

Draft

PATTERSON IRRIGATION DISTRICT FISH SCREEN PROJECT

Initial Study and Mitigated Negative Declaration/
Environmental Assessment and Finding of
No Significant Impact

Prepared for:
Patterson Irrigation District

November 2006

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MITIGATED NEGATIVE DECLARATION

Based upon the findings in the Initial Study and Environmental Assessment (IS/EA) for the Patterson Irrigation District (PID) Fish Screen Project.

- ☐ I find that the Proposed Project WOULD 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 will be prepared.
- ☐ 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 pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

John Sweigard
Signature

John Sweigard, General Manager

09-08-06
Date

Patterson Irrigation District

FINDING OF NO SIGNIFICANT IMPACT

United States Department of the Interior

Bureau of Reclamation

Mid-Pacific Region

FINDING OF NO SIGNIFICANT IMPACT

Patterson Irrigation District (PID) Fish Screen Project

Recommended:

Sammy Karambore

Date

7/13/07

Environmental Specialist

Concur:

Dan Meier

Date

7/13/07

AFSP Program Manager

Concur:

Tracy K.

Date

7/16/07

Program Management Branch Chief

Approved:

Richard J. Woodley

Date

7/16/07

Regional Resources Manager

FONSI No.

07-07-MP

The Bureau of Reclamation (Reclamation) proposes to partially fund installation of a fish screen at an existing diversion at Patterson Irrigation District (PID). PID's pump station facility utilizes an unscreened intake, and has the potential to entrain Chinook salmon, steelhead, and native fish that pass by the intake. The continued operation of the PID diversion facility may remove some of the salmonid out-migrants from the mainstream of the river. The diversion pumps are required to operate without causing detrimental effects to migrating fish, and therefore, it is essential that fish screens be installed at the water intake. The existing pump station facility cannot be retrofitted with a fish screen that would comply with California Department of Fish and Game (CDFG) and NOAA Fisheries criteria. As a result, the Proposed Project/Action is for the construction and operation of a rehabilitated 195 cfs pump station and fish screen facility to replace the existing 195 cfs pump station diversion. The new facility will not increase PID's pumping capacity from the San Joaquin River.

In accordance with the National Environmental Policy Act of 1969, as amended, the Mid-Pacific Regional Office of the U.S. Bureau of Reclamation (Reclamation) has prepared an Environmental Assessment (EA) that discloses potential environmental impacts. An Initial Study (IS) was prepared to meet the disclosure requirements of the California Environmental Quality Act (CEQA), a Negative Declaration was completed in September 2006, and a Notice of Determination was filed in October 2006. Patterson Irrigation District is the CEQA Lead for these actions.

This Proposed Project/Action is being funded through a CALFED Bay-Delta Program (CALFED) grant and is consistent with the Central Valley Project Improvement Act (CVPIA) Anadromous Fish Screen Program and will contribute to the removal and replacement of unscreened diversions with screened diversions, thereby providing an overall net benefit to the fisheries resource subjected to impacts from river diversions. This Proposed Project/Action is expected to help prevent further loss of the Chinook salmon and Central Valley steelhead, and facilitate continued delivery of water to PID for irrigating approximately 13,500 acres of agricultural land.

The Mid-Pacific Region of the Bureau of Reclamation has found that the proposed action is not a major Federal action that would significantly affect the quality of the human environment. Therefore, an environmental impact statement is not required for carrying out the proposed action.

Following are the reasons why the impacts of the proposed action are less than significant.

- 1 Project construction would not significantly affect visual aesthetics, scenic resources, visual character or quality of the site. Temporary impacts would occur during fish screen construction, but because the area already hosts a pump station facility, the area is considered disturbed. The proposed action would be consistent with the current site conditions and not result in significant impacts.

2. The project site is not designated as prime farmland, unique farmland, or farmland of statewide importance. The proposed project/action would not convert any agricultural lands to non-agricultural use. Therefore, there are no impacts to agricultural resources.
3. Short term impacts to air quality may occur because of construction. The magnitude of air quality impacts associated with gasoline powered vehicles, mobile construction equipment and fugitive dust is considered to be short term and minor. All efforts would be made to operate within the allowable permit levels for a non-attainment zone. Therefore, impacts to air quality are considered to be less than significant.
4. The analysis in the EA/IS indicates that the impacts to wildlife would be less than significant with mitigation. There are no elderberry shrubs in the project vicinity. There is no giant garter snake habitat that would be affected by this project. Impacts to listed endangered or threatened species and their habitats would be avoided by implementing the mitigation measures discussed in the EA/IS and the ASIP. In particular, placement of the sheet-pile cofferdam to isolate the work site would occur from July 1 to September 30, a time when water quality effects would be minimized and impacts to salmonids would be avoided. Project construction and operations would result in no net loss of wetland resources.
5. Based on the analysis in the EA, cultural resources would not be adversely affected by the proposed action. Field surveys and literature searched did not identify cultural resources on the site. Prior to expenditure of Federal appropriations, consultation with the California State Historic Preservation Office will be completed.
6. Impacts caused by ground disturbing activities would be minimal. The area of soil disturbance would be relatively small. Erosion and sediment control measures are expected to reduce erosion rates during and after construction. As a result, any impacts to geology and soils are less than significant.
7. There would be no change in surface water diversion locations or rates associated with the Patterson Irrigation District Fish Screen Project. Diversions would continue at the same rate and location as prior to construction. Short-term impacts to water quality may occur because of construction. Mitigation measure would be implemented to reduce the level of impact to less than significant.
8. No adverse effects to land uses and/or planning would occur as the result of the implementation of this project. There would be no change to land use, since the proposed action would install screened pumping facilities at an existing water diversion location.
9. Short term impacts associated with noise may occur during construction. Project construction could lead to temporary or periodic increases in ambient noise levels in the project vicinity. However, the project site is in a rural land use area and there is a lack of sensitive receptors within the immediate area. Construction activities would only be allowed from 7 am to 5 pm in order to minimize any impacts. As a result, impacts caused by noise are considered to be less than significant.

10. There would be no effect to minority or low-income populations. The action/project would not disproportionately affect any minority or low income populations. Therefore, there are no effects regarding Environmental Justice associated with this project.]
11. No Indian Trust Assets occur within the project area. As a result there would be no impacts to ITAs.

SECTION 1

PURPOSE AND NEED

1.1 INTRODUCTION

This document is a Draft Initial Study and Environmental Assessment (IS/EA) that discloses the potential environmental impacts of the construction and operation of a positive barrier fish screen diversion on the San Joaquin River (Proposed Project/Action) for the Patterson Irrigation District (PID).

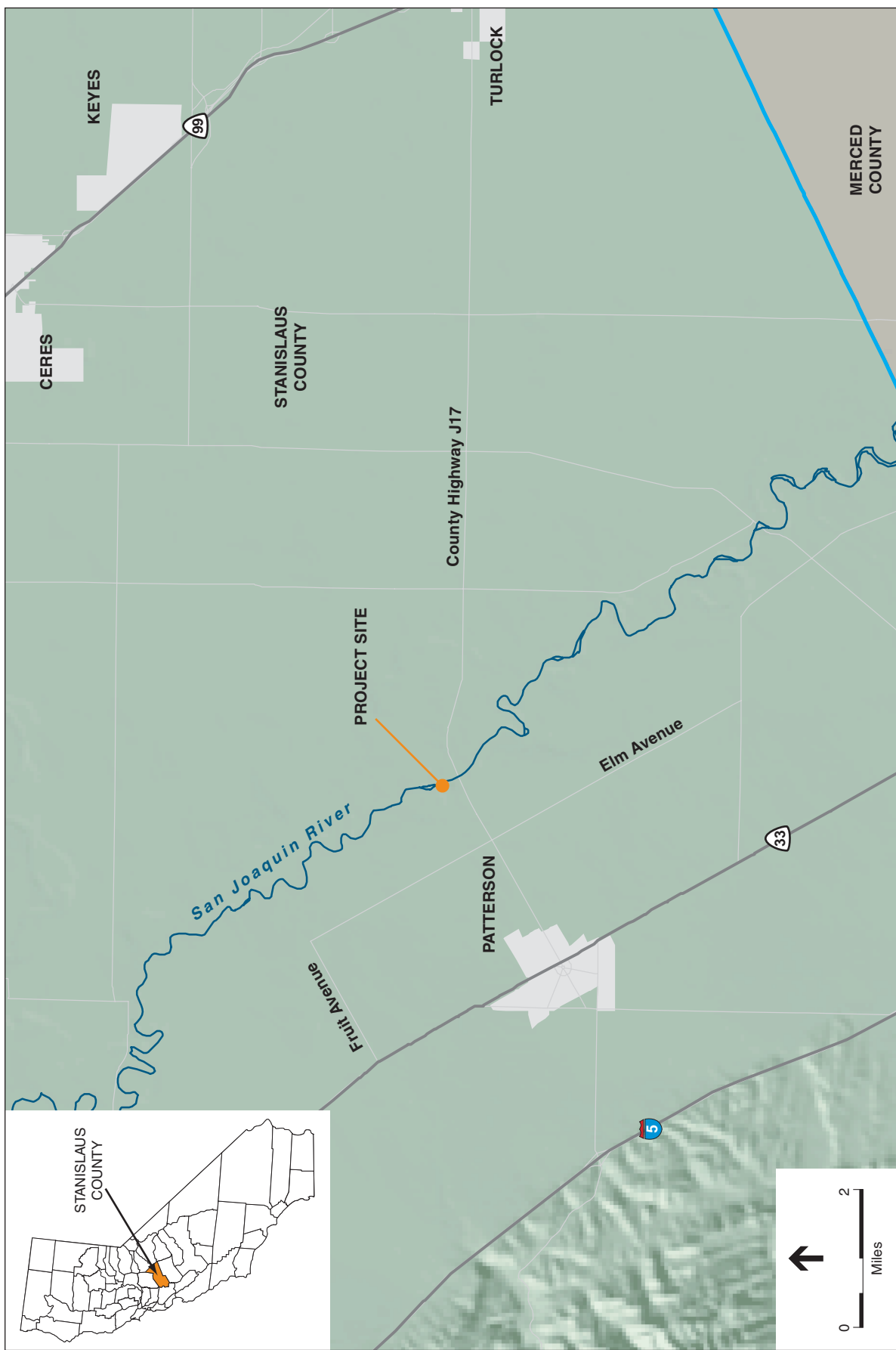
This document is being prepared in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). It is being prepared as a joint CEQA/NEPA document because it is a discretionary project of a local lead agency with federal involvement. PID is the lead agency for CEQA and the U.S. Bureau of Reclamation (USBR or Reclamation) is the federal lead agency under NEPA. PID would construct, own, and operate the new facilities. However, construction of the Proposed Project/Action will involve federal funds through the CALFED Bay-Delta Program and Reclamation would be responsible for administering those funds. In addition, the Proposed Project/Action is consistent with Reclamation's Central Valley Project Improvement Act (CVPIA) Anadromous Fish Screen Program that has been evaluated by that Program's Technical Advisory Committee.

1.2 PROJECT LOCATION

As shown in Figure 1-1, PID is located near the City of Patterson, in Stanislaus County, California along San Joaquin River, between the Merced and Tuolumne Rivers. PID's service area extends about 8 miles long (east-west) and three miles wide (north-south). PID's existing surface water pumping plant is located on the western bank of the San Joaquin River, approximately 3.5 miles east of the City of Patterson and just over a quarter mile north of West Main Street. Access to the site is available through East Las Palmas Avenue. Irrigated lands served by PID total approximately 13,500 acres and include a variety of orchard and row crops. The existing diversion facility is bounded by agricultural properties to the west and south, the San Joaquin River to the east, and a recreational area/boat ramp to the north.

1.3 PROJECT BACKGROUND

PID has been diverting San Joaquin River water at this site for over 90 years. The existing diversion facility consists of seven pumps with a total diversion capacity of approximately 195 cfs (cubic feet per second). The current river diversion delivery system is automated for demand control on the Main Canal. PID currently operates their diversion pump system through an Allen-Bradley IntelliCENTER control system with Devicenet monitoring of the input and output signals.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project - 204019
Figure 1-1
Regional Location

SECTION 1

PURPOSE AND NEED

Historically, the San Joaquin River supported spawning and rearing habitat for southernmost stocks of spring and fall-run Chinook salmon and steelhead. However, in the recent years, fall-run Chinook spawning escapements in the San Joaquin River Basin have declined to alarmingly low levels. This is in part due to many small and medium-size irrigation diversions on the mainstem San Joaquin River entraining juvenile salmon.

PID's pump station facility utilizes an unscreened intake, and may have entrained Chinook salmon, and steelhead that pass by the intake. The continued operation of PID's existing diversion facility may remove some of the salmonid out-migrants from the mainstream of the river if operation continues under existing conditions. The diversion pumps are required to operate without causing detrimental effects to migrating fish; and therefore, it is essential that fish screens be installed at the existing water intake. The existing pump station facility cannot be retrofitted with a fish screen that would comply with criteria developed by the California Department of Fish and Game (CDFG) and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS). As a result, the Proposed Project/Action is for the construction and operation of a rehabilitated 195 cfs pump station and fish screen facility to replace the existing 195 cfs pump station diversion. The new facility will not increase PID's pumping capacity from the San Joaquin River. The existing pump station facility will be demolished and removed as part of this Proposed Project/Action.

1.4 PURPOSE AND NEED

The primary purpose of the Proposed Project/Action is to provide a positive means of preventing entrainment of migrating, at-risk, native fish species by PID's water diversion operations and activities on the San Joaquin River.

PROJECT PURPOSE AND OBJECTIVES

The purpose and objective of the Proposed Project/Action is to screen PID's intake diversion near Patterson. This will allow migrating Chinook salmon, steelhead, and other native fish species to pass by PID's intake diversion without the risk of entrainment. The second objective or purpose of the Proposed Project/Action is to ensure a reliable water supply for PID in the long-term so that diversions may continue even if the listed fish species are present in the vicinity of the diversion. To accomplish these objectives, the Proposed Project/Action will comply with CDFG and NMFS fish screen criteria.

NEED FOR THE PROPOSED PROJECT/ACTION

The primary need for the Proposed Project/Action is to develop and implement measures to improve the conditions of the San Joaquin River fisheries resource by contributing to the reduction in the decline of the anadromous and resident fishes in the San Joaquin River.

The loss of juvenile anadromous fish at water diversions located in the Central Valley has been identified as contributing to the decline of anadromous fish populations. The CVPIA, Section 3406(b) (21), authorized the Department of the Interior to “*assist the State of California in efforts to develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento and San Joaquin Rivers, their tributaries, the Sacramento-San Joaquin Delta, and the Suisun Marsh*”

Several anadromous fish species use the San Joaquin River and its tributaries for some portion of their life cycle. These include the Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) (CDFG, 1994). Natural populations of all Chinook salmon races and steelhead trout have declined over the years, causing concern to federal and state biologists. The decline of these populations in the San Joaquin River system is influenced by factors such as inadequate flows, unscreened diversions, inadequate passage at diversion dams, agricultural return drains, poor water quality, reduced spawning gravel, and illegal harvest. Unscreened diversions have been particularly detrimental to migrating fish. Water diversions have historically created numerous obstacles for migrating salmon and steelhead trout. These impediments include entrainment of juvenile salmon emigrating from the system, and flow changes near the pump stations that confuse adult salmon during migration. As a result, federal and state fish agencies are working with water districts and agencies as well as individual landowners to minimize or eliminate these impacts on fisheries through the construction of fish screens on their diversions. PID’s pumping and diversion practices on the San Joaquin River may pose potential risk to fish passage under the directives of the CVPIA and CALFED. The continued operation of the PID diversion facility may remove some of the salmonid out-migrants from the mainstream of the San Joaquin River. Consequently, the diversion pumps would require screening to continue operation without causing detrimental effects to migrating fish. The Proposed Project/Action will contribute to improved conditions for the San Joaquin River fisheries resource and help protect PID’s water supply.

SECTION 2

DESCRIPTION OF PROPOSED PROJECT/ACTION AND ALTERNATIVES

SECTION 2

DESCRIPTION OF PROPOSED PROJECT/ACTION AND ALTERNATIVES

This section presents a description of the Proposed Project/Action Alternative (Proposed Project/Action). In 2002, PID prepared a feasibility study (*i.e.*, *Montgomery Watson Harza Fish Screen Feasibility Report, 2002.*) which evaluated a full range of alternatives. This report presented a detailed discussion of the numerous alternatives and various configurations that were considered as well as the alternative screening process. As a result of this analysis and further analysis and discussion, PID determined that a water-side pump station with an intake-structure screen would provide them the best configuration for the development, operation, and maintenance of a new screened diversion on the San Joaquin River. In addition, the Anadromous Fish Screen Program Technical Team (Tech Team) and Reclamation's Value Engineering Team reviewed and approved of the Proposed Project/Action. As a result, this section presents a description of the Proposed Project/Action Alternative as well as the No Action/Project Alternative.

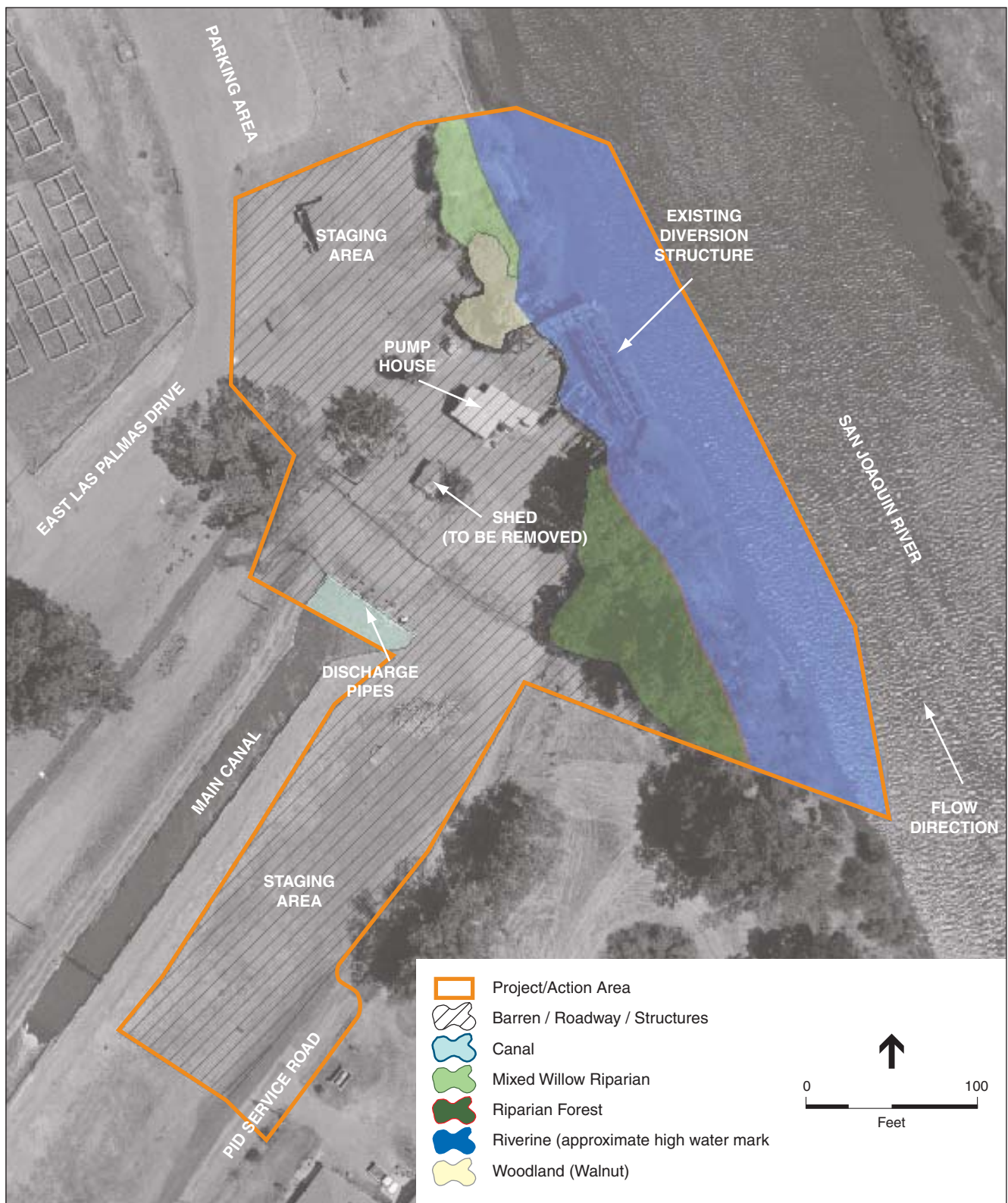
2.1 PROPOSED PROJECT/ACTION ALTERNATIVE

The Proposed Project/Action consists of constructing a screened diversion to comply with the CDFG and the NOAA Fisheries fish screen design criteria.

The Proposed Project/Action includes a new pumping facility with a submerged rectangular intake structure and flat wedge-wire screens to replace the existing pumping plant facility. The Proposed Project/Action will not increase PID's existing pumping capacity on the San Joaquin River. Once the new diversion and fish screen facility are constructed, the existing structure will be removed in its entirety. Several of the existing pump motors and motor controls will be used in the new facility.

2.2 PROPOSED PROJECT/ACTION CHARACTERISTICS

Figure 2-1 illustrates the Proposed Project/Action Area and habitats. As shown in Figure 2-2, the Proposed Project/Action incorporates a submerged reinforced concrete structure, which also acts as a sump for a combination of seven vertical pumps. The intake side of the structure would face the river and access to the structure would be from the dry side. Water from the San Joaquin River would enter the concrete sump through ten 5.5-foot vertical by 12-foot horizontal flat wedge-wire fish screens and then be lifted out of the sump by a combination of vertical pumps. The concrete intake structure and sump would be supported by steel pilings. Concrete walls would run from the concrete base slab to the concrete deck above.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project . 204019

Figure 2-1
Proposed Project/Action Area and Habitats

The pump motors would be located on the elevated deck above the Federal Emergency Management Agency (FEMA) 100-year flood elevation. The pumps would deliver irrigation water through five new 30-inch and one existing 42-inch steel discharge pipelines to the Main Canal Inlet Structure where the outlets would be furnished with flap gates. The existing Main Canal Inlet Structure would be replaced with a new structure to accommodate the new discharge pipelines. The combined flow into the Main Canal would be measured using the existing measuring device in the canal. The existing Allen-Bradley IntelliCENTER electrical and instrumentation equipment, located in the existing pump house, will be used for the new facility.

SCREENED INTAKE STRUCTURE

Ten vertical flat plate panels of wedge-wire screen, each 5.5 feet vertical by 12 feet horizontal, will be bolted in place. Each screen panel will provide 66 square feet of screened area. The ten flat panels will provide a total of 660 square feet of screened area, which will meet the design criteria established and limit the perpendicular approach velocity to a maximum of 0.30 feet per second (fps) at the maximum diversion rate of 195 cfs.

The screens would be positioned side-by-side along the intake side of the concrete structure. The total size of the intake structure, including the ten screen panels and guides will be approximately 144 feet long by 40 feet wide and 35 feet tall. The ten fish screens would be protected from floating debris by a log boom system located out in front on the water side of the structure.

FISH SCREEN CLEANING SYSTEM

The flat wedge-wire screens will be cleaned using an automatic traveling brush system. With the traveling brush system, a fixed or telescoping arm will position a brush to sweep across the face of the screen and remove debris. The brush/arm assembly will be moved by an electric motor and cable-operated trolley system located above the 100-year flood event elevation. At the proposed pump station site, the river will provide sufficient parallel sweeping velocity to exceed the minimum design criteria at all river flows for providing debris removal after brushing.

SEDIMENT CONTROL SYSTEM

Because there will be some river bed excavation to achieve full screen submergence at the low water level, a sediment control system will be required. This system will include a vertical turbine pump, system piping, and headers. The headers will be installed at the base of the screens to cause a burst of water that will move any sediment that has settled in front of the screens. The frequency of use will need to be determined after the structure is in place and after further sedimentation analysis of the project site conditions.

ELECTRICAL POWER AND CONTROL SYSTEMS

PID owns and operates its own electrical distribution system, which is comprised of a 12.47 kV overhead pole line with individual step-down pad-mounted transformers (12.47 kV - 480V) at

each of its five pump stations. The 12.47 kV line is connected to Turlock Irrigation District's (TID) transmission system at Pump Station #2 through a 12.47 kV tie to the Patterson Substation. The electrical power is supplied by Western Area Power Administration and distributed by TID. A system study made in April of 2000 revealed that the loading of PID's distribution system at peak operation was about 20% of its capacity. The additional peak loading for the fish screen is estimated at 150 kW, which is well within PID's allotment of 2000 kW.

The electrical system for the fish screen project will build on existing electrical facilities (MWH, 2004a). The existing control building will be utilized to house the new power and control equipment except for that equipment located at the fish screen structure (MWH, 2004a). Power and control for the seven vertical turbine irrigation pumps and one vertical turbine sedimentation pump will be provided from a pad mounted transformer. All loads, existing and new, will be served from the existing power transformer. The rating of the existing transformer is 1,000 kVA. Taking into consideration the diversity of loading and the short term loading capacity of the transformer, the existing transformer has sufficient capacity for the new total load and will not be replaced (MWH, 2004a).

There are four existing service conductors, 500 MCM (copper) per phase (MWH, 2004a). These conductors will either be replaced or a separate feeder will be installed from the transformer. The rating of the Motor Control Center bus is 1,200 amperes. The only combination of conductors fitting into two 4" conduits that will provide sufficient capacity is nine 350 MCM conductors in each of the two existing 4" conduits (MWH, 2004a). Considering the capacity of the existing Motor Control Center, it is apparent that a new feeder will need to be installed. The total load for the facility will be 1,030 kVA (MWH, 2004a).

2.3 GENERAL CONSTRUCTION CONSIDERATIONS

The intake structure would be supported on piles. The pumps and motors would be protected by an overhead shade structure with removable panels for pump access via boom truck or crane. Ship-ladder-style stairways would be provided for interior access to the fish screens and sump area. A bridge crane is not included in the Proposed Project/Action, thus a boom truck will be required for pump and motor removal and/or maintenance as well as for removal of the flat panel screens for inspection and maintenance and lowering them back into place.

The dry side of the intake structure will be accessible by an earth access bridge constructed from compacted fill material. The fill material will be held in place at each end of the structure by sheet pile walls. The sheet pile walls will be protected with rip-rap on the water side to minimize scour. A 3 foot thick layer of rip-rap will be constructed at a 1.5:1 slope to a depth of 12 feet. Rip-rap placement will require excavation of approximately 1,800 cubic yards of river material. The material will be stockpiled local to the site and the rip-rap will be buried with the removed river material once it is in place with restoration of the river bottom. Construction activities would comply with the requirements set by the Central Valley Regional Water Quality Control Board to minimize construction-related impacts to water quality. In addition, silt screens and/or silt fences would be used where construction activities could possibly cause sediment to enter the

river. All water-side construction activities, with the exception of riprap installation, would be confined within a sheet-pile cofferdam, which would be put in place in the “wet” from July 1 to September 30 (by permit) beginning in 2008. The sheet-pile cofferdam would likely remain in place during construction and be cut at grade within the same permit time period of July 1 to September 30 following completion of construction. Access to the construction site will be provided on East Las Palmas Avenue. The construction staging area will be located adjacent to the Main Canal, just south of the existing outfall structure. Final site design will incorporate appropriate grading for a finished professional look. In addition, the existing access will be surfaced for boom trucks and maintenance vehicles to get to the pumps and motors.

Construction of the Proposed Project would consist of several activities, including grading, excavation and soil removal, transporting and installing equipment, driving sheet and structural piles and placement of structural concrete. The construction would occur with periodic activity peaks, requiring brief periods of significant effort followed by longer periods of reduced activities.

Final construction scheduling would be completed during engineering and contractor bidding, which may result in variations to the planned construction schedule. Typical construction activities involved in the construction of the proposed project include:

- Site preparation - turf and brush removal, and structure demolition (if necessary)
- Earthwork - grading, excavation, backfill
- Materials transport
- Concrete foundations (forming, rebar placement, and concrete delivery and placement)
- Structural steel work (assembly and welding)
- Masonry construction
- Electrical/instrumentation work
- Installation of mechanical equipment and piping

It has been assumed that construction of the Proposed Project could occur simultaneously with the most intense construction activities occurring during mid to late 2008 and possibly into 2010. To characterize and analyze potential construction impacts, PID has identified maximum crew size, truck trips, and worker trips, based on expected excavation volumes and quantities of imported materials. In support of these activities, the main pieces of equipment that may be used at any one time during construction may include:

Table 2-1 Construction Equipment

<ul style="list-style-type: none"> • 1 track-mounted excavator • 1 backhoe • 2 graders • 1 crane • 2 scrapers • 1 compactor 	<ul style="list-style-type: none"> • 1 end and bottom dump truck • 1 front-end loader • 1 water truck • 1 flat-bed delivery truck • 1 forklift • 1 compressor/jack hammer
---	---

Excavation and grading activities would be necessary for the construction of the Proposed Project. Staging areas for storage of pipe, construction equipment, and other materials would be placed at locations within the project site that would minimize hauling distances and long-term disruption.

Unless it is found necessary and warranted to transport and dispose of excavated material as hazardous or restricted materials, the excavated material would mostly remain onsite and would be used as construction backfill material. Additional truck trips would be necessary to deliver materials, equipment, and concrete to the site. During peak excavation and earthwork activities, the Proposed Project could generate up to 15 round-trip truck trips per day. However, average daily truck trips would be less and range from about 5 to 10 round trips per day during much of construction. Roadways that would be used by construction traffic include East Las Palmas Drive and State Route 33.

The typical crew size for each construction phase would be 5 to 10 people, plus inspectors. It is expected that up to two construction crews could be present during the most intense construction periods. Work hours would be governed by permits issued by regulatory agencies, but these are not expected to be restrictive because the area contains few residences. To the extent feasible, construction would occur in the dry months to minimize the potential for adverse environmental effects.

No additional operators are anticipated so daily commuter trips to and from the Project Site would remain the same.

2.4 ENVIRONMENTAL COMMITMENTS

Detailed below are additional construction methods and best management practices that will be incorporated into the Proposed Project/Action Alternative in order to minimize potential adverse impacts. These measures are organized by resource topics and include the following:

GEOLOGY AND SOILS

- Comprehensive subsurface geotechnical investigations will be prepared prior to final design and construction of all of the facilities in the Proposed Project/Action to evaluate the potential for unstable and corrosive soil conditions, shrink/swell potential, liquefaction potential, and earthquake fault and related hazards. This will include specific recommendations for allowable soil bearing pressures, pile design requirements, seepage, and scour potential.

All project-related structures will be designed in accordance with Uniform Building Code Standards for areas with Seismic Risk Zone 3.

- Survey data will be collected, including bathymetric data at the existing diversion and cross sectional data for the Main Canal at the proposed discharge point, prior to construction to verify final engineering design plans.

HYDROLOGY AND WATER QUALITY

- A hydraulic model for the river reach will be developed to verify the final design water surface elevations and to clarify the effects of the new structure on flood flows.
- Studies such as the *Sacramento River and San Joaquin River Basin Comprehensive Study* will be reviewed to verify that recommendations proposed in these studies will not affect the design water surface.
- All construction contracts will specify staging areas for heavy equipment on the west-side of the San Joaquin River so that spills of oil, grease, or other petroleum by-products will not be discharged in the San Joaquin River. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills and leaks from equipment will be reported immediately and cleaned up in accordance with applicable local, state, and/or federal regulations.
- All construction contracts will specify that all disturbed areas be seeded and mulched, or other suitable stabilization measures implemented prior to October 25 to protect disturbed areas from erosion following construction. The contracts will specify the incorporation and use of specific Best Management Practices (BMPs) such as silt screens and fences to prevent sedimentation from entering the San Joaquin River. In addition, during construction, all excavated materials will not be stored or deposited in any manner such that the material could be washed into the San Joaquin River, the main conveyance canal, or any other watercourse. In addition, an Erosion Control Plan and/or a Construction Storm Water Pollution Prevention Plan will be prepared to ensure compliance with the water quality objectives set by the Central Valley Regional Water Quality Control Board. All drainage patterns and grades will be returned back to preconstruction conditions or will be self-mitigating resulting in no additional site runoff and flooding problems.

BIOLOGICAL RESOURCES

- Project construction and operations will result in no net loss of wetland resources.
- Installation of the cofferdam will only take place after July 1 and be prior to September 30.
- All construction contracts will specify a fish salvage program for all dewatered areas as part of construction. All trapped fish and aquatic species within a dewatered work site will be removed and returned unharmed to the San Joaquin River.

CULTURAL RESOURCES

- All construction contracts would inform the contractor(s) of the potential for accidental discovery of subsurface archaeological, paleontological, and/or significant cultural resources artifacts or human remains. In the event of the discovery of any buried archeological or paleontological deposits, construction activities in the vicinity (within 50 feet) of the find will be temporarily halted and Reclamation's Cultural Resource staff will be contacted on how to proceed. Possible management recommendations for important

resources could include resource avoidance or data recovery excavations. In addition, if any bone is discovered that appears to be human, work within the area will be stopped and Stanislaus County Sheriff-Coroner will be notified immediately. Work will only resume after the investigation and in accordance with any requirements and/or procedures imposed by the Stanislaus County Sheriff-Corner. In the event that the bone most likely represents a Native American interment, the Native American Heritage Commission will be notified so the most likely descendants can be identified. No Project Personnel will be allowed to collect cultural resources.

SOCIOECONOMICS

- PID will compensate for any temporary or permanent easements, property loss, and/or damage to third-parties. Compensation will be at fair market value, determined by qualified and objective third-party real estate appraisers.

AIR QUALITY

- PID will coordinate with the San Joaquin Valley Air Pollution Control District (SJVAPCD) to determine the need for preparation of a construction-generated emissions control plan or to identify measures that would be implemented during construction to control fugitive dust or other vehicle or equipment emissions. At minimum, fugitive dust will be controlled by watering the soil surface and covering haul vehicles and exposed dirt piles. All construction contracts will specify such dust and emission control requirements and any additional controls as required by SJVAPCD.

HAZARDS AND HAZARDOUS MATERIALS

- During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other materials that could serve as fire fuel. Any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order.
- All construction-related hazardous materials will be transported, stored, and handled in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the state and federal Departments of Transportation, CVRWQCB, Stanislaus County, the local Fire District and other appropriate fire districts, among others as appropriate.
- A Hazardous Materials Management Plan (or equivalent) will be prepared and/or followed to provide specific emergency response protocols for the accidental release or threatened release of hazardous materials used as part of the construction and operation of the Proposed Project/Action. In the event of a release were to occur, this emergency response plan will provide emergency responders with a protocol for continuing and disposing of the release.

NOISE

- Standard noise abatement measures will be implemented during construction to reduce noise impacts from construction activities. Construction activities will be limited between 7:00 a.m. and 5:00 p.m. on weekdays to reduce potential noise impacts to area residents.

- Final design of the facilities in Proposed Project/Action will incorporate noise attenuating technologies and noise barriers to mitigate that noise emanating from the facilities at maximum operation load will not exceed applicable standards or lead to cumulative increases in ambient noise levels.
- Construction specifications will require that the contractor staging areas be situated as far as feasibly possible from existing residences.
- Construction equipment noise will be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturers' specifications) and by shrouding or shielding impact tools. All equipment shall have sound-control devices no less effective than those provided by the manufacturer.
- PID will require in its construction specifications that the contractor place all stationary noise generating construction equipment as far away as feasibly possible from sensitive receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers or storage piles, etc.).

2.5 NO PROJECT/ACTION ALTERNATIVE

Under the No Project/Action Alternative, no project would take place. The proposed fish screen would not be installed and the existing intake system would continue to operate similar to existing conditions. While terrestrial habitats would remain undisturbed, migrating salmon, steelhead, and other native fish species would continue to be at risk from the existing intake structure. It is plausible that future regulations could severely limit the operation of the existing intake structure or necessitate higher permitting costs.

SECTION 3

ENVIRONMENTAL SETTING/AFFECTED ENVIRONMENT

SECTION 3

ENVIRONMENTAL SETTING/AFFECTED ENVIRONMENT

This section provides an overview of the environmental setting and affected environment, which represents the baseline condition for assessing the potential for the Proposed Project/Action to have impacts on the environment.

3.1 EXISTING FACILITIES AND OPERATIONS

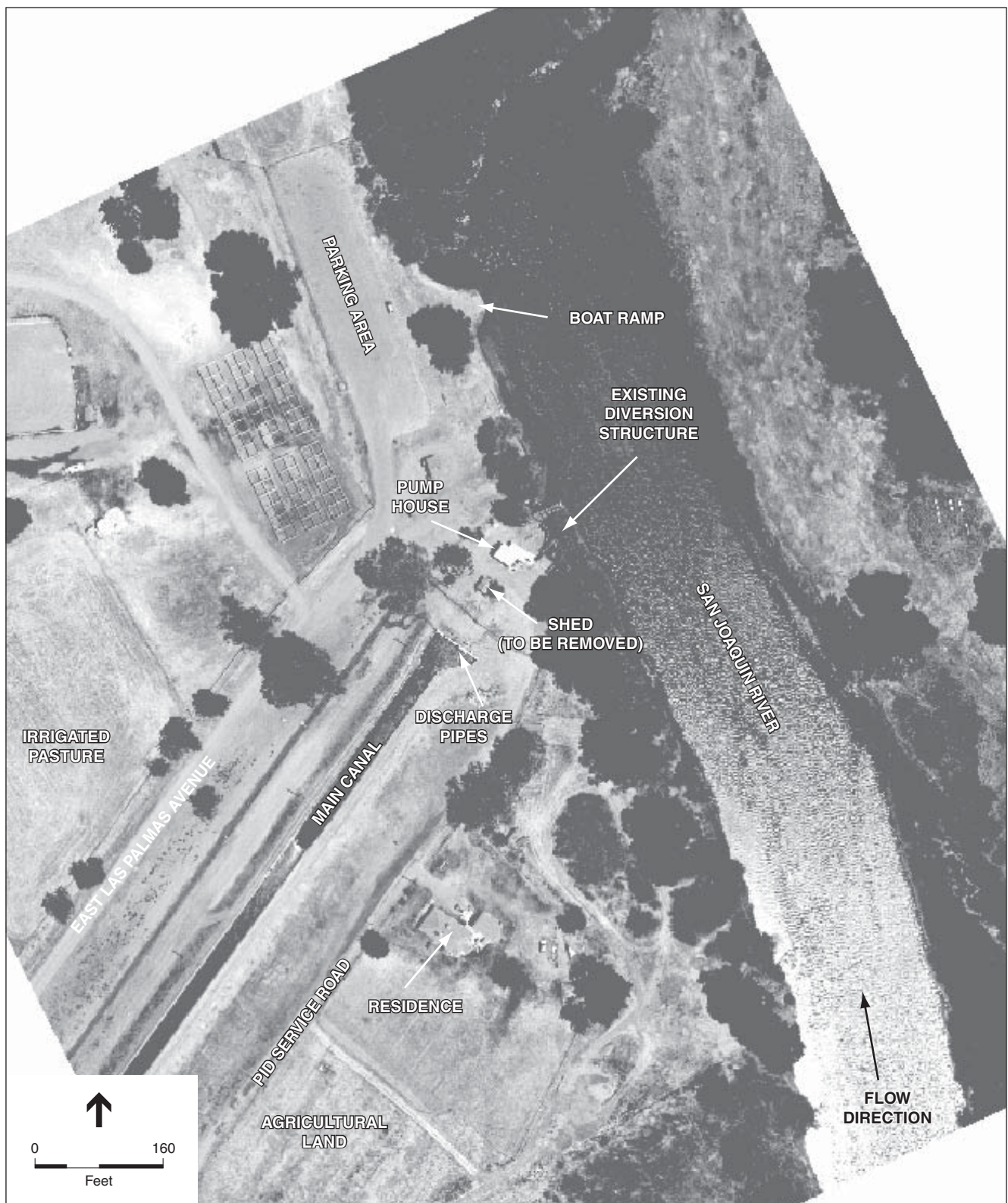
The PID is located in Stanislaus County, on the west bank of the San Joaquin River, between the Merced and Tuolumne Rivers. Figure 1-1 in Section 1 depicts the approximate limits of PID's service area. PID provides irrigation water to 425 accounts with a total irrigated area of approximately 13,500 acres. The estimated annual water delivery is 45,200 acre-feet out of which, 33,500 acre-feet is diverted from the San Joaquin River and the remainder from the Delta Mendota Canal. The San Joaquin River diversion utilizes an unscreened intake, and may have entrained Chinook salmon, steelhead trout, and other anadromous fish species that pass by the intake. These facilities are illustrated in Figure 3-1. The diversion falls within the criteria established by the CVPIA, passed in 1992, for the protection and recovery of fisheries and fish habitat. The purpose of this project is to provide a positive means of preventing entrainment of migrating at-risk native fish species by the irrigation diversion facilities.

3.2 EXISTING SAN JOAQUIN RIVER DIVERSION FACILITIES

PID currently operates a surface water diversion/pumping plant on the San Joaquin River approximately 3.5 miles east of the City of Patterson, in unincorporated Stanislaus County. The diversion/pumping plant and immediate vicinity are illustrated in Figure 3-1. PID has been diverting water at this site for over 90 years. The diversion consists of seven pumps, six vertical turbine pumps and one horizontal centrifugal pump, with a combined pumping capacity of 195 cfs. Seven separate pipelines ranging in size from 30-inch to 42-inch in diameter serve as the pump discharge lines to the PID Main Canal. The diversion delivery system is automated for demand control on the Main Canal.

