesting habitat in the treeless portions of riparian scrub and annual grassland is marginal due to the level of disturbance within the BSA (road, levee, railroad, and pump station maintenance, people

recreating, etc.) and its proximity to County Road 22. Northern harrier may forage and nest in the BSA.

MITIGATION MEASURES: Implementation of the measures proposed for Swainson's hawk (described above), and measures for Nesting Birds protected under the MBTA or regulated by CA Fish and Game Code (described below) will also protect northern harrier.

White-tailed kite (*Elanus leucurus*)

HABITAT AND BIOLOGY: White-tailed kite nest trees can be located in a variety of wooded habitats including riparian areas, oak woodlands, eucalyptus groves, and scattered isolated trees (YHC 2018). Guidance from the Yolo HCP/NCCP (2018) notes that trees over 20 feet tall provide suitable nesting habitat. Areas with substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. Nests are typically located from 20 to 100 feet above the ground near the top of dense oak, willow, or other tree stands, and are often located near an open foraging area with a dense population of voles (CWHR 2020). They are rarely found away from agricultural areas. They forage in cultivated lands (field crops, grain and hay, and cultivated/pasture land), annual grasslands and wetland areas (YHC 2019). White-tailed kite prey mostly on voles and other small, diurnal mammals, occasionally on birds, insects, reptiles, and amphibians (CWHR 2020). White-tailed kites breed from February to October, with peak activity from May to August.

RANGE: White-tailed kites are a year-round resident of coastal and valley lowlands in cismontane California; they are absent from higher elevations in the Sierra Nevada, the Modoc Plateau, and from most desert regions (CWHR 2020).

KNOWN RECORDS: There are seven CNDDB records of white-tailed kite within the nine-quad area surrounding the BSA. The closest record (Occurrence #46) is from 1999, approximately 7.4 miles south of the BSA. The kites nested in a tree at an abandoned ranch located north of County Road 30B. CDFW considers this nesting site possibly extirpated. There are no closer sightings of white-tailed kite associated with nesting according to eBird.org.

HABITAT PRESENT IN THE BSA: The trees bordering the Outfall Channel in the Yolo Bypass provide marginal nesting habitat. Foraging habitat occurs in the annual grassland. Some trees within the mixed willow alliance surrounding Outfall Channel in the Yolo Bypass provide marginal nesting habitat for white-tailed hawk. The annual grassland provides foraging habitat.

DISCUSSION: White-tailed kites were not observed in the BSA during the biological surveys. No potential white-tailed kite nests were observed in the BSA or within 1,320 feet. Most trees within the BSA are between 10 and 15 feet tall. These shorter trees are unlikely to be used for raptor nesting, especially with taller more suitable trees in the vicinity. A few trees within the mixed willow alliance in the Yolo Bypass are taller, broader and more likely to provide suitable nesting habitat. White-tailed kite may forage in the BSA. White-tailed

kite could nest in the taller trees located at the eastern edge of the BSA in the Yolo Bypass, or in any number of larger trees located outside the BSA, within 1,320 feet.

MITIGATION MEASURES: White-tailed kite is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) for projects within 1,320 feet of nesting habitat. See mitigation measures for Swainson's hawk for details.

- Implement Yolo HCP AMM #16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite).

Song sparrow "Modesto Population" (*Melospiza melodia*)

HABITAT AND BIOLOGY: The Modesto Population of song sparrow (hereafter, 'Modesto song sparrow') is a state species of special concern. Modesto song sparrow is a year-round resident that prefers emergent freshwater marshes dominated by tules and cattails as well as riparian willow thickets. Modesto song sparrows also nest in riparian forests of valley oak with sufficient understory of blackberry, along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. The Modesto song sparrow thrives where extensive wetlands remain. They may also breed in sparsely vegetated irrigation canals (Shuford and Gardali 2008).

RANGE: The Modesto song sparrow is endemic to California, with established populations in the Sacramento Valley, Sacramento-San Joaquin River Delta, and northern San Joaquin Valley. It is most abundant in the Butte Sink area of the Sacramento Valley and in the Sacramento-San Joaquin River Delta. They are almost entirely absent from the main stem and tributaries of the Sacramento River above Sacramento (Shuford and Gardali 2008).

KNOWN RECORDS: There are three CNDDB records of Modesto song sparrow within the nine-quad area surrounding the BSA. The closest record (Occurrence #83) is from 1900, approximately 4.6 miles southeast of the BSA. Three eggs were collected from a field along a canal. A second nearby record (Occurrence #85) is from 2011, approximately 4.6 miles north of the BSA. Two males were detected counter-singing approximately 5 miles northwest of the Sacramento International Airport. There are no closer sightings of Modesto song sparrow associated with nesting according to eBird.org.

HABITAT PRESENT IN THE BSA: The riparian scrub and mixed willow alliance provide suitable nesting habitat. The annual grassland provides suitable foraging habitat for Modesto song sparrow.

DISCUSSION: Modesto song sparrow was not observed duringAMM # biological surveys. Modesto song sparrow could nest in the willows along the Outfall Channel or the riparian scrub in the Yolo Bypass. Suitable foraging habitat occurs in the annual grassland within the BSA.

MITIGATION MEASURES: Implementation of the recommended mitigation measures for Nesting Birds protected under the MBTA or regulated by CA Fish and Game Code (described below) will protect Modesto song sparrow.

Least Bell's vireo (*Vireo bellii pusillus*)

HABITAT AND BIOLOGY: Least Bell's vireos are migratory and usually arrive at their California breeding grounds in mid-March to early April. They begin departing for their wintering grounds by late July but are generally present on their breeding grounds until late September (YHC 2018). Least Bell's vireo inhabits willow thickets and other dense riparian habitat below ± 2,000 feet (CWHR 2020). Two features appear to be essential for breeding habitat: (1) the presence of dense cover within 3 to 6 feet of the ground, where nests are typically placed; and (2) a dense stratified canopy for foraging. Nests are placed in a wide variety of plant species, but the majority are placed in willows (*Salix* spp.) and mule fat (*Baccharis glutinosa*). Nests tend to be placed in openings along the riparian edge, where exposure to sunlight allows the development of shrubs (YHC 2018).

Least Bell's vireo obtain prey primarily by foliage gleaning (picking prey from leaf or bark substrates) and hovering (removing prey from vegetation surfaces while fluttering in the air). Foraging occurs most frequently in willows, but occurs on a wide range of riparian species and even some non-riparian plants that may host relatively large proportions of large prey (YHC 2018).

RANGE: Known from canyons in San Benito and Monterey counties., coastal areas from Santa Barbara County south, and western edges of southern CA deserts. Usually found near water, including intermittent streams (CWHR 2020). Recent sightings have been recorded in Yolo County in 2010 and 2011. This suggests that the species range has expanded towards the northern extent of its historical breeding range. The Yolo County HCP protects habitat along Cache Creek, Putah Creek, and the Sacramento River (YHC 2018).

KNOWN RECORDS: There are two CNDDB record of least Bell's vireo within the nine-quad area surrounding the BSA. The closest record (Occurrence #515) is from 1877, approximately 9 miles southeast of the BSA. Two adult males were collected from riparian vegetation along the Sacramento River. A second nearby record (Occurrence #328) is from 2013, approximately 11 miles southeast of the BSA. Courtship and nesting behaviors were observed in 2010 and 2011 along the south fork of Putah Creek. One individual was observed during the 2013 breeding season. According to eBird.org, the closest sighting is from 2011 in the Putah Creek Sinks approximately 9 miles south of the BSA.

HABITAT PRESENT IN THE BSA: Potentially suitable nesting and foraging habitat occurs in the mixed willow alliance and riparian scrub shrub along the Outfall Channel.

DISCUSSION: Least Bell's vireo was not observed in the BSA during the biological surveys. Least Bell's vireo could nest in the riparian vegetation bordering the Outfall Channel from approximately mid-March through July. However, the lack of nearby known records for this species indicate that their range may not extend as far north as the BSA. Least Bell's vireo

is unlikely to occur in the BSA. The Project is located within 500 feet of potentially suitable habitat.

MITIGATION MEASURES: Least Bell's vireo is a Yolo HCP covered species. The Yolo HCP requires implementation of AMM #19 (Minimize Take and Adverse Effects on Least Bell's Vireo) for projects within 500 feet of suitable habitat for Least Bell's vireo. AMM#19 requires a survey for active territories, consistent with USFWS (2001) guidelines, between 1 April and 15 July. If occupied territories are identified, a qualified biologist will monitor construction activities in the vicinity of all active territories to verify that activities do not affect nest success.

- Implement Yolo HCP AMM #19 (Minimize Take and Adverse Effects on Least Bell's Vireo).

Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code

The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) protects most birds and their nests, including most non-migratory birds in California. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

In February 2020, the USFWS proposed changes to the MBTA that would restrict prohibitions to directed (not incidental) take or killing of migratory birds, their nests, or their eggs (USFWS 2020). In January 2020, the U.S. House of Representatives Natural Resources Committee passed legislation that, if passed by Congress, would amend the MBTA to specifically *prohibit* incidental or accidental take of migratory birds unless permitted by USFWS. As of June 2020, neither proposed change has been finalized.

