

Appendix 8.16-3

Wetland and Waters Evaluation

WETLANDS AND WATERS EVALUATION

FOR THE

KINGS RIVER CONSERVATION DISTRICT'S

COMMUNITY POWER PLANT PROJECT NEAR PARLIER

(FRESNO COUNTY, CALIFORNIA)

Prepared for

Kings River Conservation District
4886 E. Jensen Avenue
Fresno, CA 93725
(559) 237-5567

May 2007

TABLE OF CONTENTS

	Page
1 SUMMARY.....	1
2 INTRODUCTION	2
3 REGULATORY OVERVIEW	3
4 METHODS OF THE EVALUATION	5
5 RESULTS	6
6 MITIGATION MEASURES TO AVOID IMPACTS	9
7 CONCLUSIONS	13
8 LITERATURE CONSULTED.....	13

List of Appendices

Appendix A. Aerial photographs of wetlands and waters along project routes.

Photographs

Appendix B. Intermittent drainages of Creek at Road 60 along gas pipeline route.

Appendix C. Wetlands in Cross Creek area and Kings River along gas pipeline route.

Appendix D. Wetlands in Manning recharge basin along transmission line route.

Appendix E. Examples of maintained ditches along gas pipeline route.

1. SUMMARY

The Kings River Conservation District is proposing a natural gas-fired power plant near the City of Parlier (Fresno County, California) and is filing an Application For Certification (AFC) with the California Energy Commission for permitting of the plant. Specifically, the plant will set upon an approximately 32-acre parcel just northeast of the intersection of Bethel and Dinuba Avenues. A 15-acre parcel adjacent to and south of the plant site will be used as a construction yard for the project. The project involves four basic components including the power plant site, natural gas pipeline, water pipeline, and transmission lines. Many miles of water pipeline, transmission lines, and gas pipeline are proposed for the project. The first two structures will occur in Fresno County and the gas pipeline will interconnect with an existing gas pipeline near Visalia in Tulare County and run north to the power plant site in Fresno County.

Reconnaissance surveys were conducted in May 2007 to evaluate if wetlands and waters occur on the project site and along the water, gas, and transmission line routes. Also, the field surveys were used to examine, evaluate, and determine if wetlands or waters occur on adjacent private lands and could be impacted by the project. Three areas with wetlands and waters occur along the project routes including the Cross Creek Area, Kings River, and Manning recharge basin. The Cross Creek area has six intermittent drainages, some of which are wetlands and some are waters. Private lands adjacent to the gas pipeline route in the Cross Creek area have wetland ponds, vernal pool wetlands, and the endangered Vernal Pool Tadpole Shrimp. The Kings River at the gas pipeline route is a waters and has wetland and riparian habitat along its banks. The Manning recharge basin has wetland habitat in the bed of its basin and its banks have upland habitat.

The project has been designed to avoid and/or lessen impacts to wetlands and waters. Examples of such actions include the locating and constructing of the gas pipeline and the water pipeline in the right-of-ways of existing roads. Also, the use of Jack and Bore and Horizontal Directional Drilling techniques to install the gas pipeline underneath the Kings River and the intermittent drainages in the Cross Creek area avoids project impacts at those locales. At the Manning recharge pond, four H-framed transmission line towers (with a total of eight legs) will be constructed and erected inside the basin. The footprint of the towers will permanently impact approximately 0.003 acres of wetland habitat. During construction and erection of the towers, some temporary impacts will also occur to approximately one acre of wetland habitat in the basin.

Several mitigation measures are recommended to avoid and/or mitigate for potential project impacts and to protect and preserve wetlands, waters, riparian habitat, and endangered Vernal Pool Tadpole Shrimp resources. Overall, the project will not have a significant negative impact or effect on wetlands, waters, riparian habitat, or the endangered Vernal Pool Fairy Shrimp due to the implementation of the mitigation measures.

2. INTRODUCTION

The Kings River Conservation District is proposing a natural gas-fired power plant near the City of Parlier (Fresno County, California) and is filing an Application For Certification (AFC) with the California Energy Commission for permitting of the plant. Specifically, the plant will set upon an approximately 32-acre parcel just northeast of the intersection of Bethel and Dinuba Avenues. See Figures in AFC Section 8.16, Biological Resources. A 15-acre parcel adjacent to and south of the plant site will be used as a construction yard for the project. The project involves four basic components including the power plant site, natural gas pipeline, water pipeline, and transmission lines. These components are described in detail in the AFC. A map of the project area is provided in AFC Section 8.16, Biological Resources. The power plant site, water pipeline, and transmission lines will occur in Fresno County. The gas pipeline will interconnect with an existing gas pipeline near Visalia in Tulare County and runs north to the power plant site in Fresno County.

Wetlands and waters are regulated by both state and federal resource and regulatory agencies under jurisdiction of the state and federal Clean Water Acts. The term “waters” refers to water bodies such as intermittent drainages and creeks, streams, rivers, tributaries to navigable waters, sloughs, marshes, ocean tidal areas, ponds, pools, and lakes. The term “wetlands” refers to a specific type of waters or water body that meets a particular combination of vegetation, soil, and hydrologic criteria. Sloughs, marshes, and vernal pools are typical examples of wetlands in the project region. Intermittent creeks or drainages without water-loving vegetation and hydric soils are typical examples of waters in the project region. Hence, all waters do not meet the criteria of wetlands as they may be lacking one or more of the required criteria. A number of agencies have jurisdiction over wetlands and waters such as the U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, California Department of Fish and Game, State Lands Commission, California Reclamation Board, and Regional Water Quality Control Board. An expanded explanation of these agencies and their jurisdiction is presented in Section 3, Regulatory Overview. In general, the filling, dredging, or work in wetlands or waters requires permitting by both state and federal resource and regulatory agencies. Usually, projects are designed to avoid impacts to wetlands and waters, if possible. Measures are typically incorporated into the project and approved through the permitting process to avoid, lessen, and/or mitigate for any negative impacts to wetlands and waters.