3.3 WATER USAGE

The lands served by the PID have been continuously irrigated since the early 1900's. As a pre-1914 water rights holder PID has the authority and right under California law to divert what water is needed as long as it is put to beneficial use. The current Main Canal peak capacity is 200-cfs. The irrigation season for PID occurs from March through September. PID seldom diverts water from October through February. Table 3-1 lists PID's historical monthly diversions from the San Joaquin River for the years 1973 through 2001 based on the Water Account Record data as recorded by the USBR.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project . 204019

Figure 3-1
Existing Land Use

TABLE 3-1
PID –SAN JOAQUIN RIVER MONTHLY DIVERSIONS, 1973–2001 (ACRE-FEET)

Year	Month												Total
	January	February	March	April	May	June	July	August	September	October	November	December	
1973				2,780	9,376	9,584	9,072	9,118	3,850				43,780
1974		2,050	1,414	5,468	9,385	9,183	9,367	9,222	3,760				49,848
1975				4,387	9,833	10,387	9,807	9,295	4,348				48,057
1976	5,542	3,105	4,604	7,732	8,998	9,941	9,278	6,818	4,230				60,247
1977		700	6,173	9,060	4,368	9,035	8,644	8,626	3,843				50,446
1978					3,542	5,963	6,926	7,194	2,486				26,112
1979				4,378	8,249	8,351	7,438	7,182	4,187		1,870	1,569	43,224
1980				4,697	5,800	6,543	6,614	6,818	3,456	236			34,165
1981				5,201	8,571	7,134	7,290	7,705	4,680	95			40,676
1982				534	7,477	7,054	7,626	7,340	3,943				33,974
1983					1,377	3,486	3,031	4,511	969				13,374
1984			1,018	4,493	3,704	4,878	5,739	5,139	1,266				26,236
1985			193	4,540	5,949	5,618	5,335	4,820	622				27,077
1986				909	3,427	2,655	3,432	3,355	663				14,441
1987				4,139	4,055	3,893	3,624	3,312	905				19,929
1988			1,371	1,396	2,362	3,740	5,750	3,920	636				19,175
1989			2,563	4,162	4,127	3,826	5,586	4,416	754				25,434
1990			3,370	8,134	6,491	3,990	5,465	4,362	2,956				34,768
1991	1,066	1,536		3,096	7,819	7,794	7,494	6,805	4,540				40,150
1992				3,698	6,044	5,204	4,441	4,531	2,921				26,839
1993				670	3,646	2,619	4,277	5,150	1,235	291	62	262	18,212
1994			947	6,052	5,084	6,615	5,379	5,670	2,709				32,456
1995				854	2,897	4,368	5,606	4,889	1,666				20,280
1996				2,748	5,766	5,595	5,838	5,027	3,606	543	7		29,130
1997			2,060	5,250	5,810	6,091	7,386	6,059	3,102	636	2		36,396
1998				396	1,029	6,085	7,502	6,552	5,012	1,388		21	27,985
1999			941	4,640	7,952	7,957	8,030	7,707	5,289	910			43,426
2000			350	6,460	7,860	7,581	8,150	7,479	2,982	419			41,281
2001			861	4,668	8,929	8,180	8,620	7,479	2,982	419			42,137
Average*	3,304	1,848	1,990	4,094	5,859	6,322	6,647	6,224	2,883	549	485	617	33,423

* Average based on months where diversion occurred. If no diversion occurs it does not count as zero.

PID receives water from the Delta Mendota Canal (DMC) to supplement their San Joaquin River pre-1914 righted water supply. The DMC water supplies include a 6,000-AF (acre feet) delivery per year from a water rights settlement contract and a Central Valley Project (CVP) water service contract for 16,500-AF per year. The total volume of 22,500-AF equates to a flow of approximately 50-cfs if the supply was received consistently from April through October, however, the actual quantities available to PID are dependent on annual rainfall totals. The supplemental supplies from the DMC are primarily used to blend with river diversion water to improve water quality during early crop stages as the canal water is of better quality than the river water.

3.4 FLOW DURATION HYDROLOGY

Daily flow data for the U.S. Geological Survey (USGS) San Joaquin River near Newman, CA gage (11274000) were used to determine design flows for the PID diversion (Montgomery Watson Harza [MWH], 2004c). The period of record is from 1912 to 2002. Only flows starting in 1966 were used in the analysis because flows prior to that date do not include the effects of regulation at New Exchequer on the Merced River on flows in the San Joaquin River near Newman.

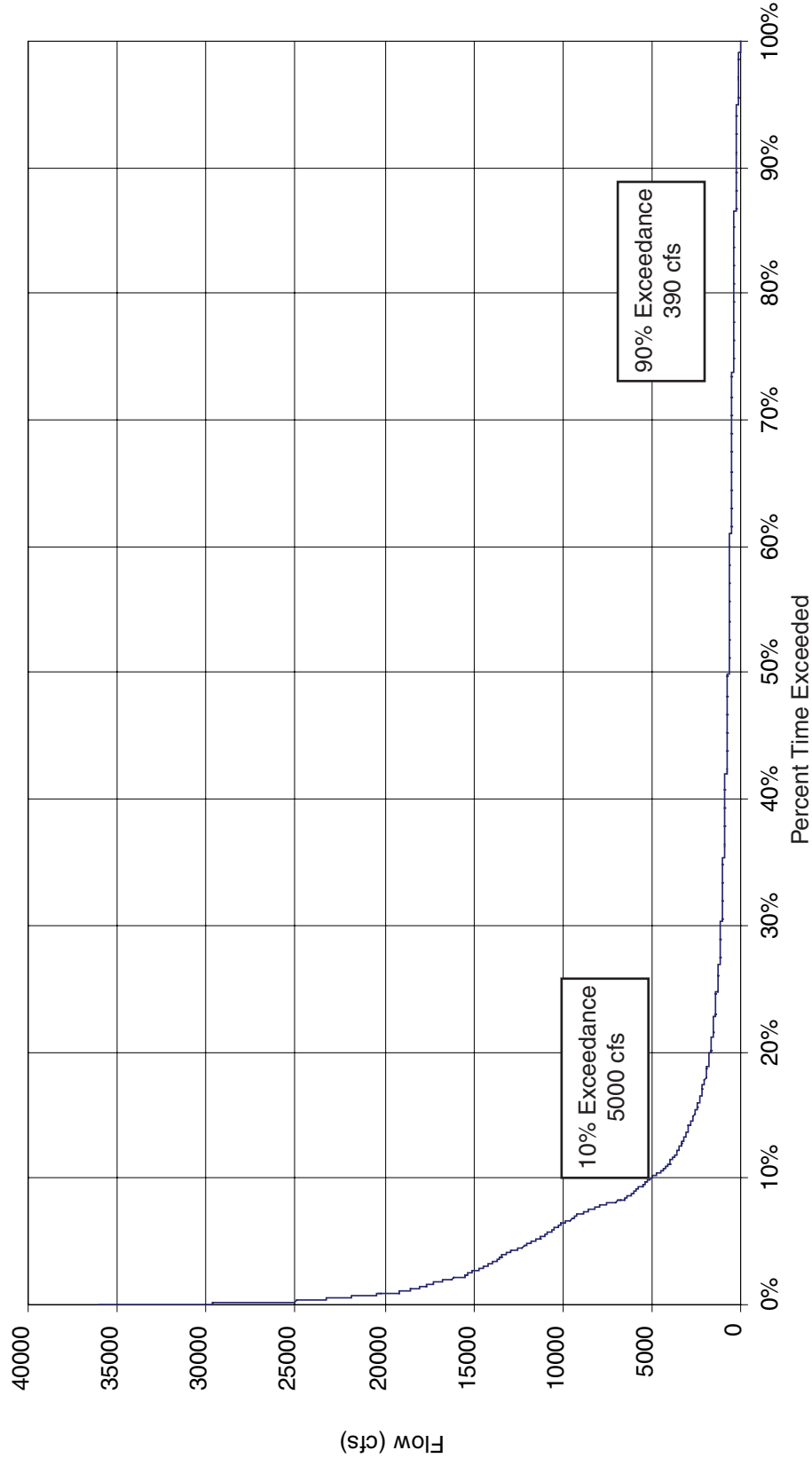
Figure 3-2 shows flow exceedance for the period of record used. Flow exceedance is defined as the flow level that is equaled or exceeded for a given percentage of the period of record. As shown in Figure 3-2, the annual 10 percent and 90 percent exceedance values are 5,000 cfs and 280 cfs respectively.

Additional statistical analyses were done on the flow data (1966–2002) from the gage near Newman to determine the 10 and 90 percent exceedance values for each month as shown in Table 3-2. As shown in the table, the maximum monthly 10-percent exceedance value is in the month of February with 15,300 cfs, and the minimum monthly 90-percent exceedance value is in the month of October with 160 cfs. These two values are more conservative than the annual 10 and 90 percent exceedance numbers and would result in a more conservative design if used in the design of the rehabilitated diversion structure.

3.5 FLOOD HYDROLOGY

The daily data from 1966 to 2002 at the USGS San Joaquin River near Newman, CA gage were used to develop the flood hydrology (MWH, 2004c). The period 1966 to 2002 is a subset of the entire period of record at the Newman gage, which starts in 1912. As mentioned earlier, it was used because the New Exchequer Dam on the Merced River began operation in 1966 and changed the flow frequency statistics for the Merced River which enters the San Joaquin River just upstream from the Newman gage (MWH, 2004c).

DATA FROM 1966 TO 2002



SOURCE: ESA, 2006

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Figure 3-2
Flow Exceedance –
San Joaquin River Near Newman

TABLE 3-2
FLOW AND WATER SURFACE ELEVATIONS AT PATTERSON IRRIGATION
DISTRICT DIVERSION

Month	10% Exceedance		90% Exceedance	
	Flow (cfs)	Stage (ft msl)	Flow (cfs)	Stage (ft msl)
Oct	2,100	38.32	160	32.57
Nov	1,700	37.22	310	33.66
Dec	2,550	39.03	330	33.73
Jan	7,400	45.21	480	34.19
Feb	15,300	49.61	560	34.43
Mar	14,100	49.14	470	34.16
Apr	13,650	48.94	390	33.92
May	12,050	48.24	280	33.56
Jun	9,150	46.57	210	33.3
Jul	4,600	42.17	190	33.22
Aug	1,150	35.97	180	33.19
Sep	1,550	36.94	170	33.15
<i>Annual</i>	<i>5,000</i>	<i>42.71</i>	<i>280</i>	<i>33.56</i>
	100-Year	45,000	55.78	

Note: (1) Bold numbers indicate maximum and minimum
(2) Data are from years 1966 – 2002
(3) Elevation data are feet NAVD 88

MWH developed the flood hydrology using the methodology from USGS Bulletin 17B, “Guidelines for Determining Flood Flow Frequency.” The analysis required for this method is performed by the HEC Flood Frequency Analysis (HEC-FFA) computer program (MWH, 2004c). The peak flow for each year of record is extracted from the daily flow records and is used in the model. The model uses a Log Pearson Type III¹ analysis to determine the flood percent probability of occurrence.

Figure 3-2 shows the percent chance exceedance with flow. One percent flood flow was developed by plotting a best-fit line through the data points for all flows that exceeded a 3-year flow. The flood that has a one percent chance of occurring in any given year is commonly called the 100-year flood because over a long period of time, it will occur on average every 100 years. The one percent flood at the Newman gage, as determined using the methodology described above, is 45,000 cfs.

¹ This model uses three parameters (mean, standard deviation and skew) to fit the discharge frequency for an annual flood.

3.6 RIVER HYDRAULIC ANALYSIS

There is a stream gage operated jointly by CA DWR and the USGS at Patterson, in the vicinity of the PID diversion. Water surface elevations from the gage rating curve should be adequate for determining water surface elevations at the diversion. An HEC-RAS computer backwater model was also developed to help determine the water surface elevation at the PID diversion (RM 98.5). Cross section data for the reach of the San Joaquin River from the Newman gage to the confluence with the Tuolumne River (RM 115.88 to RM 81.49), from the U.S. Army Corps of Engineers Sacramento and San Joaquin River Basins Comprehensive Study, were used as the basis for the model geometry.

It is very important to note that the datum used for both the gage at Patterson and the Comprehensive Study cross section data is NGVD 29, whereas the datum used for the topographic mapping being used in the design of the PID diversion structure is NAVD 88. The difference between the two datums at Patterson is around 2.4 feet, meaning that for a given point, the elevation from the Comprehensive Study will be 2.4 feet lower than the elevation from the design topography. All table and figure data provided in this document has been adjusted to the NAVD 88 datum.

The Manning's 'n' values in the model were calibrated to match the river stages at the Newman gage for a given flow in the river. This required the use of 'n' values that vary with stage in the river. Typically, the 'n' values increase with stage as flows begin to interact with revetment and vegetation along the rivers edge.

The remnants of a rock structure are located in the river about 450 feet downstream from the existing diversion structure. This dam has significant portions that are no longer intact, but it still continues to provide additional depth at the diversion structure, particularly during low flows (MWH, 2004c). The dam was inserted into the model of the river as an additional cross section based on locations and elevations that were surveyed by boat in February 2004.

SURFACE WATER QUALITY

The State Water Resources Control Board (State Board), in compliance with the Section 303(d) of the Clean Water Act [33 U.S.C. Section 1313(d)] prepared, and EPA approved a 2002 list of "impaired" water bodies in the State of California. The list includes a priority schedule for the development of total maximum daily loads (TMDLs) for each contaminant or "stressor" impacting the water body. The San Joaquin River is identified in the 2002 California Section 303(d) List and TMDL Priority Schedule as an impaired water body for the following contaminants: boron, chlorpyrifos, DDT (Di(para-chloro-phenyl)-trichloroethane), diazinon, electrical conductivity, Group A pesticides, mercury, and unknown toxicity (EPA, 2003). The Delta, downstream of the project area, has been designated as impaired for a variety of contaminants, including pesticides (chlorpyrifos, DDT, diazinon, and Group A pesticides) resulting from agricultural and urban runoff/storm sewers, mercury (from abandoned mine drainage), electrical conductivity (agriculture), organic enrichment/low dissolved oxygen (municipal point sources and urban runoff/storm sewers), and unknown toxicity (unknown cause).

3.7 BIOLOGICAL RESOURCES

GENERAL DESCRIPTION OF HABITAT AND SPECIES

Biological communities in the study area include valley riparian/riparian forest, annual grassland, and riverine. The San Joaquin River provides freshwater habitat for fish, amphibians, reptiles, and waterfowl. Roads, existing facilities, and recreational activities have modified the adjacent riparian habitat. Inland project areas, beyond the San Joaquin River and associated habitats, are characterized as agricultural and grazing. Human presence within the project area is relatively high based on the river access ramp and associated recreational activities including boating, swimming, and fishing. Figure 3-3 presents the general habitat types in the immediate vicinity of the Proposed Project/Action area.

Natural Community / Habitat Types

There are three primary natural community types that characterize the overall project/action area. Community types are those habitat areas located in the vicinity of the proposed diversion rehabilitation site. They are as follows:

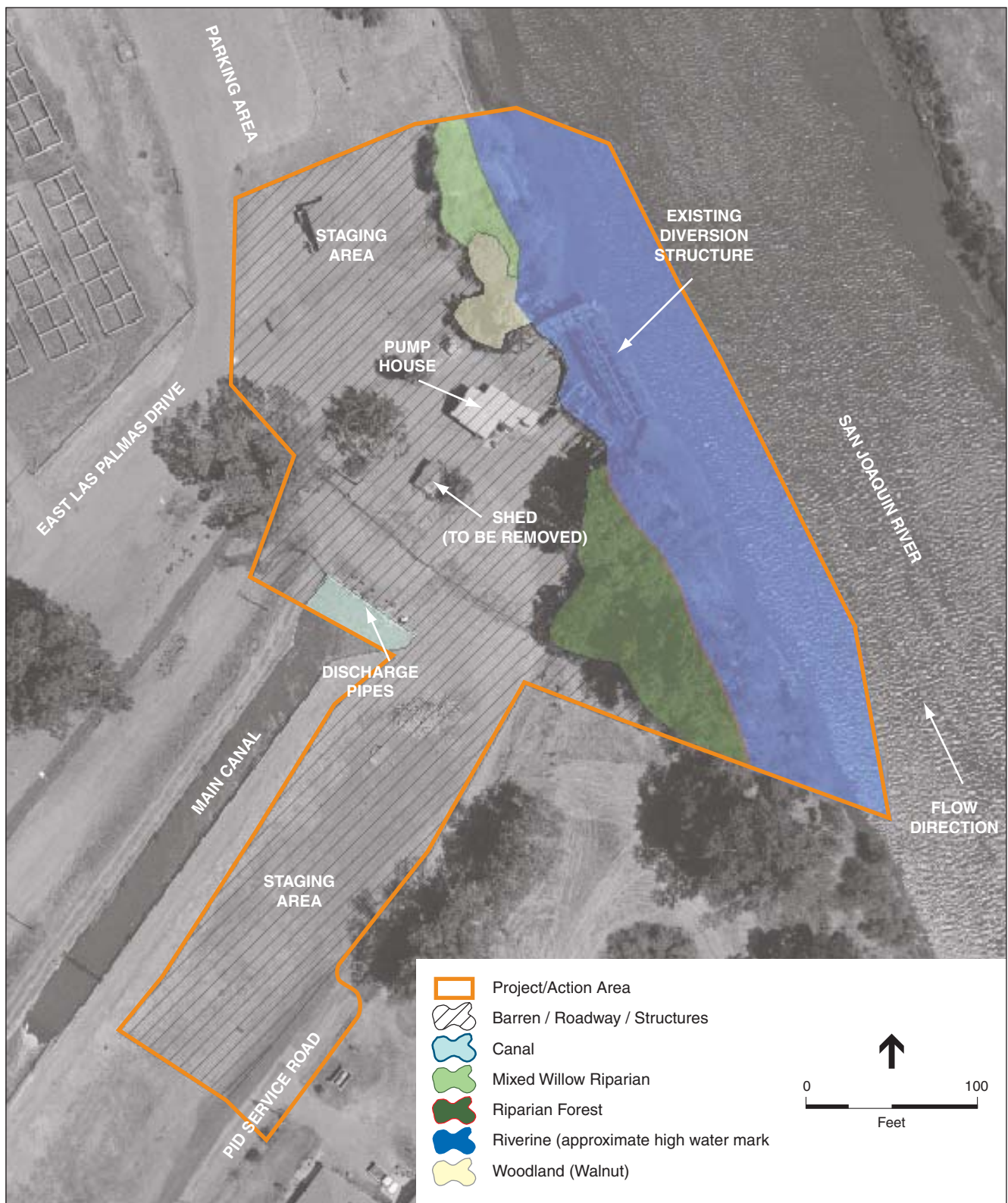
- Riparian
- Annual Grassland
- San Joaquin River

Mixed Willow Riparian/Valley Riparian Forest

Mixed willow riparian habitat occurs adjacent to the existing diversion facilities along the western bank of the river and also in patches throughout the river bank areas in the vicinity of the project (Figure 3-3). These riparian areas, dominated by narrow-leaf willow (*Salix exigua*) and black willow (*Salix gooddingii*), provide brief patches of shading along the river bank.

Mixed oak and cottonwood riparian forest, characterized by valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*) and cottonwood (*Populus fremontii*) occupy a majority of the western river bank habitat areas adjacent to the Proposed Project/Action. A few large diameter native sycamore trees (*Platanus racemosa*), also associated with valley riparian habitat, occupy areas within the existing facilities, providing evidence of a more extensive historic riparian woodland habitat. Along the north portion of the existing diversion location, the riparian community transitions into a small grove of walnut trees (*Juglans regia*) (Figure 3-3).

Valley riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles and 147 bird species occur in lowland riparian systems. Additionally, 55 species of mammals are known to use California's Central Valley riparian communities.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project . 204019

Figure 3-3
Proposed Project/Action Area and Habitats

Annual Grassland

Annual grasslands occur on flat river plains and upland areas surrounding the existing roads and facilities. These habitat areas are dominated by non-native annual grasses and forbs such as ripgut brome (*Bromus diandrus*), wild oats (*Avena barbata*) and bull thistle (*Cirsium vulgare*). This habitat is also present in the understory of the riparian woodland habitat. Grasslands provide important foraging, breeding, and resting habitat for many species of wildlife.

Grasslands may attract reptiles such as western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), western whiptail (*Cnemidophorus tigris*), and gopher snake (*Pituophis melanoleucus*). This habitat also attracts seed- and insect-eating birds such as California quail (*Callipepla californica*), mourning dove (*Zenaidura macroura*), savanna sparrow (*Passerculus sandwichensis*), western kingbird (*Tyrannus verticalis*), meadowlark (*Sturnella neglecta*), scrub jay (*Aphelocoma coerulescens*), barn swallow (*Hirundo rustica*), and mockingbird (*Mimus polyglottus*). Small rodents attract raptors (birds of prey), including red-tailed hawks (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-shouldered hawks (*Buteo lineatus*), and barn owl (*Tyto alba*). Grasslands are important foraging grounds for aerial and ground foraging insect eaters such as *Myotis* bat species and pallid bats (*Antrozous pallidus*). Mammals such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*) forage and nest within the grassland.

San Joaquin River

The San Joaquin River is one of the two major rivers that flow into the Sacramento-San Joaquin Delta and ultimately San Francisco Bay. Its headwaters originate on the slopes of Mt. Goddard in Kings Canyon National Park and flow first northwest, and then southwest out of the Sierra Nevada. Behind Friant Dam—a project of the U.S. Bureau of Reclamation—the river forms Millerton Lake which is a popular recreation area. Below the Dam it flows northwesterly through the Central Valley and towards Stockton before joining the Sacramento River. The San Joaquin River is a major component of the Delta. It offers a continuous flow of water, and a variety of natural aquatic environments including riverine and estuarine habitats.

The San Joaquin River historically contained a diverse and productive natural environment supporting a complex network of creeks, sloughs, rivers, lakes, ponds, and wetlands. Populations of fish and wildlife occurred in the permanently flooded tule marshes, seasonal marshes, riparian forests, oak woodlands, and upland prairies associated with the San Joaquin River Delta. Human-induced alterations began in the late 1800's, as water diversions for agricultural purposes depleted streamflows and native vegetation. Today, the lands surrounding the San Joaquin River constitute the largest contiguous block of irrigated land in California (Wildlife Subcommittee, 1992).

Within the project/action area several anadromous fish species use the San Joaquin River as a migration corridor including fall-run chinook salmon (*Oncorhynchus tshawytscha*) and Central

Valley steelhead (*Oncorhynchus mykiss*). During the summer, water temperatures can increase significantly due to lack of bank shading (from insufficient riparian habitat) and shallow water depths. These factors combined with lower water quality, inadequate flows, and unscreened diversions have led to unfavorable habitat conditions for several species of native fishes in the San Joaquin River system. Thus, the mainstem San Joaquin River is characterized by high percentages of introduced species tolerant of these environmental conditions. Particularly common are the fathead minnow (*Pimephales promelas*), red shiner (*Cypriella lutrensis*), threadfin shad (*Dorosoma pretenense*), and inland silverside (*Menidia beryllina*) (Dubrovsky et al., 1998). Other exotic predatory species such as largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), and catfish (*Ameiurus catus*) inhabit the mainstem river and predate on and/or displace juvenile salmonids and other migratory and resident native fish species including California roach (*Lavinia symmetricus*), Sacramento squawfish (*Ptychocheilus grandis*), river lamprey (*Lampetra ayresi*), hardhead (*Mylopharodon conocephalus*), Delta smelt (*Hypomesus transpacificus*), hitch (*Lavinia exilicauda*), Sacramento splittail (*Pogonichthys macrolepidotus*), and Pacific lamprey (*Lampetra tridentata*).

Within the immediate vicinity of the Proposed Project/Action, riverine habitat is characterized by shallow, slow flows and pooling during the summer and dry weather months. A recreational access ramp is located downstream, or north of the site. River shores and banks are characterized by a few non-contiguous patches of willow (as described above), exposed banks (areas with a high level of human disturbance) and annual grassland. A shallow back-water area along the west bank of the project/action area provides a small pocket of emergent wetland habitat characterized by cattail (*Typha* sp.).

Table 3-3 lists the species of concern, their preferred habitats, and whether, based on the activities the project proposes, a given species has the potential of being affected. Species that may be affected by the Proposed Project/Action (and are therefore addressed in detail in this document) are in bold type.

Potentially Occurring Sensitive Species

Swainson's Hawk

Swainson's Hawk is a migratory raptor listed as threatened by the State of California, and federally as a species of special concern. It breeds in western North America and winters for the most part in South America. It nests in trees, usually in riparian areas, but forages over pasturelands and open agricultural fields. In the Central Valley it is associated with riparian corridors adjacent to field crops and grasslands and subsists largely on small mammals, especially California vole, California ground squirrel, and large insects. Suitable foraging habitat within an energetically efficient flight distance from active Swainson's hawk nests has been found to be of great importance. Because the prey base for Swainson's hawk is highly variable from year to year, depending on cycles of agriculture, rainfall, and other natural cycles, large acreages of potential foraging habitat must be allotted per breeding pair.

TABLE 3-3
SPECIAL STATUS SPECIES THAT MAY OCCUR ON THE PROJECT SITE

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
LISTED AND PROPOSED SPECIES				
Invertebrates				
<i>Anthicus sacramento</i> Sacramento anthicid beetle	FSC/--/--	Restricted to sand dune areas of the Sacramento-San Joaquin Delta. Uses sand slip faces among bamboo and willow.	Unlikely. No suitable habitat present in project area.	
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the project area.	Year round (eggs in dry season, adults in wet season)
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the project area.	Year round (eggs in dry season, adults in wet season)
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	Vernal pools and seasonal wetlands.	Unlikely. No vernal pool habitats exist in the project area.	Year round (eggs in dry season, adults in wet season)
<i>Branchinecta mesoallensis</i> Midvalley fairy shrimp	FSC/--/--	Life cycle restricted to vernal pools in the Central Valley	Unlikely. No vernal pool habitats exist in the project area	Year round (eggs in dry season, adults in wet season)
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Occurs in the Central Valley region in association with blue elderberry shrubs. Prefers to lay eggs in elderberry stems greater than 1" in diameter.	Unlikely. No potential habitat for this species was located during the field survey on June 8, 2006. No elderberry shrubs were present in the project footprint and in the adjacent riparian and riverside areas.	Year round (exit holes in shrub stems)
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	Vernal pools and swales in the Sacramento Valley.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the project area.	Year round
<i>Lindieriella occidentalis</i> California lindieriella	FSC/--/--	Lifecycle restricted to vernal pools.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the project area.	Year round
<i>Lytta moesta</i> Moestan blister beetle	FSC/--/--	Occurs in vernal pools and seasonal wetlands.	Unlikely. No identified vernal pool habitats or seasonal wetlands exist within project area.	July-August

TABLE 3-3
SPECIAL STATUS SPECIES THAT MAY OCCUR ON THE PROJECT SITE

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
<i>Lytta molesta</i> Molestan blister beetle	FSC/--/--	Inhabits dry vernal pools in the Central Valley, from Contra Costa to Tulare Counties.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.	July-August
Fish				
<i>Acipenser medirostris</i> North American Green sturgeon (Southern DPS)	FT, CSC/--	This species spawns in large cobble in deep and turbulent river mainstem. The southern distinct population segment spawns in the Sacramento River basin and in the Sacramento-San Joaquin Delta and Estuary. Although there is no historic or current evidence for spawning in the San Joaquin River, indirect evidence suggests that adult and juvenile green sturgeon may have occurred in this river system in the past.	Unlikely. The Project Action is outside of the known range of the Southern DPS of this species.	Year round
<i>Hypomesus transpacificus</i> Delta smelt	FT/CT/--	Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Low. Outside of known range. Water quality impacts minimized by work performed during low flow with BMP's	December to June
<i>Lampetra ayresi</i> River lamprey	FSC/CSC/--	Occurs in the lower reaches of the Sacramento and San Joaquin River systems. Spawning requires clean, gravelly riffles in permanent streams; ammocoetes require sandy backwaters or stream edges in which to bury themselves.	Unlikely. Outside of known range. No suitable spawning habitat in project area.	Year round
<i>Lampetra hubbsi</i> Kern brook lamprey	FSC/CSC/--	Endemic to drainages along the east side of the San Joaquin Valley. Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate; adults favor coarser gravel-rubble substrate for spawning.	Low. Limited spawning and juvenile rearing habitat within the San Joaquin River near the project area, but may migrate through the site.	Year round

TABLE 3-3
SPECIAL STATUS SPECIES THAT MAY OCCUR ON THE PROJECT SITE

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
<i>Lampetra tridentata</i> Pacific lamprey	FSC/--/--	Occur in drainages throughout California. Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate; adults favor coarser gravel-rubble substrate for spawning.	Low. Limited spawning habitat within the San Joaquin River near the project area; may migrate through the site.	Year round
<i>Lavina symmectricus</i> <i>spp. 1</i> San Joaquin roach	--/CSC/--	Occur in mid-elevation intermittent streams in the Sierra Nevada foothills. Most often associated with streams in areas with serpentine rock.	Unlikely. No suitable habitat present in project area.	
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--/--	Includes all naturally spawned anadromous populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries. This includes the mainstem San Joaquin River from the mouth of the Merced River to the Delta.	Low. No spawning habitat within the San Joaquin River near the Project/Action area. However, the Project/Action area may provide important upstream and downstream freshwater migration and rearing habitat. Critical habitat exists within the project area for this species.	Winter months
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run chinook salmon	FT/CT/--	Formerly found in the San Joaquin, American, Yuba, Feather, upper Sacramento, McCloud, and Pit Rivers. Now limited to the Sacramento River.	Unlikely. Project area is outside of present known range. Likely extirpated from the San Joaquin River system.	February-June
<i>Oncorhynchus tshawytscha</i> Central Valley Fall-run chinook salmon	FSC/CSC/--	Spawns primarily in the Merced, Tuolumne, and Stanislaus River tributaries. Spawning seldom occurs in the mainstem San Joaquin River.	Low. No spawning habitat within the San Joaquin River near the project area. However, project area may provide important upstream and downstream freshwater migration and rearing habitat.	September-May
<i>Oncorhynchus tshawytscha</i> Sacramento Winter-run chinook salmon	FE/CE/--	Limited to the Sacramento River system. Juveniles spend five to nine months in the Sacramento River and Sacramento-San Joaquin Estuary before entering the ocean.	Unlikely. Project area is outside of species range.	November-June
<i>Pogonichthys macrolepidotus</i> Sacramento Splittail	FSC/CSC/--	Prefers backwaters and sloughs of the Delta and lower San Joaquin and Sacramento rivers.	Low. Limited spawning habitat within the San Joaquin River near the project area; however, site may provide migration corridor.	January-June

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Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
<i>Spirinchus thaleichthys</i> Longfin smelt	FSC/CSC/--	Associated with costal estuaries and the delta. Occupy middle/bottom of the water column in salt or brackish water; spawn in rivers and dead-end sloughs in fresh water, over sandy-gravel substrates, rocks, and aquatic plants.	Unlikely. Project area is outside of species range.	Year round
Reptiles				
<i>Anniella pulchra pulchra</i> Silvery legless lizard	FSC/CSC/--	Forages at the base of vegetation either on the surface, or in burrows near the surface through loose soil.	Unlikely. No suitable habitat within project area.	Year round, excluding winter
<i>Emys (=Clemmys) marmorata marmorata</i> Northwestern pond turtle	FSC/CSC/--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or open grassy fields for egg-laying. Distribution in California ranges from the Oregon border south to the San Francisco Bay area, and from the Pacific coast to the west slope of the Sierra/Cascade mountains (Spinks and Shaffer, 2005).	Unlikely. Not likely to occur in the San Joaquin River system.	Year round, excluding winter
<i>Clemmys marmorata pallida</i> Southwestern pond turtle	FSC/CSC/--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or open grassy fields for egg-laying. This southern subspecies is distributed from the San Francisco Bay south to Baja, although recent genetic studies show that this distribution may actually include three separate subspecies (Spinks and Shaffer, 2005).	Medium. Suitable habitat along the San Joaquin River.	Year round
<i>Gambelia sila</i> Blunt-nosed leopard lizard	FE/CE,CP/--	Occurs in open, valley and foothill grasslands, valley saltbush scrub, and alkali playa communities of the San Joaquin Valley, Carrizo Plain, and Cuyama Valley. Uses small mammal burrows for refuge.	Unlikely. No suitable habitat within Project/Action area. The nearest location is west of Interstate 5 approximately 20 miles west of the project site.	Year round, excluding winter
<i>Masticophis flagellum ruddocki</i> San Joaquin whipsnake	FSC/CSC/--	Open, dry habitats with minimal or no tree cover. Inhabits valley grassland and saltbrush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and egg-laying sites.	Unlikely. No suitable habitat within project area.	March-October

TABLE 3-3
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Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
<i>Phrynosoma coronatum frontale</i> California horned lizard	FSC/CSC/--	Inhabits variety of habitats, usually lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial. Must have abundant ants and other insects.	Unlikely. No suitable habitat within project area	March-October
<i>Thamnophis gigas</i> Giant garter snake	FT/CT/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	Unlikely. No suitable habitat in the vicinity of the Proposed Project/Action due to lack of dense emergent wetland vegetation (cover). The river and banks are not suitable habitat. There is an overflow drainage north of the canal and project footprint that could function as a low-quality habitat but it is not adjacent to or connected with higher-quality upland dispersal or wetland habitat. There is a lack of adequate grassy upland cover, and basking sites. High degree of human disturbance (boat launch) and presence of exotic predatory fish in San Joaquin River also limit habitat potential.	March-October
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	FT/CSC/--	Annual grasslands and grassy understory of hardwood habitats; need underground refuges (i.e., ground squirrel burrows); need seasonal water sources for breeding.	Unlikely. No suitable habitat in project area.	October-April
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation.	Unlikely. No suitable habitat in project area	October-April
<i>Spea (Scaphiopus) hammondi</i> Western spadefoot toad	--/CSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	Unlikely. No suitable habitat present in project area.	October-April

TABLE 3-3
SPECIAL STATUS SPECIES THAT MAY OCCUR ON THE PROJECT SITE

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
Birds				
<i>Agelaius tricolor</i> Tricolored blackbird	--/CSC/--	Nomadic resident of Sacramento-San Joaquin Valley and low foothills; nests colonially in vicinity of fresh water, marshy areas. Colonies prefer heavy growths of cattails and tules.	Unlikely. No suitable habitat present in project area.	Year round
<i>Aquila chrysaetos</i> Golden eagle	--/CSC/--	Nests on cliffs of all heights and in large trees near open areas. Occurs in rolling foothills, mountain terrain, sage-juniper flats, and rugged open habitats with canyons and escarpments. Preys mostly on small mammals. Breeds late Jan-Aug.	Unlikely. No suitable habitat present in project area.	Year round.
<i>Ardea herodias</i> Great blue heron (rookery)	--/CEQA/--	Groves of tall trees, especially near shallow water foraging areas such as marshes, tide-flats, lakes, rivers/streams and wet meadows.	Unlikely. No suitable nesting habitat in the project area.	Year round.
<i>Athene cunicularia</i> Western burrowing owl	--/CSC/--	Inhabits open, grasslands and scrublands characterized by low-growing vegetation. Subterranean nester dependent upon burrowing mammals, specifically California ground squirrel.	Medium. Potential nesting habitat along SJ River bank area.	Year round
<i>Baeolophus inornatus</i> Oak titmouse	FSLC/--/--	Breeds in open pine-juniper and oak woodlands, often in riparian areas.	Unlikely. Project/Action area suitable habitat for species.	Year round.
<i>Branta canadensis leucopareia</i> Aleutian Canada goose	FD, FSC/--/--	Feeds in emergent wetlands, moist grasslands, croplands, pastures and meadows near water.	Unlikely. No suitable habitat in the immediate project area.	Winter months
<i>Buteo regalis</i> Ferruginous hawk	FSC--/CSC/--	Inhabits open grasslands, low foothills and desert scrub; nests in trees, low cliffs, and other elevated structures. Eats mainly lagomorphs, and other small mammals; also birds, amphibians, and reptiles. No nesting records in California.	Unlikely. Site does have potential nesting trees, but lacks suitable contiguous foraging opportunities.	Winter
<i>Buteo swainsoni</i> Swainson's hawk	FSC/CT/--	Forages in open plains, grasslands and prairies; typically nests in trees or large shrubs.	Medium. Suitable nesting trees within the project site.	Year round
<i>Calypte costae</i> Costa's hummingbird	--/--/--	Inhabits arid scrub and chaparral communities and edges of desert and valley foothill riparian communities. Requires herbaceous and woody plants with nectar-producing flowers, and shrubs and trees for cover.	Unlikely. Limited habitat in project area.	Year round

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<i>Carduelis lawrencei</i> Lawrence's goldfinch	FSC/--/--	Dry grassy slopes with weed patches, chaparral, and open woodlands; nests in trees or shrubs.	Unlikely. No suitable habitat within project area.	Spring and summer months
<i>Chaetura vauxi</i> Vaux's swift	--/CSC/--	Nests in large hollow trees and forages widely, especially over riparian areas and open water.	Unlikely. No suitable habitat within project area.	Spring and summer months
<i>Charadrius montanus</i> Mountain plover	--/CSC/--	Winters in Central California on bare dirt fields and short grasslands. No nesting records in California.	Unlikely. No suitable habitat within project area.	September-March
<i>Egretta thula</i> Snowy egret (rookery)	--/CEQA/--	Forages in marshes, swamps, and mudflats; nests in shrubs or reedbeds.	Unlikely. No suitable nesting habitat within the project area.	Year round.
<i>Elanus leucurus</i> White-tailed kite	FSC/CP/--	Nests in dense oak, willow, or other tree stand near open grasslands meadows, farmlands, and emergent wetlands.	Low. Limited forested habitat may provide suitable nesting.	Year Round
<i>Empidonax trailii brewsteri</i> Little willow flycatcher	FSC/--/--	Nests in dense riparian cover. Summer migrant in the project area.	Unlikely. No suitable habitat within project area.	Summer
<i>Eremophila alpestris actia</i> California horned lark	--/CSC/--	Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Unlikely. No suitable habitat present in project area.	Year round.
<i>Falco mexicanus</i> Prairie falcon	--/CSC/--	Breeds on cliffs, bluffs and outcrops near large, open areas.	Unlikely. No suitable habitat present in project area.	Year round.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD, FSC/CE/--	Breeds on high cliffs, banks, dunes, mounds, and human-made structures near wetlands, lakes, rivers, or other sources of water.	Unlikely. No suitable habitat present in project area.	Spring and summer months
<i>Grus canadensis tabida</i> Greater sandhill crane	--/CT, CP/--	Open habitats, shallow lakes, and emergent wetlands. In winter also uses dry grasslands and croplands near wetlands.	Unlikely. No suitable habitat present in project area..	Year round
<i>Haliaeetus leucocephalus</i> Bald eagle	FD/CE/--	Nests in large trees with open branches along lake and river margins, usually within one mile of water.	Unlikely. No suitable habitat within project area. Trees within the project area are not suitable for this species.	Year round
<i>Lanius ludovicianus</i> Loggerhead shrike	FSC/CSC/--	Nests in dense shrubs and brush near open foraging areas such as grasslands.	Unlikely. No suitable habitat present in project area..	Year round
<i>Melanerpes lewis</i> Lewis' woodpecker	FSC/--/--	Winters in oak savannahs, and broken deciduous and coniferous habitats.	Unlikely. No suitable habitat present in project area..	Spring and summer months

TABLE 3-3
SPECIAL STATUS SPECIES THAT MAY OCCUR ON THE PROJECT SITE

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
<i>Melospiza melodia maxillaris</i> Suisun song sparrow	FSC/CSC/--	Occurs in emergent wetland in Solano and Contra Costa counties. Breeds in dense riparian thickets, emergent wetlands, or dense thickets in moist areas. Builds nests in low, dense vegetation or on the ground.	Unlikely. Out of known distribution range for species.	Year round.
<i>Numenius americanus</i> Long-billed curlew	FSC/CSC/--	Forages along lakes, marshes, mudflats and sandy beaches. Nests in prairies and plains.	Unlikely. No suitable habitat present in project area..	Spring and summer months
<i>Picoides nuttallii</i> Nuttall's woodpecker	FLC/--/--	Uses riparian areas with adjacent oak woodland.	Unlikely. No suitable habitat present in project area..	Spring and summer months
<i>Plegadis chihi</i> White-faced ibis	FSC/CSC/--	Historically nested around Los Banos in freshwater wetland areas; presently no individuals breeding in San Joaquin Valley and only a few breeding individuals in the northern Sacramento Valley.	Unlikely. No suitable habitat present in project area..	October-March
<i>Selasphorus rufus</i> Rufous hummingbird	FSC/--/--	Riparian areas, open woodlands, chaparral and other areas rich with nectar producing flowers.	Unlikely. No suitable habitat present in project area..	October-March
<i>Toxostoma redivivum</i> California thrasher	FSC/--/--	Nests in dense chaparral habitats, March through August.	Unlikely. No suitable habitat present in project area..	March-August
Mammals				
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	--/CT/--	Occurs in the San Joaquin Valley, in arid annual grassland and shrubland communities with sparse-to-moderate shrub cover. Needs friable soils and areas free from flooding for digging burrows.	Unlikely. No suitable habitat present in project area.	Winter - Spring
<i>Corynorhinus townsendii pallascens</i> Pale big-eared bat	FSC/CSC/--	In a variety of habitats; most common in mesic sites with appropriate roosting, maternity, and hibernacula sites free from human disturbance. Roosts in caves, lava tubes, and abandoned mines. Feeds near forested areas.	Unlikely. No suitable habitat present in project area.	April- October
<i>Dipodomys heermanni dixonii</i> Merced kangaroo rat	FSC/--/--	Forages in grasslands, moderate chaparral and open cismontane woodlands, burrows in well-drained friable soil; preferred burrowing substrate is fine, deep soil.	Unlikely. No suitable habitat present in project area.	Year round

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<i>Dipodomys nitratoideus brevenasus</i> Short-nosed kangaroo rat	FSC/CSC/--	Generally in grassland or desert-shrub associations (Atriplex) on gentle-sloped or level ground. Prefers friable alkaline and saline soils.	Unlikely. No suitable habitat present in project area.	Year round.
<i>Dipodomys nitratoideus exilis</i> Fresno kangaroo rat	FE/CE/--	Subspecies of San Joaquin kangaroo rat. In sandy and saline sandy soils in annual Valley grassland, chenopod scrub, alkali sink communities. Needs open/sparse vegetation, loose soils.	Unlikely. No suitable habitat present in project area.	Year round
<i>Eumops perotis californicus</i> Greater western mastiff-bat	FSC/CSC/--	Forages over grasslands and roosts in caves and rock crevices.	Unlikely. No suitable habitat present in project area.	Year round
<i>Myotis ciliolabrum</i> Small-footed myotis bat	FSC/--/--	Forages over grasslands and roosts in buildings, caves, and rock crevices in relatively arid woody and brushy uplands near water.	Unlikely. No suitable habitat present in project area.	Year round
<i>Myotis volans</i> Long-legged myotis bat	FSC/--/--	Forages over grasslands and chaparral and roosts in trees, caves, buildings and rock crevices.	Medium. A few potential roosting sites in the vicinity of the project area.	March-November
<i>Myotis yumanensis</i> Yuma myotis bat	FSC/--/--	Forages over open water and streams and roosts in trees, buildings, caves and rock crevices.	Medium. A few potential roosting sites in the vicinity of the project area.	April-October
<i>Perognathus inornatus inornatus</i> San Joaquin pocket mouse	FSC/--/--	Typically found in grasslands and blue oak savannas between 1,100 to 2,000 feet; need friable soils.	Unlikely. No suitable habitat present in project area.	Year round
<i>Taxidea taxus</i> American badger	--/CSC/--	Occurs in a wide variety of open forest, shrub, and grassland habitats that have friable soils for digging.	Unlikely. No suitable habitat present in project area.	Year round.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/CT/--	Occurs in native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills. Prefers open level areas with loose-textured soils supporting scattered, shrubby vegetation and little human disturbance.	Unlikely. Limited habitat and migration corridors in the project area.	Year round

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Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential to Occur	Period of Identification/ Blooming Period
Plants				
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	--/--/1B	Generally found in playas, valley and foothill grasslands with adobe clay soils, and vernal pools. Generally found in alkaline soils.	Unlikely. No suitable habitat present in project area.	Blooms Mar-Jun.
<i>Atriplex cordulata</i> Heartscale	--/--/1B	Chenopod scrub, alkali seasonal wetlands and grassland. Often found in the sandy soils of alkaline flats and scalds in the Central Valley.	Unlikely. No suitable habitat present in project area.	Blooms Apr-Oct.
<i>Atriplex depressa</i> Brittlescale	--/--/1B	Generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas.	Unlikely. No suitable habitat present in project area.	Blooms May-Oct.
<i>Atriplex joaquiniana</i> San Joaquin Spearscale	--/--/1B	Generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas.	Unlikely. No suitable habitat present in project area.	Blooms Apr-Oct.
<i>Atriplex persistens</i> Vernal pool smalesscale	--/--/1B	Found in alkaline vernal pools.	Unlikely. No suitable habitat present in project area.	Blooms Jun- Oct.
<i>Blepharizonia plumosa</i> Big tarplant	--/--/1B	Generally found in Valley and foothill grasslands, 100-1660 feet in elevation.	Unlikely. No suitable habitat present in project area.	Blooms Jul- Aug.
<i>Caulanthus coulteri</i> var. <i>lemmonii</i> Lemmon's jewelflower	--/--/1B	Annual herb occurring in pinyon/juniper woodland, and valley/foothill grassland. Occurs at 80-1220 m;	Unlikely. No suitable habitat present in project area.	Blooms Mar-May.
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i> Hispid's bird's-beak	--/--/1B	Hemiparasitic, annual herb occurring in meadows and seeps, playas, and in valley and foothill grassland communities with alkaline substrate. Found at 1-155 meters elevation.	Unlikely. No suitable habitat present in project area.	Blooms Jun- Sep.
<i>Eleocharis</i> <i>quadrangulata</i> Four-angled spikerush	--/--/2	Perennial herb occurring in freshwater marshes and swamps at 30-500 m elevation.	Unlikely. No suitable habitat present in project area.	Blooms May- September.
<i>Erodium macrophyllum</i> Round-leaved Filaree	--/--/2	Generally found in Valley grasslands and foothill woodlands, 0-3937 feet in elevation.	Unlikely. No suitable habitat present in project area.	Blooms Mar-May.