California Fish and Game Code (FGC) § 3503 protects most birds and their nests. FGC § 3503.5 further protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. In 2019, the State of California enacted the California Migratory Bird Protection Act. The Act prohibits the take or possession of any bird or any part of birds listed under the MBTA as of January 2020. The California Fish and Game Code, continues to use a broad definition of take, including incidental take.

HABITAT PRESENT IN THE BSA: The BSA provides potential nesting habitat for birds listed under the MBTA and/or regulated by FGC. Depending on the species, birds may nest on trees, shrubs, in or on the ground, and on artificial structures such as buildings, poles, and signs.

DISCUSSION: Numerous birds listed under the MBTA or regulated by CA Fish and Game Code were observed during the surveys (Appendix C). Active nests of cliff swallows (approximately 20 on the Cache Creek outfall structure) a mourning dove (on a willow along the Outfall Channel in the Yolo Bypass), and Brewer's blackbird (on the undercarriage of a train car near the pump facility) were observed in the BSA during the 17 June 2020 survey. Other nests could become established in the BSA during future nesting seasons. Nesting or attempted nesting by migratory birds and birds-of-prey is anticipated from 1 February to 30 September. Construction during the nest season could lead to active nest destruction or abandonment.

MITIGATION MEASURES: Not all nesting birds are protected under the Yolo HCP. The following measures are recommended to protect nesting birds listed under the MBTA or regulated by A Fish and Game Code. The survey may be combined with other preconstruction nesting bird surveys.

- Vegetation (trees and shrubs) scheduled for removal should be removed during the non-breeding season from 1 September to 31 January.
- If construction or vegetation removal occurs between 1 February and 31 August, a qualified biologist shall conduct a preconstruction survey for the active nests of protected birds. The survey shall cover all areas to be disturbed by the project, and accessible areas within 100 feet for MBTA bird nests, and 300 feet for bird-of-prey nests. The survey shall occur approximately one week prior to construction. The measures listed below shall be implemented based on the survey results.

<u>No Active Nests Found:</u>

- If no active nest of a bird of prey, MBTA bird, or other CDFW protected bird is found, then no further avoidance and minimization measures are necessary.

<u>Active Nests Found:</u>

- If an active nest of a bird of prey, MBTA bird, or other CDFW protected bird is discovered that may be adversely affected by construction activities or an injured or killed bird is found, immediately:

  1) Stop all work within a 300-foot radius of the active nest
  2) Notify the Engineer
  3) Do not resume work within the specified radius of the discovery until authorized.

- The biologist shall establish a minimum 300-foot Environmentally Sensitive Area (ESA) if the nest is of a bird of prey, and a minimum 100-foot ESA around the nest if the nest is of an MBTA bird other than a bird of prey. Activity in the ESA will be restricted as follows:

  1) Do not enter the ESA unless authorized.
  2) If the ESA is breached, immediately:
  3) Secure the area and stop all operations within 60 feet of the ESA boundary
  4) Notify the Engineer

5) If the ESA is damaged, the County determines what efforts are necessary to remedy the damage and who performs the remedy.

- No construction activity shall be allowed in the ESA until the biologist determines that the nest is no longer active, or unless monitoring determines that a smaller ESA will protect the active nest.
- The ESA may be reduced if the biologist monitors the construction activities and determines, in coordination with CDFW, that no disturbance to the active nest is occurring. Reduction of the ESA depends on the species of bird, the location of the nest relative to the Project, Project activities during the time the nest is active, and other Project-specific conditions.
- Between 1 February and 30 September, if additional vegetation removal is required after construction has started, the survey for active nests will be repeated in the area to be affected. If an active nest is found, the above measures will be implemented.
- If an active nest is identified in or adjacent to the construction zone after construction has started, the above measures will be implemented to ensure construction is not causing disturbance to the nest.

D. Evaluation of Special-Status Plants

No State or federal listed special-status plant species were observed in the BSA during protocol botanical survey conducted on 17 June 2020, during the evident and identifiable period. One CNPS California Rare Plant Rank 4.2 plant species was observed in the BSA (Parry's rough tarplant, *Centromadia parryi* ssp. *rudis*). Parry's rough tarplant and other special-status plant species with potential to occur are discussed below.

Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*)

HABITAT AND BIOLOGY: Ferris' milk-vetch is an annual herb found in vernally mesic meadows and seeps, valley and foothill grasslands, and alkaline flats from 6 to 246 feet. It blooms March through June (Jepson eFlora 2020); April through May (CNPS 2020a).

RANGE: This species is endemic to California. Ferris' milk-vetch is known from Butte, Colusa, Glenn, Sutter, and Yolo counties. It is presumed extirpated from Solano County (CNPS 2020a).

KNOWN RECORDS: There are two CNDDB records of Ferris' milk vetch in the nine-quad area surrounding the BSA. The closest CNDDB record of Ferris' milk-vetch (Occurrence #17) is from 1954, approximately 7.9 miles southeast of the BSA. Ferris' milk-vetch was collected along the Yolo Causeway.

HABITAT PRESENT IN THE BSA: The seasonal wetland and annual grassland provide habitat for Ferris' milk vetch.

DISCUSSION: Ferris' milk vetch was not observed in the BSA during the botanical survey conducted in June 2020 during the evident and identifiable period.

Pappose tarplant (*Centromadia parryi* ssp. *parryi*)

HABITAT AND BIOLOGY: Pappose tarplant is an annual herb found on alkaline substrates in chaparral, coastal prairie, meadow and seeps, coastal salt marshes and swamps, and valley and vernally mesic foothill grasslands, and springs from sea level to 1378 feet. It blooms May through November (CNPS 2020a); June through October (Jepson eFlora 2020).

RANGE: This species is endemic to California. Pappose tarplant is known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma, and Yolo counties (CNPS 2020a).

KNOWN RECORDS: There is one CNDDB record of pappose tarplant within the nine-quad area surrounding the BSA. The record (Occurrence # 37) is from 2011, approximately 7.8 miles south of the BSA. Pappose tarplant was collected in an area dominated by gumweed along I-80 on the west edge of the Yolo Bypass Wildlife Area.

HABITAT PRESENT IN THE BSA: The annual grassland and seasonal wetland provide potential habitat for pappose tarplant.

DISCUSSION: Pappose tarplant was not observed in the BSA during the botanical survey conducted in June 2020, during the evident and identifiable period.

Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*)

HABITAT AND BIOLOGY: Annual herb found in alkaline, vernally mesic seeps in Valley and foothill grassland, vernal pools, and sometimes along roadsides from 0 to 328 ft (CNPS 2020). Blooms May through October (CNPS 2020); June through October (Jepson eFlora 2020).

RANGE: Endemic to California. Known from Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter and Yolo counties. (CNPS 2020).

KNOWN RECORDS: CNDDB has no geographical record information available for this species. The Consortium of California Herbaria has specimen records for 11 Parry's rough tarplant specimens collected within 10 miles of the BSA; 25 specimens collected in the Davis-Vacaville-Woodland area; and approximately 105 specimens from the Central Valley from Chico to Merced (CCH 2020).

HABITAT PRESENT IN THE BSA: The annual grassland and seasonal wetland provide potential habitat for Parry's rough tarplant.

DISCUSSION: Approximately 200 Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) individuals were documented in the BSA during the 17 June 2020 botanical survey. The plants were observed on the southern bank of Cache Creek near the northern edge of the BSA (Figure 4; Photos 15 and 16 in Appendix D). Parry's rough tarplant is a CNPS

California Rare Plant Rank 4.2 species (a watch list species of limited distribution; CNPS 2020). CNPS Rank 4.2 species may be considered under CEQA at the Lead Agency's discretion. Based on herbarium specimen records (see known records discussion above), this species is not especially uncommon locally or regionally (CCH 2020). The Parry's rough tarplant individuals observed in the BSA are not at the periphery of the taxon's range. Sycamore Environmental botanists have encountered this taxon on many disturbed/agricultural sites in the Central Valley within the last 10 years. The Parry's rough tarplant individuals observed in the BSA did not exhibit unusual morphology and they were not observed on unusual substrate. The Parry's rough tarplant observed in the BSA does not meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) or §15380.

Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)

HABITAT AND BIOLOGY: Woolly rose-mallow is a perennial rhizomatous herb found in riprap on sides of levees, freshwater marshes, wet banks, swamps and wetlands from sea level to 395 feet. Blooms from June through September (CNPS 2020a); July through November (Jepson eFlora 2020).

RANGE: This species is endemic to California. Woolly rose-mallow is known from Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties (CNPS 2020a).