To evaluate potential project impacts to wetlands and waters, reconnaissance surveys were conducted in May 2007 of the power plant site, and along the routes of the gas pipeline, water pipelines, and transmission lines. This wetland and waters evaluation report presents the results of our findings, and recommends mitigation measures to avoid and/or lessen project impacts. Three sensitive areas were located including intermittent drainages at Cross Creek in Tulare County, and the Kings River and the Manning recharge pond in Fresno County (Appendix A). The project has been designed to avoid and/or lessen impacts to wetlands and waters. Examples of such actions include the location and construction of the gas pipeline and the water pipeline in the right-of-ways of existing roads. Also, the use of Jack and Bore and Horizontal Directional Drilling techniques to install the gas pipeline underneath the Kings River and the

intermittent drainages in the Cross Creek area avoids project impacts. Through the implementation of mitigation measures, wetland and waters resources will be protected and preserved and/or impacts reduced to an insignificant level. Thus, the requirement for extensive permitting, and for potentially expensive mitigation is reduced or alleviated.

3. REGULATORY OVERVIEW

To ensure the long-term protection of the environment, natural resources, waters, and wetlands, laws and regulations have been implemented through multiple environmental protection Acts, such as:

Section 404 of the Clean Water Act (33 U.S.C. 125 1-1376);
Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.);
Executive Order 11990, Protection of Wetlands (May 24, 1977);
National Environmental Policy Act (42 U.S.C. 4321 et seq.);
California Environmental Quality Act (P.R.C. 21000 et seq.); and
Fish and Wildlife Protection and Conservation (California Fish and Game Code).

Implementation and regulation of these Acts has been delegated to several state and federal agencies. The following section briefly describes the regulation and which, if any, agency governs.

United States Army Corps of Engineers

Waters of the United States, including wetlands and creek channels are subject to Federal and State agency regulations in the State of California. The U.S. Army Corps of Engineers (Corps) has jurisdiction over Waters of the United States under Section 404 of the Clean Water Act. Waters of the United States may include interstate lakes, rivers, streams, mudflats, natural ponds, tributaries to Waters of the United States, and adjacent wetlands. Wetlands under Corps' jurisdiction are determined using technical criteria for hydrology, soil, and vegetation described in the Corps' Wetland Delineation Manual (1987).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water filled depressions (33 CFR, Part 328).

Lands including pasture as defined by the U. S. Natural Resource Conservation Service (NRCS) are subject to regulation under Section 404 if the land use changes from agricultural to some other form, such as commercial or residential. Although regulatory authority under Section 404 rests with the Corps, in the past responsibility for determination of jurisdictional status on agricultural land was shared with NRCS throughout the United States. However, in 2000, the NRCS withdrew from its participation in delineating agricultural wetlands to be converted to some other form of land use than agricultural.

Construction activities within jurisdictional waters are regulated by the Corps. Placement of fill into jurisdictional waters requires issuance of a permit by the Corps as well as state water quality certification pursuant to Section 401 of the Clean Water Act. The Regional Water Quality Control Board is the state agency charged with implementing water quality certification in California.

California Department of Fish and Game (CDFG) Streambed Alteration Agreement

Any project-related activity with the potential to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by the CDFG, or use material from the streambed requires that prior notification be provided to the CDFG and may require issuance of a Streambed Alteration Agreement pursuant to Sections 1600-1616 of the Fish and Game Code.

California Reclamation Board

The reclamation board cooperates with the U. S. Army Corps of Engineers in controlling flooding along the Sacramento and San Joaquin Rivers and tributaries. The board has jurisdiction throughout the drainage basin of the Central Valley and governs the Sacramento and San Joaquin River Drainage District. Their jurisdictional area extends through 14 counties and 1.7 million acres lying along the most flood-prone portions of the two rivers. Approval by the board is required for projects or uses that encroach into rivers and waterways within federal and state authorized flood control projects, or designed floodways adopted by the board. A board permit must be obtained before any construction work can begin in such areas.

State Lands Commission

The commission works with other state and federal agencies regarding waterways and their land use, protection, preservation, public access, and public recreation. Their jurisdiction covers water bodies throughout the State of California.

Significance Criteria

The CEQA Guidelines provide guidance for assessing the significance of potential environmental impacts. Relative to wetlands and waters, a project will normally have a significant effect on the environment if it will:

- A. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or U.S. Fish and Wildlife Service.
- B. 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.

4. METHODS OF THE EVALUATION

Topographic and Aerial Map Reviews

Topographic maps and aerial photographs of the power plant site, and along the routes of the water pipelines, gas pipeline, and transmission lines were examined (see AFC Section 8.16, Biological Resources and Appendix A). From this review, areas of potential wetlands or waters were marked on the maps for further evaluation. The aerial photographs were also used to view the path and source of water to the potential areas and to determine if adjacent lands possess wetlands and waters.

Wetlands and waters Check

To further focus surveys from the topographic map and aerial photograph review noted above, National Wetlands Inventory and California Natural Diversity Data Base computer searches were conducted for the power plant site and along the water pipeline, gas pipeline, and transmission line routes. The routes were driven to view areas of potential wetlands and waters. The waters and wetland evaluation procedures used here have employed the techniques suggested in the U. S. Army Corps of Engineers' Wetlands Delineation Manual (1987) and Arid West Supplement (2006).

A "true" delineation was not conducted for wetlands as the routes are linear and occur mainly along road right-of-ways. The delineation of wetlands on private lands is not practical without permission of the landowner, and was not conducted for this study. The examination of topographic maps, aerial photographs, and computer searches clearly showed that the potential areas are waters, intermittent drainages, a river, wetland ponds, and vernal pool wetlands.