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<i>Eryngium racemosum</i> Delta button-celery	--/CE/1B	Occurs in clay soil under vernal moist conditions in riparian habitats (riparian scrub).	Unlikely. No suitable habitat present in project area.	Blooms Jun-Sep.
<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	--/--/1B	Found in valley and foothill grassland habitats on alkaline, clay slopes and flats.	Unlikely. No suitable habitat present in project area.	Blooms Mar-Apr.
<i>Eryngium spinosepalum</i> Spiny-sepaed button-celery	--/--/1B	Occurs under vernal flooded conditions in vernal pool habitats.	Unlikely. No suitable habitat present in project area.	Blooms Apr-May
<i>Myosaurus minimus spp. apus</i> Little mousetail	--/--/3	Occurs in alkaline soils in vernal pool habitats.	Unlikely. No suitable habitat present in project area.	Blooms Mar-Jun
<i>Navarretia prostrata</i> Prostrate navarretia	--/--1B	Annual herb found in coastal scrub, on alkaline substrate in valley and foothill grassland, and vernal pools or mesic areas. Occurs at 15-700 meters elevation. Blooms Apr-Jul.	Unlikely. No suitable habitat present in project area.	Blooms Apr-Jul
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B	Found in assorted freshwater habitats including marshes, swamps and seasonal drainages. Blooms May-Oct.	Unlikely. No suitable habitat within the immediate vicinity of the project site.	Blooms May-Oct

United States Fish and Wildlife Service classifications:

- FE = Species in danger of extinction throughout all or significant portion of its range.
 FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range.
 FP = Species proposed endangered.
 FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
 FSC = Species of special concern.
 FPD = Species proposed for delisting.
 FD = Species delisted, but being monitored.
 FLC = Species of local concern.

California Department of Fish and Game classifications:

- CE = State listed as endangered. Species whose continued existence in California is jeopardized.
 CT = State listed as threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.
 CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future.
 CSC = California species of special concern. Animal species with California breeding populations that may face extinction in the near future.
 CP = Fully protected by the State of California under Section 3511 and 4700 of the CDFG Code.

California Native Plant Society List classifications:

- 1A = Plants that are presumed extinct in California.
 1B = Plants that are Rare, Threatened, or Endangered in California and elsewhere.
 2 = Plants that are Rare, Threatened or Endangered in California but more common elsewhere.
 3 = Plants for which more information is needed.
 4 = Plants of limited distribution.

Note: The “Potential to Occur” category is defined as follows:

Unlikely: The project site and/or immediate area do not support suitable habitat for a particular species. Project site is outside of the species known range.

Low Potential: The project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the project area.

Medium Potential: The project site and/or immediate area provide suitable habitat for a particular species.

High Potential: The project site and/or immediate area provide ideal habitat conditions for a particular species.

Species that have medium or high potential to be impacted by the Proposed Project are shown in boldface type.

CNDDDB = California Natural Diversity Database

SOURCES: CDFG, October 2006; CNPS, October 2006; USFWS, October 2006

The decline of the species in the Central Valley has been associated with extensive reduction of Swainson’s hawk habitat. Suitable foraging habitat is present within the project area in agricultural fields, where populations of prey species are supported (ESA, 2002). Suitable nesting habitat occurs within the riparian woodland habitats adjacent with the project site. Large valley oak, blue oak and cottonwood trees occur adjacent to the river in this area. A California Natural Diversity Database (CNDDDB) occurrence for the hawk was observed in 1988 approximately 400 feet south of the project site, with numerous additional occurrences along the San Joaquin River.

Western Burrowing Owl

Western burrowing owls inhabit open grasslands and shrub lands with perches and burrows. These owls eat mainly insects, with small mammals and birds making up a portion of the diet as well. For cover and breeding, old rodent burrows, as well as debris piles are used. Potential nest/burrow sites occur along the adjacent grasslands as well as the exposed banks of the San Joaquin River.

White-tailed Kite

White tailed kites are year-round residents in central California. They typically nest in oak woodlands or trees, especially along marsh or river margins, and they may use any suitable tree or shrub that is of moderate height. Their nesting season may begin as early as February and extends into August. During daylight hours kites forage for rodents in wet or dry grasslands and fields.

Suitable foraging habitat is adjacent with the Proposed Project/Action area in agricultural fields. Suitable nesting habitat occurs within the riparian woodland habitats adjacent with the Proposed Project/Action site. Large valley oak, blue oak and cottonwood trees occur adjacent to the river in this area.

Southwestern Pond Turtle

Both the northwestern and southwestern sub-species have similar life characteristics, and are separated based on geographic range and morphological differentiation. The southwestern pond turtle is thought to occur from the San Francisco Bay area, south to Baja. However, recent genetic

studies on pond turtles throughout California indicate that although the northern populations appear genetically consistent with the northwestern pond turtle sub-species distribution, the populations that comprise the southwestern pond turtle sub-species show a lot of genetic variation and fall into three separate clades (Spinks and Shaffer, 2005). These include the San Joaquin Valley, Santa Barbara, and Southern clades.

Pond turtles normally associate with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. Pond turtles require basking sites such as partially submerged logs, rocks, or floating vegetation. They are considered omnivorous, feeding upon invertebrates, plant material, fishes, and frogs. Their home range is quite restricted, and they have variety of vertebrate predators including certain fishes, bullfrogs, garter snakes, and some mammals. Within the project vicinity, native pond turtles may inhabit portions of the San Joaquin River.

Long-legged Myotis Bat

The long-legged myotis bat range includes western North America from southeastern Alaska, western Canada, down to Baja California and central Mexico. This species typically inhabits wooded habitats such as coniferous forests at elevations from 2,000 to 3,000 meters. Although three of the four races occur primarily in montane habitats, one race, *Myotis volans volans*, prefers low altitudes in the desert regions in Baja California. The long-legged myotis bat may use abandoned buildings, crevices in the ground or on cliffs, and spaces underneath the bark of a tree for roosting. The species uses caves and mine shafts for hibernating. The long-legged myotis bat forages primarily on moths but also consumes a variety of other insects. This species forages in, through, and around forest canopy a few hours after sunset and is active throughout the evening as well (Warner and Czaplewski, 1984).

Large valley oak, blue oak and cottonwood trees within the vicinity of the Proposed Project/Action, as well as buildings and other structures associated with the existing diversion facilities may provide potential roosting sites for the long-legged myotis bat.

Yuma Myotis Bat

The Yuma myotis bat range includes western North America from British Columbia, Canada, to Baja California and southern Mexico (Bogan et al., 2005). This species is common from sea level to 2,560 meters and occurs throughout California in riparian and forested habitats, as well as scrub and desert habitats. It is uncommon in the Mojave and Colorado Desert except in the mountains bordering the Colorado River (CWHR, 2006). This species is usually associated with permanent sources of water such as rivers and streams. In arid habitats, tinajas or natural water holes may be a water source. Roosts may include man-made structures such as bridges, buildings, and mines, as well as natural cliff crevices, caves, and trees. The Yuma myotis feeds primarily on emergent aquatic insects and includes caddis flies, flies, midges, and small moths and beetles. Foraging begins at dusk, just after sunset, and roosts at night after feeding. (Bogan et al., 2005)

Large valley oak, blue oak and cottonwood trees within the vicinity of the Proposed Project/Action, as well as buildings and other structures associated with the existing diversion facilities

may provide potential roosting sites for the Yuma myotis bat. In addition, the adjacent open water habitat associated with San Joaquin River, provides suitable foraging habitat for this species.

Central Valley Fall-Run Salmon

Chinook salmon runs are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Fall-run salmon generally start migration from the ocean and begin spawning in San Joaquin River tributaries in early fall as water temperatures begin to cool. Fall-run spawning occurs in the 20 river miles below the first major dams and reservoirs on the Merced, Tuolumne, and Stanislaus Rivers during October, November, and December (SJRMP, 1993). Successful rearing of juvenile chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation. Annual population surveys since 1953 indicate wide fluctuations in the number of fall-run salmon returning to spawn in San Joaquin River tributaries. Artificial propagation through the use of the Merced River Fish Facility has resulted in the release of smolts and yearlings by the California Department of Fish and Game. These releases ultimately average less than 10 percent of the escapement population (SJRMP, 1993). The effects of drought, inadequate stream flow, water developments, harvest, poor water quality, water diversions, habitat deterioration, and other factors have had varying levels of impact. Higher escapement years are strongly correlated with wet years and poor escapements with normal, dry, and critical water years. High concentrations of fine sediment in the water reduce intragravel flow and greatly reduce the survival of eggs. Typically, salmonids can not survive at dissolved oxygen concentration levels less than 5 mg/L. During high flows associated with the juvenile emigration period, the San Joaquin River, in the vicinity of the project, provides a few areas of suitable rearing habitat along the mixed willow riparian bank areas. Spawning habitat in the vicinity of the project site is unlikely based on the fine sediment substrate and lack of sufficient gravels and cobble.

Central Valley Steelhead

The Sacramento and San Joaquin Rivers offer the only migration route to the drainages of the Sierra Nevada and southern Cascade mountain ranges for steelhead. Information on migration and spawning tendencies of steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. NMFS reports limited data on the recent abundance of this ESU, but its present total run size based dam counts, hatchery returns, and past spawning surveys is probably less than 10,000 fish (NMFS, 1996). The most widespread run type of steelhead is in the winter (ocean-maturing) steelhead. Winter steelhead occurs in essentially all coastal rivers in California, while summer steelhead is far less common. In California, both winter and summer steelhead generally begin spawning in December. Central Valley steelhead are reported to begin upstream migration into the American, Feather, Yuba, and Mokelumne rivers in August through October depending upon water temperature, weather conditions, and flow. Evidence on Central Valley steelhead utilizing the San Joaquin River for upstream migration and utilization of freshwater tributaries include a small remnant run in the Stanislaus River, observations in the Tuolumne River in 1993, and recent

observations of large rainbow trout (possibly steelhead) at the Merced River Hatchery (McEwan and Jackson, 1996; NMFS, 1996).

On February 16, 2000, NMFS designated critical habitat for Central Valley steelhead. Critical habitat is designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams or above longstanding naturally impassable barriers. On May 29, 2002, NMFS reinitiated the status reviews of endangered and threatened Pacific Salmonid ESU's and Critical Habitat and began the re-assessment process for the potential delisting of the associated habitat.

During high flows associated with the juvenile emigration period, the San Joaquin River, in the vicinity of the project, provides suitable rearing habitat along the mixed willow riparian bank areas. Spawning habitat in the vicinity of the project site is unlikely based on the fine sediment substrate and lack of sufficient gravels and cobble.

Sacramento Splittail

The geographic distribution of the Sacramento splittail is broader than previously believed and continues to expand as more information is gathered. Adult foraging and spawning migrations occur in the San Joaquin River during years of high freshwater outflow. Changes in the timing, magnitude, and duration of high river flows (floodplain inundation) probably affect when and where adults migrate. Splittail spawn in sloughs, flooded riverbeds, and areas with submerged vegetation during January to June, with the greatest spawning thought to occur in February–April. Eggs are demersal and adhesive. Most of the larvae occur in weedy areas and inundated vegetation where spawning occurs. Juveniles are often found in the Delta sloughs in late winter and spring. Sexual maturity takes place in one to two years, with a life span of approximately five years. Within the seasonal limits, juvenile and adult splittail use the San Joaquin River extensively during the winter and spring. The summer to fall distribution of adult splittail is primarily limited to tidal fresh and brackish waters of the Sacramento-San Joaquin Delta, Suisun Bay, Suisun, Napa and Petaluma marshes. During high outflow years, and rarely in low outflow years, splittail inhabit the San Joaquin River and valley portions of some tributaries (Baxter, 1999). Age-0 fish emigrate primarily in the late spring and early summer. Splittail are able to locate flooded habitat well upstream in the San Joaquin River and spawn when conditions are suitable with known occurrences at Salt Slough (San Luis National Wildlife Refuge), Mud Slough, Fremont Ford (State Highway 140), Merced River, and Tuolumne River (Baxter, 1999).

Delta Smelt

Delta smelt are a euryhaline species, a species adapted to living in fresh and brackish water. This species generally inhabits the lower reaches of the Sacramento River downstream of Isleton, the San Joaquin River downstream of Mossdale, and the Delta including Suisun Bay (Hansen, 2002).

Delta smelt are a relatively small (2–3 inches long) species, which typically have an annual lifecycle, although some individuals may live up to two years. Prior to spawning, adult delta smelt tend to migrate upstream into the lower reaches of the Sacramento and San Joaquin River systems, where spawning occurs during the late winter and spring. Spawning occurs from approximately February through June, with the greatest spawning activity occurring in April and May. Females deposit adhesive eggs on substrates such as gravel, rock, and submerged vegetation. Eggs hatch in approximately two weeks, at which time planktonic larvae are passively dispersed downstream by river flow. Larval and juvenile delta smelt rear within the estuarine portions of the Delta for a period of approximately 6–9 months before beginning their upstream spawning movement into freshwater areas of the lower rivers. Delta smelt larvae, which passively drift with water currents, are vulnerable to entrainment at water diversion locations. A 1989 study by Moyle and Herbold found that freshwater flows set an upper limit to delta stock recruitment in Suisun Marsh and the Delta within the year (Federal Register, 1993). The proportion of time when water flows are reversed (upstream flow) in the lower San Joaquin River during the egg and larval stages probably is the major source of density independent mortality in the Delta (Federal Register, 1993) due to higher salinity levels farther upstream. Higher volumes of freshwater outflows are associated with a larger adult smelt population due to higher plant and animal biomasses at all aquatic trophic levels (Federal Register, 1993).

Minimal spawning habitat was identified for delta smelt within the Proposed Project/Action area. River banks are steep and not likely to offer shallow edge waters preferred by smelt during spawning (high spring flows). Delta smelt prefer the sloughs and shallow edge waters located within the upper Delta, and the current downstream distribution of this species does not extend into the proposed Project/Action Area.

Kern Brook Lamprey

The range of the Kern Brook lamprey is not well understood, however it is known to occur in the lower reaches of the San Joaquin River, and it is likely endemic to the San Joaquin River watershed. Suitable habitat for this species is characterized by silty backwaters of rivers emerging from the Sierra foothills (Moyle, 2002). As with other lampreys, this species requires gravel bottomed areas for spawning and muddy bottomed backwater areas for ammocoete growth. Spawning occurs during the spring.

San Joaquin River bank areas within the vicinity of the Proposed Project/Action lack backwater areas suitable for ammocoete development and protection. Lack of gravelly substrate minimizes the potential for Kern brook lamprey spawning in the vicinity of the project area, thereby limiting the use of the San Joaquin River in the vicinity of the project area to a migratory route.

Pacific Lamprey

The Pacific lamprey is a parasitic anadromous species that occurs in the Delta system. Adults usually move up into spawning streams between early March and late June, with upstream movements also observed in January and February (Moyle, 2002). Pacific lamprey spawn in shallow, swift water on gravel substrates. Eggs are slightly adhesive, and hatching occurs in about 19 days at 15 C. Ammocoetes burrow tail first into sandy, gravelly or muddy substrates of

backwater areas. Ammocoetes are filter feeders, subsisting on algae and organic matter, and adults are parasitic feeding on larger adult fish.

San Joaquin River bank areas within the vicinity of the project area lack backwater areas suitable for ammocoete development and protection. Lack of gravelly substrate minimizes the potential for Pacific lamprey spawning in the vicinity of the project area, thereby limiting the use of the San Joaquin River in the vicinity of the project area to a migratory route.

3.8 CULTURAL RESOURCES

Cultural resource is a term to describe both archaeological sites and the “built environment” such as dams, roadways, and buildings. The National Historic Preservation Act (NHPA) and other Federal laws and regulations protect and promote scientific study of cultural resources, specifically historic properties. Historic properties are any prehistoric or historic district, site, building, structure, or object which meets certain criteria outlined in 36 CFR 60.4 that are eligible for inclusion in the National Register of Historic Places.

Section 106 of the NHPA requires Federal agencies to: 1) consider the affects of an undertaking on historic properties, and 2) consult with the State Historic Preservation Office, tribes, interested parties, and the public regarding these affects. Before conducting Section 106, the Area of Potential Effects (APE) must first be identified. Reclamation has determined the APE is limited to the existing surface water pumping plant footprint and the pump house and outbuildings. A cultural resource reconnaissance was completed of the APE by ESA. No historic properties were identified within the APE. Reclamation must complete consultation with the California SHPO prior to expenditure of Federal appropriations for this undertaking.

3.9 LAND USE/RECREATION/AESTHETICS

As depicted in Figure 3-1, the project site is located in a predominantly rural agricultural area east of the City of Patterson in unincorporated Stanislaus County. Access to the site is through East Las Palmas Avenue. The project site is surrounded by irrigated pasture to the south and west. The San Joaquin River abuts the project site to the east. A boat ramp and recreational area abuts the project site immediately north with agricultural lands further north. An illustration of the existing diversion structure and pump house is provided in Figure 3-4.

3.10 HAZARDS/HAZARDOUS MATERIALS

Regulatory Agency database search requests were made for records of known storage tank sites, leaking underground storage tank sites, and known sites of hazardous materials generation, storage or contamination within the vicinity of the existing water diversion site. The database search report as provided to ESA by Environmental Data Resources (EDR) included the databases listed in **Table 3-4**. The EDR report is incorporated by reference and is available for review at PID’s main office during normal business hours. Included in the EDR database search report was a list of “unmapped sites.” ESA reviewed the list of unmapped sites for properties that may be located within the vicinity of the project site. It should be noted that the database search is only as accurate as the data entered into the government agency maintained databases and the

date on which those databases were last updated. Installation of underground storage tanks or hazardous material releases, if not reported to the appropriate agency, would not be listed on any of the databases searched. The database search report identified no contaminated sites on or within a quarter mile of the project site.

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3.11 INDIAN TRUST ASSETS

Indian Trust Assets (ITAs) are legal interests in property or rights held by the United States for Indian Tribes or individuals. Trust status originates from rights imparted by treaties, statutes, or executive orders. Examples of ITAs are lands, including reservations and public domain allotments, minerals, water rights, hunting and fishing rights, or other natural resources, money or claims. Assets can be real property, physical assets, or intangible property rights. ITAs cannot be sold, leased, or otherwise alienated without federal approval. ITAs do not include things in which a tribe or individuals have no legal interest such as off-reservation sacred lands or archaeological sites in which a tribe has no legal property interest. No ITAs have been identified at the project site.

3.12 ENVIRONMENTAL JUSTICE

Executive Order 12898 requires each federal agency to achieve environmental justice as part of its mission, by identifying and addressing disproportionately high and adverse human health on environmental effects, including social and economic effects of its programs, policies, and activities on minority populations and low-income populations of the United States. The Proposed Project/Action would involve the construction and operation of a replacement diversion system that would help protect and enhance the anadromous fisheries in the San Joaquin River and ensure that PID continues to divert water from San Joaquin River for irrigation purposes without regulatory restrictions. The Proposed Project/Action does not propose any features that would result in adverse human health or environmental effects, have any physical effects on minority or low-income populations, and/or alter socioeconomic conditions of populations that reside or work in the vicinity of the project site.



View of the metal shed and pump house from the west.



View of the diversion structure looking upstream to the south.

TABLE 3-4
GOVERNMENTAL AGENCY DATABASES SEARCHED

Database	Type of Record	Agency
NPL	National Priority List	U.S. EPA
CORRACTS ¹	RCRA ² Corrective Actions	U.S. EPA
CERCLIS ³ /NFRAP ⁴	Sites currently or formerly under review by US EPA	U.S. EPA
RCRIS-TSD	RCRA permitted treatment, storage, disposal facilities	U.S. EPA
RCRIS-GEN	RCRA registered small or large generators of hazardous waste	U.S. EPA
RAATS	RCRA violations/ enforcement actions	U.S. EPA
FINDS	Facility information and "pointers" to other sources that contain more detail	U.S. EPA
ERNS	Emergency Response Notification System of Spills	U.S. EPA
HMIRS	Hazardous Material Spill Incidents Reports	U.S. Department of Transportation
MINES	Mines Master Index Database	U.S. Dept. of Labor, Mine Safety and Health Administration
MLTS ⁵	List of sites which possess or use radioactive materials and are subject to NRC licensing requirements	U.S. Nuclear Regulatory Commission
TRIS/TSCA ⁶	Facilities which release toxic chemicals to air, water and land/Facilities that manufacture or import chemical substances	U.S. EPA
PADS ⁷	Generators, Transporters, Commercial Storsers of PCBs	U.S. EPA
CAL-SITES ⁸	Potential or confirmed hazardous substance release sites	STATE
AWP ⁹	Known hazardous waste sites	STATE
LUST	Leaking Underground Storage Tanks	STATE
STATE LANDFILL	Permitted solid waste landfills (active, inactive and closed), incinerators or transfer stations	STATE
CA WDS	Waste Discharge System	STATE
SWF/LF ¹⁰	Active, closed and inactive landfills	STATE
WMUDS/SWAT ¹¹	Waste management units	STATE
DEED ¹²	Sites with deed restrictions	STATE
CORTESE ¹³	State index of properties with hazardous waste	STATE
TOXIC PITS	Toxic pits cleanup facilities	STATE
CHMIRS ¹⁴	Reported hazardous material incidents	STATE
NOTIFY 65 ¹⁵	Reported releases that could impact drinking water	STATE
HAZNET ¹⁶	Facilities that generate hazardous waste	STATE
UST/AST	Registered underground and aboveground storage tanks	STATE/COUNTY

- ¹ CORRACTS Corrective Action Report System, an EPA database of corrective actions taken at a RCRA Regulated site.
- ² RCRA Resource Conservation and Recovery Act
- ³ CERCLIS Comprehensive Environmental Response, Compensation & Liability Information System
- ⁴ NFRAP No Further Remedial Action Planned (archived CERCLIS sites)
- ⁵ MLTS Material Licensing Tracking System
- ⁶ TRIS/TSCA Toxic Chemical Release Inventory System/Toxic Substances Control Act
- ⁷ PADS PCB Activity Database System
- ⁸ CALSITES California Department of Toxic Substances Control Database of Hazardous Substances Releases
- ⁹ AWP Annual Workplan Sites
- ¹⁰ SWF/LF Solid Waste Information System
- ¹¹ WMUDS/SWAT Waste Management Database
- ¹² DEED List of Deed Restrictions
- ¹³ CORTESE Based on input from 14 state databases
- ¹⁴ CHMIRS California Hazardous Material Incident Report System
- ¹⁵ NOTIFY 65 Proposition 65 Records
- ¹⁶ HAZNET Hazardous Waste Information System

SOURCE: EDR Report, 2004

SECTION 4

CEQA INITIAL STUDY AND NEPA ENVIRONMENTAL CONSEQUENCES

SECTION 4

CEQA INITIAL STUDY CHECKLIST AND NEPA ENVIRONMENTAL CONSEQUENCES

1. **Project Title:** Patterson Irrigation District Fish Screen Project
2. **Lead Agency Name and Address:**

CEQA Lead Agency
Patterson Irrigation District
John Sweigard
948 Orange Avenue,
Patterson, California 95363

NEPA Lead Agency
United State Bureau of Reclamation
Mid-Pacific Regional Office, MP-410
2800 Cottage Way
Sacramento, CA 95821
3. **Contact Person and Phone Number:** John Sweigard
(209) 892-6233
4. **Project Location:** Patterson Irrigation District (PID) is located near the City of Patterson, Stanislaus County, California. The project site is located on the western bank of the San Joaquin River situated approximately 3.5 miles east of the City of Patterson and just over a quarter mile north of West Main Street (see Figure 1-1).
5. **Project Sponsors Name and Address:** Patterson Irrigation District
John Sweigard
948 Orange Avenue,
Patterson, California 95363
6. **General Plan Designation:** Agriculture
7. **Zoning:** A-2-20
8. **Description of Project:** As described in Section 2, the objective of the Proposed Project/Action is to prevent entrainment of the listed fish species that are present near the diversion. The Proposed Project/Action involves the construction of a new pump station and installation of new fish screen structures to meet DFG design criteria.
9. **Surrounding Land Uses and Setting:** Agricultural/Rural, Recreation

10. **Other Agencies whose Approval Maybe Required:** Detailed below are the other agencies that may require PID to acquire permits or approval prior to the construction of the Proposed Project/Action.

**TABLE 4-1
AGENCY PERMITS/APPROVALS**

Agency	Permit/Authorization/Approval/Review
County of Stanislaus	Grading Permit
California Department of Fish and Game	1601 Streambed Alteration Agreement
U.S. Army Corps of Engineers	404 Permit Section 10 Rivers and Harbors
Regional Water Quality Control Board	401 Water Quality Certification NPDES Discharge Permit
State Water Resources Control Board	Change in Place of use Permit
U.S. Fish and Wildlife Service	Section 7 Consultation
U.S. National Marine Fisheries Service	Section 7 Consultation
State Historic Preservation Office/National Historic Preservation Act	Section 106 Coordination
San Joaquin Valley Unified Air Pollution Control District	Authority to Construct Permit to Operate
State Reclamation Board	Encroachment Permit

4.1 ENVIRONMENTAL CHECKLIST

Using a modified CEQA Environmental Checklist Form as presented in Appendix G of the CEQA Guidelines as a framework, the checklist identifies the potential impacts of the Proposed Project/Action Alternative as described in Section 2 of this document. The addition of a discussion of socioeconomic issues is provided to satisfy the U.S. Bureau of Reclamation NEPA guidelines. PID performed an extensive screening of alternatives for this project and determined that only one “Project/Action” Alternative met the Purpose and Need (Goals and Objectives) and PID’s Planning Principles, as described in Section 1. Therefore this discussion meets the NEPA requirement of providing an equal level of analysis amongst each viable alternative. The checklist discussion focuses on the changes that the Proposed Project/Action would have on the existing and future No Project/Action environmental condition. As a result, the No Project/Action is being evaluated as part of this discussion as is required by CEQA and NEPA. For this checklist, the following impact classifications are used:

Potentially Significant Impact. Adverse environmental consequence that has the potential to be significant according to the threshold criteria identified for each resource, even after mitigation strategies are applied. This classification also applies to adverse effects that could be significant and for which no mitigation has been identified. If any potentially significant impacts are

identified, an Environmental Impact Report (EIR) and/or an Environmental Impact Statement (EIS) must be prepared to meet CEQA and/or NEPA requirements, respectively.

Less-than-Significant Impact with Mitigation. Adverse environmental consequence that has the potential to be significant, but can be reduced to less-than-significant levels through the application of identified mitigation strategies.

Less-than-Significant Impact. Adverse environmental consequence that has been identified; however, the level of significance does not meet or exceed the significance threshold for that resource.

No Impact. No adverse environmental consequences have been identified for the resource or the consequences are negligible, undetectable and/or not applicable.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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Would the Proposed Project/Action result in potential impact involving:

I. AESTHETICS -- Would the Proposed Project/Action:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| (a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| (b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| (d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

(a) Less-than-Significant Impact. The Proposed Project/Action would involve the replacement of PID's existing water diversion structure, as shown in Figure 3-4, with a rehabilitated diversion/fish screen structure on the San Joaquin River. The footprint of the new structure as depicted in Section 2 would be slightly larger than the existing structure. However, the design and layout of the structure would not significantly modify the visual character of the immediate project area. Once built, the fish screen structure will blend in with the adjacent boat ramp and recreation area just to the north and other diversion structures upstream and downstream along the San Joaquin River. With this understanding, visual impacts are considered to be less-than-significant.

(b) No Impact. The Proposed Project/Action is not located near or within a state scenic highway. The closest highway designated by Caltrans as a scenic route in Stanislaus County is the segment on Interstate 5 (I-5) between Merced and San Joaquin Counties (DOT [Department of Transportation], 2003). This section of I-5 is located over five miles from the project site. Consequently, given the minimal change to the existing structure's footprint in combination with the substantial distance from I-5, the Proposed Project/Action would not adversely affect a state scenic highway.

(c) Less-than-Significant Impact. Construction of the Proposed Project/Action would involve temporary negative aesthetic effects, including the presence of open trenches, construction equipment, or minor changes in the built environment. However, once

construction is completed, the project site will be landscaped to blend in with the surrounding environment, consistent with Stanislaus County design standards. Consequently, the Proposed Project/Action would not substantially degrade the existing visual character or quality of the site and its surroundings thus the impact is considered less-than-significant.

- (d) **Less-than-Significant Impact.** Security lighting is currently installed at the existing structure. The new diversion/fish screen facility would utilize security and access lighting similar to that of the existing facility. New security and access lighting will be placed as appropriate to ensure safety, deter vandalism, and will be oriented to minimize glare impacts consistent with County standards. Given that there are very few residences in the immediate vicinity and there are occasional visitors at the boat ramp facility, there would be no significant impact on day or night time views in the area. As a result, the Proposed Project/Action would not create a new source of light or glare that would adversely affect day or nighttime views in the area. Therefore, these impacts are considered less-than-significant.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
II. AGRICULTURAL 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 prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the Proposed Project/Action:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(a) No Impact. As indicated in Section 2, the Proposed Project/Action would involve the replacement of PID's existing intake structure with a new intake/fish screen structure. The new structure would generally correspond with the existing structure's footprint. A review of Important Farmland Maps prepared by the California Department of Conservation indicates that the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As a result, the Proposed Project/Action would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.				
(b) No Impact. The project site is located within the PID rights-of-way (Stanislaus County, 2003) and would not conflict with existing agricultural zoning or a Williamson Act contract. As a result, the Proposed Project/Action would have no adverse impacts to agricultural zoning or an active Williamson Act contract.				

- (c) **No Impact.** As stated above, the Proposed Project/Action would not involve changes in the existing environment, which, due to their location or nature, would result in conversion of Farmland to non-agricultural use. Any changes in the existing environment as a result of implementing the Proposed Project/Action would be minimal and temporary and would not result in any permanent or temporary conversion of Farmland to non-agricultural use. As a result, the Proposed Project/Action would have no adverse impacts to agricultural lands or current production.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the Proposed Project/Action:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) 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 (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
- (a) **Less-than-Significant Impact.** The Project Area is located in central Stanislaus County, a sub-region within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is currently designated as being in severe nonattainment for national and state ozone and severe nonattainment for PM10 standards (CARB, 2004).

The Proposed Project/Action would be installed in an area for which ozone, PM10 and carbon monoxide plans have been developed. The ozone plans show how the area will achieve the national one-hour ozone standard and how the area will continue to make progress towards achieving the more stringent state ozone standard. The carbon monoxide plan is a "maintenance" plan that shows how the area will continue to meet the national carbon monoxide standard now that it has been achieved. The ozone plans rely on both local air district stationary source control programs and statewide mobile source control programs while the carbon monoxide plan relies almost entirely on statewide mobile source control programs. Both types of plans also rely on assumptions regarding growth of population and employment in the area, however, since the Proposed Project/Action does

not represent a land use development proposal nor would the project be growth-inducing, the project would not conflict with the plans' assumptions regarding population and employment.

During construction, the project would result in emissions from use of mobile construction equipment and from generation of construction worker commuter trips. Mobile construction equipment and construction-worker commute trips would generate emissions of ozone precursors and carbon monoxide. However, the emissions standards established for construction equipment and on-road motor vehicles under statewide mobile source control programs are enforced on vehicle and engine manufacturers, rather than on the end-users of the equipment or vehicles. Over the long-term, emissions associated with the Proposed Project/Action would be negligible and attributed to occasional motor vehicle trips associated with periodic maintenance. However, these maintenance trips already occur with the existing facility and would likely decrease with the new facility. Therefore, the Proposed Project/Action would not conflict with or obstruct implementation of the applicable air quality plans and the impact is considered less-than-significant.

- (b) **Less-than-Significant Impact.** The air pollutants of primary concern during construction projects are generally PM10 and NOx (because NOx is an ozone precursor). Reactive organic gasses (ROG) are also ozone precursors generated by the use of gasoline-powered vehicles (and, to a lesser extent, diesel-fueled vehicles); however, this type of construction project is likely to generate only minor amounts of ROG. Diesel fuel would generate primarily NOx emissions, but also ROG and PM10 in varying amounts depending largely on fuel oil grade and existing emission controls. Although PM10 is generally a concern during construction projects, this would be less of a concern for this project due to its small size and the type of construction activities.. Major PM10 problems generally occur during mass grading, when several acres of ground are simultaneously stripped bare of vegetation and thus are subject to wind erosion or disturbance from vehicles traveling on the site.

Earth moving and construction activities may also result in short-term localized increases in ambient concentrations of dust or PM10. As mentioned above, these dust emissions are expected to be minor, but would vary from day to day, depending on the level and type of activity, silt content of the soil, and the prevailing weather. On days when construction would involve extensive site preparation activities, earth-moving activities, or during periods when these activities would occur when wind speeds are relatively high, construction dust could be substantial and could violate the state standard for PM10 without proper controls. The recreation area to the north of the project site would be the most likely sensitive area to experience visibility and nuisance effects associated with construction-related dust.

The San Joaquin Valley air Pollution Control District (SJVAPCD) recommends that determining significance of construction impacts not be based not on quantification of emissions and comparison to thresholds, but upon inclusion of effective and comprehensive control measures for PM10 and compliance with Regulation VIII, Rule 8010. For all construction activities, implementation of all Regulation VIII fugitive dust control

measures are required by law. Therefore, PID must require all of its contractors to utilize all fugitive dust control measures outlined in Regulation VIII. Based on the size of the construction area and lack of sensitive receptors in close to the project proximity, additional measures will likely not be necessary. Compliance with Regulation VIII fugitive dust control measures would ensure that construction-related dust emissions associated with the project remain at a less-than-significant level. These measures are outlined as follows:

- Water, chemical soil stabilizers/suppressants, or vegetative ground cover shall be used to control fugitive dust from all disturbed areas, including storage piles, which are not being actively used at the construction site.
 - Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust from all unpaved roads on-site and all off-site unpaved access roads to the construction site.
 - Applications of water or presoaking shall be performed to control fugitive dust from all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities.
 - Cover and wet all materials transported off-site or require all trucks to maintain at least six feet of freeboard from the top of the container.
 - Remove accumulated mud or dirt from adjacent public streets at least once every 24 hours during construction periods. (The use of dry rotary brushes is expressly prohibited, except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is also expressly forbidden.)
 - Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust after each addition of materials to or removal of materials from all storage piles.
 - Limit the speed of all construction vehicles to 15 miles per hour on unpaved roads.
 - Replant vegetation in disturbed areas as quickly as possible.
- (c) **Less-than-Significant Impact.** The Proposed Project/Action would be located within an area that is designated severe nonattainment for state and national ozone standards and serious nonattainment for state PM10 standards. The Proposed Project/Action would result in emissions of ozone precursors (ROG and NOx) and PM10 [and its precursors (i.e., ROG, NOx, and sulfur oxides)] over the short-term during the construction phase, but the project would generate negligible emissions over the long-term during its operational phase. During the construction phase, no more than two work crews would be operating simultaneously at the project site.

Compliance with SJVAPCD's Regulation VIII, Rule 8010 would mitigate temporary construction impacts associated with the Proposed Project. As a result, project construction emissions would not be expected to generate impacts in a localized area that could contribute to an exceedance of the ambient air quality standards. Therefore, over the long-term, the project would not result in cumulatively considerable net increases of nonattainment pollutants, or their precursors, and during the short-term, the net increase in

nonattainment pollutants associated with construction would be reduced to a less-than-significant level through compliance with SJVAPCD fugitive dust rules.

- (d) **Less-than-Significant Impact.** Residential areas tend to be sensitive areas for air pollution because residents (children and the elderly) tend to be at home for extended periods of time resulting in sustained exposure to any pollutants present. However, the Proposed Project/Action is located in a predominately rural land where there are few residents in the immediate vicinity that would be exposed to the construction-related emissions except for visitors to the boat ramp facility just north of the project site. Through the implementation of the fugitive dust measures required under SJVAPCD's Regulation VIII, Rule 8010, construction activities would not result in any significant concentrations of air pollutants and therefore would not affect any sensitive receptors. For this reason, the impact is considered less-than-significant.
- (e) **No Impact.** The Proposed Project/Action would involve the replacement of an existing diversion structure. As such, the Proposed Project would not result in any change to the current baseline conditions with regard to odors. In recognition of the baseline condition, the Proposed Project would not create any new odors and therefore, no impact would occur.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
IV. BIOLOGICAL RESOURCES -- Would the project:				
(a) Adverse impact, either directly or through habitat modifications, any endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Interfere substantially with the movement of any native resident or migratory fish or wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A search and review of the CNDBB and field reconnaissance of the project site was conducted to determine the potential for project impacts on endangered, threatened, and/or rare plant and wildlife species (special-status species) or their habitats. In addition, the USFWS and CDF&G were consulted for a list of special-status species that could occur within the region of the Project area. This is included as Table 3-1 in Section 3 of this document. The following analysis was conducted based on the Proposed Project/Action and the potential effect on Federal and State special-status species and habitats.

- (a) **Less-than-Significant Impact with Mitigation.** The Proposed Project/Action would have less-than-significant adverse impacts, either directly or through habitat modifications, to endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12).