KNOWN RECORDS: There are five CNDDB records for woolly rose-mallow in the nine-quad area surrounding the BSA. The closest record (Occurrence #198) is from 1996 and is 1.4 miles east of the BSA. A single shrub of woolly rose-mallow was observed on the bank of a canal on the south side of the Yolo Bypass.

HABITAT PRESENT IN THE BSA: The banks of the Outfall Channel, Diversion Channel, and Cache Creek provide potential habitat for woolly rose-mallow.

DISCUSSION: Woolly rose-mallow was not observed in the BSA during the botanical survey conducted in June 2020, during the evident and identifiable period.

Saline clover (*Trifolium hydrophilum*)

HABITAT AND BIOLOGY: Saline clover is an annual herb found in salt marshes and swamps, mesic or alkaline valley and foothill grasslands, and vernal pools from sea level to 985 feet. It blooms April through June (CNPS 2020a; Jepson eFlora 2020).

RANGE: This species is endemic to California. Saline clover is known from Alameda, Contra Costa, Colusa, Lake, Monterey, Napa, Sacramento, San Benito, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, and Yolo counties (CNPS 2020a).

KNOWN RECORDS: There is one CNDDB record of saline clover within the nine-quad area surrounding the BSA. The record (Occurrence #43) is from 2011, approximately 3.7 miles

southwest of the BSA. Approximately five plants were observed in a hydric alkaline grassland habitat on the edge of a vernal pool in Woodland Regional Park.

HABITAT PRESENT IN THE BSA: The annual grassland and seasonal wetland provide potential habitat for saline clover.

DISCUSSION: Saline clover was not observed in the BSA during the botanical survey conducted in June 2020, during the evident and identifiable period. An unidentified clover (*Trifolium* sp.) was observed on the terrace just south of the Outfall Channel within the Yolo Bypass in February 2020. The clover was not yet in flower or fruit and could not be identified to species. The clover did not possess fleshy stems or leaves typically found on saline clover. The area with the unidentified clover was surveyed on 17 June 2020, however no clover of any species was observed.

E. Evaluation of Sensitive Natural Communities

Waters and Wetlands

HABITAT PRESENT IN THE BSA: This report incorporates the results of a concurrently prepared aquatic resource delineation report prepared to U.S. Army Corps of Engineers minimum standards (Sycamore Environmental 2020). There are 1.64 acres of wetlands and waters in the BSA, consisting of a seasonal wetland (0.16 acre), the Outfall Channel (0.92 acre), Cache Creek (0.37 acre), the Diversion Channel (0.18 acre), and the Drainage Ditch (0.01 acre). These aquatic resources are potential jurisdictional features under the Clean Water Act, pending a jurisdictional verification by the U.S. Army Corps of Engineers (Sycamore Environmental 2020). Wetlands and waters are shown on Figure 4.

DISCUSSION: The 0.16 acre of seasonal wetland and 1.48 acre of perennial and intermittent channels are potential Clean Water Act § 404 jurisdictional features (Sycamore Environmental 2020). With the possible exception of the recently constructed Drainage Ditch, these features would likely be considered Waters of the State under the Porter-Cologne Water Quality Control Act, and would likely be subject to CDFW Lake and Streambed Agreements (FGC § 1600). Placement of fill in these features may require a permit from the U.S. Army Corps of Engineers and a Water Quality Certification from the Regional Water Quality Control Board. Alteration of the flow, bed, bank, or riparian vegetation associated with the channel features would require a CDFW Lake and Streambed Alteration Agreement.

MITIGATION MEASURES: Coverage under the Yolo HCP requires payment of a Wetlands Fee for impacts to wetlands, riparian, and riverine land cover types. Coverage under the Yolo HCP ensures no net loss of wetlands. The following measures are recommended to protect wetlands and waters:

- The Project shall acquire Yolo HCP coverage and pay applicable fees for impacts to sensitive aquatic communities. Alternatively, the Yolo HCP allows for aquatic resource restoration in-lieu of payment of the Wetlands Fee.

- The Project shall obtain required permits, certifications, and authorizations from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife for impacts to sensitive aquatic resources.

F. Evaluation of Essential Fish Habitat

Under the Magnuson-Stevens Act, the Pacific Fishery Management Council (PFMC) manages salmon fisheries through the designation of Essential Fish Habitat (EFH). Salmon EFH includes all streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e. natural waterfalls in existence for several hundred years), but includes aquatic areas above all artificial barriers except specifically named impassible dams. Essential habitat types identified by NMFS for salmon include juvenile rearing areas, juvenile migration corridors, areas for growth and development into adulthood, adult migration corridors, and spawning areas (NMFS 2008). EFH has not been designated for steelhead.

The Magnuson-Stevens Act requires consultation for all federal agency actions that may adversely affect EFH. Consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH. Though EFH Assessments have their own information requirements, federal agencies are encouraged to incorporate an EFH Assessment into documents prepared for other purposes such as Biological Assessments for the federal Endangered Species Act consultations (NMFS 2004).

ESSENTIAL FISH HABITAT IN THE BSA: The lower Sacramento River and its tributaries are EFH for Chinook salmon (all runs; NMFS 2020b). The Yolo Bypass, and the aquatic features located therein are accessible to salmonids and would be considered EFH. The aspects of salmonid habitat present in the BSA are discussed in Section V.C.2.

MITIGATION MEASURES: Implementation of the mitigation measures for list fish (Section V.C.2) will protect EFH. The Project will obtain coverage under the Yolo HCP, which requires payment of a Wetlands Fee for impacts to wetlands, riparian, and riverine land cover types. It is anticipated that the Project will need to consult with NMFS for effects to federal listed salmonids. The consultation would include a paired consultation with NMFS for effects on EFH.

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PREPARERS

Jeffery Little, Vice President, Sycamore Environmental. Principal, Project Manager, and Regulatory Compliance Specialist with over 27 years experience working with environmental review, permitting, biological, and cultural issues.
Responsibilities: Principal in charge

Jessie Quinn Ph.D., Ecology, University of California, Davis, CA. Over 20 years of experience in ecological and wildlife research, including over 9 years of experience as an environmental consultant. She has managed and conducted wetland functional analyses, environmental risk assessments, and restoration design evaluations. Her research has focused on the ecology and management of mammals, birds, and grasslands.
Responsibilities: Project management, report review

Michael Bower, M.S., Ecology, University of California, Davis, CA. Twelve years of experience as a biologist/ botanist with Sycamore Environmental. Mr. Bower serves as both field biologist and technical report writer. He conducts wetland delineations and surveys for special-status plants and wildlife. He prepares reports used in CEQA/NEPA that quantify resources, identify impacts, and recommend mitigation measures. He prepares restoration, weed management, and monitoring plans. He is a certified Ecologist and Professional Wetland Scientist (#2230).
Responsibilities: Fieldwork, plant identification, and report preparation

Monica Coll, B.A., Environmental Science and Conservation Biology, Clark University, Worcester, MA. Two years experience as a biologist. Her background is in conservation biology and she has accumulated a range of knowledge including project management skills and wildlife survey experience. Ms. Coll serves as both field biologist and technical report writer. She conducts construction monitoring and wildlife surveys, writes biological resource evaluations, and assists with plant surveys and wetland delineations.
Responsibilities: Fieldwork, report preparation

Kalia Schuster, M.S., Applied Marine and Watershed Science, California State University, Monterey Bay, CA. Three years experience as a biologist. Her background is in habitat conservation, and she has accumulated extensive experience in vegetation mapping, specifically in the Sacramento-San Joaquin Delta. Ms. Schuster serves as both field biologist and assisting technical report writer. She assists with construction monitoring, wildlife surveys, plant surveys, wetland delineations, and biological resource evaluations.
Responsibilities: Fieldwork, plant identification, and report preparation

Aramis Respall, GIS Analyst/ CAD Operator. Over 20 years experience in drafting and spatial analysis using AutoCAD map and ArcGIS for public and private projects. He prepares figures for biological and permitting documents such as project location maps, aerial photograph exhibits, biological resource maps, wetlands/waters delineation maps, project impact maps, and other supporting graphics. Mr. Respall provides geospatial analysis and support for projects involving geodesy, hydrology, watershed studies, project impact and mitigation analyses, listed species, and designated critical habitat.
Responsibilities: Figure preparation, spatial analysis

APPENDIX A.