Reconnaissance field surveys were conducted on May 17, and 18, 2007 by Jeff and Pamela Halstead with assistance of Environmental Aide Andrew Roberts. Surveys were conducted to collect information on plants, soils, topography, and general hydrology of the area. Field surveys were used to examine, evaluate, and determine if the potential areas would be classified as wetlands or waters. Also, the field surveys were used to examine, evaluate, and determine if wetlands or waters occur on adjacent private lands and could be impacted by the project. This was done according to procedures described in the U. S. Army Corps of Engineers Wetlands Delineation Manual (1987) and Arid West Supplement (2006). The power plant site and routes were driven and walked to observe habitat conditions, topography, and evaluate potential wetlands. Areas other than the potential wetlands or waters were not evaluated further because the routine evaluation showed that: (1) wetland plants were absent, (2) the hydric soil indicators were absent, and/or (3) the hydrological indicators were absent. In addition, evaluation of topography and aerial photographs did not reveal potential wetlands or waters conditions at other locations. Hence, the upland areas exhibited no wetlands or waters.

The winter of 2006 and spring of 2007 were very dry with approximately 60 percent of normal rainfall. Thus, at the time of our field surveys, potential wetlands and waters were dry and received a limited amount of water during the year and prior to our site visits. Ideally, the wetlands and waters evaluation would have been conducted during the late wet season when wetland criteria are easily observable. However, this was not possible. Wetlands and waters evaluations and delineations are possible during the dry season, but some of the criteria are

vague, may be absent, and are more difficult to assess. The routine level surveys utilized the characterization of the hydrophytic plant communities method. Other information sources were also used in this effort, including soil surveys, aerial photographs, plant identification books, and other wetland analysis references. Such sources are listed in the Literature Consulted section. The conclusions in this report are consistent with and fully respective of jurisdictional wetland criteria recorded in the U. S. Army Corps of Engineers' Wetlands Delineation Manual (1987) and Arid West Supplement (2006).

5. **RESULTS**

Wetlands and Waters

Our review of topographic maps and aerial photographs, computer searches, and field surveys showed that numerous canals and ditches occur along and/or cross the gas and water pipeline routes. Such waterways are artificial, are maintained, and do not have wetland, riparian, or significant wildlife habitat. Waters in these structures are used for irrigation of agricultural lands and do not reenter into the river or flow downstream into wetlands. Thus, those waters would not be regulated by state and federal resource agencies pertaining to wetlands or waters. Examples of such canals and ditches are shown in Appendix E.

Three areas of potential wetlands and waters occur along the project routes. The three areas include:

- Cross Creek area (Section 34, Township 17S, Range 23E, Traver Quad, Tulare County)
- Kings River (Section 17, Township 16S, Range 23E, Reedley Quad, Fresno County)
- Manning recharge basin (Sec. 21, Township 15S, Range 22E, Selma Quad, Fresno County)

Aerial photos of the areas are presented in Appendix A. Representative photographs of the areas are presented in Appendices B through D. The three areas are described below regarding their hydrology, vegetation, and soils.

Cross Creek Area

The computer searches show the Cross Creek area as having records for vernal pool wetlands, wetlands, the endangered Vernal Pool Tadpole Shrimp, and the threatened Vernal Pool Fairy Shrimp. The Cross Creek area in the vicinity of the gas pipeline route is unlevelled, non-native annual grassland habitat with intermittent drainages and vernal pool wetlands (Appendices A-C). The pipeline route will run along the road right-of-way through approximately a 2600-foot linear distance of the grassland habitat. The water source for this area is rainfall and waters originating in the Kaweah River watershed. Most of the waters are from the Sierra Nevada which flow into Lake Kaweah, down the Kaweah River, into the Saint John's River, and then into Cross Creek. Other smaller tributaries also contribute waters to Cross Creek. Cross Creek flows into large reservoirs near the town of Corcoran.

All of the drainage channels on the topographic map are denoted as intermittent; however, some smaller channels are not shown on the topographic map. The channels vary in depth and size and range from small, shallow depressions to deep channels with steep vertical banks (Appendix B). The larger channels are bridged where they cross under Highway 99 and Road 60. The smaller channels are bridged under Highway 99, but culverted under Road 60.

At the time of our May evaluation, most of the intermittent drainages were dry, had sandy or loamy soils, and had little or no wetland vegetation. The dry channels had weedy upland species such as wild raddish, black mustard, annual sunflower, coast fiddleneck, cocklebur, turkey mullein, pineapple-weed, milkthistle, Johnsongrass, wormwood, soft chess, riggut brome, California brome, telegraph plant, prickley lettuce, stinging nettle, lambsquarters, wild barley, and saltgrass in their beds and banks; however one channel had a few patches of rush and pond weed in the channel bed. Lands outside the channel have upland vegetation such as wild barley, riggut brome, soft chess, coast fiddleneck, saltgrass, annual sunflower, telegraph plant, wormwood, Johnsongrass, and black mustard.

Other wetland delineations in the project vicinity by Halstead & Associates have shown that such channels under wet season conditions and flowing waters would meet the wetland criteria. One of the Cross Creek channels had green lush wetland vegetation (monkeyflower, sour dock, and prickley lettuce (Appendix B). A couple wetland ponds also occur adjacent to the pipeline route that receive water from their channels. One pond had water, lush green wetland plants (rush and bullrush) and trees (willows) and is used for water storage and crop irrigation. A small and shallow pond in another channel had lush and green grasses and a puddle of water (Appendix C). Within that puddle, the endangered Vernal Pool Tadpole Shrimp was observed. Dry depressions were also observed on private lands adjacent to the pipeline route that are vernal pool wetlands and they possibly also are inhabited by the tadpole shrimp.