Fish Species. Because the Proposed Project/Action would involve work within the San Joaquin River, the most important special-status species to consider are the threatened Central Valley steelhead and the NOAA Fisheries species of special concern, the Central Valley fall-run chinook. The winter-run (endangered) and spring-run (threatened) chinook salmon have most likely been extirpated from the river based on the lack of recent occurrences/detections and the increase in human-induced alterations to the San Joaquin River system. However, any effects to the Central Valley steelhead and fall-run chinook salmon are also likely to affect Sacramento splittail, Delta smelt, Kern brook lamprey, and Pacific lamprey. The construction of the proposed fish screen facility would require placement and removal of a sheet-pile cofferdam to isolate the work site from the rest of the river. This would result in a temporary localized disturbance with minor siltation of the water. Placement of the sheet-pile cofferdam would take place from July 1 to September 30, a time frame that would minimize water quality effects (“dry” season) and minimize impacts to fish species – particularly salmonids, as it is likely outside of their migratory periods for this stretch of the San Joaquin River. Because the length of time necessary to construct the fish screen and intake structure would be longer than the allowable construction window, the removal of the sheet-pile cofferdam would most likely take place the following “dry” season. In addition, Best Management Practices (BMPs) and/or erosion control measures outlined in the project description will also minimize sediment discharge from upland areas into aquatic habitat. These highly localized and temporary impacts are not likely to adversely affect any special status fish species. The loss of willow trees may reduce feeding and cover for emigrating juveniles. However, potential impacts to riparian mixed willow habitat are well under 0.001 acres and as a result associated effects considered less-than-significant. Moreover and given the overall benefit to all fish species as a result of the Proposed Project/Action, the majority of in-river construction isolated by a cofferdam, the fish salvage requirement for dewatered work sites, the localized and minimal in-river disturbances outside of the allowable construction window, a less-than-significant impact on the fisheries resources of the San Joaquin River.

Valley Elderberry Longhorn Beetle (VELB). The Project area was surveyed for the presence of suitable habitat for the Federally threatened valley elderberry longhorn beetle

(*Desmocerus californicus dimorphus*, VELB). No elderberry shrubs were observed within 100 feet of the project site. Based on this survey, no impacts to VELB will result from the Proposed Project/Action.

Giant Garter Snake (GGS). No potential giant garter snake aquatic habitat (*Thamnophis gigas*) would be modified or eliminated by the Proposed Project/Action based on the predominate lack of aquatic cover (vegetation), lack of basking sites, and the high level of human disturbance. With known populations of giant garter snake occurring 18 miles south of the project site near Los Banos (CNDDDB, 2004), it is unlikely this area may be used by this species for foraging, nesting, and/or over wintering. Therefore, no mitigation is required for GGS.

Swainson's Hawk. Approximately 0.06 acres of potential Swainson's hawk nesting habitat (*Buteo swainsoni*) would be modified or eliminated by the Proposed Project/Action. This species is listed as threatened by the State of California. Suitable nesting habitat is found adjacent to the San Joaquin River. Habitat in this area includes riparian woodlands with large diameter (i.e., greater than 30 inches diameter at breast height) valley oak (*Quercus lobata*), cottonwood (*Populus fremontii*) and black willow (*Salix goodingii*). These overstory trees provide moderate to high (i.e., greater than 50%) canopy closure in this area. With records of Swainson's hawk nests occurring less than 500 feet from project site along the San Joaquin River (CNDDDB, 2004), there is a moderate to high potential this area may be used by this species for nesting. To compensate for this loss of potential habitat and to avoid active nest sites, the following mitigation and compensation measures shall be implemented:

- **Mitigation Measure BR-1: Swainson's Hawk Habitat.** Prior to construction, the Proposed Project/Action applicant shall purchase 0.12 acres of Swainson's hawk nesting habitat from a CDFG-approved mitigation bank. The applicant may also opt to restore 0.12 acres of Swainson's hawk habitat onsite. The revegetation/restoration plan must be approved by CDFG. Both options represent a 2:1 mitigation ratio. PID shall provide proof of purchase or approval of restoration plan prior to the initiation of Project construction.
- **Mitigation Measure BR-2: Tree Removal Period.** If possible, trees required for removal shall be removed outside of the nesting period, namely March 1st through August 31st.

- **Mitigation Measure BR-3: Swainson's Hawk Nest Survey.** If construction is proposed to take place during the nesting season, then a qualified biologist shall survey the project site and all habitats within 0.5 mile of the site for Swainson's hawk nests. Should an active nest site occur within 0.5 mile of the project site, the CDFG shall be consulted to develop measures that will protect the nest site from project-generated disturbance. Measures may include implementing a limited operating period surrounding the nest site until young have fledged.

With the implementation of the above mitigation measures, potential impacts to Swainson's hawk are considered to be less-than-significant.

- (b) **Less-than-Significant Impact with Mitigation.** Based on the habitats present in the project area, the following special-status species may be impacted by the Proposed Project/Action:

- Long-legged myotis – *Myotis volans*
- Yuma myotis – *Myotis yumanensis*
- Cooper's Hawk – *Accipiter cooperi*
- White-tailed kite – *Elanus leucurus*
- Southwestern pond turtle – *Emys* (= *Clemmys*) *marmorata pallida*
- Western burrowing owl – *Athene cunicularia*

Long-legged myotis and Yuma myotis. These bat species may use the project site for foraging and night roosts. Furthermore, several of the buildings in the project area (including the old diversion structure) may be used by either species as day roosts. Large diameter snags (dead trees) may also be used by long-legged myotis as day roosts. Construction of the Proposed Project/Action may reduce foraging and roosting opportunities for both species. To minimize these potential impacts, the following mitigation measures are proposed:

- **Mitigation Measure BR-4: No Night Time Construction.** No construction shall take place after sunset or before sunrise.
- **Mitigation Measure BR-5: Bat Habitat Survey and Inspections.** Any snags measuring at least 20 inches diameter at breast height (dbh) shall be inspected by a qualified biologist for potential bat use prior to removal. Should a bat roost be discovered in a snag, CDFG shall be notified to develop appropriate mitigation measures (such as exclusionary nets).

White-Tailed Kite. Potential nest sites for these birds may be directly or indirectly affected by project construction. In addition, other nesting birds such as migratory birds protected by the Migratory Bird Treaty Act may also be impacted by the Proposed Project/Action. To compensate for these potential impacts, the following mitigation measure is proposed:

- **Mitigation Measures BR-2 and BR-3: Pre-Construction Avian Surveys.** Implement all mitigation measures listed for the Swainson's hawk. Pre-construction avian surveys shall also target the above species. Should active nests be found within 0.25 mile of the project site, CDFG shall be consulted to develop appropriate mitigation and avoidance measures.

Southwestern Pond Turtle. Moderate to low quality habitat for the pond turtle occurs within and near the shores of the San Joaquin River. Pond turtles may forage or swim through these areas. With the movement of heavy construction equipment through the Proposed Project/Action area there is potential for species disturbance or mortality. To compensate for these potential impacts, the following mitigation measures are proposed:

- **Mitigation Measure BR-6: Construction Easement Fencing and Pre-Construction Monitoring for Pond Turtle.** The construction/grading easement shall be fenced using temporary fencing to reduce the possibility of incidentally impacting pond turtles outside of the construction area. Riparian vegetation removal will be minimized where possible and confined to the construction/grading easement. No encroachment shall be allowed into riparian areas outside of the construction/grading easement. Biological monitors shall be present at the start of construction shall monitor for pond turtles and ensure that construction activities do not encroach into riparian areas outside of Proposed Project/Action footprint. If a pond turtle is encountered in the Proposed Project/Action area, it shall be allowed to leave to area. If it does not leave, CDFG shall be notified.
- **Mitigation Measure BR-7: Traffic Routing and Movement.** Movement of heavy equipment to and from the Proposed Project/Action site as well as all traffic shall be restricted to established roadways to minimize habitat disturbance.

With the implementation of the above mitigation measures, potential impacts to special-status species are considered to be less-than-significant.

Western burrowing owl. Moderate to low quality habitat for the owl occurs along the banks of the river system with the annual grassland. Habitat increases in quality south of the project site. To compensate for the potential disturbance of nesting burrowing owls, the following mitigation is proposed:

- **Mitigation Measures BR-2 and BR-3: Pre-Construction Avian Surveys.** Implement all mitigation measures listed for the Swainson's hawk. Pre-construction avian surveys shall also target the above species. Should active nests be found within 0.25 mile of the project site, CDFG shall be consulted to develop appropriate mitigation and avoidance measures.

With the implementation of the above mitigation measures, potential impacts to special-status species are considered to be less-than-significant.

- (c) **Less-than-Significant Impact with Mitigation.** Great valley mixed riparian forest is a sensitive natural community and would be impacted by the Proposed Project/Action. This community provides habitat for a range of terrestrial wildlife species, including several species of songbirds, small mammals, mesocarnivores, and herptiles. To compensate for these potential impacts, the following mitigation measure is proposed:

- **Mitigation Measures BR-1: Swainson's Hawk Habitat.** Prior to construction, the Proposed Project/Action applicant shall purchase 0.12 acres of Swainson's hawk nesting habitat from a CDFG-approved mitigation bank. The applicant may also opt

to restore 0.12 acres of Swaison's hawk habitat onsite. The revegetation/restoration plan must be approved by CDFG. Both options represent a 2:1 mitigation ratio. PID shall provide proof of purchase or approval of restoration plan prior to the initiation of Project construction.

With the implementation of the above mitigation measures, potential impacts to sensitive natural communities are considered to be less-than-significant.

- (d) **Less-than-Significant Impact with Mitigation.** The Proposed Project/Action would permanently fill up to 0.07 acre of riparian habitat and 0.24 acre of perennial stream (San Joaquin River). While these features have not been verified by the U.S. Army Corps of Engineers (Corps) as waters under the jurisdiction of Section 404 of the Clean Water Act, field reconnaissance indicates they likely are jurisdictional. In addition, the Regional Water Quality Control Board (RWQCB) regulates these features under Section 401 of the Clean Water Act. Lastly, alteration to the Sacramento River will require entering into a Streambed Alteration Agreement with CDFG as required under Section 1601 of the State Fish and Game Code. To compensate for this loss of wetland habitat, the following mitigation measures are proposed:
- **Mitigation Measure BR-8: Obtain 404 and 401 Permits.** Prior to construction, PID shall obtain a Section 404 from the Corps. Based on the area projected to be impacted, the Proposed Project/Action will likely qualify under a Nationwide Permit. In addition, the project applicant shall obtain a Section 401 water quality certification from the RWQCB. Lastly, the project applicant shall enter into a Streambed Alteration Agreement with the CDFG.
 - **Mitigation Measure BR-9: Impacts to Waters of the U.S.** PID shall purchase mitigation credits as described for impacts to jurisdictional waters at an approved USACOE mitigation bank. The purchase or restoration of approximately 0.12 acre of riparian woodland habitat are already required to mitigate Swainson's hawk nesting habitat (riparian woodland). The additional credits (approximately 0.19 acre) shall be of similar habitat to that filled by this Project (riverine riparian).
 - **Mitigation Measure BR-10: Minimize Fill of Riparian Areas.** Fill of riparian areas will be minimized wherever possible. Temporary construction fencing will be erected around the project site to reduce the potential of incidental fill.

With the implementation of the above mitigation measures, potential impacts to jurisdictional wetlands are considered to be less-than-significant.

- (e) **Less-than-Significant Impact.** Construction of the Proposed Project/Action may have a temporary impact to the movements of some terrestrial wildlife during construction. In addition, salmonids and other fresh water fish species may be temporarily displaced during construction. However, construction of the Proposed Project/Action would not result in any permanent barriers to species movement, and migratory corridors for fish and wildlife will be unaffected. Therefore, a less-than-significant impact is expected.
- (f) **No Impact.** The Proposed Project/Action is not anticipated to conflict with any local policies or ordinances protecting biological resources. No impact is expected.

- (g) **No Impact.** The Proposed Project/Action is not located within a defined Habitat Conservation Area and therefore is not expected to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Issues:	Potentially Significant Impact	Less-than- Significant with Mitigation Incorporation	Less-than- Significant Impact	No Impact
V. CULTURAL RESOURCES -- Would the Proposed Project/Action:				
(a) Cause a substantial adverse change in the significance of a historical resource?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Cause a substantial adverse change in the significance of a unique archaeological resources (i.e., an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it contains information needed to answer important scientific research questions, has a special and particular quality such as being the oldest or best available example of its type, or is directly associated with a scientifically recognized important prehistoric or historic event or person)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>(a) Less-than-Significant Impact. The Proposed Project/Action would not likely cause a substantial change in the significance of a historical resource. A records search of all pertinent survey and site data was conducted at the Central California Information Center (CCIC) on May 3, 2004. The records were accessed by utilizing the Crows Landing and Brush Lake USGS 7.5' quadrangle maps in Stanislaus County. The review included the pump house along with a half-mile foot study area radius around the pump house. Records were accessed and reviewed in the <i>Directory of Properties in the Historic Property Data File for Stanislaus County</i> for information on sites of recognized historical significance within the <i>National Register of Historic Places</i>, the <i>California Register of Historic Resources</i>, the <i>California Inventory of Historic Resources</i> (1976), the <i>California Historical Landmarks</i> (1996), and the <i>California Points of Historical Interest</i> (1992). The <i>Survey of Surveys</i> (1989), GLO Plats, and other pertinent historic data available at the CCIC was also reviewed.</p> <p>An archaeological field inspection of the project area was conducted on April 30, 2004 by an ESA archaeologist. The surface of the area surrounding the pump station was inspected</p>				

using solo zig-zag transects spaced approximately 15 meters apart. The surface was well disturbed or was covered in grasses, rendering the surface visibility from 5% to zero. No archaeological material or features were identified. The pump station was evaluated for historical significance per the criteria for evaluation of the eligibility of cultural resources for listing in the NRHP as defined in Title 36, Code of Federal Regulations (CFR), Section 60.4 and for integrity based on location, design, setting, materials, workmanship, feeling, and association. The buildings associated with the pump station are common, corrugated metal structures that are not associated with significant events or persons, that are not distinctive and do not possess high artistic value, and that would not yield information important in history (ESA, 2004).

Therefore, the pump station is not considered a significant resource and any changes to the structure, including demolition, would be considered less-than-significant. In addition, as described in the Proposed Project/Action description, if any potential historical resources should be encountered during construction, all work within a 50-foot radius of the resource would stop until the resource can be evaluated and a determination made of its significance and need for recovery. As a result, the Proposed Project/Action would result in less-than-significant impacts.

- (b) **Less-than-Significant Impact.** The Proposed Project/Action would not likely cause a substantial change in the significance of an archaeological resource. According to the results of the records search, it appears that the project area has never been surveyed directly, although four surveys had been conducted within a half-mile of the APE (area of potential effect); no sites were identified during the course of those surveys (Pope, 1978; Peak & Associates, 1997; Nave, 1999; EDAW, 2002). One prehistoric site (CA-Sta-122) and one historic refuse scatter (CA-STA-415H) have been identified in the project vicinity. Both of these sites are outside the Area of Potential Effect (at a half-mile from the pump station); therefore, they will not be affected. No prehistoric material or features were identified during the archaeological survey.

Given the proximity to the San Joaquin River and the riverine resources that were exploited prehistorically, the project area is considered to have a moderate sensitivity for archaeological resources versus other areas within the Central Valley. Consequently, as described in the Proposed Project/Action description, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources will be halted and PID will consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be potentially significant, Reclamation will immediately be notified and representatives of PID and a qualified archaeologist and/or paleontologist would meet to determine the appropriate course of action in consultation with Reclamation. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards. Thus, the Proposed Project/Action would not result in any significant impacts on archeological resources.

- (c) **Less-than-Significant Impact.** No known paleontological resources or unique geologic features exist within the project area. Therefore, the Proposed Project/Action is not likely to destroy, either directly or indirectly, a unique paleontological resource or site, or geological feature. As described in the Proposed Project/Action description, if such a resource should be encountered during construction, work would stop until the resource can be evaluated and a determination made of its significance and need for recovery, avoidance, and/or mitigation. Therefore, the Proposed Project/Action would not result in any significant impacts on paleontological resources or unique geologic features.
- (d) **Less-than-Significant Impact.** Based upon a records search, no human remains are known to exist within the project area. As described in the Proposed Project/Action description, in the unlikely event that human remains are discovered, work within the area will be stopped and Stanislaus County Sheriff-Coroner will be notified immediately. Work will only resume after the investigation and in accordance with any requirements and procedures imposed by the Stanislaus County Sheriff-Coroner. In the event that the bone most likely represents a Native American interment, the Native American Heritage Commission will be notified so the most likely descendants can be identified. Thus, the Proposed Project/Action would not result in any significant impacts with respect to disturbing any human remains, including those interred outside of formal cemeteries.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
VI. GEOLOGY AND SOILS -- Would the Proposed Project/Action:				
a) Expose people or structures to 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on strata 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(a) i.) Less-than-Significant Impact. A review of Special Publication 42 for areas in the vicinity of the project indicates that the site is not located within an Alquist-Priolo Earthquake Fault Zone (CGS Special Publication 42, 1999). For this reason, impacts				

resulting from rupture of a known earthquake fault are considered less-than-significant.

- ii.) **Less-than-Significant Impact.** According to the Fault Activity Map for California (Jennings, 1994), the project site is located approximately 45 miles southeast of the Concord/Green Valley fault; 10 miles east of the Great Valley thrust fault (segment 3 and 4); 45 miles west of the Foothills Fault System; and 25 miles west of the Marsh Creek-Greenville fault system. Due to the substantial distances of the fault sources from the project site, the risk of strong ground shaking is considered relatively low as compared to other localities in California. Design of the project in conformance with the 1997 UBC Seismic Design Parameters for Seismic Zone 3 should be sufficient to prevent significant damage from ground shaking during seismic events resulting from movement on any of the local faults and/or fault systems. For these reasons, impacts resulting from seismic ground shaking are considered less-than-significant.
- iii.) **Less-than-Significant Impact.** Soil liquefaction is a phenomenon in which loose, saturated, cohesionless soils (silts and sands) below the water table are subject to a temporary, but essentially total loss of shear strength under the reversing, cyclic-shear strains associated with earthquake shaking. The soils encountered on-site generally consist of interbedded sandy silts, silts and sandy clays. Groundwater in the vicinity of the Proposed Project/Action generally corresponds with the level of the San Joaquin River. Accordingly, the potential for liquefaction, lateral spreading, differential settlement during the maximum credible earthquake is considered low. Design of the Proposed Project/Action in conformance with the 1997 UBC Seismic Design Parameters for Seismic Zone 3 should be sufficient to prevent significant damage from seismically induced ground failure. For this reason, this impact is considered less-than-significant.
- iv.) **Less-than-Significant Impact.** The Proposed Project/Action would be constructed along the western bank of the San Joaquin River. The western bank of the river has an average slope of less than 25 percent with some steeper locations and rises roughly 20 feet above the river. Portions of the western bank contain relatively dense-brush with other locations essentially consisting of bare ground or gravel. Removal of this vegetation, along with the associated root mass, could weaken the current stability of the slope on the western bluff. Trenching operations within western bank would likely further destabilize the bank and could potentially expose construction workers to injury from landsliding.

Based on Occupational Safety and Health Administration (OSHA) regulations, shoring and bracing of the trench excavations will be required where construction personal are working within excavations. Following installation, the banks would be backfilled in accordance with the recommendations of the Geotechnical Report. With the implementation of the measures outlined in the forthcoming Geotechnical Report, this impact would be reduced to a less-than-significant level.

- (b) **Less-than-Significant Impact.** Ground-disturbing activities, including removal of vegetation, can cause increased water runoff rates and concentrate flows that may result in accelerated erosion. The eroded material could degrade the quality of the San Joaquin River. As required by Section 402 of the Clean Water Act, PID will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the Proposed Project/Action, which would include mitigation measures to control accelerated erosion and sedimentation. SWPPPs are required for projects that involve soil disturbance of one acre or more and are submitted to the applicable RWQCB for approval before project commencement. Given the area of soil disturbance would be relatively small, there would not be a significant opportunity for erosion to occur, except for construction operations along the immediate bank. The erosion and sediment control measures, if properly prescribed, implemented, and maintained, are expected to reduce erosion rates during and after construction to near pre-construction rates. By implementing these SWPPP mitigation measures, this impact is considered less-than-significant.
- (c) **Less-than-Significant Impact.** As mentioned in Section 2, a comprehensive subsurface geotechnical investigation will be conducted prior to final design and construction to evaluate potential for unstable soil conditions, landslides, lateral spreading, subsidence, liquefaction or collapse in the project area and arising from the Proposed Project/Action. The Proposed Project/Action will be constructed according to industry standards (UBC 2000 – Seismic risk Zone III) to protect against the public and construction personnel from these hazards. As a result, potential impacts associated with these geologic hazards would be highly unlikely and are considered to be less-than-significant.
- (d) **Less-than-Significant Impact.** The effects of expansive soils may result in damage to pipeline facilities, foundations of aboveground structures, and concrete slabs. The expansion and contraction associated with soils when subjected to repeated wetting and drying may exert enough pressure on the structures to result in cracking, settlement, and uplift.
- As discussed in Section 2, geotechnical investigations will be conducted prior to final design and construction to evaluate potential hazards associated with expansive soils. If expansive soils are encountered, standard engineering practices will be incorporated into the Proposed Project/Action to protect structures from the effects associated with expansive soils. As a result, the impact is considered less-than-significant.
- (e) **No Impact.** No new on-site wastewater treatment systems are proposed as part of the Proposed Project/Action. Consequently, no impact is expected.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
VII. HAZARDS AND HAZARDOUS MATERIALS --				
Would the Proposed Project/Action:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- (a) **Less-than-Significant Impact.** Operation of the proposed diversion facility would not involve the increased delivery, storage, or use of hazardous materials. As a result, any impacts are considered to be less-than-significant.
- (b) **Less-than-Significant Impact.** During construction activities, it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, and hydraulic fluid would be brought onto the site. Various contractors for fueling and maintenance purposes could use temporary bulk aboveground storage tanks as well as storage sheds/trailers. The potential for an accidental release exists during handling and transfer from one container to another. Depending on the relative hazard of the hazardous material, if a significant spill were to occur, the accidental release could pose a hazard to construction employees, the public, and the environment. However, given typical construction management practices limit and often eliminate this type of impact, impacts attributable to the project would be less-than-significant.
- (c) **No Impact.** The nearest school is located 3.4 miles west-southwest of the project site and is therefore not within one-quarter mile of the project. Therefore, the Proposed Project/Action would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school and no impact is anticipated.
- (d) **Less-than-Significant Impact with Mitigation.** The Proposed Project/Action is not located on a site which is known to be included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, it would not create a significant hazard to the public or the environment (EDR, 2004). However, if contaminated soil and/or groundwater would be disturbed by construction activities it could pose a health threat to construction workers, the public, and the environment. Additionally, construction activities at project site may encounter unknown hazardous materials beneath the ground surface. This is a potentially significant impact. Implementation of the prescribed mitigation would reduce the impact to a less-than-significant level.

Mitigation Measure HAZMAT-1: Hazardous Materials Discovery. If contaminated soil and/or groundwater were encountered or if suspected contamination is encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. A contingency plan to dispose of any contaminated soil or groundwater will be developed through consultation with the appropriate regulatory agencies. If dewatering is to occur during project construction, the RWQCB will be consulted for any special requirements such as containing the water until it can be sampled and analyzed to ensure that no contaminants are in the groundwater that could be released into the San Joaquin River.

- (e) **No Impact.** The construction and operation of the new diversion structure would not result in safety hazards relative to any nearby public airport operations. For this reason, no impact would occur from the implementation of the Proposed Project/Action.

- (f) **No Impact.** The construction and operation of the new diversion structure would not result in safety hazards relative to any nearby private airstrip. For this reason, no impact would occur from the implementation of the Proposed Project/Action.
- (g) **No Impact.** The Proposed Project/Action is located along the bank of the San Joaquin River. With the implementation of traffic control measures in Section 2, access to the adjacent recreation area and boating ramp would be maintained during construction. For this reason, the Proposed Project/Action would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Consequently, the impact is considered less-than-significant.
- (h) **Less-than-Significant Impact.** The project site is located in a rural area with irrigated pastures in the vicinity where the risk of wildland fire is considered to be moderate. According to the County General Plan, wild fires are generally limited to the foothills to the west of the project site (Stanislaus County, 1994). As described in the Proposed Project/Action description, during construction, staging areas, welding areas, or areas slated for development using spark-producing equipment would be cleared of dried vegetation or other materials that could serve as fuel. All construction equipment would be equipped with a spark arrester per manufacturer specifications. As a result, the impact is considered less-than-significant.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
VIII. HYDROLOGY AND WATER QUALITY —				
Would the Proposed Project/Action:				
(a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(e) Create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(g) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
(h) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(i) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- (a) **Less-than-Significant Impact.** The Proposed Project/Action would involve the construction of a new diversion/fish screen structure to replace the existing un-screened diversion. It would involve the placement and removal of a sheet-pile coffer dam to isolate the construction activities from the San Joaquin River. Following construction, riprap will be used in the front and on both sides of the fish screen to protect it from scour. As provided in Section 3, the section of the San Joaquin River in the vicinity of the project site is listed in the 2002 California Section 303(d) List and TMDL Priority Schedule as an impaired water body for the following contaminants: boron, chlorpyrifos, DDT, diazinon, electrical conductivity, Group A pesticides, mercury, and unknown toxicity (EPA, 2003).

At the onset of the construction, there would be a potential for surface runoff to transport upland construction spoils into the adjacent river, which could result in temporary increases in turbidity and sedimentation in downstream portions of the San Joaquin. Construction operations within the river channel during trenching operations would also result in increases in turbidity. These activities, however, are not anticipated to contribute to any of the listed impairments for this stretch of the San Joaquin River.

Groundwater extracted during dewatering operations will be undertaken in accordance with RWQCB General Order No. 5-00-175 for NPDES General Permit No. CA G995001. This General Order and NPDES permit covers waste discharge requirements for dewatering and other low threat discharges to surface water. The Proposed Project/Action would be covered under this General Order and the General Permit. In addition, PID is proposing to discharge all dewatering flows into the Main Canal thereby eliminating any direct discharge into the San Joaquin River. This condition will be made part of the Pollution Prevention, Monitoring and Reporting Plan to be used to obtain RWQCB approval for all storm water and construction related activities.

The RWQCB permit would require PID to prepare and implement a SWPPP. The Proposed Project/Action would also be required to comply with Sections 401 and 404 of the Clean Water Act. Receiving water quality would be maintained through appropriate treatment measures identified in the permit. These may include the utilization of settling ponds or screens to reduce suspended sediment loads, or if necessary due to contaminated groundwater, use of on-site treatment systems for contaminant removal prior to discharge.

The construction contractor would follow the SWPPP and perform measures to ensure that petroleum products are not discharged into the river. Elements of the SWPPP will include a description of potentially hazardous and non-hazardous materials that could be spilled accidentally during construction (fuels, equipment lubricant, human waste and chemical toilets, and drilling fluids). It will also identify potential spill sources, potential spill causes, proper storage and transport methods, spill containment, spill recovery, agency notification, and responsible parties. The SWPPP will include measures to minimize erosion and sediment transport to streams and identify best management practices (e.g., water diversion and sediment containment devices, protection of construction spoils, installation of water bars), site restoration, post-construction monitoring of the effectiveness of best management practices, contingency measures, responsible parties, and agency contacts. Erosion control measures could include storing spoils above the ordinary high-water mark and protecting receiving waters from these erosion source areas with silt fences or other effective sediment control devices.

With the acquisition of the required permits outlined on Table 4-1 and implementation of environmental commitments in Section 2, impacts to water quality would be less-than-significant.

- (b) **Less-than-Significant Impact.** The Proposed Project/Action does not include the use of groundwater wells for potable or irrigation water and no existing wells are located within the project site. The Proposed Project/Action would be installed within western bank of the San Joaquin River where the groundwater is under direct influence of the surface water. As a consequence, dewatering operations will result in pumping of underflow from the River, which is necessary to dewater the construction site. The Proposed Project/Action will not pump native or resident groundwater or result in migration of groundwater that would not otherwise occur in the absence of the dewatering. Discharge of contaminated groundwater is strictly prohibited. The pumping may result in increased turbidity, however these flows will be discharged into PID's Main Canal and not back into the San Joaquin River.

In this context, project operations would utilize standardized methods as required by the RWQCB and PID's adopted NPDES General Dewatering Permit. Methods for treating dewatering flows, if necessary, would also be outlined in PID's SWPPP. Consequently, through the acquisition of the required permits, impacts to groundwater quantity and quality are considered to be less-than-significant.

- (c) **Less-than-Significant Impact.** Once installed, the new diversion/fish screen structure would be located within the current footprint of the existing structure. Although, the new structure would extend upstream slightly further than the existing structure, it would not substantially alter the existing flow of the river as compared to the existing structure. For this reason, the Proposed Project/Action would not result in the permanent alteration of the river's channel, in a manner which would result in substantial erosion of siltation on- or off-site and the impact is considered less-than-significant.

- (d) **Less-than-Significant Impact.** Conservative estimates indicate that the Proposed Project/Action will create less than a half acre of new impervious surface. As a result, the amount of additional runoff expected to be generated by the Proposed Project/Action will be minimal. MWH engineers investigated the effects of the proposed new intake structure on the local San Joaquin River elevations and velocities. The Proposed Project/Action would comply with requirements outlined in Chapter 16.40, Flood Damage Protection, of the Stanislaus County Code. A preliminary hydraulic analysis was performed for the San Joaquin River using data obtained from the USGS. To estimate the 100-year and 10% exceedance flow rates a flood frequency analysis was performed for 88 years of annual peak flows recorded at the Newman gauge using HEC¹- Frequent Flow Analysis. The investigation concluded that the operation of the PID pump station would have no effect on the flood-carrying capacity of the San Joaquin River (MWH, 2003). As a result, the Proposed Project/Action would not substantially alter the existing drainage pattern of the site or surrounding project area, which could result in on- or off-site flooding. Consequently, the impact is considered less-than-significant.
- (e) **Less-than-Significant Impact.** The Proposed Project/Action would not involve any connection of the project-related facilities to an existing or planned storm drainage system. For this reason, the Proposed Project/Action is not expected to exceed the capacity of existing or planned storm water drainage systems, and the impact is considered less-than-significant.
- (f) **No Impact.** The Proposed Project/Action would not include the construction or placement of housing within floodplains. Consequently, no impact is expected.
- (g) **Less-than-Significant Impact.** The Proposed Project/Action would be located within a 100-year flood hazard area. However, the fish screen structure would be submerged and the pump motors would be located on an elevated deck grating at an elevation of one foot above the 100-year flood event elevation. Since the Proposed Project/Action would entail the replacement of the existing structure within roughly the same footprint, it is not expected to significantly impede or redirect flood flows and therefore, in the impact is considered less-than-significant impact.
- (h) **Less-than-Significant Impact.** Construction of the Proposed Project/Action would involve cuts through the existing west bank on the San Joaquin River. However, PID will use all appropriate standard engineering practices for stabilization and compaction of soils after construction and installation of the pipeline to ensure that the integrity of the bank is not compromised. In addition, construction plans, specifications, and inspections will be coordinated with the State Reclamation Board and the Corps. Following completion of the Proposed Project/Action, any residual impacts would be less-than-significant.
- (i) **No Impact.** Since the Proposed Project/Action is not located near the ocean or any large water bodies, risks associated with seiche or tsunami are not anticipated. In addition, the project site is essentially level, with minimal hazards from mudflows. Consequently, no impact is anticipated.

¹ HEC – Hydrologic Engineer Center

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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IX. LAND USE AND PLANNING -- Would the Proposed Project/Action:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| (a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) Conflict with any applicable habitat conservation plan or natural communities conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
- (a) **No Impact.** The replacement an existing intake structure with a new intake/fish screen structure would not result in the division of an established community given that the project area is predominantly rural in nature. For this reason, the Proposed Project/Action would result in no impact.
- (b) **No Impact.** The Proposed Project/Action is in compliance with applicable Stanislaus County General Plan land use plans, policies, or regulations that require the protection of local fisheries. Therefore, the Proposed Project/Action would not conflict with applicable land use or policy adopted for the purpose of avoiding or mitigating and environmental effect. Therefore, no impacts are anticipated.
- (c) **No Impact.** The Proposed Project/Action would not be located within a defined Habitat Conservation Area and therefore is not expected to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact is anticipated.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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X. MINERAL RESOURCES -- Would the Proposed Project/Action:

- (a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist 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? ☐ ☐ ☐ ☒
- (a) **No Impact.** The Proposed Project/Action would be constructed on a site that already has an existing diversion structure. The project facilities would expand only slightly beyond the existing footprint of the structure, and thus would not result in significant change from the existing conditions. Therefore, the Proposed Project/Action would not result in the loss of availability of known classified MRZ-2 by the State geologist that would be of value to the region and the residents of the state. Therefore, no impact is expected.
- (b) **No Impact.** Since the Proposed Project/Action would be replacing the existing structure with a new fish screen structure, there would be no significant impacts to any mineral resources similar to the existing structure. Further, as discussed in (a), the Proposed Project/Action would be unlikely to result in the loss of availability of a locally important mineral resource deposit. Therefore, no impact is anticipated.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
XI. NOISE -- Would the Proposed Project/Action result in:				
(a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(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 of public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- (a) **Less-than-Significant Impact.** Stanislaus County does not have a community noise ordinance, but regulates noise and noise land use incompatibility through implementation of its General Plan Noise Element (Stanislaus County, 1994). Policy Two of the Noise Element identifies stationary source noise goals with respect to residential noise sensitive land uses. Policy Two establishes a residential Ldn² (or DNL) of 60 dBA for stationary source impacted noise sensitive land uses. In addition, the Noise Element establishes noise level performance standards.

² 24-hour day and night A-weighted noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noise.

The project site is located in rural Stanislaus County. Sensitive receptors in the vicinity of the Proposed Project/Action are generally limited to occasional visitors of the boat ramp facility just north of the project site. As the proposed pump station facilities would generate noise comparable to that of the existing pump station facility, no long-term changes to the ambient noise environment are anticipated. Additionally, as described in Section 2, the project's final design will incorporate noise attenuating technologies and noise barriers to ensure that noise emanating from the facilities at maximum operational load will not exceed applicable standards. As a result, impacts from the project's operation are considered to be less-than-significant.

- (b) **Less-than-Significant Impact.** Construction of the Proposed Project/Action will incorporate the use of pile-driving in order to secure the new diversion/fish screen facility's foundation at depth. The noisiest construction activities associated with the Proposed Project/Action would involve the pile driving activities which, despite the incorporation of feasible noise control measures generate noise in excess of 95 dBA at a distance of 50 feet. As the nearest residence is located approximately 500 feet southwest of the project site, noise levels would likely be in excess of county standards. Using this distance in conjunction with an attenuation rate of 6 dBA per doubling of distance³ from the source, noise at the nearest residence during pile driving activities could reach 74 dBA. This value is above the County's maximum standard of 70 dBA during daytime hours. Noise levels at the adjacent day use area and boat ramp would likely be higher, however, the duration of exposure would generally be more limited. Given the temporary nature of these activities in conjunction with measures proposed by PID in Section 2, this impact is considered less-than-significant.
- (c) **Less-than-Significant Impact.** As described in (a) above, noise generated from the Proposed Project/Action would be comparable to the existing ambient noise environment once constructed. Thus, the noise levels generated would not exceed applicable County noise standards and would be on par with existing conditions. As a result, the impact is considered less-than-significant.
- (d) **Less-than-Significant Impact.** As described in (b), project construction could lead to temporary or periodic increases in ambient noise levels in the project vicinity above the existing levels without the project and that pile driving would generally be the loudest of the construction activities proposed. However, given the rural land use character of the project area and general lack of sensitive receptors within the immediate project vicinity coupled with noise reduction measures proposed in Section 2, the temporary noise increases experienced during construction would be less-than-significant.
- (e) **No Impact.** No airport is located within two miles of the project site. Furthermore, as described in Section 2, no new residential housing would be constructed as part of the Proposed Project/Action. For this reason, the Proposed Project/Action would not expose

³ Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 9 dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.).

people residing or working in the project area to excessive noise levels associated with air traffic. As a result, no impact is expected.

- (f) **No Impact.** The Proposed Project/Action is not located within the immediate vicinity of a private airstrip and would not adversely affect or be adversely affected by any aircraft operations. For this reason, no impact is expected.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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XII. POPULATION AND HOUSING – Would the Proposed Project/Action:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
- (a) **No Impact.** The Proposed Project/Action is designed to protect and enhance the anadromous fisheries on the San Joaquin River and comply with state and federal Endangered Species Acts as PID continues to divert the same quantity of water from the San Joaquin River to irrigate its 13,500 acres of irrigated lands. The Proposed Project/Action would not increase the amount of entitled water diverted from the San Joaquin River. In addition, since this water is used exclusively for agricultural irrigation, the Proposed Project/Action would not directly or indirectly induce population growth. Therefore, no impact is anticipated.
- (b) **No Impact.** Currently, no permanent housing is located on the project site. Consequently, the Proposed Project/Action would not displace any housing, thereby necessitating the construction of replacement housing elsewhere and no impact is anticipated.
- (c) **No Impact.** There are currently no residences located in the immediate vicinity of the project site. For this reason, the Proposed Project/Action would not displace a substantial number of people thereby necessitating the construction of replacement housing elsewhere and no impact would occur.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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XIII. PUBLIC SERVICES -- Would the Proposed Project/Action:

- 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:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- (a) **No Impact.** The Proposed Project/Action would entail the replacement of PID's existing diversion structure with a new diversion/fish screen structure. The structure's replacement would not generate any additional demands for additional public services that would require new or altered facilities, including police and fire protection. For this reason, the Proposed Project/Action would have no adverse impact on existing public service ratios, response times, or other performance objectives.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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XIV. RECREATION --

- 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? ☐ ☐ ☐ ☒
- (a) **Less-than-Significant Impact.** The project site is located on the western bank of the San Joaquin River and to the immediate south of an existing recreation area and boat ramp. As previously indicated, the Proposed Project/Action would involve the replacement of an existing diversion structure. Construction and operation of the Proposed Project/Action will not affect the use of the boat ramp facility. Construction of the facility would be located in a small portion of the San Joaquin River. However, the construction activities would be contained in a coffer dam and would not adversely affect boats and other recreational activities in the area. As a result, a less-than-significant impact is expected.
- (b) **No Impact.** The Proposed Project/Action does not include or require the development of any new recreational facilities. Further, as discussed in (a), the Proposed Project/Action is not expected to increase demand for recreational facilities such that construction or expansion of those facilities is necessary. In addition, following construction the Proposed Project/Action would have minimal effect on current recreation/aesthetic values along the affected stretch of the San Joaquin River. As a result, no impact is expected.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
XV. TRANSPORTATION / TRAFFIC -- Would the Proposed Project/Action:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- (a) **Less-than-Significant Impact.** Construction activities associated with the Proposed Project/Action would occur within a rural agricultural area with minimal traffic volumes. Nonetheless, construction will generate increased traffic in the immediate project area due to construction related worker trips and truck movements to and from construction sites. These impacts however would be temporary in nature. Following construction, traffic volumes during the operation of the Proposed Project/Action would be similar to the existing conditions. As mentioned in Section 2, traffic routing measures will be implemented to reduce traffic delays to and from the boat ramp area and minimize impacts to emergency vehicle response. Operation of the Proposed Project/Action is not expected to result in any significant new traffic with respect to worker trips and/or deliveries to and

from the site. As a result, traffic impacts are not expected to be substantial relative to the existing traffic roadway capacities and the impacts is considered less-than-significant.