Database Queries

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
http://kim_squires@fws.gov

In Reply Refer To: December 16, 2020
Consultation Code: 08FBDT00-2021-SLI-0055
Event Code: 08FBDT00-2021-E-00132
Project Name: Woodland Yolo Bypass Culvert Replacement Project

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

To Whom It May Concern:

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

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

Project Summary

Consultation Code: 08FBDT00-2021-SLI-0055

Event Code: 08FBDT00-2021-E-00132

Project Name: Woodland Yolo Bypass Culvert Replacement Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Project is the replacement of three existing 36-inch diameter culvert pipes that run through the Yolo Bypass Levee. The culverts serve as the stormwater discharge location for the City of Woodland.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.6779552706148N121.67286793717297W

Counties: Yolo, CA

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

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

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

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

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

Birds

NAME	STATUS
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak *Cordylanthus palmatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1616	Endangered

Critical habitats

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

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: December 16, 2020
Consultation Code: 08ESMF00-2021-SLI-0565
Event Code: 08ESMF00-2021-E-01557
Project Name: Woodland Yolo Bypass Culvert Replacement Project

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

To Whom It May Concern:

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

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08ESMF00-2021-SLI-0565

Event Code: 08ESMF00-2021-E-01557

Project Name: Woodland Yolo Bypass Culvert Replacement Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Project is the replacement of three existing 36-inch diameter culvert pipes that run through the Yolo Bypass Levee. The culverts serve as the stormwater discharge location for the City of Woodland.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.6779552706148N121.67286793717297W

Counties: Yolo, CA

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

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

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

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

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

Birds

NAME	STATUS
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak *Cordylanthus palmatus*	Endangered

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/1616

Critical habitats

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

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Eldorado Bend (3812177) OR Knights Landing (3812176) OR Verona (3812175) OR Woodland (3812167) OR Grays Bend (3812166) OR Taylor Monument (3812165) OR Merritt (3812157) OR Davis (3812156) OR Sacramento West (3812155))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Chloropyron palmatum palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S3	
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S1S2	
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 6 chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S2	
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Vireo bellii pusillus	ABPBW01114	Endangered	Endangered	G5T2	S2	
least Bell's vireo						

Record Count: 61

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

15 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3, 4], Found in Quads 3812177, 3812176, 3812175, 3812167, 3812166, 3812165, 3812157 3812156 and 3812155;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?

Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 15 December 2020].

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rareplants@cnps.org

APPENDIX B.

Species Evaluated Table

Species Evaluated Table.

Special-Status Species/ Common Name	Federal Status [a]	State Status [ab]	Source [c]	Yolo HCP [d]	Habitat Requirements	Potential to Occur within the Study Area?
Invertebrates						
Bombus crotchii Crotch bumble bee	--	C	2	No	Inhabits open grassland and scrub habitats. Primarily nests underground. Generalist foragers visiting a wide variety of flowering plants including plants in the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae plant families. Requires floral resources distributed over the spring, summer, and fall. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common in the Central Valley, now considered extirpated from the northernmost part of the Valley, and nearly absent from near Arbuckle, south (Hatfield et al. 2014; Xerces 2018).	No. The BSA and surrounding landscape are heavily disturbed and/or cultivated and lack sufficient floral resources over the spring, summer, and fall. Much of the BSA is prone to flooding, which may preclude burrows. This species is potentially extirpated from the valley floor.
Bombus occidentalis Western bumble bee	--	C	2	No	Colony-nesting bumble bee found in meadows and grasslands with abundant floral sources. Requires adequate nectar and pollen supplies from February to November. Common nectar sources include *Cirsium*, *Eriogonum*, *Solidago*, *Aster*, and *Ceanothus*. Requires floral resources distributed over the spring, summer, and fall. Nests in underground cavities such as squirrel burrows and in open west- and southwest-facing slopes often bordered by trees. Occasionally nests above ground in logs. Isolated patches of habitat are not sufficient to fully support bumble bee populations. Historically common on the west coast of North America from southern British Columbia, through central CA, south to NM. In CA, western bumble bee is now restricted to high-elevation Sierra Nevada sites and a few records along the north coast (Xerces 2018).	No. The BSA and surrounding landscape are heavily disturbed and/or cultivated and lack sufficient floral resources over the spring, summer, and fall. Much of the BSA is prone to flooding, which may preclude burrows. The BSA is outside the range.
Branchinecta lynchi Vernal pool fairy shrimp	CH, T	--	1, 2	No	Occurs in vernal pools or vernal pool-like habitats. Does not occur in riverine contexts or in permanent waters. Found in 28 counties across the Central Valley and coast ranges of CA, and in southern OR. Most commonly found in small (< 0.05 ac), clear to tea-colored vernal pools with mud, grass, or basalt bottoms in unplowed grasslands (USFWS 2005).	Yes, in the seasonal wetland only. See discussion.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	CH, T	--	1, 2	Yes	Requires an elderberry shrub (Sambucus sp.) as a host plant (USFWS 2014). Occurs throughout the Central Valley, from approximately Shasta Co. to Madera Co. Their range includes the valley floor and lower foothills below 500 ft in elevation (USFWS 2019). Females lay their eggs on the bark of elderberry, and larvae hatch and burrow into the stems and feed on the pith (USFWS 2006). The elderberry stems must be greater than 1.0 in. in diameter to support larvae (USFWS 1999b).	No. There is no suitable habitat within the BSA. No elderberry shrubs occur in the BSA or nearby.
Lepidurus packardi Vernal pool tadpole shrimp	CH, E	--	1, 2	No	Occurs in large, deep vernal pools, but can also make use of smaller pools within larger vernal pool complexes (USFWS 2005).	Yes, in the seasonal wetland only. See discussion.

Fish						
Archoplites interruptus Sacramento perch	--	SC	2	No	A freshwater fish that occurs in beds of rooted, submerged, and emergent vegetation and submerged objects. Beds of aquatic plants are important for young-of-year, although perch can achieve high numbers in shallow, highly turbid reservoirs with no aquatic plants (Moyle 2002). Sacramento perch are endemic to the Central Valley, the Pajaro and Salinas rivers, tributaries to the San Francisco Estuary (e.g., Alameda Creek), and Clear Lake generally at low elevations (<330 ft.) except for Clear Lake. Today Sacramento perch are most likely extirpated from their native range. Sacramento perch exist in six California watersheds and are known to still be present in five Central Valley waters including Jewel Lake, Hume Lake, Sequioa Lake, San Luis Reservoir, and Almanor Reservoir. (Moyle 2011).	No. The BSA is not within species range.
Acipenser medirostris Green sturgeon	CH, T	SC	1	No	An anadromous species that moves up large rivers to spawn (McGinnis 1984). Spawning in the mainstem Sacramento River has been documented at sites over 240 mi both downstream and upstream of Red Bluff Diversion Dam (Brown, 2007). Spawning most likely occurs in fast, deep water (> 10 ft. deep) over substrates ranging from clean sand to bedrock, with preferences for cobble substrates (Emmett et al., 1991; Moyle et al., 1995). Adult green sturgeon occur in the Sacramento River when temperatures are between 8 - 14°C (Moyle, 2002). Temperatures ≥ 73°F are lethal to embryos (Van Eenennaam et al., 2005). Deep pools ≥ 16 ft. with high turbulence and upwelling are critical for adult green sturgeon spawning and summer holding within the Sacramento River (Corwin and Poytress 2008). Some spawning may occur in the lower San Joaquin River as young green sturgeon have been taken near Brannan Island State Recreation Area (Moyle 2002).	Yes, when the Yolo Bypass is flooded. See discussion.
Hypomesus transpacificus Delta smelt	CH, T	E	1	No	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. Occurs in the Delta primarily below Isleton on the Sacramento River side and below Mossdale on the San Joaquin River side. Found seasonally throughout Suisun Bay and in small numbers in larger sloughs of Suisun marsh. Moves into sloughs and channels of the western Delta (e.g., Lindsey Slough) when spawning (mainly March-April). Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there (Moyle 2002). The species does not appear to use the Yolo Bypass when flood events occur (Mahardja et al. 2019). During dry periods, the southern portions of the Yolo Bypass that function as freshwater tidal slough are likely important refuge/nursery habitat (Mahardja et al. 2019).	No. Delta smelt are not expected to occur in the upper portion of the Yolo Bypass where the BSA is located (Mahardja et al. 2019).