Kings River

The Kings River in the area of the gas pipeline route is approximately 600 feet wide, a flowing river, and has lush and green wetland and riparian vegetation (rush, sedge, pondweed, willow) along its banks (Appendices A and C). The water source for the river is rainfall in the Kings River watershed. Most of the waters are from the Sierra Nevada which flow into Pine Flat Reservoir, and then down the Kings River. Other smaller tributaries also contribute waters to the Kings River. Most of the Kings River water is used for the irrigation of agricultural lands, and rarely does its waters reach the historic Tulare Lakebed or enter into the San Joaquin River. The soil of the riverbed is sandy and the river banks are loamy-sand.

Manning Recharge Basin

The Manning recharge basin in the area of the transmission line routes is approximately 800 feet wide and has green wetland vegetation (rush and bullrush) in the bed of the basin (Appendices A and D). The banks of the basin are drier and have upland grasses and plants. The water source for the basin is rainfall and diverted waters from the Kings River. The basin is a natural depression that is operated as a groundwater recharge basin. The soils of the basin are sandy. In the area of the transmission line routes, evidence of standing water was observed; however the basin was dry. Standing water was pooled at the upper and lower ends of the basin.

Potential Projects Impacts to Wetlands and Waters

Power Plant Site

No wetlands or waters occur on the power plant site. The site and its adjacent construction yard are vineyards. Thus, no wetlands or waters impacts will occur on the power plant site. Surrounding lands are leveled, irrigated, and actively farmed peaches and grapes, the City of Parlier's waste-water treatment plant, a closed Fresno County dump, an irrigated horse pasture, farm residences, leveled fallow farmland, and a small parcel of fallow unlevelled land. Adjacent lands to the power plant site and construction yard do not have wetlands or waters and thus no impacts will occur there.

Water Pipeline

No wetlands or waters occur along the water pipeline routes. The pipeline route involves road right-of-ways through leveled and actively farmed agricultural lands. Thus, no wetlands or waters impacts will occur along the water pipeline routes. Adjacent lands do not have wetlands or waters and thus no impacts will occur there.

Natural Gas Pipeline and Laydown Areas

Cross Creek Area. -The gas pipeline route occurs in the right-of-way of Road 60 and it transverses through the Cross Creek area (Appendix A). The pipeline route will run through approximately a 2600-foot linear area adjacent to the nonnative grassland habitat that has several intermittent drainages and vernal pool wetlands. The pipeline route will transverse six intermittent drainages of Cross Creek and occurs adjacent to private land with vernal pool wetlands, a couple wetland drainage ponds - one which is inhabited by the endangered Vernal Pool Tadpole Shrimp (Appendices B and C). The project could impact the intermittent drainages (some of which are wetland habitat and some are waters), vernal pool wetlands on private land adjacent to the route, and possibly the threatened Vernal Pool Tadpole Shrimp and other sensitive shrimps in those pools unless mitigation measures are incorporated into the project (see Section 6, Mitigation Measures).

Kings River. -The Kings River in the area of the gas pipeline route is approximately 600 feet wide, a flowing river, and has lush and green wetland and riparian vegetation (rush, sedge, pondweed, willow) along its banks (Appendices A and C). The project could impact the Kings River and its wetland and riparian habitat along its banks unless mitigation measures are incorporated into the project (see Section 6, Mitigation Measures).

Transmission lines

The Manning recharge basin in the area of the transmission line route is approximately 800 feet wide and has green wetland vegetation (rush and bullrush) in the bed of the basin (Appendix A and D). The transmission lines will transverse the basin perpendicularly for approximately 800 feet and occur overhead above the wetlands. Two H-framed towers will be constructed and erected inside the basin. The footings for the towers will be approximately 4 x 4 feet in size and made of concrete. The footprint of the four towers (with a total of eight legs) will permanently impact approximately 0.003 acres of wetland habitat within the basin. This permanent wetland loss will include just the area of the concrete footings for the towers. During

construction and erection of the towers, some temporary impacts will also occur to wetland habitat in the basin. The disturbance area is estimated to be approximately one acre in size. The impacts will be minor, but mitigation measures are incorporated into the project to avoid other impacts and lessen those impacts (see Section 6, Mitigation Measures).

6. MITIGATION MEASURES TO AVOID IMPACTS

Power Plant Site

Since no wetlands or waters occur on or adjacent to the power plant site, no mitigation measures are recommended.

Water Pipeline

Since no wetlands or waters occur on or adjacent to the water pipeline routes, no mitigation measures are recommended.

Natural Gas Pipeline and Laydown Areas

Cross Creek Area. -The project has been designed so that the pipeline will be bored and run underneath the intermittent drainages. Six intermittent drainages occur in the Cross Creek area that will be transversed by the pipeline. Some of these drainages are wetlands and some are waters. Regardless of their classification, measures are recommended to avoid and protect them. Also, a couple wetland drainage ponds and vernal pool wetlands occur on private land adjacent to the gas pipeline route. In one of the wetland ponds, the endangered Vernal Pool Tadpole Shrimp was observed. Below are recommended mitigation measures to protect and preserve the intermittent drainages, wetlands, waters, and endangered shrimp resources in the Cross Creek area.

- The gas pipeline will be bored and installed underneath all intermittent drainages using Jack and Bore construction techniques to avoid impacting the integrity and hydrology of the channels. Thus, the channels and their waters and/or wetland habitats will be completely avoided. The equipment use and construction areas will occur in the upland weedy habitat of the road right-of-way.
- A 50-foot buffer zone of no equipment/construction activities will occur on either side of the intermittent drainages where Jack and Bore construction techniques will be used. The zone will be measured outward from the top bank of the channel. A qualified biologist will assist the engineers and construction crews in flagging and staking the buffer zones prior to construction activities.
- All construction activities within and near the Cross Creek area will occur within the road right-of-way.
- An educational program will be conducted by a qualified biologist for all project managers, engineers, contractors, and construction crews prior to work to inform them

of the wetlands and wildlife resources on the adjacent private land, the need to avoid damaging any pools, drainages, ponds, and/or the endangered tadpole shrimp, and the possible penalties for not complying with these measures.