- (b) **Less-than-Significant Impact.** As discussed above in (a), project construction activities would result in increased vehicle trips to and from the project site. However, these increases would be minimal and in the order of 10 to 20 new vehicle trips a day. Section 2 identifies traffic routing measures that will be implemented to ensure that these increases in traffic do not exceed, either individually or cumulatively, County level of service standards. Given PID's proposed traffic measures in conjunction with the temporary nature of the vehicle trips, impacts to existing levels of service for local roadways are considered less-than-significant.
- (c) **No Impact.** The Proposed Project/Action does not involve use of air transit, nor is it expected to cause any change in air traffic patterns. No impact is expected.
- (d) **Less-than-Significant Impact.** Project construction would not result in a hazard to any design feature such as a sharp turn or incompatible uses. The Proposed Project/Action would include a paved access way for the transportation of equipment to the project site, and would not result in any significant design changes to existing roadways. Further, appropriate traffic routing and signage will be used to avoid and/or minimize conflicts with construction equipment. As a result, the Proposed Project/Action would not increase any hazards as related to existing roadway design features and the impact is considered less-than-significant.
- (e) **Less-than-Significant Impact.** The closest roadway or access road is East Las Palmas Avenue (See Figure 2-1) which has a road spur or a segment that extends toward the project site almost parallel to the Main Canal. Project construction activities may increase vehicle trips on this roadway, however, this roadway is not heavily traveled and therefore project construction would not obstruct emergency access. This setting in conjunction with traffic routing measures proposed would ensure that impacts to emergency access remain less-than-significant.
- (f) **No Impact.** Project-related construction activities would require additional parking for workers and equipment on a temporary basis. However, as discussed in the Proposed Project/Action Description, temporary parking areas and a paved access way would be provided to satisfy these needs just south of the pump house. As a result, no impact is anticipated.
- (g) **No Impact.** Alternative transportation is not part of the Proposed Project/Action, nor is it expected to create conditions that conflict with adopted policies supporting alternative transportation. No impact is expected.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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**XVI. UTILITIES AND SERVICE SYSTEMS –
Would the Proposed Project/Action:**

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| (a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| (d) Are sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| (e) Has the wastewater treatment provider who serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (f) Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| (g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|
(a) No Impact. The Proposed Project/Action would not increase the demand for wastewater treatment; nor does it include the construction of any new wastewater treatment facilities. For this reason, the Proposed Project/Action will not exceed wastewater treatment requirements of the Central Valley RWQCB and no impact is anticipated. | | | | |
|
(b) No Impact. The Proposed Project/Action would not result in the construction of additional or new water or wastewater treatment facilities to be served by this project. Therefore, no adverse impacts are anticipated. | | | | |

- (c) **Less-than-Significant Impact.** The Proposed Project/Action would not require additional or expanded storm water conveyance facilities that could cause significant adverse environmental effects. As a result, potential impacts to storm drain facilities are considered to be less-than-significant.
- (d) **No Impact.** PID has sufficient existing water supplies and entitlements to serve the Proposed Project/Action. Therefore, no new or expanded entitlements would be needed or required. No impact is expected.
- (e) **No Impact.** The Proposed Project/Action would not generate any additional demand for wastewater treatment, and therefore, no impact is expected.
- (f) **Less-than-Significant Impact.** Construction of the Proposed Project/Action would not generate a significant amount of solid wastes. It is anticipated that solid waste generated by construction activities would be disposed by the contractor(s) at the Fink Road Landfill operated by the Stanislaus County Landfill Division (Stanislaus County, 2004). Once constructed, operation of the Proposed Project/Action would continue to produce solid wastes approximately equivalent to the existing operations and therefore would not substantially increase the amount of wastes to be collected, transported and disposed of at the Fink Road Landfill. As a result, the Proposed Project/Action is expected to have less-than-significant impacts on solid waste disposal issues and/or concerns.
- (g) **No Impact.** The Proposed Project/Action would comply with all relevant federal, state, and local statutes and regulations related to solid waste. Therefore, no impact is expected.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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**XVII. SOCIOECONOMIC EFFECTS and
ENVIRONMENTAL JUSTICE -- Would the
Proposed Project/Action:**

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| (a) Result in any adverse socioeconomic effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (b) Conflict with Executive Order 12898
(Environmental Justice) policies? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) Affect Indian Trust Assets? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
- (a) **No Impact.** The Proposed Project/Action would involve the construction of a positive barrier fish screen for PID's water diversion along the San Joaquin River. This would ensure a reliable long-term irrigation-water supply that would also contribute to the protection and enhancement of anadromous fisheries in the San Joaquin River. Existing agricultural practices and socioeconomic conditions would generally be unaffected by the Proposed Project/Action. Conversely, the No Project/Action Alternative could result in regulatory restrictions on PID's diversion thereby potentially placing a burden on the need for groundwater pumping or the inability of PID to divert water for irrigation. This could adversely affect agricultural production and practices in the region, which could result in a negative effect on the socioeconomics of the regional farming community. As a result, the Proposed Project/Action would have no adverse socioeconomic effects and may entail beneficial socioeconomic impacts as compared to the No Project/Action Alternative.
- (b) **No Impact.** Executive 12898 requires each federal agency to achieve environmental justice as part of its mission, by identifying and addressing disproportionately high and adverse human health on environmental effects, including social and economic effects of its programs, policies, and activities on minority populations and low-income populations of the United States. The Proposed Project/Action would involve the construction and operation of a replacement diversion system that would help protect and enhance the anadromous fisheries in the San Joaquin River and ensure that PID continues to divert water from San Joaquin River for irrigation purposes without regulatory restrictions. The Proposed Project/Action does not propose any features that would result in adverse human health or environmental effects, have any physical effects on minority or low-income populations, and/or alter socioeconomic conditions of populations that reside or work in the vicinity of the project site.
- (c) **No Impact.** Indian Trust Assets (ITAs) are legal interests in property or rights held by the United States for Indian Tribes or individuals. Trust status originates from rights imparted by treaties, statutes, or executive orders. Examples of ITAs are lands, including reservations and public domain allotments, minerals, water rights, hunting and fishing rights, or other natural resources, money or claims. Assets can be real property, physical

assets, or intangible property rights. ITAs cannot be sold, leased, or otherwise alienated without federal approval. ITAs do not include things in which a tribe or individuals have no legal interest such as off-reservation sacred lands or archaeological sites in which a tribe has no legal property interest. No ITAs have been identified at the project site. As a result, the Proposed Project/Action would have no adverse affects on ITAs.

<i>Issues:</i>	<i>Potentially Significant Impact</i>	<i>Less-than- Significant with Mitigation Incorporation</i>	<i>Less-than- Significant Impact</i>	<i>No Impact</i>
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XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) Does the project have the potential to 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, 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? ☐ ☐ ☒ ☐
- (a) **Less-than-Significant Impact.** The Proposed Project/Action would not substantially degrade the quality of the environment, 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, 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. In fact, the Proposed Project/Action is expected to benefit anadromous fisheries in the San Joaquin River, when compared to the No Project/Action Alternative and existing environmental conditions. Any impacts attributable to the Proposed Project/Action, as described throughout the various section of this checklist, are considered less-than-significant or can be mitigated to a less-than-significant level.
- (b) **Less-than-Significant Impact.** As discussed in the previous sections, impacts that could be caused by the Proposed Project/Action would be reduced to a less-than-significant level by approaches included in the Proposed Project/Action design or by mitigation that would be included as part of the project. The resources most likely to be cumulatively affected by

the Proposed Project/Action would be air quality, biology, water quality, and cultural resources. These are discussed below.

Almost all air basins within the state are non-attainment areas for one or more criteria air pollutants. Activities that emit criteria pollutants within those air basins could have a significant cumulative impact on air quality. The San Joaquin Valley Air Pollution Control District has established rules and programs under their air quality plans that limit proposed project-specific contributions to the overall problems. As discussed Section III, Air Quality, in this chapter, the contributions of the Proposed Project/Action would not be cumulatively considerable because the proposed project would comply with applicable air district rules and plans for construction activities.

Biological resources, particularly threatened, endangered, candidate, and other listed species, would not be cumulatively affected by this project. The state and federal governments, through DFG, the Corps, USFWS, and NMFS, have promulgated a regulatory scheme that limits impacts on these species. The effects of the Proposed Project/Action are rendered less than cumulatively considerable due to mitigation requiring compliance with all applicable regulations that protect plant, fish, and animal species. The mitigation measures imposed and the provisions included in the Proposed Project/Action description (e.g., pre-construction surveys and resource staking, presence of an environmental resource coordinator, contractor training) and the PID's commitment to avoid sensitive resources would render the proposed project's contribution less than cumulatively considerable.

Cumulative impacts to water quality from construction activities would be mitigated to a less-than-significant level by implementing BMPs during project construction. Potential cumulative impacts to groundwater and surface water quality would also be expected to be less-than-significant, assuming adherence to the terms and conditions of the NPDES General Dewatering Permits, NPDES General Construction Permit, and the Clean Water Act Section 404 permit established and enforced by the Regional Board and ACOE. These permits are established in consideration of cumulative impacts to water quality, and as such are conservative in nature. As such, with the integration of certain project design features in conjunction with the implementation of the prescribed mitigation, cumulative impacts would be reduced to a less-than-significant level.

- (c) **Less-than-Significant Impact.** The Proposed Project/Action would not directly or indirectly cause substantial adverse effects on human beings. Air quality would be the only resource through which the Proposed Project/Action could have a substantial effect on human beings. However, all potential effects of the project on air quality would be mitigated to a less-than-significant level through the compliance with local air district regulations and would therefore avoid causing substantial adverse effects on human beings. The impact analysis included in this environmental checklist indicates that for all other resource areas, the Proposed Project/Action would either have no significant impacts, or for impacts that would not affect human beings, less-than-significant impacts with mitigation incorporated.

SECTION 5

LIST OF PREPARERS

SECTION 5

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SECTION 6

BIBLIOGRAPHY

SECTION 6

BIBLIOGRAPHY

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SECTION 7

ACRONYMS/GLOSSARY

SECTION 7

ACRONYM/GLOSSARY

AF	Acre-feet
APE	area of potential effect
BMP	Best Management Practice
CCIC	Central California Information Center
CCTS	Central California Taxonomic System
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
Corps	U.S. Army Corps of Engineers
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
dbh	diameter at breast height
DDT	Di(para-chloro-phenyl)-trichloroethane
DMC	Delta Mendota Canal
DOT	Department of Transportation
EDR	Environmental Data Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
fps	feet per second
GGS	Giant Garter Snake
HEC-FFA	HEC Flood Frequency Analysis
I-5	Interstate 5
IS/EA	Initial Study and Environmental Assessment

ITA	Indian Trust Assets
MWH	Montgomery Watson Harza
NEPA	National Environmental Policy Act
NOAA Fisheries	National Oceanic and Atmospheric Administration
NOx	ozone precursor
OSHA	Occupational Safety and Health Administration
PID	Patterson Irrigation District
Proposed Project/Action	Proposed Project/Action Alternative
Reclamation	U.S. Bureau of Reclamation
ROG	Reactive organic gasses
RWQCB	Regional Water Quality Control Board
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley air Pollution Control District
State Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TID	Turlock Irrigation District
TMDL	total maximum daily load
UAPCD	Unified Air Pollution Control District
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
VELB	Valley Elderberry Longhorn Beetle

APPENDIX A

**ACTION SPECIFIC
IMPLEMENTATION PLAN**



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

JUN 08 2007

In response refer to:
2007/02366

Richard J. Woodley
Regional Resources Manager
U.S. Department of Interior
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

BUREAU OF RECLAMATION OFFICIAL FILE COPY RECEIVED		
JUN 14 2007		
CODE	ACTION	SURNAME & DATE
4100	✓	Woodley 6/15
410	✓	P. Woodley 6/29

Dear Mr. Woodley:

This is in response to your letter of April 3, 2007, requesting the initiation of consultation under section 7 of the Endangered Species Act (ESA) and requesting concurrence from NOAA's National Marine Fisheries Service (NMFS) that the Patterson Irrigation District Fish Screen Project (Project) (Bureau of Reclamation file MP-410 ENV - 7.00) is not likely to adversely affect Federally listed threatened Central Valley steelhead (*Oncorhynchus mykiss*), or adversely modify designated critical habitat for this salmonid species. Your office has also determined that this project may affect, but is not likely to adversely affect essential fish habitat (EFH) for Pacific salmon, pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This action is authorized and partially funded under the Central Valley Project Improvement Act fish screen improvement activities, which is administered by the Anadromous Fish Restoration Program.

Project Description

The project is located on the west bank of the San Joaquin River, in Stanislaus County, California. It is between the Merced and Tuolumne Rivers, at approximately river mile 98.5 of the San Joaquin River. The applicant, the Patterson Irrigation District (PID), intends to construct a new pumping facility to replace the current facility which has been in operation for the past 90 years. The current diversion consists of seven pumps, six vertical turbine pumps and one horizontal centrifugal pump, with a combined pumping capacity of 195 cubic feet per second (cfs). Seven separate pipelines ranging in size from 30-inches to 42-inches in diameter serve as pump discharge lines to the PID main canal.

The new facility will have the same diversion capacity as the original facility (195 cfs) but will employ more efficient pumps, resulting in cost savings from reductions in energy usage and reduced maintenance. The proposed facility will have a submerged sump constructed of reinforced concrete that will house seven vertical turbine pumps. The new pumps will discharge to five new 30-inch and one existing 42-inch steel discharge

Classification	ENV 100
Project	214
Control No.	07046778
Folder I.D.	1024388
Date Input & Initials	6-14-07



pipelines to the main canal Outfall Structure. Flow to the pumps will be through ten vertical flat plate panels constructed of wedgewire screens, each panel will be 5.5 feet tall by 12 feet wide. Each screen will provide 66 square feet of screened area, with a total of 660 square feet of screened area for the total diversion. The screen has been designed to meet or exceed the design criteria of NMFS for salmonids and limits perpendicular approach velocity to a maximum of 0.33 feet per second at the maximum diversion rate of 195 cfs. The entire sump and screen structure will be supported on steel piles driven into the underlying substrate. The screens will be supported by 18-inch wide steel guide flanges running from the base of the sump to the top of the elevated pump platform. The screens will be mounted side-by-side along the intake side of the sump. The total water-side dimensions of the new pumping intake facility, including the 10 screens and guides, will measure approximately 144 feet long by 40 feet wide, with a height of 35 feet. The fish screens will be protected from floating debris by a log boom system located out in front of the water side of the structure. The flat plate fish screen panels will be cleaned by an automated traveling brush system. Cleaning of debris will prevent the creation of "hot spots" on the plates that could adversely affect the approach velocity. Sediment control will be accomplished through the incorporation of header pipes located in front of the flat plate screens to create a burst of water that will clear any sediment that has settled in front of the screens.

In order to proceed with construction of the new intake structure, PID intends to install sheet metal cofferdams around the entire waterside portion of the intake structure site. Installation of the cofferdam will start after June 1 and in-water work will continue through August 31. Work will continue "in the dry" behind the cofferdam until the structure is completed, anticipated to be sometime in 2010. At this time, the sheetpile will be cutoff at grade during the in-water work window of June 1 to August 31.

The cofferdam will be protected from scour by the placement of rock riprap on the waterside of the cofferdam during the same in-water work window of June 1 through August 31. The riprap will be placed in a 3-foot thick layer to a depth of 12 feet and at a slope of 1.5 to 1. Approximately 1,800 cubic yards of river bottom material will have to be removed to accommodate the placement of the riprap layer. River bottom material will be stockpiled adjacent to the construction site and used to recover the surface of the riprap following the completion of construction.

Construction of the project would consist of several activities, including: grading, excavation and soil removal, transporting and installing equipment, driving sheet and structural piles, and placement of structural concrete. The construction would occur with periodic activity peaks, requiring brief periods of significant effort followed by longer periods of reduced activity. The applicant has stated that standard best management practices (BMPs) will be employed during the construction phase of the project, which will include onsite erosion control and stormwater prevention practices to minimize or eliminate degradation of water quality in the San Joaquin River during construction activities. A detailed list of BMPs appropriate for aquatic species, including listed salmonids, have been described in the applicant's Action Specific Implementation Plan for this project.

Finally, prior to operation of the fish screen and the water diversion, engineers from NMFS will be allowed to inspect the screens and the facility prior to flooding of the sump bay. NMFS engineers will be allowed to be present during the testing of the screens to monitor their performance.

ESA Section 7 Consultation

The proposed project occurs within the known range of the Central Valley steelhead DPS. In addition the proposed action area for the project is within the area designated as critical habitat for the Central Valley steelhead.

The PID diversion historically operated during the irrigation season through an unscreened diversion on the San Joaquin River. Typically diversions begin during the later half of March when farmers begin to make calls to PID for irrigation water. Irrigation diversions continue through the fall, typically to mid October, when crops are harvested. During the late winter to early summer period, juvenile salmonids, including the currently listed Central Valley steelhead, are emigrating past the diversion site in the main channel of the San Joaquin River. It is believed that significant numbers of juvenile salmonids, (*i.e.* steelhead, fall-run Chinook salmon (*O. tshawytscha*), and the extirpated spring-run Chinook salmon population in the San Joaquin River basin) were subject to entrainment into these unscreened facilities. This entrainment is believed to have been exacerbated during dry years when river flows are reduced and the proportion of the river being diverted for agricultural needs is greater. This situation has been somewhat ameliorated by the spring time releases of stored reservoir water on the Merced River to facilitate downstream passage of juvenile salmonids (San Joaquin River Agreement – Vernalis Adaptive Management Plan) towards the Delta.

The section of the river on which the facility is situated does not provide suitable natal rearing habitat for these juvenile fish, being a sandy bottomed channel with leveed banks. Its main function is to serve as a migratory corridor to the Delta for salmonids spawned in the Merced River (and historically the San Joaquin River system upstream of the Merced River confluence). Therefore, the presence of listed juvenile salmonids susceptible to entrainment is believed to occur only during those migratory periods (March through June) when the juvenile fish leave their upstream natal rearing areas and start moving downstream towards the Delta and the ocean beyond. Adult presence typically does not occur until late fall when ambient water temperatures begin to drop and flows begin to increase from reservoir releases (designed to help attract salmonids back into the tributaries) and increased local precipitation. The adult migration period also overlaps with the tapering off and cessation of irrigation diversions through the facility at the end of the growing season for local irrigators.

NMFS does not expect adverse impacts to listed Central Valley steelhead to occur due to the protective safety measures incorporated into the project's description (*i.e.*, the June 1 through August 31 in-water work window and the incorporation of the construction BMPs). NMFS does not consider the presence of Central Valley steelhead at the project

site to be likely during the in-water work window, therefore, the risk of exposure of the Central Valley steelhead Distinct Population Segment to construction related impacts is negligible and can be discounted.

The long term effects of the proposed fish screen should be mostly beneficial. Some adverse effects may occur but are believed to be insignificant or discountable. The new fish screen is designed to meet or exceed NMFS fish screen criteria for juvenile salmonids. Accordingly, NMFS does not expect that entrainment of listed salmonids will occur due to the specifications of the screen design. Impingement of juvenile Central Valley steelhead on the screen may occur but is believed to be unlikely due to the greater swimming capabilities of these larger fish compared to emigrating salmon smolts. Estimates of impingement for Chinook salmon smolts from laboratory studies indicate that impingement occurs in significantly less than 1 percent of those fish exposed to the screen. The greater swimming abilities of steelhead smolts would likely reduce this risk even further. Therefore, NMFS considers the likelihood that the long term operations of the screen will result in the direct mortality or morbidity of exposed fish to be negligible.

Therefore, NMFS concurs that the Patterson Irrigation District Fish Screen Project is not likely to adversely affect Central Valley steelhead or their designated critical habitat. This concurrence is based on the Bureau of Reclamation and the PID implementing all conservation and protective measures intended to avoid or minimize adverse effects to fish and fish habitat as identified above in the project description and the ASIP covering this project.

This concludes informal consultation for the proposed action. Reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered; or (3) a new species is listed or critical habitat designated that may be affected by the action.

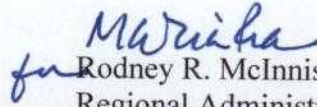
EFH Consultation

Based on our review of the project description and conservation and protective measures provided, NMFS finds that the project activities will not adversely affect EFH for Pacific Salmon. We find the project description includes conservation measures that will reduce impacts to EFH for Pacific Salmon as described in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the MSA. These measures include the incorporation of in-water work schedules that avoid Pacific salmon migrations in the project area and applications of construction practices (*i.e.*, BMPs) in a manner consistent with minimizing exposure to sensitive species and areas. These measures should adequately avoid or minimize any adverse impacts to the EFH of Pacific salmon resulting from the project's actions. Therefore, EFH Conservation Recommendations will not be provided. Written response as required under section 305(b)(4)(B) of the MSA and Federal regulations (50 CFR § 600.920) will not be required. Should additional

information reveal that the project may affect EFH and/or impact salmonids in a way not previously considered, or should the action be modified in a way that may cause additional effects to EFH, this determination may be reconsidered.

Please contact Jeff Stuart at (916) 930-3607, or via e-mail at J.Stuart@noaa.gov if you have any questions concerning this project or require additional information.

Sincerely,


Rodney R. McInnis
Regional Administrator

cc: Copy to File ARN # 151422SWR2007SA00684

NMFS-PRD, Long Beach, CA

Mr. John Sweigard, Patterson Irrigation District, General Manager, 948 Orange
Avenue, Patterson, California 95363

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PATTERSON IRRIGATION DISTRICT FISH SCREEN PROJECT

Action Specific Implementation Plan

Prepared for:
Patterson Irrigation District

November 2006

PATTERSON IRRIGATION DISTRICT FISH SCREEN PROJECT

Action Specific Implementation Plan

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November 2006

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CHAPTER 1

INTRODUCTION

This document is an Action Specific Implementation Plan (ASIP) which analyzes the potential environmental effects on aquatic and terrestrial species of the Patterson Irrigation District's (PID) proposed plan to construct a positive barrier fish screen diversion on the San Joaquin River. The ASIP is a product of the CALFED Bay-Delta Program (CALFED) and is meant to streamline the regulatory process for CALFED Actions.

The CALFED Bay-Delta Program is a collaborative effort of more than 20 Federal and State agencies that seek to resolve water supply and water quality issues as well as restore ecological health to the San Francisco Bay-Delta. After assessing the effects of potential CALFED Actions on the environment, the CALFED agencies developed initial conservation measures that when implemented would meet the overall CALFED Program objectives. These are contained within the Multi-Species Conservation Strategy (MSCS).

The MSCS explains how CALFED Program actions will comply with the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and Natural Community Conservation Planning Act (NCCPA) requirements. The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) used the MSCS as the program-level biological assessment to develop the programmatic Biological Opinions (BOs) for the CALFED Preferred Program Alternative. The California Department of Fish and Game (CDFG) used the MSCS for compliance with the CESA and NCCPA.

The MSCS contains a two-tiered approach to FESA, CESA, and NCCPA compliance that corresponds to the CALFED Program's two-tiered approach to compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The first tier of compliance is embodied in the MSCS itself. For the CALFED Program's Project Actions identified in the Programmatic Environmental Impact Statement / Environmental Impact Report (PEIS/EIR) and Record of Decision (ROD), an ASIP is developed to address the FESA, CESA, and NCCPA consultation requirements of Federal and State agencies. As a second tier document, this ASIP focuses on issues specific to PID's Fish Screen Project (Proposed Project/Action). Therefore, this ASIP addresses the biological assessment requirements related to the Proposed Project/Action described in Chapter 2. The USFWS and NMFS will use this ASIP to develop action-specific BOs relative to the Proposed Project/Action. The CDFG will use this ASIP to address compliance with the CESA and NCCPA.

1.1 PROJECT BACKGROUND

PID's existing pump station is located on the banks of the San Joaquin River, approximately 3.5 miles east of the City of Patterson (**Figure 1-1**). PID has been diverting San Joaquin River water at this site for over 90 years. The existing diversion facility consists of seven pumps with a total diversion capacity of approximately 195 cfs (cubic feet per second). The facility employs older pumps that suffer from low motor efficiency, and thereby higher energy demands and maintenance costs. The current river diversion delivery system is automated for demand control on the Main Canal.

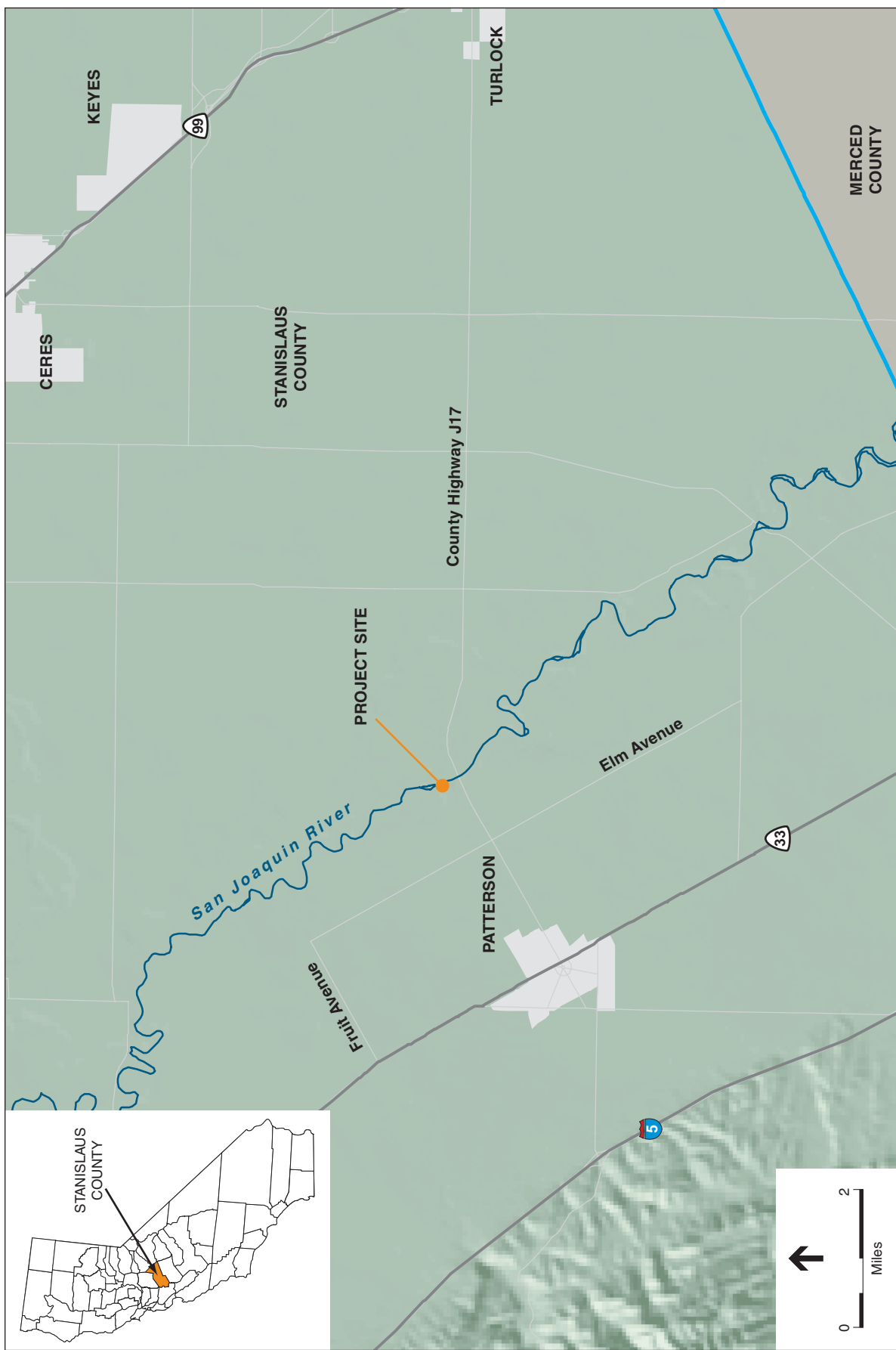
The San Joaquin River is historic spawning and rearing habitat for southernmost stocks of spring and fall-run Chinook salmon and steelhead. However, in recent years, fall-run Chinook spawning escapements in the San Joaquin River Basin have declined to alarmingly low levels. This is due, in part, to the entrainment of juvenile salmon in the many small and medium-size irrigation diversions on the main stem of the San Joaquin River.

PID's pump station facility utilizes an unscreened intake and may entrain Chinook salmon and steelhead that pass by the intake. The diversion pumps are required to operate without causing detrimental effects to migrating fish. Therefore, it is essential that fish screens be installed at the water intake. The existing pump station facility cannot be retrofitted with a fish screen that would comply with criteria developed by CDFG and NMFS. As a result, PID's Proposed Project/Action is for the construction and operation of a new 195 cfs pump station and fish screen facility to replace the existing 195 cfs pump station diversion. The new facility will not increase PID's pumping capacity from the San Joaquin River. The existing pump station facility will be demolished and removed as part of this Project.

Implementing PID's Proposed Project/Action would allow migrating Chinook salmon, steelhead, and other native fish species to pass by PID's intake diversion on the San Joaquin River without the risk of entrainment. Another objective or purpose of the Proposed Project/Action is to ensure that PID's water supply remains reliable in the long-term so that diversions may continue even if the listed fish species are present in the vicinity of the diversion. To accomplish these objectives, the Proposed Project/Action will comply with CDFG and NMFS fish screen criteria.

1.1.1 PROJECT OVERVIEW

The need for the Proposed Project/Action is two-fold. The first need is to implement measures to improve conditions of the San Joaquin River fisheries resource by contributing to the reduction in the decline of the anadromous and resident fishes in the San Joaquin River. The second is that PID needs to ensure that it can maintain a reliable long-term water supply to their service area in a manner that complies with present and future regulatory requirements.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project - 202607

Figure 1-1
Regional Location

Several anadromous fish species use the San Joaquin River and its tributaries for some portion of their life cycle. These include the Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) (CDFG, 1994). Natural populations of all Chinook salmon races and steelhead trout have declined over the years, causing concern to federal and state biologists. The decline of these populations in the San Joaquin River system is influenced by factors such as inadequate flows, unscreened diversions, inadequate passage at diversion dams, agricultural return drains, poor water quality, reduced spawning gravel, and illegal harvest. Unscreened diversions have been particularly detrimental to migrating fish. Water diversions have historically created numerous obstacles for migrating salmon and steelhead trout. These impediments include entrainment of juvenile salmon emigrating from the system, and flow changes near the pump stations that confuse adult salmon during migration. As a result, federal and state fish agencies are working with water districts and agencies as well as individual landowners to minimize or eliminate these impacts on fisheries through the construction of fish screens on their diversions.

PID's pumping and diversion practices on the San Joaquin River may pose potential risk to fish passage under the directives of the Central Valley Project Improvement Act (CVPIA) and CALFED. The continued operation of the PID diversion facility may remove some of the salmonid out-migrants from the mainstream of the San Joaquin River. Consequently, the diversion pumps would require screening to continue operation without causing detrimental effects to migrating fish. The Project will contribute to improved conditions for the San Joaquin River fisheries resources and help protect PID's water supply.

1.2 AUTHORITIES

1.2.1 CENTRAL VALLEY IMPROVEMENT ACT AND ANADROMOUS FISH RESTORATION PROGRAM

On October 30, 1992, a multipurpose water law which contained 40 separate titles providing for water resource projects throughout the Western United States was established. Title 34, the CVPIA, mandates changes in management of the Central Valley Project, particularly for the protection, restoration, and enhancement of fish and wildlife (Federal Register, 1997)). Under the CVPIA, a program dedicated to screening agricultural water diversions to protect anadromous fish in California's Central Valley was developed. The U.S. Department of the Interior established the Anadromous Fish Restoration Program (AFRP) to satisfy Section 3406 (b)(1) of the CVPIA: "develop within three years of enactment and implement a program which makes all reasonable efforts to ensure that, by the year 2002, natural production of anadromous fish in Central Valley rivers and streams would be sustainable, on a long-term basis, at levels not less than twice the average levels attained during the period of 1967–1991..." (Federal Register, 1997). This program has been active since 1994, and includes the construction, rehabilitation, and replacement of fish screens, as well as the relocation of diversions to less fishery-sensitive areas. The AFRP uses federal funds to cover up to 50% of the cost of such projects that reduce mortality of juvenile salmon (Federal Register, 1997).

The Proposed PID Project is consistent with the CVPIA Anadromous Fish Screen Program.

1.2.2 ENDANGERED SPECIES ACT

This ASIP is intended to provide all the necessary elements to comply with the FESA and CESA. Currently, there are six species within this ASIP that are identified as listed or candidate species. The Central Valley steelhead is federal-listed threatened and the Central Valley fall/late fall-run Chinook salmon is federal-listed candidate. Although the federal-listed and state-listed threatened delta smelt is not likely to occur within the Proposed Project/Action area; however it may be affected downstream by water quality degraded from upstream activities. The Swainson's hawk is state-listed threatened and is known to nest in high numbers within riparian habitat along the San Joaquin River. The Sacramento splittail has recently been federally delisted, but its status still remains under close scrutiny. The giant garter snake is both federal- and state-listed threatened. All of these species are species covered in the MSCS.

1.2.3 IMPLEMENTING ENTITIES

Both Federal and State agencies are involved in administering the PID Fish Screen Project. The U.S. Bureau of Reclamation (Reclamation) is the lead NEPA agency. PID is the lead CEQA agency. NEPA and CEQA documents being prepared include an Environmental Assessment (EA), Initial Study (IS), Mitigated Negative Declaration (MND), and a Finding of No Significant Impact (FONSI). The Federal and State fisheries agencies – USFWS, NMFS, and CDFG – act as “management agencies” and are responsible for making recommendations for actions to be taken to protect fish populations. The Project Agencies (Reclamation and PID) are responsible for implementing operational changes based on the recommendations.

1.3 ASIP PROCESS

The ASIP process is directly related to the relationships between the FESA, CESA, and State NCCPA. The ASIP is based on and tiers from the CALFED Program's Multi-Species Conservation Strategy (MSCS) and program-level compliance documents. Since neither the programmatic BOs nor the programmatic NCCPA determination for the CALFED Program authorizes incidental take of MSCS-covered species, ASIPs, which, like biological assessments, serve as individual consultation documents, are required for each project or action that may affect and is likely to adversely affect a species or critical habitat covered by the MSCS CALFED programmatic Biological Opinion or NCCP Determination (“covered species” or “critical habitat”). Take authorization for implementing CALFED Program actions follow a simplified compliance process that tiers from the MSCS and programmatic determinations. The entity implementing CALFED Program actions will coordinate the development of the ASIP with USFWS, NMFS, and CDFG to ensure that the ASIP incorporates appropriate conservation measures for the Proposed CALFED MSCS.

The CALFED Program MSCS evaluates 244 species and 20 natural communities. Included within the MSCS are species identified by USFWS, NMFS, and CDFG that are covered under BOs and NCCPA determination. An ASIP is prepared for FESA, CESA, and NCCPA-covered species. Typically the species evaluated are a subset of the overall 244 species included in the MSCS.

1.3.1 INFORMAL AND FORMAL CONSULTATION PROCESSES

An ASIP is prepared for any CALFED Program action that may affect and is likely to adversely affect a species or critical habitat covered by the CALFED MSCS. Interagency coordination ensures that the ASIP incorporates appropriate conservation measures consistent with the MSCS, and is intended to streamline the FESA, CESA, and NCCPA process. ASIPs are developed for individual CALFED Program actions or groups of actions when enough detailed information is available about the actions to analyze fully their impacts on covered species and habitats. For projects requiring a federal action, informal consultation with NMFS and USFWS, under Section 7 of the FESA is initiated in coordination with the development of an ASIP. Pursuant to the FESA and the Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA) regarding essential fish habitat (EFH), the lead Project agency (Reclamation, in this case) may hold meetings throughout the development of the ASIP to (1) identify covered species and endangered, threatened, and proposed or candidate species that may occur in the Proposed Project/Action area; (2) develop an appropriate approach for assessing species listed and proposed for listing as part of the Section 7 consultations required by FESA; and (3) determine to what extent the action may affect any of the identified species, including impacts to EFH.

Once completed, the PID Project ASIP will be submitted on behalf of Reclamation to USFWS, NMFS, and CDFG to initiate formal consultation. USFWS and NMFS will review the ASIP for compliance with FESA, under Section 7. NMFS will also review the ASIP for compliance with the MSFCMA. The conclusion of the formal consultation process is for USFWS and NMFS to prepare BOs on the species that the action is likely to adversely affect. As part of these BOs, USFWS and NMFS may authorize incidental take of endangered and threatened species. CDFG will determine whether the PID Project ASIP complies with CESA and NCCPA. If the ASIP is in compliance with NCCPA, CDFG may authorize take of covered species and prepare supporting findings under CEQA.

1.3.2 CURRENT MANAGEMENT DIRECTION

Currently, PID provides water to farmers for irrigation of their crops. PID's goals are to maintain a reliable water supply even if listed fish species are present near the water intake by replacing the existing diversion facility with one compliant with CDFG and NMFS fish screen standards. The amount of water diverted from the San Joaquin River will not increase as a result of the Proposed Project/Action to construct a replacement facility, as the existing facility will be destroyed and removed.

1.3.3 CONSULTATION TO DATE

An official list of threatened and endangered species that may occur within the Proposed Project/Action area and vicinity was generated online from the Sacramento Fish and Wildlife Office. A copy of this list and consultation letter was sent to USFWS and is included in Appendix A. There has been no other consultation to date.

1.3.4 COMPLIANCE WITH FEDERAL ENDANGERED SPECIES ACT

USFWS and NMFS share responsibility for administering FESA. NMFS is primarily responsible for implementing FESA on behalf of marine fishes and mammals, including migratory or anadromous fish species such as salmon and steelhead. USFWS is primarily responsible for non-marine species. The FESA section 7(a)(2) consultation requirement is meant to ensure that any action authorized, funded, or carried out by any Federal agency is not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of designated critical habitat for federally listed species. Typically, in order to comply with this regulation, a biological assessment (BA) is prepared in which effects on listed and proposed species and designated and proposed critical habitat are analyzed. This ASIP is intended to act as a BA and fulfill the requirements of the FESA, as amended.

1.3.5 COMPLIANCE WITH MAGNUSON-STEVEN'S FISHERIES CONSERVATION AND MANAGEMENT ACT

Public Law 104-297, the Sustainable Fisheries Act of 1996, amended the MSFCMA to establish new requirements for EFH descriptions in federal Fisheries Management Plans (FMPs). The MSFCMA requires all fishery management councils to amend their FMPs to describe and identify EFH for each managed fishery. The EFH assessment is meant to determine whether a Proposed Project/Action may adversely affect a designated EFH for federally managed species in the action area. In California, there are three FMPs that cover coastal pelagic species, groundfish, and Pacific salmon. In consideration of the Proposed Project/Action, the Pacific Chinook salmon have potential to be affected. These effects will be addressed in this document.

In addition, the MSFCMA requires federal agencies to consult with NMFS on activities that may adversely affect EFH. The MSFCMA contains procedures to identify, conserve, and enhance EFH. NMFS is required to provide EFH conservation and enhancement recommendations to Federal and State agencies for actions that adversely affect EFH. This ASIP will meet all the compliance requirements that have been identified for consulting with NMFS on effects to EFH.

1.3.6 COMPLIANCE WITH CALIFORNIA ENDANGERED SPECIES ACT AND NATURAL COMMUNITY CONSERVATION PLAN

The CESA (CDFG Code Sections 2050-2097) is similar to the FESA. The California Fish and Game Commission is responsible for maintaining lists of threatened and endangered species under the CESA, which prohibits the "take" of listed and candidate species. "Take" as defined under California law is to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (CDFG Code Section 86). To this date, there have been no identified listed species within the project area, therefore no incidental take permit pursuant is required for the Proposed Project/Action.

The NCCPA, California Fish and Game Code, section 2800, et seq., was enacted to form a basis for broad-based planning to provide for effective protection and conservation of the State's wildlife heritage, while continuing to allow appropriate development and growth. State of

California NCCPA General Process Guidelines define an NCCPA as “...a plan for the conservation of natural communities that takes an ecosystem approach and encourages cooperation between private and governmental interests. The plan identifies and provides for the regional or area-wide protection and perpetuation of plants, animals, and their habitats, while allowing compatible land use and economic activity. An NCCPA seeks to anticipate and prevent the controversies caused by species’ listings by focusing on the long-term stability of natural communities” (CDFG, 1998).

This ASIP is a multi-purpose project-level document that is intended to streamline the environmental regulatory process for CALFED Program actions. The Proposed Project/Action is such an action, as it will protect species covered under the MSCS. This ASIP provides all the information necessary to initiate project-level compliance with the FESA and NCCPA. Not only will this ASIP fulfill CDFG’s requirements under Fish and Game Code Sections 2835 and 2081, it will also include appropriate conservation measures relevant to the Proposed Project/Action.

1.4 RELATIONSHIP TO CALFED PROGRAM

The CALFED Program’s purpose is to develop and implement a comprehensive, long-term plan that will restore ecological health to the Bay-Delta system and improve management of water for beneficial uses. The PID Project falls within one component of the overall CALFED Program strategy. CALFED agencies plan to address issues of the Bay-Delta region within the following categories: ecosystem quality, water quality, water supply reliability, and levee system integrity. CALFED agencies must consider important physical, ecological, and socioeconomic linkages between the problems and potential solutions in each of these resource categories. The CALFED planning effort was therefore divided into a three-phase cooperative planning process in order to facilitate determining the most appropriate strategy and actions to reduce conflicts in the Bay-Delta system.

The PID Project Action is tiered from the CALFED Programmatic EIR/EIS (including the MSCS) and programmatic approvals for the CALFED Bay-Delta Program (BOs and NCCPA). The CEQA/NEPA documents for the Project Action should include mitigation measures that were adopted in the CEQA Findings of the CALFED Programmatic ROD and describe how they will be tailored for the project.

The PID Project /Action identified in the CALFED Programmatic ROD is the construction of fish screens that use the best available technology which will eliminate fish passage barriers. The fish screens are to be funded from federal funds from the CALFED Bay-Delta Authority (CBDA) and Reclamation would be responsible for administering those funds. Implementation of the Proposed Project/Action will help PID continue to draw water from the San Joaquin River without entraining native fish species that may reside in the San Joaquin River near, or which may pass by the, existing diversion.

1.5 SPECIES ADDRESSED IN THIS ASIP

To comply with FESA, CESA, and NCCPA requirements, a list of special-status species is evaluated and presented in this ASIP. The following table lists the MSCS-covered species considered, their Federal and State status, and how likely they are to occur in or be affected by the Proposed Project/Action Area. Those species with potential to occur in or be affected by the Proposed Project/Action Area are shown in bold text and are addressed in more detail in Chapter 3. The species in Table 1-1 are those derived from a nine USGS quad search including the project area quad and the eight surrounding quads in the CNDDDB RareFind database and associated geographic information system maps.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
INVERTEBRATES			
<i>Anthicus sacramento</i> Sacramento anthicid beetle	FSC/--/--	Restricted to sand dune areas of the Sacramento-San Joaquin Delta. Uses sand slip faces among bamboo and willow.	Unlikely. No suitable habitat present in Project/Action area.
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	Vernal pools and seasonal wetlands.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Branchinecta mesovallensis</i> Midvalley fairy shrimp	FSC/--/--	Life cycle restricted to vernal pools in the Central Valley.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.