Oncorhynchus mykiss California Central Valley steelhead DPS	CH, T	--	1, 2	No	Anadromous salmonid that spawns in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Once thought extirpated from the San Joaquin Basin (Moyle 2002). Now potentially widespread throughout accessible streams and rivers in the Central Valley, including known populations or observations in Deer and Mill creeks in Tehama Co., the Yuba, Stanislaus, Mokelumne, Calaveras, Tuolumne, and Merced rivers, and other streams (NMFS 2009).	Yes, when the Yolo Bypass is flooded. See discussion.
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon ESU	CH, T	T	1, 2	No	Extant populations of this ESU spawn in the Sacramento River and its tributaries. Populations in the San Joaquin River are believed to be extirpated (NMFS 1998). Though historically found in Sacramento, San Joaquin, Klamath and Eel Rivers and their larger tributaries, today populations are only known to exist in the Sacramento and Klamath drainages (Moyle 2002). Adult female chinook will prepare a spawning bed in a stream with suitable gravel composition, water depth, and velocity (NMFS 2013). Enters the Sacramento River Basin from March through September and spawns from late August to October (Moyle 2002).	Yes, when the Yolo Bypass is flooded. See discussion.
Oncorhynchus tshawytscha Sacramento River winter-run Chinook salmon ESU	CH, E	E	1, 2	No	Once found throughout the upper Sacramento River basin, the winter-run Chinook salmon ESU is now confined to the mainstem Sacramento River below Keswick Dam (Moyle 2002). Adults enter the Sacramento River from December through July and spawn from April to July. Spawning occurs in streams with suitable gravel composition, water depth, and velocity (McGinnis 1984). This ESU is believed to be extirpated from the San Joaquin River Basin. However, an intermittent run has been reported in the lower Calaveras River (NMFS 1998a).	Yes, when the Yolo Bypass is flooded. See discussion.
Pogonichthys macrolepidotus Sacramento splittail	--	SC	2	No	Endemic to sloughs, lakes and rivers of CA, mainly in the Central Valley. Historically, non-estuarine dependent populations existed in the Central Valley, but they have been extirpated. Adapted to estuarine waters with fluctuating conditions, and tolerant of high salinities. Swims upstream from the Delta into areas with flooded vegetation when ready to spawn. Spawning occurs in late February to early July, mainly in the Sutter and Yolo Bypasses along the Sacramento River. Fertilized eggs are attached to submerged vegetation and debris. During most years confined to the Delta, Suisun Bay, Suisun Marsh, lower Napa River, lower Petaluma River, and other parts of the San Francisco Estuary. Can be found as far up the Sacramento River as Redding; up the Feather River as high as Oroville; in the American River to Folsom; in the lower San Joaquin River, the confluence of the Tuolumne River and lower Tuolumne River; and Walnut Creek. Occasionally found in the San Luis Reservoir (Moyle 2002).	Yes, when the Yolo Bypass is flooded. See discussion.

Spirinchus thaleichthys Longfin smelt, San Francisco Bay-Delta DPS	C	T	2	No	An anadromous fish that spawns from November to June in freshwater over sandy-gravel substrates, rocks, or aquatic plants. After hatching, larvae move up into surface waters and are transported downstream into brackish-water nursery areas. In the San Francisco estuary, longfin smelt are usually found downstream of Rio Vista on the Sacramento River and from the vicinity of Medford Island downstream on the San Joaquin River. They are occasionally found upstream of these locations (Moyle 2002). In all years, longfin smelt are likely spawning in the Delta, Suisun Marsh and Suisun Bay. In dry years, longfin smelt can spawn in the upper Sacramento River and have been observed as far up as Colusa State Park (USFWS 2016). A few adults have been collected from the Yolo Bypass. However, longfin smelt are rare upstream of Georgiana Slough and their use of the Yolo Bypass and other floodplain habitats is minimal. Over a four-year period that examined the use of the Yolo Bypass by native fishes, Sommer et al. (2001) did not detect any longfin smelt.	No. The BSA is located at the upper end of the Yolo Bypass, outside the species' typical range. Neither dry nor wet years produce flow conditions facilitating migration of this species into the BSA.
Thaleichthys pacificus Eulachon	T	--	2	No	Anadromous fish that spend most of their lives at sea and then spawn in lower extents of coastal rivers. Migration for spawning occurs sometime between December and May, with peaks between February and March. Migrating fish rarely travel more than 39 ft upstream, although spawning has been documented more than 525 ft upstream in the Columbia River. Adults travel along the bottom of estuarine and river channels and in shallows areas at the water's edge. Spawning occurs at night, in moderate water velocities, over substrate consisting of pea-size gravel or gravel mixed with sand, wood, and miscellaneous debris (Moyle, 2002).	No. The BSA is not within the species range.
Amphibians						
Ambystoma californiense California tiger salamander, Central California DPS	CH, T	T	1, 2	Yes	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. The Central California DPS occurs in Alameda, Amador, Calaveras, Contra Costa, Fresno, Kern, Kings, Madera, Mariposa, Merced, Monterey, Sacramento, San Benito, San Mateo, San Joaquin, San Luis Obispo, Santa Clara, Santa Cruz, Stanislaus, Solano, Tulare, Tuolumne, and Yolo cos. (USFWS 2015a). Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). Requires long-lasting vernal pools to complete larval development lasting 10+ weeks (Jennings and Hayes 1994).	No. There is no suitable habitat within the BSA.

Rana draytonii California red-legged frog	CH, T	--	1	No	Inhabits ponds, quiet pools of streams, marshes, and riparian areas with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2020; USFWS 2010). May use ephemeral water bodies for breeding if permanent water is nearby (Thomson et al. 2016). Occurs from near sea level to approximately 5,200 ft., though nearly all sightings have occurred below 3,500 ft. Probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002).	No. The BSA is outside the species range.
Reptiles						
Emys marmorata Western pond turtle	--	SC	2	Yes	Highly aquatic species found in a broad range of aquatic habitats including rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other inundated wetlands. May use brackish, semi-permanent, or ephemeral features when inundated. Requires basking sites and loose soil in surrounding uplands suitable for nest excavation. Eggs are typically laid in spring and early summer in nests located within 330 ft. of water. Eggs hatch in the fall, but hatchlings often remain in the nest through the first winter, emerging the following spring. Adults remain active year-round in warmer climates. In colder climates, adults overwinter in upland burrows safe from high winter flows. Occurs throughout non-desert CA from sea level to 6,700 ft. Isolated populations are known from the Mojave, Susan, Truckee, and Carson rivers, and the Klamath Basin (Thomson et al. 2016).	Yes. See discussion.
Thamnophis gigas Giant garter snake	T	T	1, 2	Yes	Endemic to the wetlands of the Sacramento and San Joaquin valleys, inhabiting the tule marshes and seasonal wetlands created by overbank flooding of the rivers and streams. Requires 1) freshwater aquatic habitat with protective emergent vegetative cover that allows foraging; 2) upland habitat near the aquatic habitat that can be used for thermoregulation and summer shelter in burrows; and 3) upland refugia that serve as winter hibernacula (USFWS 2017).	Yes. See discussion.
Birds						
Agelaius tricolor Tricolored blackbird	--	T	2	Yes	Forages on ground in cropland, grassland, and on pond edges. Nests near freshwater, prefers emergent marsh of dense cattails or tules, but also nests in thickets of willow, blackberry, and wild rose. Highly colonial. Nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2016). Nesting colonies are of concern to CDFW (2019c).	Yes. See discussion.
Athene cunicularia Burrowing owl	--	SC	2	Yes	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and Ponderosa pine habitats, from sea level to 5,300 ft. Uses small mammal burrows, often those of ground squirrels, for roosting and nesting cover. Nest boxes, pipes, and culverts may be used if burrows are scarce. Occurs throughout CA except the high mountains and northwestern coastal forests (CWHR 2020). Burrowing sites and some wintering sites are of concern to CDFW (2019c).	Yes. See discussion.

Buteo swainsoni Swainson's hawk	--	T	2	Yes	An uncommon breeding resident and migrant in CA in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Nests in open riparian habitat, in scattered trees or in small groves in sparsely vegetated flatlands. Forages in adjacent grasslands, grain or alfalfa fields, or livestock pastures. Feeds on rodents, mammals, reptiles, large arthropods, amphibians, small birds, and, rarely, fish (CWHR 2020). Nesting sites are of concern to CDFW (2019c).	Yes. See discussion.
Charadrius alexandrinus nivosus Western snowy plover	CH, T	SC	1, 2	No	Nests, feeds, and takes cover on sandy or gravelly beaches along the Pacific coast, at sand pits, dune-backed beaches at creek and river mouths, salt pans at lagoons and estuaries, and alkali lakes (USFWS 2007a; CWHR 2020). Common on sandy marine and estuarine shores in fall and winter. Inland nesting areas occur at the Salton Sea, Mono Lake, and at isolated sites on the shores of alkali lakes in northeastern California, the Central Valley, and southeastern California deserts. Requires a sandy, gravelly or friable soil substrate for nesting (CWHR 2020). Nesting sites are of concern to CDFW. Federal status applies only to the Pacific coastal population (CDFW 2019c).	No. There is no suitable habitat within the BSA.
Charadrius montanus Mountain plover	--	SC	2	No	This species does not nest in CA. It is a winter resident from September through March in the Central Valley as far north as Sutter and Yuba cos. Mountain plovers forage in short grasslands and plowed fields for large insects. Winters in southern CA (CWHR 2020). Wintering sites are of concern to CDFW (2019c).	No. There is no suitable habitat within the BSA.
Circus cyaneus Northern Harrier	--	SC	2	No	Occurs in annual grassland up to lodgepole pine and alpine meadow habitat as high as 10,000 ft. Breeds from sea level to 5,700 ft. in the Central Valley and Sierra Nevada Mountains, and up to 3,600 ft. in northeastern California. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetland, though seldom found in wooded areas. Uses tall grasses and forbs in wetlands, or at the wetland/field border, for cover. Roosts and nests on the ground in shrubby vegetation, usually at marsh edges. Mostly nests in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water (CWHR 2020). Nesting sites are of concern to CDFW (2019c).	Yes. See discussion.