- Orange silt-fence approximately 3 feet in height will be installed between the construction zone and private lands in the Cross Creek area prior to and during construction activities in that area. The bottom of the fence will be buried in the ground approximately 6 inches in depth and the length of the fence will be securely staked. A qualified biologist will assist the engineers and construction crews in flagging and staking the location of the fencing prior to construction activities.
- Signs denoting the adjacent lands as sensitive wetland and wildlife habitat will be posted at 100-foot intervals along the silt fence. Signs will be functional and maintained during construction activities in that area.
- A qualified biologist will be on-site at all times during construction in the Cross Creek area and visually view and inspect that the measures are implemented.
- Drainage culverts and intermittent drainages in the Cross Creek area will remain at their existing grade to maintain the hydrology and integrity of channels and pools on the adjacent private land.
- Runoff from the construction zone will be captured via trenches or other structures and drained away from the adjacent private lands to prevent their contamination.
- Equipment, materials and supplies, and substances such as fuels, oil, fluids, chemicals, and other such substances which could cause contamination shall not be stored in the Cross Creek area.
- Standard dust prevention measures (such as use of water spray trucks) will be implemented during construction in the Cross Creek area to prevent and reduce dust.
- Upon completion of construction, all project-related fencing and signs will be removed from the Cross Creek area.
- Prior to construction, photographs will be taken by a qualified biologist to document the existing condition of the intermittent drainages, ponds, and vernal pool wetlands. After the completion of construction activities, the same-direction photographs will be taken for comparative purposes and to document post-construction conditions.
- A post-construction monitoring survey will be conducted by a qualified biologist to evaluate the implementation of and compliance with the mitigation measures. A letter-report, including the above photographs, will be prepared and sent to the California Energy Commission upon completion of construction.

- If intermittent drainages, wetland habitat, or the endangered tadpole shrimp are accidentally impacted, state and federal resource and regulatory agencies having jurisdiction over the impacted resource will be consulted.

Kings River. -The project has been designed so that the pipeline will be bored and run underneath the Kings River. Below are recommended mitigation measures to protect and preserve the Kings River and the wetland and riparian habitat along its banks.

- The gas pipeline will be bored and installed under the Kings River using Horizontal Directional Drilling techniques to avoid impacting the integrity and hydrology of the river. Thus, the river and its wetland and riparian habitats will be completely avoided. The equipment use and construction areas will occur in upland habitat in agricultural lands.
- A 500-foot buffer zone of no equipment/construction activities will occur on either side of the river where Horizontal Directional Drilling techniques will be used. The zone will be measured outward from the outer edge of the river's riparian habitat. A qualified biologist will assist the engineers and construction crews in flagging and staking the buffer zones.

Transmission lines

The footprint of the four towers (with a total of 8 legs) will permanently impact approximately 0.003 acres of wetland habitat in the Manning recharge basin. Also, construction and erection of the towers will cause temporary impacts to approximately one acre of wetland habitat in the basin. Below are recommended mitigation measures to lessen impacts by the project to wetlands in the basin.

- The U. S. Army Corps of Engineers and Regional Water Quality Control Board shall be consulted regarding the potential loss of 0.003 acres of wetland habitat in the basin.
- If needed, the wetland loss shall be permitted with the U. S. Army Corps of Engineers under their Nationwide Permit #12 - Utility Line Activities and a waiver of Water Quality Certification shall be obtained from the Regional Water Quality Control Board.
- An educational program shall be conducted by a qualified biologist for all project managers, engineers, contractors, and construction crews prior to work to inform them of the wetlands and wildlife resources, the need to avoid damaging the wetlands, and the possible penalties for not complying with these measures.
- Orange silt-fence approximately 3 feet in height shall be installed between the construction zone and adjacent wetlands in the basin prior to and during construction activities in that area. The bottom of the fence shall be buried in the ground approximately 6 inches in depth and the length of the fence will be securely staked. A qualified biologist shall assist the engineers and construction crews in flagging and staking the location of the fencing.

- Signs denoting the adjacent lands as sensitive wetland and wildlife habitat shall be posted at 100-foot intervals along the silt fence. Signs shall be functional and maintained during construction activities in that area.
- A qualified biologist shall be on-site at all times during construction in the recharge basin and visually view and inspect that the measures are implemented.
- The existing banks and the bed of the basin shall be restored to their existing grades after the completion of construction activities.
- Compacted roads and construction areas will be ripped and graded upon the completion of construction activities. This work will be supervised, inspected, and approved by a qualified biologist. Wetland vegetation will then naturally recolonize the disturbed areas.
- Runoff from the construction zone shall be captured via trenches or other structures and drained away from the adjacent wetlands to prevent their contamination.
- Equipment, materials and supplies, and substances such as fuels, oil, fluids, chemicals, and other such substances which could cause contamination shall be stored outside the recharge basin.
- Standard dust prevention measures (such as use of water spray trucks) shall be implemented during construction in the recharge basin to prevent and reduce dust.
- Upon completion of construction, all project-related fencing and signs shall be removed from the recharge basin.
- Prior to construction, photographs shall be taken by a qualified biologist to document the existing condition of the wetland habitat in the basin. After the completion of construction activities, the same-direction photographs shall be taken for comparative purposes and to document post-construction conditions.
- The work zone for the construction and erection of towers (currently estimated at approximately one acre) shall be minimal area needed. This will reduce the acreage of wetlands that are temporary disturbed in the basin.
- Ingress and egress to the recharge basin by vehicles and equipment shall be restricted to the fewest number and smallest size of roads that are practical.
- A post-construction monitoring survey shall be conducted by a qualified biologist to evaluate the implementation of and compliance with the mitigation measures. A letter-report, including the above photographs, shall be prepared and sent to the California Energy Commission upon completion of construction.