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SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--	Occurs in the Central Valley region in association with blue elderberry shrubs. Prefers to lay eggs in elderberry stems greater than 1" in diameter.	Unlikely. No potential habitat for this species was located during the field survey on June 8, 2006. . No elderberry shrubs were present in the project footprint and in the adjacent riparian and riverside areas.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	Vernal pools and swales in the Sacramento Valley.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Lindieriella occidentalis</i> California lindieriella	FSC/--/--	Lifecycle restricted to vernal pools.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Lytta moesta</i> Moestan blister beetle	FSC/--/--	Occurs in vernal pools and seasonal wetlands.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.
<i>Lytta molesta</i> Molestan blister beetle	FSC/--/--	Inhabits dry vernal pools in the Central Valley, from Contra Costa to Tulare Counties.	Unlikely. No vernal pool habitats or seasonal wetlands exist in the Proposed Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
FISH			
<i>Acipenser medirostris</i> North American Green sturgeon (Southern DPS)	FPT, FSC/CSC/--	This species spawns in large cobble in deep and turbulent river mainstem. The southern distinct population segment spawns in the Sacramento River basin and in the Sacramento-San Joaquin Delta and Estuary. Although there is no historic or current evidence for spawning in the San Joaquin River, indirect evidence suggests that adult and juvenile green sturgeon may have occurred in this river system in the past.	Unlikely. The Project Action is outside of the known range of the Southern DPS of this species.
<i>Hypomesus transpacificus</i> Delta smelt	FT/CT/--	Delta estuaries with dense aquatic vegetation and low occurrence of predators.	Low. Outside of known range. Potential downstream water quality effects.
<i>Lampetra ayresi</i> River lamprey	FSC/CSC/--	Occurs in the lower reaches of the Sacramento and San Joaquin River systems. Spawning requires clean, gravelly riffles in permanent streams.	Unlikely. Outside of known range. No suitable spawning habitat in the Proposed Project/Action area.
<i>Lampetra hubbsi</i> Kern brook lamprey	FSC/CSC/--	Endemic to drainages along the east side of the San Joaquin Valley. Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate backwater areas; adults favor coarser gravel-rubble substrate for spawning.	Low. Limited spawning and juvenile rearing habitat within the San Joaquin River near the Project/Action area, but may migrate through the site.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Lampetra tridentata</i> Pacific lamprey	FSC/--/--	Occur in drainages throughout California. Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate; adults favor coarser gravel-rubble substrate for spawning.	Low. Limited spawning habitat within the San Joaquin River near the Project/Action area; may migrate through site.
<i>Lavina symmectricus spp. 1</i> San Joaquin roach	--/CSC/--	Occur in mid-elevation intermittent streams in the Sierra Nevada foothills. Most often associated with streams in areas with serpentine rock.	Unlikely. No suitable habitat present in Project/Action area.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--/--	Includes all naturally spawned anadromous populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries. This includes the mainstem San Joaquin River from the mouth of the Merced River to the Delta.	Low. No spawning habitat within the San Joaquin River near the Project/Action area. However, the Project/Action area may provide important upstream and downstream freshwater migration and rearing habitat. Critical habitat exists within the Project/Action Area for this species.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run Chinook salmon	FT/CT/--	Formerly found in the San Joaquin, American, Yuba, Feather, upper Sacramento, McCloud, and Pit Rivers. Now limited to the Sacramento River.	Unlikely. Project/Action area is outside of present known range. Likely extirpated from the San Joaquin River system.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Onchorhynchus tshawytscha</i> Central Valley Fall-run Chinook salmon	--/CSC/--	Spawns primarily in the Merced, Tuolumne, and Stanislaus River tributaries. Spawning seldom occurs in the mainstem San Joaquin River.	Low. No spawning habitat within the San Joaquin River near the Project/Action area. However, Project/Action area may provide important upstream and downstream freshwater migration and rearing habitat.
<i>Oncorhynchus tshawytscha</i> Winter-run Chinook salmon	FE/CE/--	Limited to the Sacramento River system. Juveniles spend five to nine months in the Sacramento River and Sacramento-San Joaquin Estuary before entering the ocean.	Unlikely. Outside of range.
<i>Pogonichthys macrolepidotus</i> Sacramento Splittail	FSC/CSC/--	Prefers backwaters and sloughs of the Delta and lower San Joaquin and Sacramento rivers.	Low. Limited spawning habitat within the San Joaquin River near the Project/Action area, site may provide migration corridor.
<i>Spirinchus thaleichthys</i> Longfin smelt	FSC/CSC/--	Associated with coastal estuaries and the delta. Occupy middle/bottom of the water column in salt or brackish water; spawn in rivers and dead-end sloughs in fresh water, over sandy-gravel substrates, rocks, and aquatic plants.	Unlikely. Outside of species range.
REPTILES			
<i>Anniella pulchra pulchra</i> Silvery legless lizard	FSC/CSC/--	Forages at the base of vegetation either on the surface, or in burrows near the surface through loose soil.	Unlikely. No suitable habitat within Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Emys (=Clemmys) marmorata marmorata</i> Northwestern pond turtle	FSC/CSC/--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or open grassy fields for egg-laying. Distribution in California ranges from the Oregon border south to the San Francisco Bay area, and from the Pacific coast to the west slope of the Sierra/Cascade mountains (Spinks and Shaffer, 2005).	Unlikely. Not likely to occur in the San Joaquin River system.
<i>Emys (=Clemmys) marmorata pallida</i> Southwestern pond turtle	FSC/CSC/--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or open grassy fields for egg-laying. This southern subspecies is distributed from the San Francisco Bay south to Baja, although recent genetic studies show that this distribution may actually include three separate subspecies (Spinks and Shaffer, 2005).	Medium. Suitable habitat along the San Joaquin River.
<i>Gambelia sila</i> Blunt-nosed leopard lizard	FE/CE, CFP/--	Occurs in open, valley and foothill grasslands, valley saltbush scrub, and alkali playa communities of the San Joaquin Valley, Carrizo Plain, and Cuyama Valley. Uses small mammal burrows for refuge.	Unlikely. No suitable habitat within Project/Action area. The nearest location is west of Interstate 5 approximately 20 miles west of the project site.

TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Masticophis flagellum ruddocki</i> San Joaquin whipsnake	FSC/CSC/--	Open, dry habitats with minimal or no tree cover. Inhabits valley grassland and saltbrush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and egg-laying sites.	Unlikely. No suitable habitat within Project/Action area.
<i>Phrynosoma coronatum frontale</i> California horned lizard	FSC/CSC/--	Inhabits variety of habitats, usually lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial. Must have abundant ants and other insects.	Unlikely. No suitable habitat within Project/Action area.
<i>Thamnophis gigas</i> Giant garter snake	FT/CT/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	Low probability. No suitable habitat in the vicinity of the Proposed Project/Action due to lack of dense emergent wetland vegetation (cover). The river and banks are not suitable habitat. There is an overflow drainage north of the canal and project footprint that could function as a low-quality habitat but it is not adjacent to or connected with higher-quality upland dispersal or wetland habitat. There is a lack of adequate grassy upland cover, and basking sites. High degree of human disturbance (boat launch) and presence of exotic predatory fish in San Joaquin River also limit habitat potential.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
AMPHIBIANS			
<i>Ambystoma californiense</i> California tiger salamander	FT/CSC/--	Annual grasslands and grassy understory of hardwood habitats; need underground refuges (i.e., ground squirrel burrows); need seasonal water sources for breeding.	Unlikely. No suitable habitat in Project/Action area.
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation.	Unlikely. No suitable habitat in Project/Action area
<i>Rana boylei</i> Foothill yellow-legged frog	FSC/CSC/--	Breeds in shaded stream habitats with rocky, cobble substrate, usually below 6,000 feet in elevation. Absent or infrequent when introduced predators are present.	Unlikely. No suitable habitat present in Project/Action area.
<i>Spea (Scaphiopus) hammondi</i> Western spadefoot toad	FSC/CSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	Unlikely. No suitable habitat within Project/Action area.
BIRDS			
<i>Agelaius tricolor</i> Tricolored blackbird	FSC/CSC/--	Nomadic resident of Sacramento-San Joaquin Valley and low foothills; nests colonially in vicinity of fresh water, marshy areas. Colonies prefer heavy growths of cattails and tules.	Unlikely. No suitable habitat within Project/Action area.

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SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Aquila chrysaetos</i> Golden eagle	--/CSC/--	Nests on cliffs of all heights and in large trees near open areas. Occurs in rolling foothills, mountain terrain, sage-juniper flats, and rugged open habitats with canyons and escarpments. Preys mostly on small mammals. Breeds late Jan-Aug.	Unlikely. No suitable habitat present in Project/Action area.
<i>Ardea herodias</i> Great blue heron (rookery)	--/CEQA/--	Groves of tall trees, especially near shallow water foraging areas such as marshes, tide-flats, lakes, rivers/streams and wet meadows.	Unlikely. No suitable nesting habitat in the Project/Action area.
<i>Athene cunicularia</i> Western burrowing owl	FSC/CSC/--	Inhabits open, grasslands and scrublands characterized by low-growing vegetation. Subterranean nester dependent upon burrowing mammals, specifically California ground squirrel.	Medium. Potential nesting habitat along San Joaquin River bank area.
<i>Baeolophus inornatus</i> Oak titmouse	FSLC/--/--	Breeds in open pine-juniper and oak woodlands, often in riparian areas.	Unlikely. Project/Action area suitable habitat for species.
<i>Branta canadensis leucopareia</i> Aleutian Canada goose	FD/--/--	Feeds in emergent wetlands, moist grasslands, croplands, pastures and meadows near water.	Unlikely. No suitable habitat in the immediate Project/Action area.
<i>Buteo regalis</i> Ferruginous hawk	FSC/CSC/--	Inhabits open grasslands, low foothills and desert scrub; nests in trees, low cliffs, and other elevated structures. Eats mainly lagomorphs, and other small mammals; also birds, amphibians, and reptiles. No nesting records in California.	Unlikely. Site does have potential nesting trees, but lacks suitable contiguous foraging opportunities.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Buteo swainsoni</i> Swainson's hawk	FSC/CT/--	Forages in open plains, grasslands and prairies; typically nests in trees or large shrubs.	Medium. Suitable nesting trees within the Proposed Project/Action site.
<i>Calypte costae</i> Costa's hummingbird	FSC/--/--	Inhabits arid scrub and chaparral communities and edges of desert and valley foothill riparian communities. Requires herbaceous and woody plants with nectar-producing flowers, and shrubs and trees for cover.	Unlikely. No suitable habitat within Project/Action area.
<i>Carduelis lawrencei</i> Lawrence's goldfinch	FSC/--/--	Dry grassy slopes with weed patches, chaparral, and open woodlands; nests in trees or shrubs.	Unlikely. No suitable habitat within Project/Action area.
<i>Chaetura vauxi</i> Vaux's swift	FSC/CSC/--	Nests in large hollow trees and forages widely, especially over riparian areas and open water.	Unlikely. No suitable habitat within Project/Action area.
<i>Charadrius montanus</i> Mountain plover	FC/CSC/--	Winters in Central California on bare dirt fields and short grasslands. No nesting records in California.	Unlikely. No suitable habitat within Project/Action area.
<i>Egretta thula</i> Snowy egret (rookery)	--/CEQA/--	Forages in marshes, swamps, and mudflats; nests in shrubs or reedbeds.	Unlikely. No suitable nesting habitat within the Project/Action area.
<i>Elanus leucurus</i> White-tailed kite	FSC/CFP/--	Nests in dense oak, willow, or other tree stand near open grasslands meadows, farmlands, and emergent wetlands.	Low. Limited forested habitat may provide suitable nesting.
<i>Empidonax trailii brewsteri</i> Little willow flycatcher	FSC/--/--	Nests in dense riparian cover. Summer migrant in the project area.	Unlikely. No suitable habitat within Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Eremophila alpestris actia</i> California horned lark	--/CSC/--	Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Unlikely. No suitable habitat present in Project/Action area.
<i>Falco mexicanus</i> Prairie falcon	--/CSC/--	Breeds on cliffs, bluffs and outcrops near large, open areas.	Unlikely. No suitable habitat present in Project/Action area.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/CE, CFP/--	Breeds on high cliffs, banks, dunes, mounds, and human-made structures near wetlands, lakes, rivers, or other sources of water.	Unlikely. No suitable habitat within Project/Action area.
<i>Grus canadensis tabida</i> Greater sandhill crane	--/CT, CFP/--	Open habitats, shallow lakes, and emergent wetlands. In winter also uses dry grasslands and croplands near wetlands.	Unlikely. No suitable habitat within Project/Action area.
<i>Haliaeetus leucocephalus</i> Bald eagle	FPD, FT/CE/--	Nests in large trees/snags with open branches along lake and river margins, usually within one mile of water. Winters primarily in coastal estuaries and river systems in the lower 48 states.	Unlikely. No suitable habitat within Project/Action area. Trees within the Project/Action Area are not suitable for this species.
<i>Lanius ludovicianus</i> Loggerhead shrike	FSC/CSC/--	Nests in dense shrubs and brush near open foraging areas such as grasslands.	Unlikely. No suitable habitat within Project/Action area.
<i>Melanerpes lewis</i> Lewis' woodpecker	FSC/--/--	Winters in oak savannahs, and broken deciduous and coniferous habitats.	Unlikely. No suitable habitat within Project/Action area.
<i>Melospiza melodia maxillaris</i> Suisun song sparrow	FSC/CSC/--	Occurs in emergent wetland in Solano and Contra Costa counties. Breeds in dense riparian thickets, emergent wetlands, or dense thickets in moist areas. Builds nests in low, dense vegetation or on the ground.	Unlikely. Out of known distribution range for species.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Numenius americanus</i> Long-billed curlew	FSC/CSC/--	Forages along lakes, marshes, mudflats and sandy beaches. Nests in prairies and plains.	Unlikely. No suitable habitat within Project/Action area.
<i>Picoides nuttallii</i> Nuttall's woodpecker	FSLC/--/--	Uses riparian areas with adjacent oak woodland.	Unlikely. No suitable habitat within Project/Action area.
<i>Plegadis chihi</i> White-faced ibis	FSC/CSC/--	Historically nested around Los Banos in freshwater wetland areas; presently no individuals breeding in San Joaquin Valley and only a few breeding individuals in the northern Sacramento Valley.	Unlikely. No suitable habitat within Project/Action area.
<i>Selasphorus rufus</i> Rufous hummingbird	FSC/--/--	Riparian areas, open woodlands, chaparral and other areas rich with nectar producing flowers.	Unlikely. No suitable habitat within Project/Action area.
<i>Toxostoma redivivum</i> California thrasher	FSC/--/--	Nests in dense chaparral habitats, March through August.	Unlikely. No suitable habitat within Project/Action area.
MAMMALS			
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	--/CT/--	Occurs in the San Joaquin Valley, in arid annual grassland and shrubland communities with sparse-to-moderate shrub cover. Needs friable soils and areas free from flooding for digging burrows.	Unlikely. No suitable habitat present in Project/Action area.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	FSC/CSC/--	In a variety of habitats; most common in mesic sites with appropriate roosting, maternity, and hibernacula sites free from human disturbance. Roosts in caves, lava tubes, and abandoned mines. Feeds near forested areas.	Unlikely. No suitable habitat within Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Dipodomys heermanni dixonii</i> Merced kangaroo rat	FSC/--/--	Forages in grasslands, moderate chaparral and open cismontane woodlands, burrows in well-drained friable soil; preferred burrowing substrate is fine, deep soil.	Unlikely. No suitable habitat within Project/Action area.
<i>Dipodomys nitratoideus brevenasus</i> Short-nosed kangaroo rat	FSC/CSC/--	Generally in grassland or desert-shrub associations (Atriplex) on gentle-sloped or level ground. Prefers friable alkaline and saline soils.	Unlikely. No suitable habitat present in Project/Action area.
<i>Dipodomys nitratoideus exilis</i> Fresno kangaroo rat	FE/CE/--	Subspecies of San Joaquin kangaroo rat. In sandy and saline sandy soils in annual Valley grassland, chenopod scrub, alkali sink communities. Needs open/sparse vegetation, loose soils.	Unlikely. No suitable habitat within Project/Action area.
<i>Eumops perotis californicus</i> Greater western mastiff-bat	FSC/CSC/--	Forages over grasslands and roosts in caves and rock crevices.	Unlikely. No suitable habitat within Project/Action area.
<i>Myotis ciliolabrum</i> Small-footed myotis bat	FSC/--/--	Forages over grasslands and roosts in buildings, caves, and rock crevices in relatively arid woody and brushy uplands near water.	Unlikely. No suitable habitat within Project/Action area.
<i>Myotis volans</i> Long-legged myotis bat	FSC/--/--	Forages in and around wooded areas and roosts in trees, buildings, and cliffs. Hibernates in caves and mines.	Medium. A few potential roosting sites in vicinity of the Proposed Project/Action area.
<i>Myotis yumanensis</i> Yuma myotis bat	FSC/--/--	Forages over open water and roosts in trees, buildings, bridges, mines, caves, and trees.	Medium. A few potential roosting sites in vicinity of the Proposed Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Perognathus inornatus</i> <i>inornatus</i> San Joaquin pocket mouse	FSC/--/--	Typically found in grasslands and blue oak savannas between 1,100 to 2,000 feet; need friable soils.	Unlikely. No suitable habitat within Project/Action area.
<i>Taxidea taxus</i> American badger	--/CSC/--	Occurs in a wide variety of open forest, shrub, and grassland habitats that have friable soils for digging.	Unlikely. No suitable habitat present in Project/Action area.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/CT/--	Occurs in native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills. Prefers open level areas with loose-textured soils supporting scattered, shrubby vegetation and little human disturbance.	Unlikely. Limited habitat and migration corridors in the Proposed Project/Action area.
PLANTS			
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	--/--/1B	Generally found in playas, valley and foothill grasslands with adobe clay soils, and vernal pools. Generally found in alkaline soils. Blooms Mar-Jun.	Unlikely. No suitable habitat present in Project/Action area.
<i>Atriplex cordulata</i> Heartscale	--/--/1B	Chenopod scrub, alkali seasonal wetlands and grassland. Often found in the sandy soils of alkaline flats and scalds in the Central Valley. Blooms Apr-Oct.	Unlikely. No suitable habitat present in Project/Action area.
<i>Atriplex depressa</i> Brittlescale	--/--/1B	Generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas. Blooms May-Oct.	Unlikely. No suitable habitat present in Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Atriplex joaquiniana</i> San Joaquin Sparscale	--/--/1B	Generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas. Blooms Apr-Oct.	Unlikely. No suitable habitat present in Project/Action area.
<i>Atriplex persistens</i> Vernal pool smalscale	--/--/1B	Found in alkaline vernal pools. Blooms Jun-Oct.	Unlikely. No suitable habitat present in Project/Action area.
<i>Blepharizonia plumosa</i> Big tarplant	--/--/1B	Generally found in Valley and foothill grasslands, 100-1660 feet in elevation.	Unlikely. No suitable habitat present in Project/Action area.
<i>Caulanthus coulteri</i> var. <i>lemmonii</i> Lemmon's jewelflower	--/--/1B	Annual herb occurring in pinyon/juniper woodland, and valley/foothill grassland. Occurs at 80-1220 m; blooms Mar-May.	Unlikely. No suitable habitat present in Project/Action area.
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i> Hispid's bird's-beak	--/--/1B	Hemiparasitic, annual herb occurring in meadows and seeps, playas, and in valley and foothill grassland communities with alkaline substrate. Found at 1-155 meters elevation. Blooms Jun-Sep.	Unlikely. No suitable habitat present in Project/Action area.
<i>Eleocharis quadrangulata</i> Four-angled spikerush	--/--/2	Perennial herb occurring in freshwater marshes and swamps at 30-500 m elevation. Blooms May-September.	Unlikely. No suitable habitat present in Project/Action area.
<i>Erodium macrophyllum</i> Round-leaved Filaree	--/--/2	Generally found in Valley grasslands and foothill woodlands, 0-3937 feet in elevation. Blooms Mar-May.	Unlikely. No suitable habitat present in Project/Action area.
<i>Eryngium racemosum</i> Delta button-celery	--/CE/1B	Occurs in clay soil under vernal moist conditions in riparian habitats (riparian scrub). Blooms Jun-Sep.	Unlikely. No suitable habitat present in Project/Action area.

**TABLE 1-1
SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species (Scientific Name/ Common Name)	Listing Status: Federal/ State/ CNPS	General Habitat	Potential to Occur in the Project Area
<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	--/--/1B	Found in valley and foothill grassland habitats on alkaline, clay slopes and flats.	Unlikely. No suitable habitat present in Project/Action area.
<i>Eryngium spinosepalum</i> Spiny-sealed button-celery	--/--/1B	Occurs under vernal flooded conditions in vernal pool habitats.	Unlikely. No suitable habitat present in Project/Action area.
<i>Myosaurus minimus spp. apus</i> Little mousetail	--/--/3	Occurs in alkaline soils in vernal pool habitats.	Unlikely. No suitable habitat present in Project/Action area.
<i>Navarretia prostrata</i> Prostrate navarretia	--/--1B	Annual herb found in coastal scrub, on alkaline substrate in valley and foothill grassland, and vernal pools or mesic areas. Occurs at 15-700 meters elevation. Blooms Apr-Jul.	Unlikely. No suitable habitat present in Project/Action area.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B	Found in assorted freshwater habitats including marshes, swamps and seasonal drainages. Blooms May- Oct.	Unlikely. No suitable habitat within the immediate vicinity of the Project/Action site.

United States Fish and Wildlife Service classifications:

- FE = Species in danger of extinction throughout all or significant portion of its range.
 FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range.
 FP = Species proposed endangered.
 FPT = Species proposed threatened
 FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
 FSC = Species of special concern.
 FPD = Species proposed for delisting.
 FD = Species delisted, but being monitored.
 FSLC = Species of local concern.

California Department of Fish and Game classifications:

- CE = State listed as endangered. Species whose continued existence in California is jeopardized.
 CT = State listed as threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.
 CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future.
 CSC = California species of special concern. Animal species with California breeding populations that may face extinction in the near future.
 CFP = Fully protected by the State of California under Section 3511 and 4700 of the CDFG Code.

CEQA = No formal state status but considered rare by CDFG and therefore recognized under CEQA as a significant resource (State CEQA Guidelines Section 15380).

California Native Plant Society List classifications:

- 1A = Plants that are presumed extinct in California.
- 1B = Plants that are Rare, Threatened, or Endangered in California and elsewhere.
- 2 = Plants that are Rare, Threatened or Endangered in California but more common elsewhere.
- 3 = Plants for which more information is needed.
- 4 = Plants of limited distribution.

SOURCES: CDFG, October 2006; CNPS, October 2006; USFWS, October 2006

No formal state status but considered rare by CDFG and therefore recognized under CEQA as a significant resource (State CEQA Guidelines Section 15380).

1.5.1 IDENTIFICATION OF SPECIES ANALYZED IN DETAIL IN THE ASIP

Pursuant to Section 7(c) of FESA, a formal species list was obtained from USFWS regarding any species listed or proposed for listing as threatened or endangered, including designated or proposed critical habitats under FESA and CESA that may be present in the PID Project Area. Additionally, a list of special-status species known to occur or with the potential to occur within the Action area was compiled from the California Natural Diversity Database (CNDDB, 2006) and the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS, 2006). Special-status fish, wildlife, and plant species considered in the MSCS were combined with the results from the species request lists and the database search to generate a preliminary species list (USFWS, 2006).

Screening of the overall species list eliminated from further consideration those species that only inhabited areas outside the project/action area. A focused list of species selected for detailed analysis in this ASIP is included in Chapter 3.

1.5.2 CRITICAL HABITAT

The reach of the San Joaquin River that contains the Project Action area is designated critical habitat for Central Valley steelhead. Critical habitat was designated for Central Valley steelhead on September 2, 2005, and includes stream channels within designated stream reaches, as well as a lateral extent as defined by the ordinary high water mark or the bankfull elevation.

1.5.3 ESSENTIAL FISH HABITAT

One species within the PID Project area, the Central Valley fall/late-fall run Chinook salmon (*Oncorhynchus tshawytscha*), requires consultation under the MSFCMA. This ASIP addresses effects of the PID Project on the habitats of the salmon, whose life cycle is integrated with the aquatic habitats of the Delta and its tributaries.

1.6 NCCPA HABITATS

A total of 20 natural communities were analyzed on a broad, programmatic level in the MSCS including 18 habitats and 2 ecologically based fish groups. The term “NCCPA communities” refers to both habitats and fish groups. Of the 20 community types and fish groups, five are included in the Proposed Project/Action area and are evaluated in this ASIP. All other NCCPA communities were not considered because they do not occur within the project footprint or immediate surrounding area and will, therefore not be affected by the Proposed Project/Action. Descriptions of the three NCCPA Habitats and two NCCPA fish groups are listed below and detailed in Chapter 5. (**Table 1-2**)

TABLE 1-2
NCCPA COMMUNITIES ANALYZED IN THIS ASIP

NCCPA Habitats	NCCPA Fish Groups
Valley Riverine Aquatic	Anadromous Fish Species
Valley/Foothill Riparian	Estuarine Fish Species
Grassland	

1.7 ASIP ORGANIZATION

To fulfill the requirements of FESA, CESA, and NCCPA, the PID Fish Screen ASIP includes the following information pursuant to the November 2001 Guide to Regulatory Compliance for Implementing CALFED Actions (CALFED, 2002).

- A detailed project description (Proposed Project/Action – Chapter 2);
- A list of covered species and any other special-status species and designated critical habitat that may occur in or be affected by the Proposed Project/Action area (Chapter 3);
- A discussion of essential habitat (Chapter 3);
- The analysis identifying the direct, indirect, and cumulative impacts on the covered species, other special-status species occurring in or affected by the Proposed Project/Action area (along with an analysis of impacts on any designated critical habitat) likely to result from the Proposed Fish Screen Project, as well as actions related to and dependent on the Proposed Project/Action (Chapter 4);
- The conservation measures that the Proposed Project/Action agencies will undertake to minimize adverse effects to species (Chapters 2 and 4), and as appropriate, measures to enhance the condition of Natural Community Conservation Planning (NCCPA) communities and covered species along with a discussion of:
 - A plan to monitor the impacts and the implementation and effectiveness of these measures (Chapter 7),
 - The funding that will be made available to undertake the measures (Chapter 7), and

- The procedures to address changed circumstances (Chapter 8);
- The measures that the Proposed Project/Action agencies will undertake to provide commitments to cooperating landowners that the Proposed Project/Action will not alter their land classification (Chapter 7);
- The alternative actions considered by the Proposed Project/Action agencies that would not result in adverse effects, and the reasons why such alternatives are not being utilized (Chapter 7);
- The additional measures USFWS, NMFS, and CDFG may require as necessary or appropriate for compliance with FESA, CESA, and NCCPA; and a description of how and to what extent the action or group of actions addressed in the ASIP will help the CALFED Program to achieve the MSCS's goals for the affected species (Chapters 4 and 6).

CHAPTER 2

DESCRIPTION OF THE PROPOSED PROJECT/ACTION

This chapter describes the location of the Proposed Project/Action area and the components of the Proposed Project/Action.

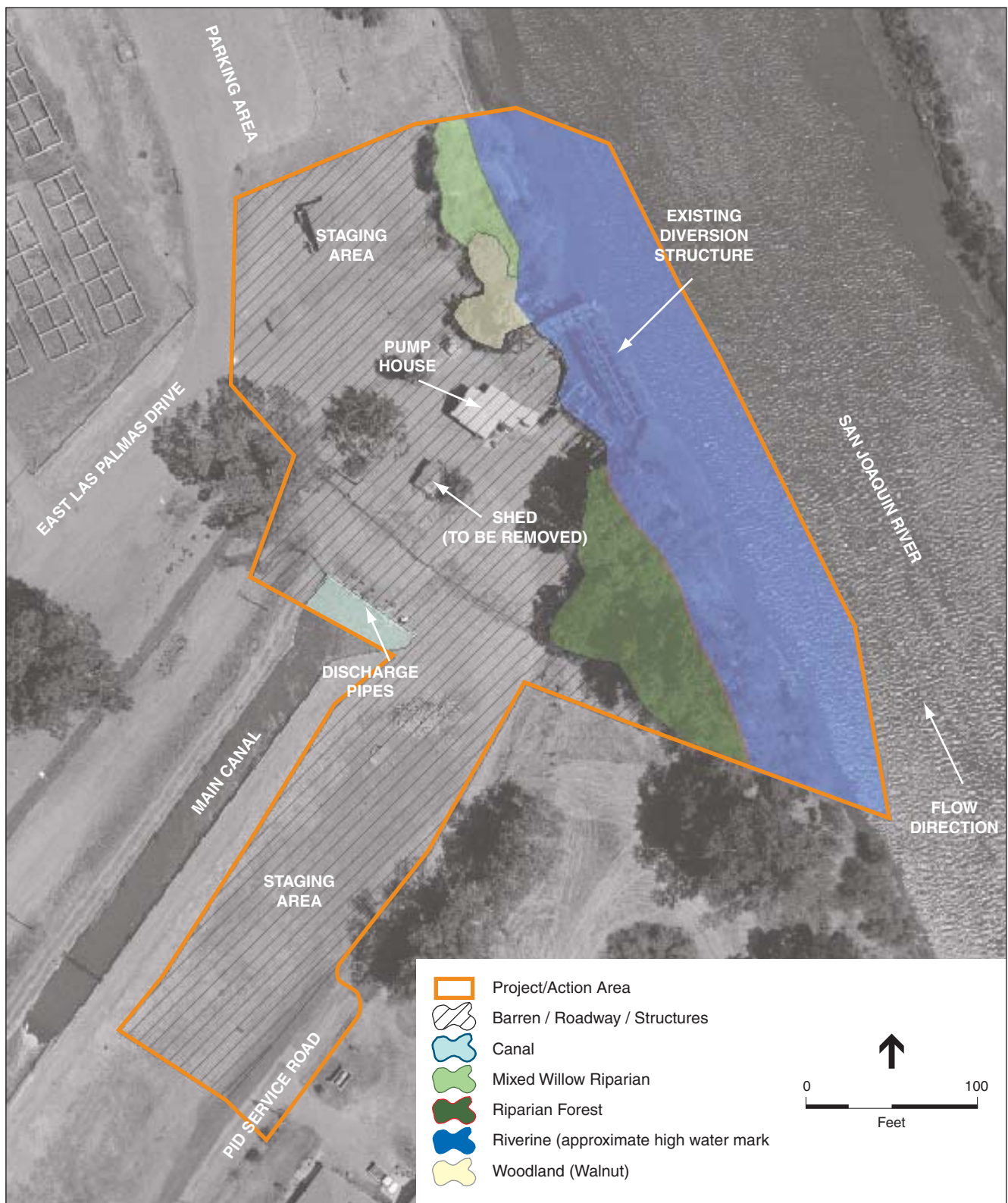
2.1 LOCATION OF THE PROPOSED PROJECT/ACTION

PID is located near the City of Patterson, California. It is in Stanislaus County, on the west bank of the San Joaquin River, between the Merced and Tuolumne Rivers. PID's service area is about eight miles long and three miles wide. PID's surface water pumping plant is located on the banks of the San Joaquin River at river mile 98.5, approximately 3.5 miles east of the City of Patterson.. Access to the site is available through East Las Palmas Avenue. The irrigated lands served in the Patterson area total approximately 13,500 acres and have been continuously irrigated since the early 1900's and grow permanent tree crops and row crops. The site is bounded by agricultural patches to the west and south, the San Joaquin River to the right, and a recreation boat ramp to the north.

The Proposed Project/Action area is located in the Crow's Landing USGS 7.5' topographic quadrangle, Township 5S and Range 8E. As shown in **Figure 2-1**, the Proposed Project/Action area is approximately 2.7 acres and includes the existing PID diversion facilities, proposed construction equipment staging areas and access routes as well as proposed grading and in-water construction. Biological communities in the study area include valley riparian/riparian forest, annual grassland, and riverine. The San Joaquin River provides freshwater habitat for fish, amphibians, reptiles, and waterfowl. The adjacent riparian habitat has been modified by roads, existing facilities, and recreational activities. Inland project areas, beyond the San Joaquin River and associated habitats, are characterized as agricultural and grazing. Human presence within the project area is relatively low despite the river access ramp and associated recreational activities including boating, and fishing. **Figure 2-2** presents two photographs of the general habitat types within and in the immediate vicinity of the Proposed Project/Action area.

2.1.1 RIPARIAN HABITAT

Mixed willow riparian habitat occurs adjacent to the existing diversion facilities along the western bank of the river and also in patches throughout the river bank areas in the vicinity of the project (**Figure 2-2**). These riparian areas, dominated by narrow-leaf willow (*Salix exigua*) and black willow (*Salix gooddingii*), provide localized areas of shading along the river bank.



SOURCE: ESA, 2006

Patterson Irrigation District - Fish Screen Project . 204152

Figure 2-1
Proposed Project/Action Area and Habitats



PHOTOGRAPH 1. Riparian vegetation along San Joaquin River and south side of pumping station and canal.



PHOTOGRAPH 2. Pumping station with disturbed, weedy grassland vegetation in foreground and San Joaquin River in background.

Mixed oak and cottonwood riparian forest, characterized by valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*) and cottonwood (*Populus fremontii*) occupy a majority of the western river bank habitat areas adjacent to the Proposed Project/Action. A few large diameter native sycamore trees (*Platanus racemosa*), also associated with valley riparian habitat, occupy areas within the existing facilities, providing evidence of a more extensive historic riparian woodland habitat. Along the north portion of the existing diversion location, the riparian community transitions into a small grove of introduced English walnut (*Juglans regia*) trees (**Figure 2-2**).

2.1.2 ANNUAL GRASSLAND HABITAT

Annual grasslands occur on flat river plains and upland areas surrounding the existing roads and facilities and on the open slopes of the levees. These habitat areas are dominated by non-native annual grasses and forbes such as ripgut brome (*Bromus diandrus*), wild oats (*Avena barbata*) and bull thistle (*Cirsium vulgare*). This vegetation is very sparse due to land use disturbance in the area surrounding the existing pumping facility (**Figure 2-2**).

This habitat is also present in the understory of the riparian woodland habitat. Grasslands provide important foraging, breeding, and resting habitat for many species of wildlife.

2.1.3 RIVERINE HABITAT

Within the immediate vicinity of the Proposed Project/Action, riverine habitat (San Joaquin River) is characterized by slow flows and pooling during the summer and dry weather months. A recreational access ramp is located downstream, or north of the site. River shores and banks are characterized by a few non-contiguous patches of willow (as described above), exposed banks (areas with a high level of human disturbance) and annual grassland (see **Figure 2-2**). A shallow back-water area along the west bank of the project/action area provides a small pocket of emergent wetland habitat characterized by cattail (*Typha* sp.) amongst the riparian vegetation.

2.2 CURRENT FACILITIES

As shown in **Figure 2-1**, PID currently operates an unscreened surface water diversion/pumping plant on the San Joaquin River approximately 3.5 miles east of the city of Patterson. PID has been diverting water at this site for over 90 years. The diversion consists of seven pumps, six vertical turbine pumps and one horizontal centrifugal pump, with a combined pumping capacity of 195 cfs. Seven separate pipelines ranging in size from 30-inch to 42-inch in diameter serve as the pump discharge lines to the PID Main Canal. The diversion delivery system is automated for demand control on the Main Canal.

2.3 PROJECT COMPONENTS

The following section describes the components of the Proposed Project/Action. All water-side construction activities, with the exception of riprap installation, would be confined within a sheet-pile cofferdam, which would be constructed to the requirements of the appropriate permits as described in construction considerations below.

As shown in **Figure 2-3**, the Proposed Project/Action incorporates a submerged reinforced concrete structure, which also acts as a sump for a combination of seven vertical pumps. The intake side of the

structure would face the river and access to the structure would be from the dry side. Water from the San Joaquin River would enter the concrete sump through ten 5.5-foot vertical by 12-foot horizontal flat plate fish screens and then be lifted out of the sump by a combination of vertical pumps. The concrete intake structure and sump would be supported by steel pilings. Concrete walls would run from the concrete base slab to the concrete deck above. The pump motors would be located on the elevated deck at an elevation of one -foot above the Federal Emergency Management Agency (FEMA) 100-year flood elevation. The piping for each individual pump would consist of welded steel pipe with an air-vacuum air release valve. The pumps would deliver irrigation water through five new 30-inch and one existing 42-inch steel discharge pipelines to the Main Canal Outfall Structure where the outlets would be furnished with flap gates. The existing Main Canal Outfall Structure would be replaced with a new outfall structure to accommodate the new discharge pipelines. The combined flow into the Main Canal would be measured using the existing broad crested weir system within the canal. The existing Allen-Bradley IntelliCENTER electrical and instrumentation equipment, located in the existing pump house, will be used for the new facility.

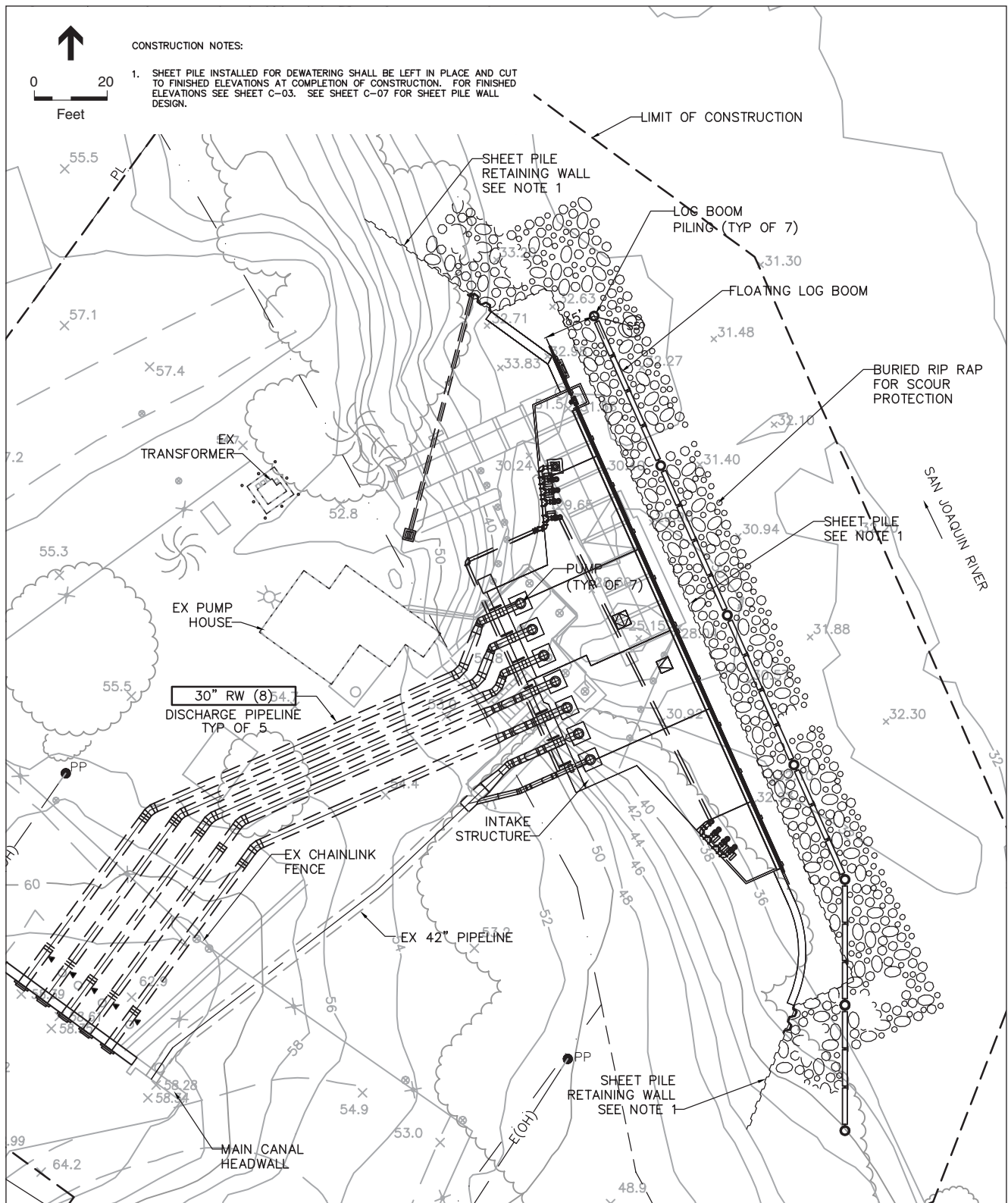
2.3.1 SCREENED INTAKE STRUCTURE

Ten vertical flat plate panels of wedgewire screen, each 5.5 feet vertical by 12 horizontal wide, will be mounted in individual guides and lowered into place. Each screen panel will provide 66 square feet of screened area. The ten flat panels will provide a total of 660 square feet of screened area, which will meet the design criteria established and limit the perpendicular approach velocity to a maximum of 0.33 feet per second (fps) at the maximum diversion rate of 195 cfs.

The screen guides will be fabricated from 18-inch steel wide flange W columns extending from the bottom of the sump to the top of the elevated deck. The screens would be positioned side-by-side along the intake side of the concrete structure. The total size of the intake structure, including the ten screen panels and guides will be approximately 144 feet long by 40 feet wide and 35 feet tall. The ten fish screens would be protected from floating debris by a log boom system located out in front on the water side of the structure.

2.3.2 FISH SCREEN CLEANING SYSTEM

The flat plat screens will be cleaned using an automatic traveling brush system. With the traveling brush system, a fixed or telescoping arm will position a brush to sweep across the face of the screen and remove debris. The brush/arm assembly will be moved by an electric motor and trolley system located above the 100-year flood event elevation. At the proposed pump station site, the river will provide sufficient parallel sweeping velocity to exceed the minimum design criteria at all river flows for providing debris removal after brushing.



2.3.3 SEDIMENT CONTROL SYSTEM

Because there will likely be some river bed excavation to achieve full screen submergence at the low water level, a sediment control system will be required. This system will include a vertical pump, system piping, and headers. The headers will be installed at the based of the screens to cause a burst of water that will clear any sediment that has settled in front of the screens. The frequency of use will need to be determined after the structure is in place and after further sedimentation analysis of the Proposed Project/Action site conditions.

2.3.4 ELECTRICAL POWER AND CONTROL SYSTEMS

The electrical systems for the PID Fish Screen Project will consist of power and control equipment, device and materials, some of which will utilize existing facilities (MWH, 2004). The proposed facilities are comprised of seven pump motors for irrigation water pumping, one for sedimentation control, and one for screen cleaning.. Power and control for the new equipment will be provided by a separate Motor Control Center located at the end of the existing Motor Control Center line-up. The existing electric service is 480 V, 3 Phase, 60 hertz obtained from a pad mounted transformer whose primary is 12,470 kV. The existing control building will be utilized to house the new power and control equipment except for that equipment located at the fish screen structure (MWH, 2004).