Coccyzus americanus occidentalis Western yellow-billed cuckoo	CH, T	E	1, 2	Yes	Uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in CA. Breeding populations known from the Colorado River, Sacramento and Owens valleys, along the South Fork of the Kern River (Kern Co.), along the Santa Ana River (Riverside Co.), and along the Amargosa River (Inyo & San Bernardino cos). Nests in dense cover of deciduous trees and shrubs, especially willows, which usually abut a slow-moving watercourse, backwater or seep. Also utilizes adjacent orchards, especially walnuts, in the Central Valley. Nests typically in sites with at least some willow, dense low-level or understory foliage, high humidity, and wooded foraging spaces with an area of at least 25 ac. and width of at least 300 ft. (CWHR 2020). Nesting sites are of concern to CDFW (2019c).	No. There are no large tracts of riparian habitat in or within 500 ft. of the BSA.
Elanus leucurus White-tailed kite	--	FP	2	Yes	Occurs in coastal and valley lowlands in agricultural areas, and in herbaceous and open stages of most habitats. Nests in groves of dense, broad-leafed deciduous trees (CWHR 2020). Nesting sites are of concern to CDFW (2019c).	Yes. See discussion.
Laterallus jamaicensis coturniculus California black rail	--	T	2	No	Inhabits saline, brackish, and freshwater emergent wetlands in the Bay Area, Sacramento-San Joaquin Delta, the Salton Sea, the lower Colorado River, a few locations in coastal southern CA, and the northern Sierra foothills of Butte, Nevada, Placer, and Yuba cos. Typically found in the immediate vicinity of tidal sloughs near the upper limit of tidal flooding in tidal emergent wetlands dominated by pickleweed and in brackish marshes supporting bulrushes in association with pickleweed. In freshwater areas, generally found in marshes dominated by bulrush, cattail, or saltgrass (CWHR 2020). Water regime is a critical habitat factor; black rails are often found in wetlands with perennial standing or flowing water. Black rails use wetland zones with shallower water than other North American rails, generally less than 1.2 in. Wetlands in the Sacramento Valley managed for waterfowl or rice typically lack sufficient shallow water habitat (Richmond et al. 2010).	No. There is no suitable habitat within the BSA.

Melospiza melodia Song sparrow, "Modesto Population"	--	SC	2	No	A year-round resident that prefers emergent freshwater marshes dominated by tules and cattails as well as riparian willow thickets. Modesto song sparrows also nest in riparian forests of valley oak with sufficient understory of blackberry, along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. Endemic to CA, with established populations in the Sacramento Valley, Sacramento-San Joaquin River Delta, and northern San Joaquin Valley. The Modesto song sparrow thrives where extensive wetlands remain. Most abundant in the Butte Sink area of the Sacramento Valley and in the Sacramento-San Joaquin River Delta. Immediately adjacent to the Butte Sink, song sparrows breed in sparsely vegetated irrigation canals, although they are almost entirely absent from the main stem and tributaries of the Sacramento River above Sacramento (Shuford and Gardali 2008).	Yes. See discussion.
Progne subis Purple martin	--	SC	2	No	Widely distributed throughout nearly the entire eastern U.S. In the western U.S, occurs in the Rocky Mountains, Sonoran Desert, Central Mexico, and Pacific Coast states (Shuford and Gardali 2008). Breeding occurs from April into August. Generally inhabits open areas with an open water source nearby. Purple martins nest colonially or singly in cavities both natural and human-made. Purple martins occasionally use nest boxes (CWHR 2020). All current known nesting sites in Sacramento are in vertical weep holes beneath bridges built of steel and concrete box girders over urban areas and railroad tracks (Airola and Grantham 2003). Nesting sites are of concern to CDFW (2019c).	No. There is no suitable nesting habitat within the BSA.
Riparia riparia Bank swallow	--	T	2	Yes	Restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil. Nest holes are excavated into banks, usually in colonies. The majority of the breeding population in CA nests along Central Valley streams and the Sacramento River where meanders and vegetation are relatively undisturbed (CWHR 2020). Nesting sites are of concern to CDFW (2019c).	No. There is no suitable nesting habitat in or within 500 ft. of the BSA.
Vireo bellii pusillus Least Bell's vireo	E	E	2	Yes	Inhabits willow thickets and other dense riparian habitat below ± 2,000 ft. Known from canyons in San Benito and Monterey cos., coastal areas from Santa Barbara Co. south, and western edges of southern CA deserts. Usually found near water, including intermittent streams (CWHR 2020). Nesting sites are of concern to CDFW (2019c). Recent sightings have been recorded in Yolo Co. in 2010 and 2011. This suggests that the species range has expanded towards the northern extent of its historical breeding range. The Yolo County HCP protects habitat along Cache Creek, Putah Creek, and the Sacramento River (Yolo Habitat Conservancy 2018).	Yes. See discussion.

Mammals						
Antrozous pallidus Pallid bat	--	SC	2	No	Occurs in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, mines, and sometimes in buildings and hollow trees that protect them from high temperatures. Night roosts may be more open, such as porches and open buildings. Sensitive to roosting site disturbance. Occurs throughout CA except in the high Sierra Nevada from Shasta to Kern cos., and the northwest corner of CA from Del Norte and western Siskiyou cos. to northern Mendocino Co. (CWHR 2020).	No. There is no suitable roosting habitat.
Lasiurus blossevilli Western red bat	--	SC	2	No	Tree bat associated with cottonwoods in riparian areas at elevations below 6,500 ft. Favors roosts where leaves form a dense canopy and branches do not obstruct their flyway. May roost in orchards, especially in the Sacramento Valley. Typically feeds along forest edges, in small clearings, and around street lights where they hunt moths (BCI 2016). Day roosts are typically in edge habitats adjacent to streams or open fields, in orchards, and sometimes urban areas. Occasionally uses caves. Roost sites are generally hidden from view from all directions except below; lack obstruction beneath, allowing the bat to drop downward for flight; lack lower perches that would allow visibility by predators; have dark ground cover to minimize solar reflection; and have nearby vegetation to reduce wind and dust (WBWG 2016).	No. There is no suitable roosting habitat.
Taxidea taxus American badger	--	SC	2	No	Found throughout most of CA except the northern North Coast. Abundant in drier open stages of many shrub, forest, and herbaceous habitats with friable soils. Feeds on fossorial rodents, some reptiles, insects, earthworms, bird eggs, and carrion. Friable soils are required to dig burrows for refugia and rearing young (CWHR 2020).	No. No fossorial rodents or burrows were observed within the BSA during field survey.
Plants		**/ CNPS [d]**				
Astragalus tener var. *ferrisiae* Ferris' milk-vetch	--	--/1B.1	2	No	Annual herb found in vernally mesic meadows, seeps and valley and foothill grasslands from 6 to 250 ft. Known from Butte, Colusa, Glenn, Sutter, and Yolo cos. Presumed extirpated from Solano Co. (CNPS 2020). Blooms March through June (Jepson eFlora 2020); April through May (CNPS 2020).	Yes. See discussion.
Astragalus tener var. *tener* Alkali milk-vetch	--	--/1B.2	2	No	Annual herb found in alkaline conditions of playas, adobe clay Valley and foothill grassland, and vernal pools from 3 to 197 ft. Known from Alameda, Merced, Napa, Solano, and Yolo cos. Presumed extirpated from Contra Costa, Monterey, San Benito, Santa Clara, San Francisco, San Joaquin, Sonoma and Stanislaus cos. (CNPS 2020). Blooms March through June (Jepson eFlora 2020; CNPS 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.

Atriplex cordulata var. *cordulata* Heartscale	--	--/1B.2	2	No	Annual herb found in saline or alkaline conditions of chenopod scrub, meadows and seeps, and sandy Valley and foothill grassland from 0 to 1,837 ft. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, Solano, and Tulare cos. Presumed extirpated from San Joaquin, Stanislaus, and Yolo cos. (CNPS 2020). Blooms April through October (CNPS 2020); June through July (Jepson eFlora 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Atriplex depressa Brittlescale	--	--/1B.2	2	No	Annual herb found in alkaline and clay soils of chenopod scrub, meadows and seeps, playas, Valley and foothill grassland, and vernal pools from 3 to 1,050 ft. Known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo cos. (CNPS 2020). Blooms April through October (CNPS 2020); June through October (Jepson eFlora 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Centromadia parryi ssp. *parryi* Pappose tarplant	--	--/1B.2	2	No	Annual herb often found in alkaline conditions of chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grasslands from 7 to 1,400 ft. Known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma and Yolo cos. Blooms May through November (CNPS 2020); June through October (Jepson eFlora 2020).	Yes. See discussion.
Centromadia parryi ssp. *rudis* Parry's rough tarplant	--	--/4.2	3	No	Annual herb found in alkaline, vernally mesic seeps in Valley and foothill grassland, vernal pools, and sometimes along roadsides from 0 to 328 ft (CNPS 2020). Known from Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter and Yolo cos. Blooms May through October (CNPS 2020); June through October (Jepson eFlora 2020).	Yes. See discussion.
Chloropyron palmatum Palmate-bracted bird's-beak	E	E/1B.1	1, 2	Yes	Annual hemiparasitic herb found in alkaline soil of chenopod scrub and Valley and foothill grassland from 16 to 509 ft. Known from Alameda, Colusa, Fresno, Glenn, Madera, and Yolo cos. Presumed extirpated in San Joaquin Co. (CNPS 2020). Blooms May through October (CNPS 2020); June through August (Jepson eFlora 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Extriplex joaquiniana San Joaquin spearscale	--	--/1B.2	2	No	Annual herb found in alkaline soils in chenopod scrub, meadows and seeps, playas, and Valley and foothill grassland from 3 to 2,740 ft. Known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Solano, Yolo and possibly San Luis Obispo cos. Presumed extirpated in Santa Clara, San Joaquin, and Tulare cos. (CNPS 2020). Blooms April through September (Jepson eFlora 2020); April through October (CNPS 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Hibiscus lasiocarpos var. *occidentalis* Woolly rose-mallow	--	--/1B.2	2	No	Perennial rhizomatous herb found in freshwater marshes and swamps from 0 to 394 ft. Often found on river banks, low peat islands in sloughs, or in riprap on sides of levees. Known from Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo cos. (CNPS 2020). Blooms June through September (CNPS 2020); July through November (Jepson eFlora 2020).	Yes. See discussion.