- If additional wetland habitat is permanently impacted, state and federal resource and regulatory agencies having jurisdiction over the impacted resource shall be consulted.

7. **CONCLUSIONS**

Wetlands and Waters

Wetlands or waters do not occur on the power plant site or along or adjacent to the water pipeline routes. Three sensitive areas with wetlands and waters occur along the project routes including the Cross Creek area, Kings River, and Manning recharge basin. The Cross Creek area has six intermittent drainages, some of which are wetlands and some are waters. Private lands adjacent to the gas pipeline route in the Cross Creek area have wetland ponds, vernal pool wetlands, and the endangered Vernal Pool Tadpole Shrimp. The Kings River at the gas pipeline route is a waters and has wetland and riparian habitat along its banks. The Manning recharge basin has wetland habitat in the bed and upland habitat on its banks.

Potential Project Impacts to Wetlands and Waters

The project has been designed to avoid and/or lessen impacts to wetlands and waters. Examples of such actions include the locating and constructing of the gas pipeline and the water pipeline in the right-of-ways of existing roads. Also, the use of Jack and Bore and Horizontal Directional Drilling techniques to install the gas pipeline underneath the Kings River and the intermittent drainages in the Cross Creek area avoids project impacts.

Through the use of several mitigation measures (see Section 6, Mitigation Measures), potential impacts to wetlands and waters in and adjacent to the Cross Creek area and in and along the Kings River will be avoided. Permanent impacts to wetland habitat in the bed of the Manning recharge basin where two H-framed transmission line towers will be installed, will be minimized, mitigated, and are of minor significance. Approximately 0.003 acres of wetland habitat will be permanently impacted. For construction and erection of the towers, temporary impacts will also occur to approximately one acre of wetland habitat in the basin. The area of disturbance is estimated at approximately one acre. Measures are incorporated into the project to minimize and reduce impacts to wetland habitat in the basin during the construction and erection activities. Also, disturbed areas in the basin will be ripped and graded after the completion of construction activities to promote the natural recolonization by wetland vegetation. Overall, the project will not have a significant negative impact or effect on wetlands, waters, riparian habitat, or the endangered Vernal Pool Tadpole Shrimp due to the implementation of mitigation measures.

8. **LITERATURE CONSULTED**

Bass, R.E., A.I. Herson, and K.M. Bogdan. 2004. CEQA Deskbook. Solano Press Books, Point Arena, CA.

Belk, D. 1975. Key to the Anostraca (Fairy Shrimps) of North America. Southwestern Natur. 20:91-103.

- California Academy of Sciences. 1991. Collection list of California Anostraca (Fairy Shrimp). San Francisco, CA.
- California Natural Diversity Data Base. 2005. Rarefind Program: Computer data base of sensitive species. California Department of Fish and Game, Natural Heritage Division, Sacramento, California.
- California Office of Planning and Research. 1986. CEQA: California Environmental Quality Act, Statutes and Guidelines. Sacramento, CA.
- Dahl, T.E. 1990. Wetland losses in the United States, 1780s to 1980s. U.S. Fish and Wildl. Service, Washington, D.C. 13 pp.
- DeWeese, J.M. 2000. Vernal pool construction monitoring protocol and habitat replacement evaluation, Pacific Region. U.S. Fish and Wildl. Service, Sacramento, CA. 14 pp.
- Elias, T. 1980. The Complete Trees of North America. Van Nostrand Reinhold Company, New York, New York.
- Eng, L.L., D. Belk, and C.H. Eriksen. 1990. California Anostraca: distribution, habitat, and status. *J. Crustacean Biol.* 10: 247-277.
- Eriksen, C. H. and D. Belk. 1999. Fairy Shrimps of California's Pools, Puddles, and Playas. Mad River Press, Inc. Eureka, California.
- Faber, P. M. and R. F. Holland. 1988. Common Riparian Plants of California. Pickleweed Press, Mill Valley, California.
- Federal Interagency Committee for Wetlands Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U. S. Government Printing Office, Washington, D. C.
- Hickman, J. C. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley and Los Angeles, California.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Calif. Dept. Fish and Game, Sacramento, CA. 156 pp.
- Holland, R.F. 1986. Descriptions of the Terrestrial Natural Communities of California. Spec. Publ. Calif. Dept. Fish and Game, Sacramento, CA.
- Hotchkiss, N. 1972. Common Marsh Underwater and Floating-leaved Plants of the United States and Canada. Dover Publishers, New York.