2.3.5 POWER REQUIREMENTS

All loads, existing and new, will be served from the existing power transformer. The rating of the existing transformer is 1,000 kVA. Taking into consideration the diversity of loading and the short term loading capacity of the transformer, the existing transformer has sufficient capacity for the new total load and will not be replaced (MWH, 2004).

There are four existing service conductors, 500 MCM (copper) per phase (MWH, 2004). These conductors will either be replaced or a separate feeder will be installed from the transformer. The rating of the Motor Control Center bus is 1,200 amperes. The only combination of conductors fitting into two 4" conduits that will provide sufficient capacity is nine 350 MCM conductors in each of the two existing 4" conduits (MWH, 2004). Considering the capacity of the existing Motor Control Center, it is apparent that a new feeder will be installed. It is assumed that the existing irrigation pump motors will be reused and that the new pumps would not load the motors greater than their rated capacity. The total load for the facility will be 1,030 kVA (MWH, 2004).

2.3.6 GENERAL CONSTRUCTION CONSIDERATIONS

The intake structure would be supported on piles. The pumps and motors would be protected by a structural overhang with removable panels for pump access via boom truck or crane. Ship-ladder-style stairways would be provided for interior access to the fish screens and sump area. A bridge crane is not included in the Proposed Project/Action, thus a boom truck will be required for pump and motor removal and/or maintenance as well as for removal of the flat panel screens for inspection and maintenance and lowering them back into place.

The dry side of the intake structure will be accessible by an earth access bridge constructed from compacted fill obtained on-site or purchased from local approved sources. The fill material will be held

in place at each end of the structure by sheet pile walls. The sheet pile walls will be protected with rip-rap on the water side to minimize scour. A 3 foot thick layer of rip-rap will be constructed at a 1.5:1 slope to a depth of 12 feet. Rip-rap placement will require excavation of approximately 1,800 cubic yards of river material. The material will be stockpiled local to the site and the rip-rap will be buried with the removed river material once it is in place with restoration of the river bottom. Construction activities would comply with the requirements set by the Central Valley Regional Water Quality Control Board to minimize construction-related impacts to water quality. In addition, silt screens and/or silt fences would be used where construction activities could possibly cause sediment to enter the river. All water-side construction activities, with the exception of riprap installation, would be confined within a sheet-pile cofferdam, which would be put in place in the "wet" from July 1 to September 30 (by permit) beginning in 2008. The sheet-pile cofferdam would likely remain in place during construction and be cut at grade within the same permit time period of July 1 to September 30 in 2010. Access to the construction site will be provided on the existing East Las Palmas Avenue and/or the PID Service Road. The construction staging area will be located adjacent to the Main Canal, just south of the existing outfall structure along the PID Service Road and/or at the end of East Las Palmas Drive. Any and all refueling and vehicle maintenance activities will be done offsite. Final site design will incorporate appropriate landscaping and include trees and shrubs appropriate for an agricultural landscape and riparian habitat such as native, deciduous or perennial plants for a finished professional look. The landscaping will avoid the use of any non-native plants considered to be noxious weeds that could invade the native habitats. In addition, the existing access will be paved for boom trucks and maintenance vehicles to get to the pumps and motors.

Construction of the Proposed Project would consist of several activities, including grading, excavation and soil removal, transporting and installing equipment, driving sheet and structural piles and placement of structural concrete. The construction would occur with periodic activity peaks, requiring brief periods of significant effort followed by longer periods of reduced activities.

Final construction scheduling would be completed during engineering and contractor bidding, which may result in variations to the planned construction schedule. Typical construction activities involved in the construction of the proposed project include:

- Site preparation - turf and brush removal, and structure demolition (if necessary)
- Earthwork - grading, excavation, backfill
- Materials transport
- Concrete foundations (forming, rebar placement, and concrete delivery and placement)
- Structural steel work (assembly and welding)
- Masonry construction
- Electrical/instrumentation work
- Installation of mechanical equipment and piping

It has been assumed that construction of the Proposed Project could occur simultaneously with the most intense construction activities occurring during mid to late 2008 and possibly into 2010. To characterize and analyze potential construction impacts, PID has identified maximum crew size, truck trips, and worker trips, based on expected excavation volumes and quantities of imported materials. In support of these activities, the main pieces of equipment that may be used at any one time during construction may include:

Table 2-1 Construction Equipment

<ul style="list-style-type: none"> • 1 track-mounted excavator • 1 backhoe • 2 graders • 1 crane • 2 scrapers • 1 compactor 	<ul style="list-style-type: none"> • 1 end and bottom dump truck • 1 front-end loader • 1 water truck • 1 flat-bed delivery truck • 1 forklift • 1 compressor/jack hammer
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Excavation and grading activities would be necessary for the construction of the Proposed Project. Staging areas for storage of pipe, construction equipment, and other materials would be placed at locations within the project site that would minimize hauling distances and long-term disruption.

Unless it is found necessary and warranted to transport and dispose of excavated material as hazardous or restricted materials, the excavated material would mostly remain onsite and would be used as construction backfill material. Additional truck trips would be necessary to deliver materials, equipment, and concrete to the site. During peak excavation and earthwork activities, the Proposed Project could generate up to 15 round-trip truck trips per day. However, average daily truck trips would be less and range from about 5 to 10 round trips per day during much of construction. Roadways that would be used by construction traffic include East Las Palmas Drive and State Route 33.

The typical crew size for each construction phase would be 5 to 10 people, plus inspectors. It is expected that up to two construction crews could be present during the most intense construction periods. Work hours would be governed by permits issued by regulatory agencies, but these are not expected to be restrictive because the area contains few residences. To the extent feasible, construction would occur in the dry months to minimize the potential for adverse environmental effects.

No additional operators are anticipated so daily commuter trips to and from the Project Site would remain the same.

2.4 ACTIONS CONTRIBUTING TO MSCS GOALS

The MSCS contains a list of conservation goals for each species and NCCPA communities evaluated in the MSCS (Chapter 1.4, pg 1-3). The three alternative goals for species are recovery (“R”), contribute to recovery (“r”), and maintain (“m”). The goal of “recovery” was assigned to those species whose recovery is dependent on restoration of the Delta and Suisan Bay/Marsh ecosystems and for which CALFED could reasonably be expected to undertake all or most of the actions necessary to recover the species. Recovery is achieved when the decline of a species is arrested or reversed, threats to the species are neutralized, and the species long-term survival in nature is assured. The goal “contribute to recovery” was assigned to species for which CALFED Actions affect only a limited portion of the species range and/or have limited effects on the species. To achieve the goal of contributing to a species recovery, CALFED is expected to undertake some of the actions under its control and within its scope that are necessary to recover the species. When a species has a recovery plan, CALFED may implement both plan measures that are within the CALFED Solution Area and some measures that are outside the Solution Area. For species without a recovery plan, CALFED will need to implement specific measures that will benefit the species.

The goal “maintain” was assigned to species expected to be affected minimally by CALFED Actions. For this category, CALFED will avoid, minimize, and compensate for any adverse effects to the species commensurate with the level of effect on the species. Actions may not actually contribute to the recovery of the species; however, at a minimum, they will be expected to not contribute to the need to list the species or degrade the status of a listed species. CALFED also will, to the extent practicable, improve habitat conditions for these species (MSCS Ch 1.4, pg 1-4). The CALFED Ecosystem Restoration Program (ERP) has adopted the CALFED MSCS goals related addressing “recovery”, “contribute to recovery”, and “maintain” for MSCS covered species as described above. The ERP has also adopted the MSCS conservation measures and would build upon those measures during the process of completing ERP studies and actions. The ERP’s focus is on measures to enhance NCCPA communities and the ERP has a goal related to the need to “enhance and/or conserve biotic communities” (“E”). A final ERP goal is to “maintain and/or enhance harvested species” (“H”), which relates to commercial/recreational use of native and non-native biological resources. The PID Project will fulfill the following milestones of the CALFED ERP to the benefit of fall/late fall-run Chinook salmon, an MSCS “R” and “r” covered species:

- Install positive barrier fish screens on all diversions greater than 250 cfs in all Ecological Management Zones (EMZs) and 25% of all smaller unscreened diversions in the San Joaquin River Basin. Among those diversions to be screened are the El Solyo, Patterson, and West Stanislaus irrigation district diversions.
- Develop and implement a program to establish, restore, and maintain riparian habitat to improve floodplain habitat, salmonid shaded riverine aquatic habitat and instream cover along at least one tributary within the East San Joaquin and San Joaquin River EMZs.

2.5 CONSERVATION MEASURES

The CALFED MSCS, the document from which the PID ASIP tiers, presents the basis for conservation measures developed to address CALFED Actions overall, as outlined in the Programmatic CALFED EIS/EIR. The CALFED MSCS follows the two-tiered approach to FESA, CESA, and NCCPA compliance initiated by the CALFED Programmatic EIS/EIR and MSCS. The MSCS provides the CALFED programmatic compliance with FESA, CESA, and NCCPA while this PID ASIP provides the project-level compliance with these acts.

The following tables list the CALFED MSCS species specific conservation goals and measures, and habitat conservation measures for NCCPA habitats (MSCS Ch 2.1.1, pg 2-1 thru 2-4). Funding for conservation measures will be provided by either PID or CALFED. In addition, environmental awareness training will be conducted onsite for all construction workers to ensure NCCPA habitat impacts are avoided or minimized.

TABLE 2-1
CALFED MSCS SPECIES GOAL AND CONSERVATION MEASURES
FOR SPECIAL-STATUS SPECIES OCCURRING IN THE PID PROJECT/ACTION AREA

Species (Scientific Name / Common Name)	Listing Status Federal/ State/	MSCS Species Goal	Applicable MSCS Species Specific Conservation Measures
Fish			
<i>Hypomesus transpacificus</i> Delta smelt	FT/CT/--	R	<ol style="list-style-type: none"> 1. Implement conservation measures in (a) biological opinions, including the 404 Nationwide Permit (NWP), General Permit (GP), and Public Law (PL) 84-99 U.S. Army Corps of Engineers (USACE) flood relief biological opinions, (b) the CVPIA biological assessment, and (c) Diversion Effects on Fish Team (DEFT) reports. 2. From April through June, avoid increasing the Delta export rate above the currently permitted instantaneous diversion capacity, as described in USACE Public Notice No. 5820A Amended. 3. Avoid or minimize the use of hard structures (e.g., riprap) to stabilize banks. 4. Avoid or minimize implementing channel modification activities near channel islands, shoals, and shoreline areas with emergent vegetation. 5. Avoid or minimize dredging within 200 feet of the shoreline and 250 feet of any shallow-water areas. 6. Avoid or minimize dredging or other waterside activities required to implement CALFED actions in shallow-water areas (<3 meters [m] at MLLW) of the Bay and Delta. 7. Avoid or minimize construction of waterside rock berms before and backfill in critical spawning and rearing areas. 8. To the extent consistent with CALFED objectives, protect the Sacramento and San Joaquin Rivers and tributary channels from physical disturbance (e.g., sand and gravel mining, diking, dredging, and levee or bank protection and maintenance) and flow disruption (e.g., water diversion that results in entrainment and in-channel barriers to tidal gates) from February to August 31. 9. Before implementing CALFED actions that require dredging, dredge materials should be tested to determine presence of materials deleterious to delta smelt. Only sediment meeting all water quality standards and free from toxic substances in toxic amounts should be accepted for aquatic disposal. 10. Avoid or minimize the use of creosote pilings for constructing in-water structures. 11. CALFED actions that have temporary impacts (less than 1 year) on shallow-water habitat within the range of the delta smelt will protect or restore 1 acre of in-kind habitat for each acre of affected habitat. 12. CALFED actions that have long-term (greater than 1 year) impacts on shallow water habitat shall protect or restore three acres of in-kind habitat for each acre of affected habitat. 13. Implement applicable conservation measures to avoid, minimize, and compensate for impacts on delta smelt listed in MSCS Attachment D, "Summary of Potential Beneficial and Adverse Program Effects and Conservation Measures", Table D-20, "Estuarine Fish Group: Summary of Potential Beneficial and Adverse CALFED Effects and Conservation Measures".
<i>Lampetra hubbsi</i> Kern brook lamprey	FSC/CSC/--	None	none
<i>Lampetra tridentata</i> Pacific lamprey	FSC/--/--	None	none

TABLE 2-1 (Continued)
CALFED MSCS SPECIES GOAL AND CONSERVATION MEASURES FOR
SPECIAL-STATUS SPECIES OCCURRING IN THE PID PROJECT/ACTION AREA

Species (Scientific Name / Common Name)	Listing Status Federal/ State/	MSCS Species Goal	Applicable MSCS Species Specific Conservation Measures
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--/--	R	<ol style="list-style-type: none"> 1. Implement applicable conservation measures to avoid, minimize, and compensate for impacts on Central Valley steelhead listed in MSCS Attachment D, Table D-19, "Anadromous Fish Group: Summary of Potential Beneficial and Adverse CALFED Effects and Conservation Measures". 2. Operate new or expanded storage, conveyance, and diversion facilities to minimize and compensate for adverse impacts on steelhead by implementing the following measures: <ol style="list-style-type: none"> a. Provide the enhanced flow and water temperature conditions and physical habitat requirements of steelhead in natal, rearing, and migratory habitat in the Sacramento and San Joaquin rivers and their meander belts and tributaries. b. Minimize adverse hydrodynamic effects in the Delta. 3. For all in-channel and near-channel construction activities, implement construction BMPs (such as erosion and sediment control measures) and conservation measures in the 404 NWP, GPs, and PL84-99 USACE flood relief BOs: <ol style="list-style-type: none"> a. Avoid or minimize channel modifications during time periods when steelhead are vulnerable to the direct and indirect adverse effects of construction activities. b. Avoid or minimize channel modifications in important natal, rearing, and migratory habitats that may result in habitat degradation and diminished habitat connectivity. c. Avoid, minimize, and compensate for all adverse impacts on instream, shallow-water, riparian, and shaded riverine aquatic habitats resulting from CALFED Actions, including bank protection of in-channel islands, construction of attached berms, and levee program actions. d. Compensate for adverse impacts on habitats by in-kind, onsite replacement of habitats and their functional values. Compensation shall result in a net increase in the extent and connectivity of these habitats for migrating, rearing, and spawning steelhead. 4. Implementation of offsite, out-of-kind mitigation that reestablishes access to historical steelhead spawning and rearing habitat may be considered appropriate compensation: <ol style="list-style-type: none"> a. Remove or modify artificial barriers and diversion structures. b. Construct fishways or bypasses to allow unimpeded movement. 5. Fish screens shall be installed in accordance with NMFS/DFG fish screening criteria on any new diversions, consolidated diversions, or on the intake of any existing diversions as a compensation measure. 6. Fully adhere to the terms and conditions of all applicable CESA and FESA biological opinions and permits for CVP and SWP operations. 7. Implement construction BMPs including stormwater pollution prevention plans, toxic materials control and spill response plans, vegetation protection plans, and restrictions on materials used in channel and on levee embankments: <ol style="list-style-type: none"> a. All materials that are used for construction of in-channel structures must meet applicable State and federal water quality criteria. Avoid or minimize the use of such materials that are deleterious to aquatic organisms. b. Before implementing CALFED actions that require dredging, dredge materials should be tested to determine presence of materials deleterious to delta smelt. Only sediment meeting all water quality standards and free from

TABLE 2-1 (Continued)
CALFED MSCS SPECIES GOAL AND CONSERVATION MEASURES FOR
SPECIAL-STATUS SPECIES OCCURRING IN THE PID PROJECT/ACTION AREA

Species (Scientific Name / Common Name)	Listing Status Federal/ State/	MSCS Species Goal	Applicable MSCS Species Specific Conservation Measures
<i>Onchorhynchus tshawytscha</i> Fall-run Chinook salmon	FC/CSC/--	R	<p>toxic substances in toxic amounts should be accepted for aquatic disposal.</p> <p>8. Avoid or minimize dredging within 200 feet of the shoreline.</p> <p>1. Implement applicable conservation measures to avoid, minimize, and compensate for impacts on Central Valley fall-/late-fall-run Chinook salmon listed in MSCS Attachment D, Table D-19.</p> <p>2. Operate new or expanded storage, conveyance, and diversion facilities to minimize and compensate for adverse impacts on fall-/late-fall-run Chinook salmon by implementing the following measures:</p> <ul style="list-style-type: none"> a. Provide the enhanced flow and water temperature conditions and physical habitat requirements of fall-/late-fall-run Chinook salmon in natal, rearing, and migratory habitat in the Sacramento and San Joaquin rivers and their meander belts and tributaries. b. Minimize adverse hydrodynamic effects in the Delta. <p>3. For all in-channel and near-channel construction activities, implement construction BMPs (such as erosion and sediment control measures) and conservation measures in the 404 NWP, GPs, and PL84-99 USACE flood relief BOs:</p> <ul style="list-style-type: none"> a. Avoid or minimize channel modifications during time periods when steelhead are vulnerable to the direct and indirect adverse effects of construction activities. b. Avoid or minimize channel modifications in important natal, rearing, and migratory habitats that may result in habitat degradation and diminished habitat connectivity. c. Avoid, minimize, and compensate for all adverse impacts on instream, shallow-water, riparian, and shaded riverine aquatic habitats resulting from CALFED Actions, including bank protection of in-channel islands, construction of attached berms, and levee program actions. d. Compensate for adverse impacts on habitats by in-kind, onsite replacement of habitats and their functional values. Compensation shall result in a net increase in the extent and connectivity of these habitats for migrating, rearing, and spawning steelhead. <p>4. Implementation of offsite, out-of-kind mitigation that reestablishes access to historical fall-/late-fall-run Chinook salmon spawning and rearing habitat may be considered appropriate compensation:</p> <ul style="list-style-type: none"> a. Remove or modify artificial barriers and diversion structures. b. Construct fishways or bypasses to allow unimpeded movement. <p>5. Fish screens shall be installed in accordance with NMFS/DFG fish screening criteria on any new diversions, consolidated diversions, or on the intake of any existing diversion that is either enlarged, modified, relocated, or for which the season of use is changed as a result of a CALFED action within the range of fall-/late-fall-run Chinook salmon. CALFED may also install fish screens on existing diversions as a compensation measure.</p> <p>6. From April through June, avoid increasing the Delta export rate above the currently permitted instantaneous diversion capacity, as described in USACE Public Notice No. 5820A Amended.</p> <p>7. Implement construction BMPs including stormwater pollution prevention plans, toxic materials control and spill response plans, vegetation protection plans, and restrictions on materials used in channel and on levee embankments:</p> <ul style="list-style-type: none"> a. All materials that are used for construction of in-channel structures must meet applicable State and federal water quality criteria. Avoid or minimize the use of such materials that are deleterious to aquatic organisms.

TABLE 2-1 (Continued)
CALFED MSCS SPECIES GOAL AND CONSERVATION MEASURES FOR
SPECIAL-STATUS SPECIES OCCURRING IN THE PID PROJECT/ACTION AREA

Species (Scientific Name / Common Name)	Listing Status Federal/ State/	MSCS Species Goal	Applicable MSCS Species Specific Conservation Measures
<i>Pogonichthys macrolepidotus</i> Sacramento Splittail	FD/CSC/--	R	<p>b. Before implementing CALFED actions that require dredging, dredge materials should be tested to determine presence of materials deleterious to delta smelt. Only sediment meeting all water quality standards and free from toxic substances in toxic amounts should be accepted for aquatic disposal.</p> <p>8. Avoid or minimize dredging within 200 feet of the shoreline and 250 feet.</p> <p>1. Consistent with CALFED objectives, limit dredging, diking, and filling of occupied shallow-water habitats.</p> <p>2. Avoid or minimize the use of hard structures (i.e., riprap) to stabilize banks.</p> <p>3. From April through June, avoid increasing the Delta export rate above the currently permitted instantaneous diversion capacity, as described in USACE Public Notice No. 5820A Amended.</p> <p>4. Implement applicable conservation measures to avoid, minimize, and compensate for impacts on Sacramento splittail listed in MSCS Attachment D, Table D-20, "Estuarine Fish Group: Summary of Potential Beneficial and Adverse CALFED Effects and Conservation Measures".</p>
Reptiles			
<i>Clemmys marmorata pallida</i> Southwestern pond turtle	FSC/CSC/--	M	<p>1. Where CALFED actions would adversely affect occupied habitat, (a) acquire, protect, and manage 1-5 acres of existing occupied habitat for every acre within the same area of occupied habitat affected by CALFED actions or (b) enhance or restore 1-5 acres of suitable habitat near affected areas for every acre of occupied habitat affected.</p> <p>2. To the extent practicable, capture individuals from habitat that would be affected by CALFED actions, and relocate them to nearby suitable existing, restored, or enhanced habitat.</p>
Birds			
<i>Athene cunicularia</i> Western burrowing owl	FSC/CSC/--	M	<p>1. Restore or enhance 1-2 acres of suitable nesting habitat for each acre of occupied nesting habitat that is converted to unsuitable nesting habitat as a result of CALFED actions.</p> <p>2. To the extent consistent with ERP objectives, design and manage grassland and agricultural land habitat restorations and enhancements to provide suitable foraging habitat conditions.</p> <p>3. To the extent consistent with ERP objectives, restore perennial grasslands adjacent to occupied nesting habitats to provide foraging and nesting habitat suitable for the natural expansion of populations.</p> <p>4. Avoid or minimize disturbances that could be associated with implementing CALFED actions near active nest sites during the nesting period (March-August).</p> <p>5. To the extent consistent with ERP objectives, manage restored or enhanced habitats to maintain desirable rodent populations and minimize impacts associated with rodent control.</p>
<i>Buteo swainsoni</i> Swainson's hawk	FSC/CT/--	R	<p>1. Before implementing actions that could result in take or the loss or degradation of occupied habitat, conduct surveys in suitable habitat within portions of the species' range that CALFED actions could affect to determine the presence and distribution of the species.</p>

TABLE 2-1 (Continued)
CALFED MSCS SPECIES GOAL AND CONSERVATION MEASURES FOR
SPECIAL-STATUS SPECIES OCCURRING IN THE PID PROJECT/ACTION AREA

Species (Scientific Name / Common Name)	Listing Status Federal/ State/	MSCS Species Goal	Applicable MSCS Species Specific Conservation Measures
<i>Elanus leucurus</i> White-tailed kite	FSC/CP/--	M	2. Avoid or minimize actions near locations that support high densities of nesting pairs that could adversely affect high value foraging and nesting habitat.
			3. Avoid or minimize actions within 5 miles of active nest sites that could result in disturbance during the breeding period (April-September).
			4. To the extent consistent with CALFED objectives, adhere to DFG Region II mitigation guidelines for avoiding or minimizing impacts of actions of the Swainson's hawk.
			5. To the extent practicable, implement ERP restoration or enhancement of suitable Swainson's hawk habitats (i.e., riparian forest and woodland, grassland, and upland croplands) concurrent with ERP actions that would convert suitable existing habitat to unsuitable habitat (e.g., tidal habitats).
			1. Before implementing CALFED actions that could result in the loss or degradation of occupied nesting habitat or disturbance to nesting pairs, conduct surveys in suitable nesting habitat within the breeding range of the white-tailed kite to locate active nest sites.
			2. Avoid or minimize disturbances to nesting pairs that could be associated with implementing CALFED actions within 0.25 mile of active nest sites during the nesting period (February-September).
Mammals <i>Myotis volans</i> Long-legged myotis bat <i>Myotis yumanensis</i> Yuma myotis bat	FSC/--/--	None	3. Avoid or minimize CALFED actions that could result in the loss of traditional nesting trees.
			4. Restore or enhance 2-5 acres of suitable nesting habitat near affected areas for each acre of occupied nesting habitat that is converted to unsuitable nesting habitat as a result of CALFED actions. Restored or enhanced compensation habitat should be located in areas that support nesting pairs near valley oak woodlands.
			5. To the extent consistent with ERP objectives, enhance and restore natural habitats and agricultural habitats adjacent to occupied nesting habitats to create a buffer zone of natural habitat. This buffer zone would protect nesting pairs from adverse effects that could be associated with future changes in land use on nearby lands and provide foraging and nesting habitat suitable for the natural expansion of populations.
			6. To the extent consistent with ERP objectives, manage restored or enhanced habitats under the ERP to maintain desirable rodent populations and minimize impacts associated with rodent control.

TABLE 2-2
CALFED MSCS CONSERVATION MEASURES FOR NCCPA NATURAL COMMUNITIES OCCURRING IN THE PID
PROJECT/ACTION AREA

NCCPA Natural Community	Applicable MSCS Conservation Measures
Valley Riverine Aquatic Habitat	<ol style="list-style-type: none"> 1. Avoid or minimize disturbance to existing shaded riverine aquatic overhead cover. 2. Restore or enhance 1-3 times the linear footage of affected shaded riverine aquatic overhead cover near where impacts are incurred. 3. To the extent practicable, include project design features that allow for onsite reestablishment and long-term maintenance of shaded riverine aquatic overhead cover following project construction. 4. Avoid or minimize implementing actions during the periods evaluated species are present and could be affected by the actions.
Valley/Foothill Riparian Habitat	<ol style="list-style-type: none"> 1. Avoid or minimize disturbance to existing habitat. 2. Restore or enhance 2-5 acres of additional in-kind habitat for every acre of affected habitat near where impacts are incurred before implementing actions that could result in the loss or degradation of habitat. 3. To the extent practicable, include project design features that allow for onsite reestablishment and long-term maintenance of riparian vegetation following project construction. 4. Avoid or minimize construction activities during the breeding period of evaluated species that could be affected by the actions.
Anadromous Fish Group	<ol style="list-style-type: none"> 1. Implement measures on an emergency basis during extended droughts to protect water supplies dedicated to meet Delta inflow and outflow criteria deemed essential in maintaining anadromous fish populations. Such measures would be implemented infrequently and would be used only to readjust water supplies to levels expected without this set of CALFED actions. Measures may include additional supplies, or emergency provisions that would reduce other water supply demands. Another measure is initially to implement the actions to the extent feasible to determine potential effects on seasonal and critical-year water supplies and develop a long-term water management plan that includes this and other actions to minimize effects of reallocation in other seasons and critical years. 2. Avoid or minimize in-channel construction activities during periods when anadromous fish species are present in high abundance or when life stages are present that are most susceptible to adverse effects associated with implementing actions. 3. Implement proposed restoration actions in areas that (1) have the greatest potential to support high densities of anadromous fish and (2) that will link currently disjunct habitat patches. Avoid or minimize implementing development actions in habitat areas that currently support high densities of anadromous fish, or in locations that would reduce connectivity among habitat patches. 4. To the extent consistent with CALFED objectives, confine additional winter pumping for flooding agricultural lands to times and areas of channels with low densities of anadromous fish. 5. To the extent consistent with CALFED objectives, confine additional winter diversions to necessary to manage restored seasonal wetlands to non-dry years when water supplies are

NCCPA Natural Community	Applicable MSCS Conservation Measures
	sufficient to minimize any effects on downstream transport, export pumping ratios, and foodweb productivity.
6.	To the extent consistent with CALFED objectives, place consolidated intakes in areas with minimal numbers of juvenile anadromous fish.
7.	Restore or enhance 1-3 times the amount of tidal habitat affected by levee upgrades near where impacts are incurred.
8.	To the extent consistent with CALFED objectives, include project design features that allow for onsite reestablishment and long-term maintenance of aquatic, wetland, and riparian habitat following project construction.
9.	Reductions in unnatural inputs of organic carbon could be replaced with increased natural organic inputs such as from restored tidal wetlands and riparian habitats.

CHAPTER 3

ENVIRONMENTAL BASELINE

The following chapter presents species accounts for covered species assessed in detail in this ASIP. The species addressed in this ASIP are those special-status that may be affected or whose habitat may be affected by the PID Project/Action.

Species selected for detailed analysis include those federal- or state-listed species, or candidate species, as well as species of concern with potential to be affected by the Proposed Project/Action. The species listed below are the selected species which are addressed in detail in the ASIP.

- Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*);
- Central Valley steelhead (*Oncorhynchus mykiss*);
- Sacramento splittail (*Pogonichthys macrolepidotus*);
- Delta smelt (*Hypomesus transpacificus*);
- Kern brook lamprey (*Lampetra hubbsi*);
- Pacific lamprey (*Lampetra tridentata*);
- Southwestern pond turtle (*Emmys marmorata pallida*);
- Western burrowing owl (*Athene cunicularia*);
- Swainson's hawk (*Buteo swainsonii*);
- White-tailed kite (*Elanus leucurus*);
- Long-legged myotis (*Myotis volans*);
- Yuma myotis (*Myotis yumanensis*).

3.1 BASELINE CONDITIONS FOR SPECIES

The following section provides life history information and the current status for those special-status species with potential to occur in the Proposed Project/Action area and with potential to be affected by the Proposed Project/Action. The following table lists the species and their status.

3.1.1 CENTRAL VALLEY FALL-RUN CHINOOK SALMON

Chinook salmon runs are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Fall-run salmon generally start migration from the ocean and begin spawning in San Joaquin River tributaries in early fall as water temperature begin to cool. Fall-run spawning occurs in the 20 river miles below the first major dams and reservoirs on the Merced, Tuolumne, and Stanislaus Rivers during October, November, and December (SJRMP, 1993). Juvenile emigration generally occurs from December through April, with residency ranging from one to five months in the San Joaquin Basin before

returning to the ocean. Successful rearing of juvenile Chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation. Annual population surveys since 1953 indicate wide fluctuations in the number of fall-run salmon returning to spawn in San Joaquin River tributaries. Artificial propagation through the use of the Merced River Fish Facility has resulted in the release of smolts and yearlings by the California Department of Fish and Game. These releases ultimately average less than 10 percent of the escapement population (SJRMF, 1993). The effects of drought, inadequate stream flow, water developments, harvest, poor water quality, water diversions, habitat deterioration, and other factors have had varying levels of impact. Higher escapement years are strongly correlated with wet years and poor escapements with normal, dry, and critical water years. High concentrations of fine sediment in the water reduce intragravel flow and greatly reduce the survival of eggs. Typically, salmonids can not survive at dissolved oxygen concentration levels less than 5 mg/L.

During high flows associated with the juvenile emigration period (December through April), the San Joaquin River in the vicinity of the Proposed Project/Action, provides a few areas of suitable rearing habitat along the mixed willow riparian bank areas. Spawning habitat in the vicinity of the Proposed Project/Action site is unlikely based on the river temperatures, fine sediment substrate and lack of sufficient gravels and cobble.

3.1.2 CENTRAL VALLEY STEELHEAD

The Sacramento and San Joaquin Rivers offer the only migration route to the drainages of the Sierra Nevada and southern Cascade mountain ranges for steelhead. Information on migration and spawning tendencies of steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. NMFS reports limited data on the recent abundance of this ESU, but its present total run size based dam counts, hatchery returns, and past spawning surveys is probably less than 10,000 fish (NMFS, 1996). The most widespread run type of steelhead is in the winter (ocean-maturing) steelhead. Winter steelhead occurs in essentially all coastal rivers in California, while summer steelhead is far less common. In California, both winter and summer steelhead generally begin spawning in December. Central Valley steelhead are reported to begin upstream migration into the American, Feather, Yuba, and Mokelumne rivers in August through October depending upon water temperature, weather conditions, and flow. Evidence on Central Valley steelhead utilizing the San Joaquin River for upstream migration and utilization of freshwater tributaries include a small remnant run in the Stanislaus River, observations in the Tuolumne River in 1993, and recent observations of large rainbow trout (possibly steelhead) at the Merced River Hatchery (McEwan and Jackson, 1996; NMFS, 1996).

On February 16, 2000, NMFS designated critical habitat for Central Valley steelhead. Critical habitat is designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are

areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams or above longstanding naturally impassable barriers. On May 29, 2002, NMFS reinitiated the status reviews of endangered and threatened Pacific Salmonid ESU's and Critical Habitat and began the re-assessment process for the potential delisting of the associated habitat.

Remnant runs of adult steelhead only utilize the San Joaquin River in the vicinity of the Project/Action area as an upstream migratory route to cooler more suitable spawning streams, including the Merced River. Spawning habitat in the vicinity of the Proposed Project/Action site is unlikely based on the temperature, fine sediment substrate and lack of sufficient gravels and cobble. During high flows associated with the juvenile emigration period the San Joaquin River in the vicinity of the Proposed Project/Action provides suitable rearing habitat along the mixed willow riparian bank areas.

3.1.3 SACRAMENTO SPLITTAIL

The geographic distribution of the Sacramento splittail is broader than previously believed and continues to expand as more information is gathered. Adult foraging and spawning migrations occur in the Sacramento River each year and in the San Joaquin River during years of high freshwater outflow. Changes in the timing, magnitude, and duration of high river flows (floodplain inundation) probably affect when and where adults migrate. Splittail spawn in sloughs, flooded riverbeds, and areas with submerged vegetation during January to June, with the greatest spawning thought to occur in February–April. Eggs are demersal and adhesive. Embryous hatch in 3 to 7 days. Most of the larvae occur in weedy areas and inundated vegetation where spawning occurs, and remain in this habitat for 10 to 14 days before swimming ability improves and allows the movement into deeper offshore waters (Moyle, 2002). Juveniles are often found in the Delta sloughs in late winter and spring. Sexual maturity takes place in one to two years, with a life span of approximately five years. Within the seasonal limits, juvenile and adult splittail use both the Sacramento and San Joaquin River extensively during the winter and spring. The summer to fall distribution of adult splittail is primarily limited to tidal fresh and brackish waters of the Sacramento-San Joaquin Delta, Suisun Bay, Suisun, Napa and Petaluma marshes. During high outflow years, and rarely in low outflow years, splittail inhabit the San Joaquin River and valley portions of some tributaries (Baxter, 1999). Age – 0 fish emigrate primarily in the late spring and early summer. Splittail are able to locate flooded habitat well upstream in the San Joaquin River and spawn when conditions are suitable with known occurrences at Salt Slough (San Luis National Wildlife Refuge), Mud Slough, Fremont Ford (State Highway 140), Merced River, and Tuolumne River (Baxter, 1999).

The reduction of vast floodplains through drainage and diking for agriculture within the Sacramento and San Joaquin River systems has led to the loss of splittail spawning habitat. Today, only the estuaries of these river systems provides consistent suitable habitat for splittail reproduction.

The lack of backwater areas within the vicinity of the Project/Action area reduces the potential for splittail spawning. However, during high flow years splittail may use local weedy or willow areas located within the floodplain for spawning. This would likely occur during the early spring

from February through April. Downstream migration of juvenile splittail (young of the year) most likely occurs through the Project/Action Area during the late spring.

3.1.4 DELTA SMELT

Delta smelt are a euryhaline species, a species adapted to living in fresh and brackish water. This species generally inhabits the lower reaches of the Sacramento River downstream of Isleton, the San Joaquin River downstream of Mossdale, and the Delta including Suisun Bay (Hansen, 2002). Delta smelt are a relatively small (2–3 inches long) species, which typically have an annual lifecycle, although some individuals may live up to two years. Prior to spawning, adult delta smelt tend to migrate upstream into the lower reaches of the Sacramento and San Joaquin River systems, where spawning occurs during the late winter and spring. Spawning occurs from approximately February through June, with the greatest spawning activity occurring in April and May. Females deposit adhesive eggs on substrates such as gravel, rock, and submerged vegetation. Eggs hatch in approximately two weeks, at which time planktonic larvae are passively dispersed downstream by river flow. Larval and juvenile delta smelt rear within the estuarine portions of the Delta for a period of approximately 6–9 months before beginning their upstream spawning movement into freshwater areas of the lower rivers. Delta smelt larvae, which passively drift with water currents, are vulnerable to entrainment at water diversion locations. A 1989 study by Moyle and Herbold found that freshwater flows set an upper limit to delta stock recruitment in Suisun Marsh and the Delta within the year (Federal Register, 1993). The proportion of time when water flows are reversed (upstream flow) in the lower San Joaquin River during the egg and larval stages probably is the major source of density independent mortality in the Delta (Federal Register, 1993) due to higher salinity levels farther upstream. Higher volumes of freshwater outflows are associated with a larger adult smelt population due to higher plant and animal biomasses at all aquatic trophic levels (Federal Register, 1993).

Minimal spawning habitat was identified for delta smelt within the Proposed Project/Action area. River banks are steep and not likely to offer shallow edge waters preferred by smelt during spawning (high spring flows). Delta smelt prefer the sloughs and shallow edge waters located within the upper Delta, and the current downstream distribution of this species does not extend into the proposed Project/Action Area.

3.1.5 KERN BROOK LAMPREY

The range of this species is not well understood, however it is known to occur in the lower reaches of the San Joaquin River, and it is likely endemic to the San Joaquin River watershed. Suitable habitat for this species is characterized by silty backwaters of rivers emerging from the Sierra foothills (Moyle, 2002). As with other lampreys, this species requires gravel bottomed areas for spawning and muddy bottomed backwater areas for ammocoete growth. Spawning occurs during the spring.

San Joaquin River bank areas within the vicinity of the Proposed Project/Action lack backwater areas suitable for ammocoete development and protection. Lack of gravelly substrate minimizes the potential for Kern brook lamprey spawning in the vicinity of the Proposed Project/Action,

thereby limiting the use of the San Joaquin River in the vicinity of the Project/Action to a migratory route.

3.1.6 PACIFIC LAMPREY

The Pacific lamprey is a parasitic anadromous species that occurs in the Delta system. Adults usually move up into spawning streams between early March and late June, with upstream movements also observed in January and February (Moyle, 2002). Pacific lamprey spawn in shallow, swift water on gravel substrates. Eggs are slightly adhesive, and hatching occurs in about 19 days at 15 C. Ammocoetes burrow tail first into sandy, gravelly or muddy substrates of backwater areas. Ammocoetes are filter feeders, subsisting on algae and organic matter, and adults are parasitic feeding on larger adult fish.

San Joaquin River bank areas within the vicinity of the Proposed Project/Action lack backwater areas suitable for ammocoete development and protection. Lack of gravelly substrate minimizes the potential for Pacific lamprey spawning in the vicinity of the Proposed Project/Action, thereby limiting the use of the San Joaquin River in the vicinity of the Project/Action to a migratory route.

3.1.7 SOUTHWESTERN POND TURTLE

Both the northwestern and southwestern sub-species have similar life characteristics, and are separated based on geographic range and morphological differentiation. The southwestern pond turtle is thought to occur from the San Francisco Bay area, south to Baja. However, recent genetic studies on pond turtles throughout California indicate that although the northern populations appear genetically consistent with the northwestern pond turtle sub-species distribution, the populations that comprise the southwestern pond turtle sub-species show a lot of genetic variation and fall into three separate clades (Spinks and Shaffer, 2005). These include the San Joaquin Valley, Santa Barbara, and Southern clades.

Pond turtles normally associate with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. Pond turtles require basking sites such as partially submerged logs, rocks, or floating vegetation. They are considered omnivorous, feeding upon invertebrates, plant material, fishes, and frogs. Their home range is quite restricted, and they have a variety of vertebrate predators including certain fishes, bullfrogs, garter snakes, and some mammals. Within the Proposed Project/Action vicinity, native pond turtles may inhabit portions of the San Joaquin River using the river bank areas for basking.

3.1.8 WESTERN BURROWING OWL

Western burrowing owls inhabit open grasslands and shrub lands with perches and burrows. These owls eat mainly insects, with small mammals and birds making up a portion of their diet as well. For cover and breeding, old rodent burrows, as well as debris piles are used.

Within the vicinity of the Proposed Project/Action, potential nest/ burrow sites occur along the adjacent grasslands (existing diversion facilities) as well as the exposed banks along the east shore of the San Joaquin River.

3.1.9 SWAINSON'S HAWK

Swainson's Hawk is a migratory raptor listed as threatened by the State of California, and federally as a species of special concern. It breeds in western North America and winters for the most part in South America. It nests in trees, usually in riparian areas, but forages over pasturelands and open agricultural fields. In the Central Valley it is associated with riparian corridors adjacent to field crops and grasslands and subsists largely on small mammals, especially California vole, California ground squirrel, and large insects. Suitable foraging habitat within an energetically efficient flight distance from active Swainson's hawk nests has been found to be of great importance. Because the prey base for Swainson's hawk is highly variable from year to year, depending on cycles of agriculture, rainfall, and other natural cycles, large acreages of potential foraging habitat must be allotted per breeding pair. Suitable nesting habitat is found adjacent to the San Joaquin River. Habitat in this area includes riparian woodlands with large diameter (i.e., greater than 30 inches diameter at breast height) valley oak (*Quercus lobata*), cottonwood (*Populus fremontii*) and black willow (*Salix goodingii*). These overstory trees provide moderate to high (i.e., greater than 50%) canopy closure in this area. With records of Swainson's hawk nests occurring less than 500 feet from Project site along the San Joaquin River (CNDDDB, 2006), there is a moderate to high potential this area may be used by this species for nesting.

The decline of the species in the Central Valley has been associated with extensive reduction of Swainson's hawk nesting and foraging habitat. Suitable foraging habitat is adjacent with the Proposed Project/Action area in agricultural fields, where populations of prey species are supported. Suitable nesting habitat occurs within the riparian woodland habitats adjacent with the Proposed Project/Action site. Large valley oak, blue oak and cottonwood trees occur adjacent to the river in this area. A CNDDDB occurrence for the hawk was observed in 1988 approximately 400 feet south of the Proposed Project/Action site, with numerous additional occurrences along the San Joaquin River.

3.1.10 WHITE-TAILED KITE

White tailed kites are year-round residents in central California. They typically nest in oak woodlands or trees, especially along marsh or river margins, and they may use any suitable tree or shrub that is of moderate height. Their nesting season may begin as early as February and extends into August. During daylight hours kites forage for rodents in wet or dry grasslands and fields.