Lepidium latipes var. *heckardii* Heckard's pepper-grass	--	--/1B.2	2	No	Annual herb found in valley and foothill grassland (alkaline flats) from 6 to 650 feet. Known from Glenn, Merced, Sacramento, Solano, and Yolo cos. (CNPS 2020). Blooms from March through May (CNPS 2020); March through June (Jepson eFlora 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Puccinellia simplex California alkali grass	--	--/1B.2	2	No	Annual herb found in alkaline, vernally mesic sinks, flats, and lake margins within chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools from 7 to 3,051 ft. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo cos. Presumed extirpated from Kings Co. (CNPS 2020). Blooms March through May (Jepson eFlora 2020; CNPS 2020).	No. There are no suitable habitat areas with elevated alkalinity in the BSA.
Sidalcea keckii Keck's checkerbloom	E	--/1B.1	2	No	Annual herb found in serpentine, clay substrates of cismontane woodland and valley and foothill grassland from 250 to 2,150 ft. Known from, Fresno, Merced, and Tulare cos. Possibly extirpated form Colusa Napa, Solano, and Yolo cos. Blooms April through May (Jepson eFlora 2020; CNPS 2020).	No. There are no serpentine, clay substrates in the BSA. The BSA is outside the elevation range.
Symphyotrichum lentum (= Aster lentus) Suisun Marsh aster	--	--/1B.2	2	No	Perennial rhizomatous herb found in brackish and freshwater marshes and swamps from 0 to 10 ft. Known from Contra Costa, Napa, Sacramento, San Joaquin, Solano, and Yolo cos. (CNPS 2020). Blooms April through November (CNPS 2020); May through November (Jepson eFlora 2020).	No. This species is generally restricted to tidal rivers and marshes. The BSA is outside the geographic and elevation range.
Trifolium hydrophilum Saline clover	--	--/1B.2	2	No	Annual herb found in marshes and swamps, mesic and alkaline soils of valley and foothill grassland, and vernal pools from 0 to 984 ft. Known from Alameda, Contra Costa, Lake, Monterey, Napa, Sacramento, San Benito, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, and Yolo cos., and potentially from Colusa Co. (CNPS 2020). Blooms April through June (Jepson eFlora 2020; CNPS 2020).	Yes. See discussion.
Natural Communities						
Elderberry Savanna	--	--/ --	2	--	Open shrub savannah dominated by Sambucus mexicana, usually with an understory of nonnative annual herbs. Requires grazing, fire, or flooding to prevent succession to Great Valley Mixed Riparian Forest. Occurs in areas of fine-textured alluvium that are set back from active river channels, but still subject to flooding and silt deposition. Additional characteristic species include: Bromus spp., Centaurea solstitialis, and Marrubium vulgare. Scattered among surviving stands of riparian vegetation throughout the Sacramento and northern San Joaquin valleys beyond Merced County (Holland 1986).	This community does not occur in the BSA. There are no elderberry shrubs in the BSA.

Great Valley Cottonwood Riparian Forest	--	--/ --	2	--	Deciduous riparian forest dominated by *Populus fremontii* and *Salix gooddingii* with dense understory. Lianas are common including *Vitis californica*. Frequent flooding prevents other trees, such as *Acer negundo californica* and *Fraxinus latifolia*, from reaching canopy height. Occurs in areas of fine-textured alluvium nears streams with subsurface flow even when the channel is dry. Additional characteristic species include: *Cephalanthus occidentalis*, *Elymus triticoides*, and *Salix* spp. (Holland 1986).	This community does not occur in the BSA.
Great Valley Mixed Riparian Forest	--	--/ --	2	--	Tall, dense, winter-deciduous, broadleafed riparian forest. Tree canopy is usually fairly well closed and moderately to densely stocked with several species. Soil is relatively fine-textured alluvium set back from active river channels. Flooding does occur, but erosion and physical battering is not too severe. Occurs on floodplains of low-gradient, depositional streams of the Great Valley, usually below 500 ft. Characteristic species include: *Acer negundo californica*, *Juglans hindsii*, *Platanus racemosa*, *Populus fremontii*, and *Salix* sp. (Holland 1986).	This community does not occur in the BSA. Riparian vegetation is present, but it is dominated by shrubby willows.
Valley Oak Woodland	--	--/ --	2	--	On deep, well-drained alluvial soils, usually in valley bottoms, apparently with more moisture in summer than in blue oak woodland. Intergrades with valley oak riparian forest near rivers and with blue oak woodland on drier slopes. Also found on nonalluvial setting in the South Coast and Transverse ranges. Typically occurs as an open stand with a grassy understory. *Quercus lobata* is usually the only tree present. Most stands consist of open-canopy growth form trees and seldom exceed 30-40% absolute cover (Holland 1986).	This community does not occur in the BSA.

[a] **Listing Status** Codes used in table are:
E = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare

[b] **Other Codes** Codes used in table are as follows:
SC = CDFW Species of Special Concern; **FP** = CDFW Fully Protected; **Prot** = CDFW Protected; **CH** = Critical habitat designated.
CNPS California Rare Plant Rank (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution
CNPS Rank Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3** = Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

[c] **Sources** **1** = From USFWS (2020) or NMFS (2020). **2** = From CNDDB (CDFW 2020) and/or CNPS (2020). **3** = Observed or included by Sycamore Environmental biologists.

[d] **Yolo HCP** Yes = Species is a Yolo HCP/NCCP Covered Species. No = Species is not a Yolo HCP/NCCP Covered Species.

APPENDIX C.

Species Observed

Plant Species Observed.

Family	Scientific Name[1]	Common Name	N/I[2]	Cal-IPC[3]
EUDICOTS				
Aceraceae	*Acer negundo*	Box elder	N	
Amaranthaceae	*Amaranthus albus*	Tumbleweed	I	
Anacardiaceae	*Toxicodendron diversilobum*	Western poison oak	N	
Apiaceae	*Ammi visnaga*	Bisnaga	N	
	Conium maculatum	Poison hemlock	I	Moderate
Asteraceae	*Anthemis cotula*	Mayweed	I	
	Artemisia douglasiana	Mugwort	N	
	Baccharis glutinosa	Marsh baccharis	N	
	Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	I	Moderate
	Centaurea solstitialis	Yellow star-thistle	I	High
	Centromadia parryi ssp. *rudis*	Parry's rough tarplant	N	
	Dittrichia graveolens	Stinkwort	I	Moderate
	Erigeron canadensis	Horseweed	N	
	Euthamia occidentalis	Western goldenrod	N	
	Grindelia camporum	Gumplant	N	
	Helianthus annuus	Sunflower	N	
	Helianthus sp.	Sunflower	--	
	Lactuca serriola	Prickly lettuce	I	
	Senecio vulgaris	Common groundsel	I	
	Silybum marianum	Milk thistle	I	Limited
	Sonchus asper ssp. *asper*	Prickly sow thistle	I	
	Sonchus oleraceus	Common sow thistle	I	
	Symphyotrichum subulatum	Annual saltmarsh aster	--	
	Xanthium strumarium	Cocklebur	N	
Boraginaceae	*Heliotropium curassavicum* var. *oculatum*	Seaside heliotrope, alkali heliotrope	N	
Brassicaceae	*Brassica nigra*	Black mustard	I	Moderate
	Cardamine oligosperma	Bitter-cress	N	
	Hirschfeldia incana	Summer mustard	I	Moderate
	Lepidium latifolium	Perennial pepperweed	I	High
Chenopodiaceae	*Atriplex prostrata*	Fat hen	I	
	Chenopodium album	Lamb's quarters	I	
Convolvulaceae	*Convolvulus arvensis*	Orchard morning-glory	I	
	Cressa truxillensis	Alkali weed	N	
Fabaceae	*Glycyrrhiza lepidota*	Wild licorice	N	
	Lotus corniculatus	Bird's-foot trefoil	I	
	Medicago polymorpha	California burclover	I	Limited
	Melilotus albus	White sweetclover		
	Trifolium sp. [4]	Clover	--	
Frankeniaceae	*Frankenia salina*	Alkali heath	N	
Geraniaceae	*Erodium moschatum*	Greenstem filaree	I	
	Geranium dissectum	Geranium	I	Limited
Juglandaceae	*Juglans hindsii*	Northern California Black Walnut	N	
Lamiaceae	*Mentha pulegium*	Pennyroyal	I	Moderate
Lythraceae	*Lythrum salicaria*	Purple loosestrife	I	High
	Lythrum hyssopifolia	Loosestrife	I	Limited