- Huntington, G. L. 1971. Soil survey of Eastern Fresno County, U.S. Soil Conservation Services, Sacramento, CA.
- Knobel, E. 1977. Field Guide to the Grasses, Sedges and Rushes of the United States. Dover Publishers, New York.
- Koford, E.J. 1993. Assessment and mitigation for endangered vernal pool fairy shrimp. Amer. Soc. Civil Engineers conference.
- Lyon, J. G. 1993. Practical Handbook for Wetland Identification and Delineation. Lewis Publishers, Boca Raton, Florida.
- Mason, H. 1957. A Flora of the Marshes of California. University of California Press, Los Angeles and Berkeley, California.
- Mayer, K.E. and W.F. Laudenslayer. (Eds.) 1988. A guide to wildlife habitats of California. Calif. Dept. Forestry and Fire Protection, Sacramento, CA. 166 pp.
- McCauley, J. and J. R. Single. 1995. Riparian and Wetland Habitats: Descriptions, Human Impacts, and Recommended Setbacks for Impact Management. Draft Regional Report, California Department of Fish and Game, Region 4, Fresno, California.
- Munz, P. A. and D. D. Keck. 1973. A California Flora and Supplement. University of California Press, Berkeley and Los Angeles, California.
- Prichard, D. 1995. Riparian Area Management: Process for Assessing Proper Functioning Condition. Technical Reference 1737-9. U. S. Bureau of Land Management, Denver, Colorado.
- Prichard, D. 1994. Riparian Area Management: Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas. Technical Reference 1737-11. U. S. Bureau of Land Management, Denver, Colorado.
- Reed, P. 1988. National List of Plant Species that Occur in Wetlands: California (Region O). U. S. Fish and Wildlife Service, Biological Report 88 (26.10).
- Sawyer, J. O. and T. K. Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento, California.
- Sugnet and Associates. 1993. Preliminary compilation of documented distribution, fairy Shrimp and tadpole shrimp proposed for listing. April 29, 1993. Sacramento, CA.
- U. S. Army Corps of Engineers. 1987. Wetlands Delineation Manual. Technical Report Y-87-1, Department of the Army, Washington, D. C.

- U. S. Army Corps of Engineers. 2006. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-0616. Vicksburg, MS: U. S. Army Engineer Research and Development Center.
- U. S. Natural Resources Conservation Service. 1998. Field Indicators of Hydric Soils in the United States, Version 4. G. W. Hurt, Whited, P. M., and Pringle, R. F. (eds.). Fort Worth, Texas.
- U. S. Natural Resources Conservation Service. 1996. Field Indicators of Hydric Soils in the United States. G. W. Hurt, Whited, P. M., and Pringle, R. F. (eds.). Fort Worth, Texas.
- U. S. Natural Resources Conservation Service. 1997. Soil Survey of Tulare County, Western Part, California (Draft). In Cooperation with California Agricultural Experiment Station and County of Tulare. Visalia, California.
- U. S. Environmental Protection Agency. 1995. Wetland Fact Sheets. Office of Water, Wetlands, Oceans, and Watersheds. EPA 843 -F-95-001.
- U. S. Fish and Wildlife Service. 1985. Draft Habitat Suitability Index Model: Western Spadefoot Toad. Sacramento, California.
- U. S. Fish and Wildlife Service. 1989. Habitat Suitability Index Model: California Tiger Salamander. Sacramento, California.
- U.S. Fish and Wildlife Service. 1992. Endangered and threatened wildlife and plants: Notice of public hearing and reopening of public comment period on proposed endangered status for four fairy shrimp and the vernal pool tadpole shrimp in California. Fed. Reg. 57: 36380-36381.
- U.S. Fish and Wildlife Service. 1992. Endangered and threatened wildlife and plants; proposal to determine endangered status for four fairy shrimp and the vernal pool tadpole shrimp in California. Fed. Reg. 57: 19856-19862.
- U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants; determination of endangered status for the Conservancy fairy shrimp, longhorn fairy shrimp, and the vernal pool tadpole shrimp; and threatened status for the vernal pool Fairy shrimp. Fed. Reg. 59: 48136-48171.
- U. S. Fish and Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a) (1) (A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. Sacramento, California.
- U. S. Fish and Wildlife Service. 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1. Portland, Oregon.

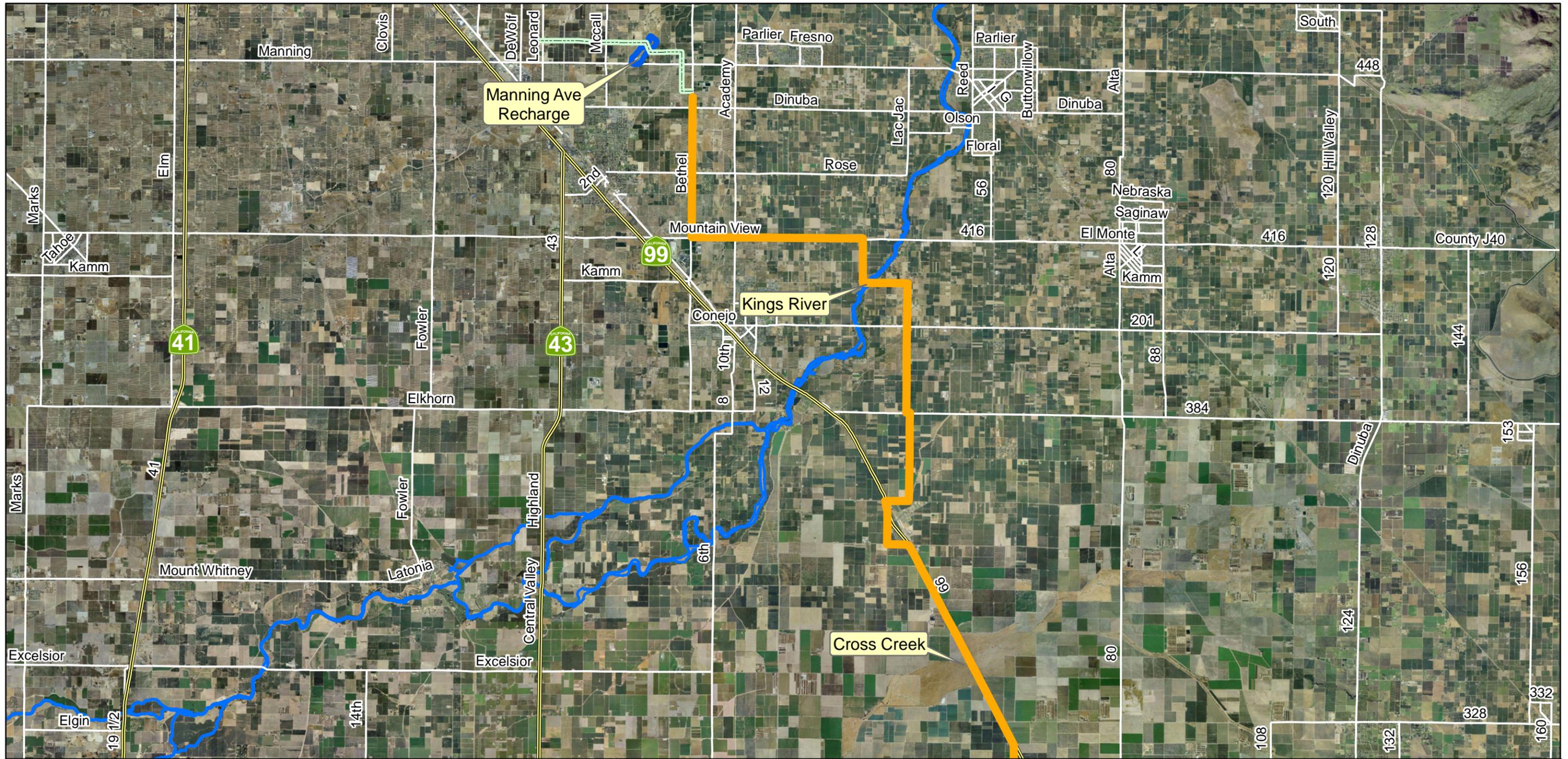
Wetland Training Institute, Inc. 1999. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Glenwood, New Mexico. WTI 99-1.