Suitable foraging habitat is adjacent with the Proposed Project/Action area in agricultural fields. Suitable nesting habitat occurs within the riparian woodland habitats adjacent with the Proposed Project/Action site. Large valley oak, blue oak and cottonwood trees occur adjacent to the river in this area.

3.1.11 LONG-LEGGED MYOTIS BAT

The long-legged myotis bat range includes western North America from southeastern Alaska, western Canada, down to Baja California and central Mexico. This species typically inhabits wooded habitats such as coniferous forests at elevations from 2,000 to 3,000 meters. Although three of the four races occur primarily in montane habitats, one race, *Myotis volans volans*, prefers low altitudes in the desert regions in Baja California. The long-legged myotis bat may use abandoned buildings, crevices in the ground or on cliffs, and spaces underneath the bark of a tree for roosting. The species uses caves and mine shafts for hibernating. The long-legged myotis bat forages primarily on moths but also consumes a variety of other insects. This species forages in, through, and around forest canopy a few hours after sunset and is active throughout the evening as well. (Warner and Czaplewski, 1984)

Large valley oak, blue oak and cottonwood trees within the vicinity of the Proposed Project/Action, as well as buildings and other structures associated with the existing diversion facilities may provide potential roosting sites for the long-legged myotis bat.

3.1.12 YUMA MYOTIS BAT

The Yuma myotis bat range includes western North America from British Columbia, Canada, to Baja California and southern Mexico (Bogan et al., 2005). This species is common from sea level to 2,560 meters and occurs throughout California in riparian and forested habitats, as well as scrub and desert habitats. It is uncommon in the Mojave and Colorado Desert except in the mountains bordering the Colorado River (CWHR, 2006). This species is usually associated with permanent sources of water such as rivers and streams. In arid habitats, tinajas or natural water holes may be a water source. Roosts may include man-made structures such as bridges, buildings, and mines, as well as natural cliff crevices, caves, and trees. The Yuma myotis feeds primarily on emergent aquatic insects and includes caddis flies, flies, midges, and small moths and beetles. Foraging begins at dusk, just after sunset, and roosts at night after feeding. (Bogan et al., 2005)

Large valley oak, blue oak and cottonwood trees within the vicinity of the Proposed Project/Action, as well as buildings and other structures associated with the existing diversion facilities may provide potential roosting sites for the Yuma myotis bat. In addition, the adjacent open water habitat associated with San Joaquin River, provides suitable foraging habitat for this species.

CHAPTER 4

EFFECTS OF PROPOSED PROJECT/ACTION UPON SPECIAL STATUS SPECIES

This section describes the methods used to determine the potential effects of the Proposed Project/Action on special-status species within the Action area and identifies the direct and indirect effects of the project on the species (including positive effects). These species include those that are federal and state-listed, those species that are candidates for federal or state listing, and other species of concern. These special-status species include:

- Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*);
- Central Valley steelhead (*Oncorhynchus mykiss*);
- Sacramento splittail (*Pogonichthys macrolepidotus*);
- Delta smelt (*Hypomesus transpacificus*);
- Kern brook lamprey (*Lampetra hubbsi*);
- Pacific lamprey (*Lampetra tridentata*);
- Southwestern pond turtle (*Emys marmorata pallida*);
- Western burrowing owl (*Athene cunicularia*);
- Swainson's hawk (*Buteo swainsonii*);
- White-tailed kite (*Elanus leucurus*);
- Long-legged myotis (*Myotis volans*);
- Yuma myotis (*Myotis yumanensis*).

Evaluating potential effects on species within the Proposed Project/Action area requires an understanding of the species' life histories and lifestage-specific environmental requirements. Ecological and status information on these species is provided in Chapter 3, Environmental Baseline – Special-Status Species Accounts and Status in Proposed Project/Action area, of this ASIP.

The analysis of effects of a particular action on a biological resource can be composed of one or more types of effects. Direct and indirect effects, interrelated and interdependent effects, and cumulative effects are defined below.

4.1 DIRECT AND INDIRECT EFFECTS

Under FESA, direct effects are those that are caused by the Proposed Project/Action and occur at the time of the action. According to the USFWS and NMFS, indirect effects:

“...are caused by or result from the proposed action, are later in time, and are reasonably certain to occur, e.g., predators may follow ORV tracks into piping plover nesting habitat and destroy nests; the people moving into the housing unit may bring cats that prey on the mice left in the adjacent habitat. Indirect effects may occur outside of the area directly affected by the action” (USFWS and NMFS, 1998).

4.2 INTERRELATED AND INTERDEPENDENT EFFECTS

According to FESA, interrelated and interdependent actions are defined as follows:

Effects of the action under consultation are analyzed together with the effects of other activities that are interrelated to, or interdependent with, that action. An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

According to the USFWS and NMFS, interrelated actions are those that are part of the Proposed Project/Action and depend on the Proposed Project/Action for their justification - actions that would not occur “but for” the larger action of the action under consultation (Proposed Project/Action) (USFWS and NMFS, 1998). Interdependent actions are those that have no significant utility apart from the action that is under consideration (USFWS and NMFS, 1998). There are no interrelated or interdependent actions associated with PID’s Proposed Project/Action.

4.3 EFFECTS ON SPECIES

4.3.1 CENTRAL VALLEY FALL-RUN CHINOOK, STEELHEAD, AND OTHER FISH SPECIES

Because the Proposed Project/Action would involve work within the San Joaquin River, the most important special-status species to consider are the threatened Central Valley steelhead and the Central Valley fall-run Chinook salmon. The winter-run (endangered) and spring-run (threatened) Chinook salmon have likely been extirpated from the river based on the lack of recent occurrences/detections and the increase in human-induced alterations to the San Joaquin river system. However, effects on the Central Valley fall-run Chinook salmon are likely to also affect Central Valley steelhead, Sacramento splittail, delta smelt, Kern brook lamprey, and Pacific lamprey.

The construction of the proposed fish screen facility may result in the discharge of silt and sediments resulting in a temporary localized direct disturbance and potential indirect disturbance which may decrease water quality downstream of the project site. Increased sedimentation may cause reduced survival of eggs or alevins, reduce primary and secondary river productivity, interfere with feedings, cause behavioral avoidance, and cause a breakdown of social organization to native species downstream of the discharge area. However, sediment discharge is most likely to be minimal due to the relatively small surface area of disturbance (approximately 0.24 acres of in-channel work) and by the placement of a sheet-pile cofferdam around these proposed in-channel work areas. Best management practices/erosion control measures outlined in the project description will also minimize sediment discharge for work outside of the aquatic habitat. Placement of the sheet-pile cofferdam would take place from July 1 to September 30, a time frame that would minimize water quality effects (“dry” season) and minimize impacts to salmonids and other native fish species, as it is likely outside of migratory periods for this stretch of the San Joaquin River. It is unlikely these native fish species will be in the general vicinity of

the Proposed Project/Action Area during the placement of the cofferdam structure. Because the length of time necessary to construct the fish screen and intake structure would be longer than the allowable construction window, the removal of the sheet-pile cofferdam would take place the following “dry” season.

Fish salvage operations within the dewatering areas (cofferdam placement), may stress fish species located within the channel impact area and potentially lead to individual mortality, interfere with feedings, or cause behavioral avoidance. However, it is unlikely any of the above stated fish species will be in the vicinity of the Proposed Project/Action area during the time of the dewatering activities based on migratory requirements.

Direct impacts also include the loss of willow trees and associated riparian habitat. Removal of riparian habitat may cause loss of cover from predators, reduced shading leading to increased water temperatures, decreased channel stability (increased erosion), reduced macroinvertebrate substrate (food source), and altered primary and secondary production within the watershed. This may affect native fish species within the vicinity of the project area. However, loss of riparian mixed willow habitat will include a 2-5 individual trees and is well under 0.001 acres or approximately 25 to 50 linear feet, and would result in a minimal adverse effect on native fish. Moreover, given the overall benefit to fish as a result of the Proposed Project/Action, the majority of in-river construction isolated by a cofferdam, fish salvage requirements for dewatered work sites, localized and minimal in-river disturbances outside of the allowable construction window, effects to Central Valley fall-run Chinook salmon, Central Valley steelhead, Sacramento splittail, delta smelt, Kern brook lamprey, and Pacific lamprey are considered minimal and avoidable.

4.3.2 SWAINSON’S HAWK

Approximately 0.06 acres of potential Swainson’s hawk nesting habitat (*Buteo swainsoni*) would be modified or eliminated by the Proposed Project/Action. Loss of nesting habitat may lead to increased stress due to competition for remaining nesting locations. This may lead to a decrease in population viability. To compensate for this loss of potential habitat and to avoid active nest sites, the following mitigation and compensation measures shall be implemented:

- **Mitigation Measure BR-1: Swainson’s Hawk Habitat.** Prior to construction, the Proposed Project/Action applicant shall purchase 0.12 acres of Swainson’s hawk nesting habitat from a CDFG-approved mitigation bank. The applicant may also opt to restore 0.12 acres of Swainson’s hawk habitat onsite. The revegetation/restoration plan must be approved by CDFG. Both options represent a 2:1 mitigation ratio. PID shall provide proof of purchase or approval of restoration plan prior to the initiation of Project construction.
- **Mitigation Measure BR-2a: Tree Removal Period.** If possible, trees required for removal shall be conducted outside of the nesting period, March 1st through August 31st.
- **Mitigation Measure BR-3: Swainson’s Hawk Nest Survey.** If construction is proposed to take place during the nesting season, then a qualified biologist shall survey the Proposed Project/Action site and all habitats within 0.5 mile of the site for

Swainson's hawk nests. Should an active nest site occur within 0.5 mile of the Proposed Project/Action site, the CDFG shall be consulted to develop measures that will protect the nest site from project-generated disturbance. Measures may include implementing a limited operating period surrounding the nest site until young have fledged.

4.3.3 LONG-LEGGED MYOTIS AND YUMA MYOTIS

These bat species may use the Proposed Project/Action site for foraging and night roosts. Furthermore, several of the buildings in the Proposed Project/Action area (including the old diversion structure) may be used by either species as day roosts. Large diameter snags (dead trees) may also be used by long-legged myotis as day roosts. Construction of the Proposed Project/Action may reduce or disrupt roosting opportunities for both species due to construction activity and noise, and the loss of large trees in the vicinity of the Proposed Project/Action. To minimize these potential effects, the following mitigation measures are proposed:

- **Mitigation Measure BR-4: No Night Time Construction.** No construction shall take place after sunset or before sunrise.
- **Mitigation Measure BR-5: Bat Habitat Survey and Inspections.** Any snags measuring at least 20 inches diameter at breast height (dbh) shall be inspected by a qualified biologist for potential day-time bat use. Should a bat roost be discovered in a snag, CDFG shall be notified to develop appropriate mitigation measures (such as exclusionary nets).
- **Mitigation Measure BR-2b: Tree Removal Period.** Tree removal should be conducted between December 1 and March 1 to avoid impacts to bat roost habitat. Tree limbing and tree removal should be done as close as possible to sunset or sunrise to avoid impacts to roosting and nesting bat colonies.

4.3.4 WHITE-TAILED KITE

Potential nest sites for these birds may be directly or indirectly affected by Project construction. Due to the loss of approximately 0.06 acres of potential nesting habitat (oak woodland). In addition, other nesting birds such as migratory birds protected by the Migratory Bird Treaty Act may also be affected by this nesting habitat. Loss of nesting habitat may lead to increased stress due to competition for remaining nesting locations. This may lead to a decrease in population viability. To compensate for these potential effects, the following mitigation measure is proposed:

- **Mitigation Measures BR-2 and BR-3: Pre-Construction Avian Surveys.** Implement all mitigation measures listed for the Swainson's hawk. Pre-construction avian surveys shall also target the above species. Should active nests be found within 0.25 mile of the project site, CDFG shall be consulted to develop appropriate mitigation and avoidance measures.

4.3.5 SOUTHWESTERN POND TURTLE

Moderate to low quality habitat for the pond turtle occurs within and near the shores of the San Joaquin River (i.e., foraging and basking) in the vicinity of the Proposed Project/Action. Pond turtles may forage or swim through these areas. With the movement of heavy construction equipment through the Proposed Project/Action area there is potential for species disturbance or mortality. To compensate for these potential impacts, the following mitigation measures are proposed:

- **Mitigation Measure BR-6: Construction Easement Fencing for Pond Turtle.** The construction/grading easement shall be fenced using temporary fencing to reduce the possibility of incidentally impacting pond turtles outside of the construction area. Riparian vegetation removal will be minimized where possible and confined to the construction/grading easement. No encroachment shall be allowed into riparian areas outside of the construction/grading easement.
- **Mitigation Measure BR-7: Traffic Routing and Movement.** Movement of heavy equipment to and from the Proposed Project/Action site as well as all traffic shall be restricted to established roadways to minimize habitat disturbance.

4.3.6 WESTERN BURROWING OWL

Moderate to low quality habitat for the owl occurs along the banks of the river system with the annual grassland. Habitat increases in quality south of the project site and along the east bank of the river (opposite from Proposed Project/Action). Grading activities may impact nesting sites and potentially lead to owl mortality or disruption of breeding (decrease in population viability). To compensate for the potential disturbance of nesting burrowing owls, the following mitigation is proposed:

- **Mitigation Measures BR-2 and BR-3: Pre-Construction Avian Surveys.** **Implement** all mitigation measures listed for the Swainson's hawk. Pre-construction avian surveys shall also target the above species. Should active nests be found within 0.25 mile of the project site, CDFG shall be consulted to develop appropriate mitigation and avoidance measures.

CHAPTER 5

ENVIRONMENTAL BASELINE – NCCPA COMMUNITIES

NCCPA Communities includes both habitats and ecologically-based fish groups which are defined in the MSCS. Three NCCPA habitats and two fish groups occur within the Proposed Project/ Action area, have potential to be affected by the Proposed Project/Action, and are therefore included within this ASIP. The following is a list of NCCPA Communities included in this ASIP. The MSCS definitions of these habitats and fish groups are included below, along with a description of the habitats in the Proposed Project/Action area.

NCCPA HABITATS:

- Valley Riverine Aquatic
- Valley/Foothill Riparian
- Grassland

NCCPA FISH GROUPS:

- Anadromous Fish Species
- Estuarine Fish Species

5.1 NCCPA HABITATS

There are 18 NCCPA habitats evaluated in the MSCS. These habitats were evaluated based on certain criteria: the level of acceptance of habitat nomenclature within the scientific community; consistency with existing CALFED habitat nomenclature from the ERP; consistency with existing electronically-mapped habitat data; and the potential for habitat types to be affected by CALFED actions.

5.1.1 VALLEY RIVERINE AQUATIC

Valley riverine aquatic habitat includes the water column of flowing streams and rivers in low-gradient channel reaches below 300 feet in elevation. These waters are not tidally-influenced and include features such as pools, riffles, runs, and unvegetated channel beds and banks, as well as sloughs, backwaters, and flood bypasses.

In the Proposed Project/Action area, valley riverine aquatic habitat exists in the San Joaquin River – one of the two major rivers that flow into the north end of the San Francisco Bay. Its headwaters originate on the slopes of Mt. Goddard in Kings Canyon National Park and flow first northwest, and then southwest out of the Sierra Nevada. Behind Friant Dam—a project of the

U.S. Bureau of Reclamation—the river forms Millerton Lake which is a popular recreation area. Below the Dam it flows northeasterly through the Central Valley and Stockton before joining the Sacramento River. The San Joaquin River is a major component of the Delta. It offers a continuous flow of water, and a variety of natural aquatic environments including riverine and estuarine habitats.

The San Joaquin River historically contained a diverse and productive natural environment supporting a complex network of creeks, sloughs, rivers, lakes, ponds, and wetlands. Populations of fish and wildlife occurred in the permanently flooded tule marshes, seasonal marshes, riparian forests, oak woodlands, and upland prairies associated with the San Joaquin River Delta. Human-induced alterations began in the late 1800's, as water diversions for agricultural purposes depleted streamflows and native vegetation. Today, the lands surrounding the San Joaquin River constitute the largest contiguous block of irrigated land in California (Wildlife Subcommittee, 1992).

Within the Proposed Project/Action area several anadromous fish species use the San Joaquin River as a migration corridor including fall-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*Oncorhynchus mykiss*). During the summer, water temperatures can increase significantly due to lack of bank shading (from insufficient riparian habitat). These factors combined with lower water quality, inadequate flows, unscreened diversions, and inadequate dam passage have led to unfavorable habitat conditions for several species of native fishes in the San Joaquin River system. Thus the mainstem San Joaquin River is characterized by high percentages of introduced species tolerant of these environmental conditions. Particularly common are the fathead minnow (*Pimephales promelas*), red shiner (*Cypriella lutrensis*), threadfin shad (*Dorosoma pretenense*), and inland silverside (*Menidia beryllina*) (Dubrovsky et al., 1998). Other exotic predatory species such as largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), and catfish (*Ameiurus catus*) inhabit the mainstem river and predate on and/or displace juvenile salmonids and other migratory and resident native fish species including California roach (*Lavinia symmetricus*), Sacramento pikeminnow (*Ptychocheilus grandis*), river lamprey (*Lampetra ayresi*), green sturgeon (*Acipenser medirostris*), hardhead (*Mylopharodon conocephalus*), delta smelt (*Hypomesus transpacificus*), hitch (*Lavinia exilicauda*), Sacramento splittail (*Pogonichthys macrolepidotus*), and Pacific lamprey (*Lampetra tridentata*).

5.1.2 VALLEY/FOOTHILL RIPARIAN

Valley/foothill riparian habitat includes all successional stages of woody vegetation, commonly dominated by willow, Fremont cottonwood, valley oak, or sycamore. This habitat occurs within the current and historical floodplains of low-gradient reaches of streams and rivers generally below 300 feet in elevation.

Valley riparian habitat occurs adjacent to the existing diversion facilities along the western bank of the river and also in patches throughout the river bank areas in the vicinity of the Proposed Project/Action. These riparian areas, dominated by narrow-leaf willow (*Salix exigua*) and black willow (*Salix gooddingii*), provide brief patches of shading along the river bank. Mixed oak and

cottonwood riparian forest, characterized by valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*) and cottonwood (*Populus fremontii*) occupy a majority of the western river bank habitat areas adjacent to the Proposed Project/Action. A few large diameter native sycamore trees (*Platanus racemosa*), also associated with valley riparian habitat, occupy areas within the existing facilities, providing evidence of a more extensive historic riparian woodland habitat. Along the north portion of the existing diversion location, the riparian community transitions into a small grove of walnut trees (**Figure 2-1**).

Valley riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles and 147 bird species occur in lowland riparian systems. Additionally, 55 species of mammals are known to use California's Central Valley riparian communities.

5.1.3 GRASSLAND

Grassland includes both perennial grassland and the more common annual grassland habitats, as well as irrigated and non-irrigated pasture. These habitats are dominated by upland vegetation consisting of mostly annual and perennial grasses and forbs.

In the Proposed Project/Action area, annual grasslands occur on flat river plains and as an understory to the riparian oak woodland areas. These habitat areas are dominated by non-native annual grasses and forbes such as ripgut brome (*Bromus diandrus*), wild oats (*Avena barbata*) and bull thistle (*Cirsium vulgare*). This habitat is also present in the understory of the riparian woodland habitat. Grasslands provide important foraging, breeding, and resting habitat for many species of wildlife.

Grasslands may attract reptiles such as western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), western whiptail (*Cnemidophorus tigris*), and gopher snake (*Pituophis melanoleucus*). This habitat also attracts seed- and insect-eating birds such as California quail (*Callipepla californica*), mourning dove (*Zenaidura macroura*), savanna sparrow (*Passerculus sandwichensis*), western kingbird (*Tyrannus verticalis*), meadowlark (*Sturnella neglecta*), scrub jay (*Aphelocoma coerulescens*), barn swallow (*Hirundo rustica*), and mockingbird (*Mimus polyglottus*). Small rodents attract raptors (birds of prey), including red-tailed hawks (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-shouldered hawks (*Buteo lineatus*), and barn owl (*Tyto alba*). Grasslands are important foraging grounds for aerial and ground foraging insect eaters such as *Myotis* bat species and pallid bats (*Antrozous pallidus*). Mammals such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*) forage and nest within the grassland.

5.2 NCCPA FISH GROUPS

There are two NCCPA Fish Groups which are evaluated in the MSCS: anadromous and estuarine fish species. These fishes are associated with several of the NCCPA habitats but are assessed separately because factors that support fish populations are not sufficiently addressed in the NCCPA habitats which are based on vegetation, land use, and geography. Instead, each fish group addresses the effects CALFED actions may have on factors important to fish ecology such as water flow, depth, temperature, quality, and seasonal fluctuations in stage and flow.

The fish species included in the NCCPA fish groups are those that will be most affected by CALFED actions, depend on the health of the Bay-Delta ecosystem, and are subject to existing USFWS, NMFS, and DFG recovery goals.

5.2.1 ANADROMOUS FISH SPECIES

Anadromous fish are those that are born in fresh water, migrate to the ocean where they mature into adults, and return to their native fresh waters to spawn. Anadromous fish species that are included are Sacramento River winter-run Chinook salmon, Central Valley fall/late fall-run Chinook salmon, Central Valley steelhead, Central California Coast steelhead ESUs, and green sturgeon. These species are associated with the following NCCPA habitat types found in the project area: tidal perennial aquatic, valley riverine aquatic, montane riverine aquatic, lacustrine, saline emergent, and tidal freshwater emergent. Within the Proposed Project/Action area, effects to valley riverine aquatic habitat in the San Joaquin River may subsequently affect Central Valley fall/late fall-run Chinook salmon and Central Valley steelhead.

5.2.2 ESTUARINE FISH SPECIES

Estuarine fish species are those species that inhabit estuaries, or partially enclosed coastal waters that are brackish due to a mixing of freshwater and seawater. Estuarine species that are included are tidewater goby, delta smelt, longfin smelt, Sacramento splittail, and Sacramento perch. These species are associated with the following NCCPA habitat types, which includes some non-estuarine habitats which some species use during certain periods of their life cycle: tidal perennial aquatic, valley riverine aquatic, lacustrine, saline emergent, and tidal freshwater emergent. Within the Proposed Project/Action area, effects to valley riverine aquatic habitat in the San Joaquin River may subsequently affect delta smelt, and Sacramento splittail.

CHAPTER 6

EFFECTS OF THE PROPOSED PROJECT/ACTION UPON NCCPA COMMUNITIES

This chapter analyzes the direct, indirect, and cumulative effects on NCCPA communities that exist within the Proposed Project/Action Area that may result from implementation of the Proposed Project/Action, as well as actions related to and dependent on that action. The Proposed Project/Action is considered to have an effect on NCCPA communities if it could result in “take” of a species, or if it would decrease the quality or extent of habitat potentially occupied by a species.

This analysis also includes a discussion of the conservation measures to avoid, minimize, and compensate for such effects, as appropriate. For descriptions of the NCCPA communities addressed in this ASIP, refer to Chapter 5.

6.1 PROPOSED PROJECT/ACTION EFFECTS

Table 6-1 summarizes potential direct effects to existing habitats and facilities based on the Proposed Project/Action design and grading footprint. Indirect effects to surrounding habitats are unlikely based on conservation measures outlined in Chapter 4 and BMP’s incorporated into the Proposed Project/Action.

**TABLE 6-1
HABITATS AREAS IMPACTED BY THE PROPOSED PROJECT/ACTION**

Habitats	Acres
Riverine (Valley Riverine Aquatic)	0.24
Roadways/Barren Land/Canal /Existing Structures	0.14
Riparian (Valley/Foothill Riparian)	0.07
Walnut (introduced woodland)	0.01
Total	0.46

The following text contains an analysis of potential direct, indirect, and cumulative effects on NCCPA communities, including valley riverine aquatic, valley/foothill riparian, and grassland habitats, as well as the fish groups.

The Proposed Project/Action would permanently fill up to 0.24 acre of perennial stream (San Joaquin River).

While these features have not been verified by the U.S. Army Corps of Engineers (USACOE) as waters under the jurisdiction of Section 404 of the Clean Water Act, field reconnaissance indicates they likely are jurisdictional. In addition, the Regional Water Quality Control Board (RWQCB) regulates these features under Section 401 of the Clean Water Act. Lastly, alteration to the San Joaquin River will require entering into a Streambed Alteration Agreement with CDFG as required under Section 1601 of the State Fish and Game Code. The Streambed alteration agreement will be developed from the ASIP and CEQA/NEPA documents. DFG has not been contacted as yet for the agreement.

No other downstream effects are anticipated due to implementation of the “General Construction Considerations” detailed in Chapter 2; however, loss of wetland habitat will require compensation specified in the next section.

The Proposed Project/Action would permanently fill up to 0.07 acre of riparian habitat.

Valley riverine aquatic and valley riparian forest are sensitive natural communities that would be impacted by the Proposed Project/Action. This community provides habitat for a range of terrestrial wildlife species, including several species of songbirds, small mammals, mesocarnivores, reptiles and amphibians. Loss of riparian habitat will require compensation specified in the next section.

6.2 CONSERVATION MEASURES

There are specific strategies for mitigation of temporary or permanent loss or degradation of wetland and riparian communities which may result from a CALFED action. Conservation measures under CALFED are designed (a) to avoid, minimize, and compensate for adverse effects to NCCPA communities, and/or (b) to enhance the condition of those NCCPA communities with which “R” and “r” species are associated (refer to Chapter 2 for definition). The MSCS habitat conservation goals for the addressed species are assigned in the following table:

TABLE 6-2
MSCS HABITAT CONSERVATION GOALS

NCCPA Habitat	Conservation Goal
Valley Riverine Aquatic Habitat	Restore or enhance 1-3 times the linear footage of shaded riverine aquatic overhead cover affected.
Valley/Foothill Riparian Habitat	Restore or enhance 2-5 acres for each acre affected

6.2.1 LOSS OF VALLEY RIVERINE AQUATIC HABITAT/WETLANDS AND VALLEY RIPARIAN HABITAT

To compensate for loss of wetland habitat, the following mitigation measures are proposed:

- **Mitigation Measure BR-8: Obtain 404 and 401 Permits.** Prior to construction, PID shall obtain a Section 404 from the USACOE. Based on the area projected to be impacted, the Proposed Project/Action will likely qualify under a Nationwide Permit. In addition, the Proposed Project/Action applicant shall obtain a Section 401 water quality certification from the RWQCB. Lastly, the Proposed Project/Action applicant shall enter into a Streambed Alteration Agreement with the CDFG.
- **Mitigation Measure BR-9: Impacts to Waters of the U.S.** PID shall restore or purchase mitigation credits as described for impacts to jurisdictional waters at an approved USACOE mitigation bank. The purchase or restoration of approximately 0.12 acre of riparian woodland habitat are already required to mitigate Swainson's hawk nesting habitat (riparian woodland). The additional credits (approximately 0.19 acre) shall be of similar habitat to that filled by this Project (riverine riparian).
- **Mitigation Measure BR-10: Minimize Fill of Riparian Areas.** Fill of riparian areas will be minimized wherever possible. Temporary construction fencing will be erected around the project site to reduce the potential of incidental fill.
- **Mitigation Measures BR-1: Swainson's Hawk Habitat Mitigation.** The Project applicant shall purchase mitigation credits or restore habitat as proposed for the Swainson's hawk. Habitat purchased with these credits or habitat restored will be in-kind to those impacted by the Proposed Project/Action, thereby reducing potential effects.

CHAPTER 7

INTERRELATED, INTERDEPENDENT, AND CUMULATIVE EFFECTS

This chapter assesses the interrelated, interdependent and cumulative effects of the Proposed Project/Action.

7.1 INTERRELATED AND INTERDEPENDENT EFFECTS

The Proposed Project/Action is considered to be an action that has independent utility apart from other projects. Installation of the proposed diversion facilities would not increase water diversions or lead to any future water use not already feasible under existing baseline conditions. Thus the Proposed Project/Action is not part of a single, larger project, and therefore no interdependent or interrelated effects will occur.

7.2 CUMULATIVE EFFECTS

After installation of new diversion facilities the existing facilities will be removed as part of this PID Project. The capacity of water diverted from the San Joaquin River would not increase or decrease. These continuing baseline diversions as well as the implementation of BMP's, seasonal timing, and conservation measures will ensure no cumulative effects to water quality (water resources). Placement of the cofferdam and associated dewatering activities may potentially contribute to the loss of native fish trapped within the structure. However, the timing of proposed dewatering activities is likely to avoid special status native fish species known to inhabit the San Joaquin River (i.e., Central Valley steelhead, Sacramento splittail, delta smelt, Kern brook lamprey, and Pacific lamprey) based on known migratory requirements and the unlikely occurrence of these species in the vicinity of the Proposed Project/Action outside of migratory periods. The placement and design of the new permanent water diversion facilities in the San Joaquin River is not likely to result in any obstruction of fishery migration and will likely decrease the mortality of emigrating juvenile fish species (in particular steelhead and Chinook salmon), thus not contributing to a cumulative effect on fishery resources.

Existing surrounding land-use (i.e., agricultural and low density residential) will continue to provide foraging opportunities for Swainson's hawk and other raptor species. With the implementation of Mitigation Measures BR-1, 2, and 3, suitable habitat will be preserved or restored at a 2:1 ratio for future nesting opportunities, and thus will not contribute to a cumulative effect to Swainson's Hawk and other species associated with Valley/Foothill Riparian Habitat.

Avoidance and minimization measures included in the Proposed Project/Action and required as mitigation will ensure no cumulative effects to the southwestern pond turtle, the long-legged myotis bat, and the Yuma myotis bat.

CHAPTER 8

MONITORING NEEDS

A list of monitoring needs is included below. Monitoring is necessary in order to monitor the effects of implementation, and the effectiveness of the conservation measures. These are identified as measures that the implementing entity will undertake to fulfill commitments to the regulatory agencies to implement the conservation measures and to conduct compliance and effectiveness monitoring. **All monitoring and conservation measures will be funded by PID, USBR, and/or CALFED.**

1. Conduct pre-construction surveys for pond turtle. Biological monitors present at the start of construction shall monitor for pond turtle and ensure that:
 - a. construction activities do not encroach into riparian areas outside of Proposed Project/Action footprint,
 - b. and that the movement of heavy equipment to and from the Proposed Project/Action site as well as all traffic is restricted to established roadways to minimize habitat disturbance.
2. Conduct pre-construction avian surveys for white-tailed kite, Swainson's hawk, burrowing owl and other avian species covered under the Migratory Bird Treaty Act. Should active nests be found within 0.25 mile of the project site, CDFG shall be consulted to develop appropriate mitigation and avoidance measures. Additional monitoring may be required.
3. If construction is proposed to take place during the nesting season, then a qualified biologist shall conduct a survey the Proposed Project/Action site and all habitats within 0.5 mile of the site for Swainson's hawk nests. Should an active nest site occur within 0.5 mile of the Proposed Project/Action site, the CDFG shall be consulted to develop measures that will protect the nest site from project-generated disturbance. Measures may include implementing a limited operating period surrounding the nest site until young have fledged and additional monitoring of the nest site.
4. Potential bat habitat shall be surveyed prior to tree or snag removal. Any snags measuring at least 20 inches at dbh shall be inspected by a qualified biologist for potential bat use prior to removal. Should a bat roost be discovered in a snag, CDFG shall be notified to develop appropriate mitigation measures (such as exclusionary nets). Additional monitoring may be required.
5. A monitoring and adaptive management plan will be developed in order to evaluate the effectiveness of the fish screen. Appropriate surveys for entrained fish at the fish screen shall be conducted during the appropriate season.

CHAPTER 9

CHANGED CIRCUMSTANCES

There are no anticipated changed circumstances that would affect implementation of the Proposed Project/Action.

CHAPTER 10

EFFECTS DETERMINATION CONCLUSION

The purpose of this ASIP is to review the Patterson Irrigation District's Proposed Fish Screen Project in sufficient detail to determine to what extent the Proposed Project/Action may affect any threatened, endangered, proposed, or sensitive species within the Proposed Project/Action area. This chapter summarizes the environmental setting, analysis, and effects determination presented in Chapters 3 and 4.

10.1 SUMMARY OF EFFECTS

A determination of effects based on the Proposed Project/Action on the following 13 species is summarized below:

- Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*);
- Central Valley steelhead (*Oncorhynchus mykiss*);
- Sacramento splittail (*Pogonichthys macrolepidotus*);
- Delta smelt (*Hypomesus transpacificus*);
- Kern brook lamprey (*Lampetra hubbsi*);
- Pacific lamprey (*Lampetra tridentata*);
- Southwestern pond turtle (*Emys marmorata pallida*);
- Western burrowing owl (*Athene cunicularia*);
- Swainson's hawk (*Buteo swainsonii*);
- White-tailed kite (*Elanus leucurus*);
- Long-legged myotis (*Myotis volans*);
- Yuma myotis (*Myotis yumanensis*).

In addition, a determination of effects based on the Proposed Project/Action on the following 4 NCCPA Communities is summarized below:

- Valley Riverine Aquatic Habitat
- Valley/Foothill Riparian Habitat
- Anadromous Fish Species
- Estuarine Fish Species.

These species and communities have been selected from a broad list of species compiled from USFWS lists and database searches from the CNDDDB and CNPS. The 13 species are federally listed or proposed for listing; state-listed or state-protected; or a federal or state species of special concern. The NCCPA communities were selected from 20 communities defined in the MSCS. These species and communities have the potential to be affected by the Proposed Project/Action and are therefore included in this ASIP.

10.1.1 CENTRAL VALLEY FALL-RUN CHINOOK (CANDIDATE)

The Project Action occurs within and adjacent to the San Joaquin River which provides habitat for several special-status anadromous fish species. Based on the Proposed/Project Actions described in Chapter 2, these fish species are most likely to be affected by a decrease in water quality due to construction-related activities. Included within the Proposed Project/Action are measures to minimize such impacts; these include following the Central Valley RWQCB regulations to minimize construction-related effects, installing silt screens to filter out sediment before water re-enters the river, seasonal in-channel work restrictions (outside of known fall-run Chinook migratory periods), and installing a coffer dam to contain most construction activities in the water. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect water quality in the San Joaquin River.

Within the impact area of the Proposed Project /Action there is minimal juvenile rearing habitat and no suitable spawning habitat for fall-run Chinook. Impacted riparian vegetation will be restored following construction. If additional mitigation habitat is required and cannot be achieved onsite it will be purchased at a 2:1 ratio thus minimizing potential impacts to juvenile rearing.

When considering avoidance and minimization requirements of the Proposed Project/Action and the beneficial effects from fish screen upgrades, the Proposed Project/Action may affect, but is not likely to adversely affect Central Valley fall-run Chinook.

10.1.2 CENTRAL VALLEY STEELHEAD (THREATENED)

Included within the Proposed Project/Action are conservation measures that will be implemented to minimize water quality concerns; these include following the Central Valley RWQCB regulations to minimize construction-related effects, installing silt screens to filter out sediment before water re-enters the river, seasonal in-channel work restrictions (outside of known steelhead migratory periods), and installing a coffer dam to contain most construction activities in the water. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect water quality in the San Joaquin River.

Within the impact area of the Proposed Project /Action there is minimal juvenile rearing habitat and no suitable spawning habitat for steelhead. Impacted riparian vegetation will be restored onsite following construction of the project. If additional habitat is required it will be purchased at a 2:1 ratio thus minimizing potential impacts to juvenile rearing.

When considering avoidance and minimization requirements of the Proposed Project/Action and the beneficial effects from fish screen upgrades, the Proposed Project/Action may affect, but is not likely to adversely affect Central Valley steelhead.

10.1.3 DELTA SMELT (THREATENED)

The Proposed Project/Action is outside of the known range for delta smelt. Furthermore the project would not increase the amount of water (and/or timing) taken from the system (and

eventually flow to the Delta) that could adversely affect delta species, including delta smelt. Therefore, only potential downstream water quality impacts are analyzed for this species. Included within the Proposed Project/Action are conservation measures that will be implemented to minimize such impacts; these include following the Central Valley RWQCB regulations to minimize construction-related effects, installing silt screens to filter out sediment before water re-enters the river, and installing a coffer dam to contain most construction activities in the water. With the implementation of these conservation measures, it is unlikely that construction of the Proposed Project/Action would affect water quality in the San Joaquin River where Delta smelt are found. Delta smelt are found on the San Joaquin River up to Mossdale. Therefore, there would be no effect to delta smelt caused by water quality impacts associated with the Proposed Project/Action.

10.1.4 OTHER FISH SPECIES (FEDERAL SPECIES OF SPECIAL CONCERN)

The Project Action occurs within and adjacent to the San Joaquin River which provides habitat for estuarine fish species which may be affected by downstream effects. Based on the Proposed/Project Actions described in Chapter 2, these fish species are most likely to be affected by a decrease in water quality due to construction-related activities. Included within the Proposed Project/Action are conservation measures to minimize such impacts; these include following the Central Valley RWQCB regulations to minimize construction-related effects, installing silt screens to filter out sediment before water re-enters the river, and installing a coffer dam to contain most construction activities in the water. With the implementation of these conservation measures, it is unlikely that construction of the Proposed Project/Action would significantly affect water quality in the San Joaquin River.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect Sacramento splittail, Kern brook lamprey, and Pacific lamprey.

10.1.5 STATE COVERED SPECIES AND FEDERAL SPECIES OF SPECIAL CONCERN

The following species addressed are non-fish state-listed, state-protected, a California species of special concern, and/or federal species of special concern that have potential to occur at the Proposed Project/Action site.

SOUTHWESTERN POND TURTLE (FEDERAL/STATE SPECIES OF SPECIAL CONCERN)

The Project Area has moderate to low quality habitat for the southwestern pond turtle. With implementation of avoidance mitigation and the inclusion of pond turtle pre-construction surveys, potential effects will be reduced.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect the southwestern pond turtle or its habitat.

***WESTERN BURROWING OWL
(FEDERAL/STATE SPECIES OF SPECIAL CONCERN)***

The Project/Action has potential to affect the western burrowing owl. The western burrowing owl may nest along the banks and forage in surrounding grassland. This raptor is not likely to be affected by the Proposed Project/Action if the mitigation measures for Swainson's hawk are implemented, and if the survey for Swainson's hawk is expanded to include the western burrowing owl. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect the western burrowing owl or its habitat in the Proposed Project/Action area.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect the western burrowing owl or its habitat.

***SWAINSON'S HAWK
(STATE THREATENED)***

The riparian forest along the San Joaquin River within the vicinity of the Proposed Project/Action may provide nesting opportunities for the state-listed threatened Swainson's hawk. There are several known occurrences of nesting Swainson's hawks, which are known to nest in large trees associated with riparian forest habitats. The Swainson's hawk has a high potential to occur in the region, and a medium potential to occur within the Proposed Project/Action area, which supports a few large trees within riparian forest. With the removal or modification of 0.06-acre suitable habitat for Swainson's hawk, the Proposed Project/Action may potentially adversely affect this species. Measures in Chapter 4 can be implemented to compensate for these effects. These measures include pre-construction surveys, timing removal of trees during the non-breeding season, purchasing credits in a DFG-approved mitigation bank or restoring riparian woodland habitat at a 2:1 ratio, and requiring monitoring during construction and other measures required by DFG. With the implementation of these measures, effects of the Proposed Project/Action on Swainson's hawk and Swainson's hawk habitat would be significantly be reduced.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect Swainson's hawk or its habitat.

***WHITE-TAILED KITE
(STATE FULLY PROTECTED)***

The Project Area has potential to affect white-tailed kite. The white-tailed kite may use the riparian woodland for nesting. This raptor is not likely to be affected by the Proposed Project/Action if the mitigation measures for Swainson's hawk are implemented, and if the survey for Swainson's hawk is expanded to include white-tailed kite. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect the white-tailed kite or its habitat in the Proposed Project/Action area.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect the white-tailed kite or its habitat.

***LONG-LEGGED MYOTIS BAT
(FEDERAL SPECIES OF SPECIAL CONCERN)***

The Project Area has moderate to low quality habitat for the long-legged myotis bat. This bat may use old structures such as the existing diversion facility, as well as snags or cavities in large trees in the riparian forest. Mitigation measures to minimize effects to the long-legged myotis bat include surveys for the bats prior to tree removal and limiting construction activities to daytime only. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect the long-legged myotis bat or its habitat in the Proposed Project/Action area.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect the long-legged myotis bat or its habitat.

***YUMA MYOTIS BAT
(FEDERAL SPECIES OF SPECIAL CONCERN)***

The Project Area has moderate to low quality habitat for the Yuma myotis bat. This bat may use old structures such as the existing diversion facility, as well as snags or cavities in large trees in the riparian forest. Mitigation measures to minimize effects to the Yuma myotis bat include surveys for the bats prior to tree removal and limiting construction activities to daytime only. With the implementation of these measures, it is unlikely that construction of the Proposed Project/Action would significantly affect the Yuma myotis bat or its habitat in the Proposed Project/Action area.

Therefore, the Proposed Project/Action may affect, but is not likely to adversely affect the Yuma myotis bat or its habitat.

10.2 NCCPA COMMUNITIES

This section summarizes the environmental setting, analysis, and effects determination presented in Chapters 5 and 6. The NCCPA communities that may be affected by the Proposed Project/Action include Valley Riverine Aquatic and Valley/Foothill Riparian habitats, and the two fish groups: Anadromous Fishes and Estuarine Fishes which are associated with these habitats in the Proposed Project/Action area.

Effects to the native anadromous and estuary fishes are largely related to water quality, which was addressed in the Proposed Project/Action description. Effects to these native fishery resources are not likely to occur based on water quality control measures and seasonal restrictions (based on migratory periods) included in the Proposed Project/Action and required by mitigation.

Effects to the two habitats are addressed in mitigation measures in Chapter 6, which include minimizing fill of riparian areas, and the implementation of Swainson's hawk mitigation and water quality measures. With the implementation of these measures, effects to Valley Riverine Aquatic and Valley/Foothill Riparian habitats are not likely to occur.

CHAPTER 11

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