Family	Scientific Name[1]	Common Name	N/I[2]	Cal-IPC[3]
Malvacae	*Malva* sp.	Mallow	I	
	Malvella leprosa	Alkali-mallow	N	
Moraceae	*Morus alba*	White mulberry	I	
Onagraceae	*Epilobium ciliatum*	Willowherb	N	
	Oenothera sp. (perennial)	Evening-primrose	--	
	Ludwigia sp. (likely *L. hexapetala*)	Water primrose	I	
Plantaginaceae	*Kickxia* sp.	Kickxia	I	
Polygonaceae	*Rumex crispus*	Curly dock	I	Limited
	Rumex sp.	Dock	--	
Rosaceae	*Rosa californica*	California rose	N	
	Rubus armeniacus	Himalayan blackberry	I	High
Rubiaceae	*Galium aparine*	Goose grass	N	
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	N	
	Salix exigua var. *hindsiana*	Hinds' willow	N	
	Salix gooddingii	Goodding's black willow	N	
	Salix lasiolepis	Arroyo willow	N	
Solanaceae	*Solanum* sp.	Nightshade	--	
Verbenaceae	*Phyla nodiflora*	Phyla	N	
Viscaceae	*Phoradendron* sp.	Mistletoe	N	
Vitaceae	*Vitis californica*	California wild grape	N	
MONOCOTS				
Alismatacaea	*Alisma* sp.	Water-plantain	--	
Cyperaceae	*Carex barbarae*	Santa Barbara sedge	N	
	Eleocharis macrostachya	Spikerush	N	
	Bolboschoenus sp.	Bulrush	N	
Poaceae	*Avena barbata*	Slender wild oat	I	Moderate
	Bromus diandrus	Ripgut grass	I	Moderate
	Bromus hordeaceus	Soft chess	I	Limited
	Bromus sp.	Brome, chess	--	
	Crypsis sp.	Prickle grass	I	
	Cynodon dactylon	Bermuda grass	I	Moderate
	Distichlis spicata	Salt grass	N	
	Elymus triticoides	Beardless wild rye	N	
	Elymus ponticus	Tall wheat grass	I	
	Festuca perennis	Rye grass	I	Moderate
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I	Moderate
	Leersia oryzoides	Rice cutgrass	N	
	Polypogon monspeliensis	Rabbitfoot grass	I	Limited
	Sorghum halapense	Johnson grass	I	
Typhaceae	*Typha* sp.	Cattail	--	

[1] Nomenclature and taxonomy follow *The Jepson manual: Vascular plants of California,* 2nd ed. (Baldwin et al., eds. 2012).

[2] N = Native to California; I = Introduced.

[3] Negative ecological impact ranking by the California Invasive Plant Council (Cal-IPC 2020).

[4] A few clover (*Trifolium* sp.) plants were observed in the area south of the Outfall Channel in the Yolo Bypass in February 2020. The *Trifolium* was never observed in flower or fruit, and thus could not be identified to species. The *Trifolium* growing in the BSA did not possess fleshy stems and leaves and thus is unlikely to be *T. hydrophilum*. The area with *Trifolium* was surveyed during a return visit in June 2020, but no *Trifolium* was observed.

Wildlife Species Observed.

Common Name	Scientific Name
AMPHIBIANS	
Pacific tree frog	*Pseudacris regilla*
CRUSTACEANS	
Red swamp crayfish (sign)	*Procambarus clarkii*
REPTILES	
Red-eared slider	*Trachemys scripta elegans*
Western fence lizard	*Sceloporus occidentalis*
BIRDS	
American robin	*Turdus migratorius*
Black phoebe	*Sayornis nigricans*
Brewer's blackbird	*Euphagus cyanocephalus*
Bushtit	*Psaltriparus minimus*
California quail	*Callipepla californica*
California towhee	*Melozone crissalis*
Cliff swallow [1]	*Petrochelidon pyrrhonota*
Common raven	*Corvus corax*
Cormorant	*Phalacrocorax* sp.
Downy woodpecker	*Picoides pubescens*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
House finch	*Haemorhous mexicanus*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Northern harrier	*Circus hudsonius*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Swainson's hawk [2]	*Buteo swainsoni*
Tree swallow	*Tachycineta bicolor*
Turkey vulture	*Cathartes aura*
Western kingbird	*Tyrannus verticalis*
Western meadowlark	*Sturnella neglecta*
Western tanager	*Piranga ludoviciana*
White-crowned sparrow	*Zonotrichia leucophrys*
Yellow-rumped warbler	*Setophaga coronata*
MAMMALS	
Beaver	*Castor canadensis*
Desert cottontail	*Sylvilagus audubonii*
Mule deer/ Black-tailed deer (corpse)	*Odocoileus hemionus*
Raccoon (sign)	*Procyon lotor*

[1] Approximately 20 active nests observed on concrete settling basin outflow structure on 17 June 2020.
[1] One active Swainson's hawk nest was observed in the settling basin north of the Project on 17 June 2020.

APPENDIX D.

Photographs

Photo 1. View looking west (upstream) toward the Outfall Channel from the Yolo Bypass west levee. The channel is bordered by Mixed Willow Alliance vegetation (mainly *Salix exigua* var. *hindsiana*). 27 February 2020.

Photo 2. View looking east (downstream) toward the Outfall Channel from the Yolo Bypass west levee. The channel is bordered by Mixed Willow Alliance and Riparian Scrub vegetation. 27 February 2020.

Photo 3. View looking west, toward the two main culvert inlets in the Outfall Channel on the west side of the Yolo Bypass levee. Rip-rap lines the channel. 27 February 2020.

Photo 4. View looking north, toward the two main culvert outlets in the Outfall Channel on the east side of the Yolo Bypass west levee. 7 February 2020.

Photo 5. View looking south, toward the third culvert inlet (foreground) on the west side of the levee. This arm of the channel may only flow in storms. 27 February 2020.

Photo 6. View looking south along the Cache Creek Diversion Channel. Riparian vegetation is absent along most of the Diversion Channel. 27 February 2020.

Photo 7. View looking east toward the riparian vegetation (mostly poison oak; *Toxicodendron diversilobum*), along the south side of the Outfall Channel in the Yolo Bypass. 27 February 2020.

Photo 8. View looking west toward a canal choked with bulrush (*Schoenoplectus acutus*) south of County Road 22, south of the BSA. A giant garter snake record from 2011 occurs in this canal. 27 February 2020.

Photo 9. View looking north toward a potential staging area dominated by California Annual Grassland. The Outfall Channel culvert inlets are at the arrow. 27 February 2020.

Photo 10. View looking west toward the seasonal wetland dominated by common spikerush (*Eleocharis macrostachya*), with ± 3 inches of water. 27 February 2020.

Photo 11. View looking southeast toward the Yolo Bypass and Cache Creek (visible on far left). Potential staging in California Annual Grassland at arrow. 27 February 2020.

Photo 12. View looking south, toward the two main culvert outlets in the Outfall Channel on the east side of the Yolo Bypass west levee. 27 February 2020.

Photo 13. View looking west toward the earthen berm recently installed in the Diversion Channel (foreground). Outfall Channel visible on left. 17 June 2020.

Photo 14. View looking north toward stagnant water in the Diversion Channel. The purple-flowered purple loosestrife (*Lythrum salicaria*) is abundant on the banks of both Cache Creek and the Diversion Channel. 17 June 2020.

Photo 15. A Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*; CNPS Rank 4.2) individual observed along Cache Creek in the BSA. 17 June 2020.

Photo 16. View of the population of approximately 200 Parry's rough tarplant individuals (encircled) on south bank of Cache Creek. 17 June 2020.

Photo 17. The flapgate on the northernmost culvert outlet on the Outfall Channel. This arm of the channel was dry during fieldwork in February and June. 17 June 2020.

Photo 18. View of an active Swainson's hawk (*Buteo* swainsoni) nest located northwest of the BSA in the Cache Creek Settling Basin (adult in nest at arrow). 17 June 2020.