Appendix A

Aerial photographs

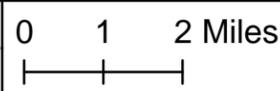
Of wetlands and waters along project routes

Kings River Conservation District Community Power Plant



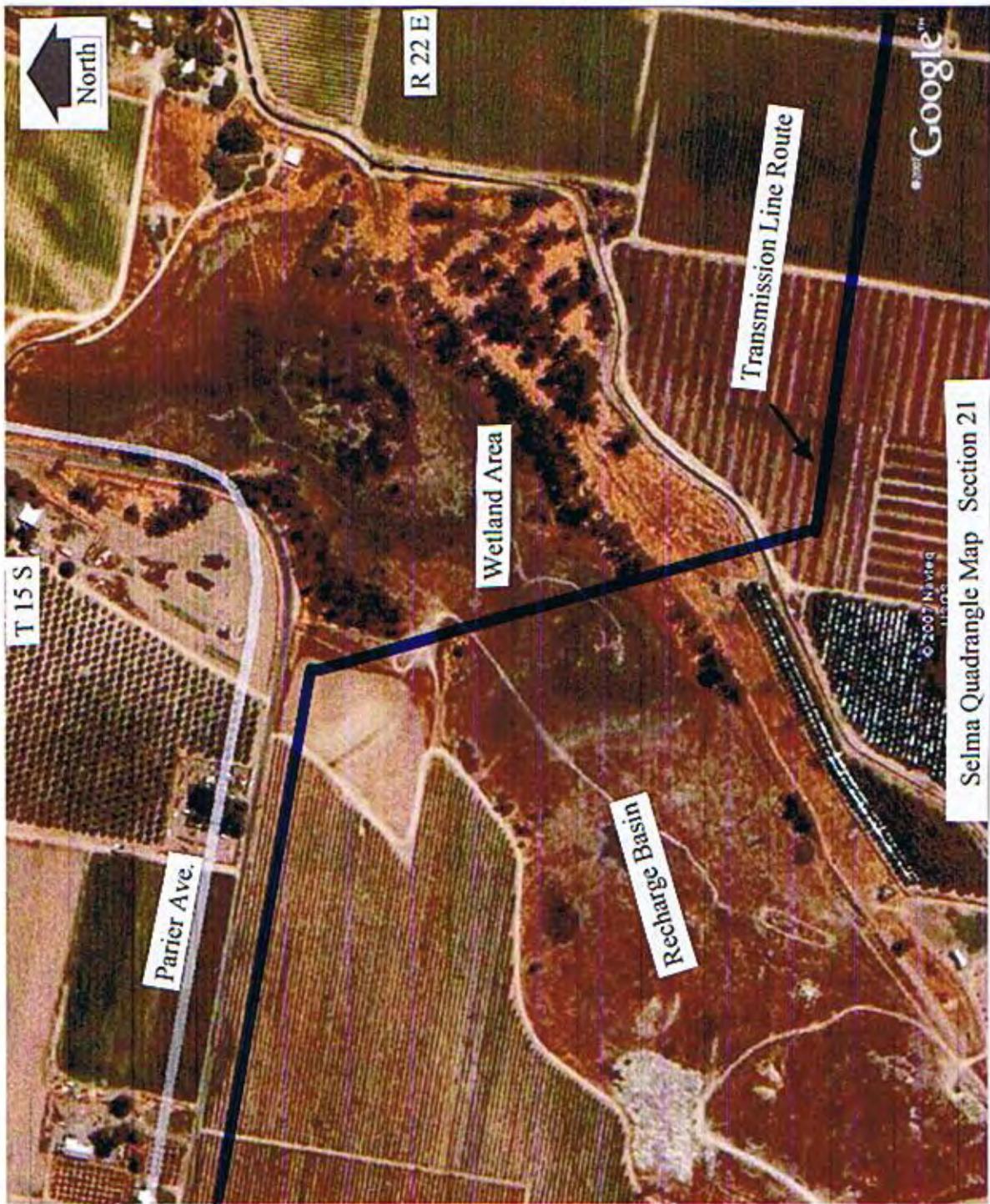
Wetland Delineation

- Transmission Line
- Natural Gas Pipeline
- Kings_River



**KRCDD COMMUNITY
POWER PLANT**

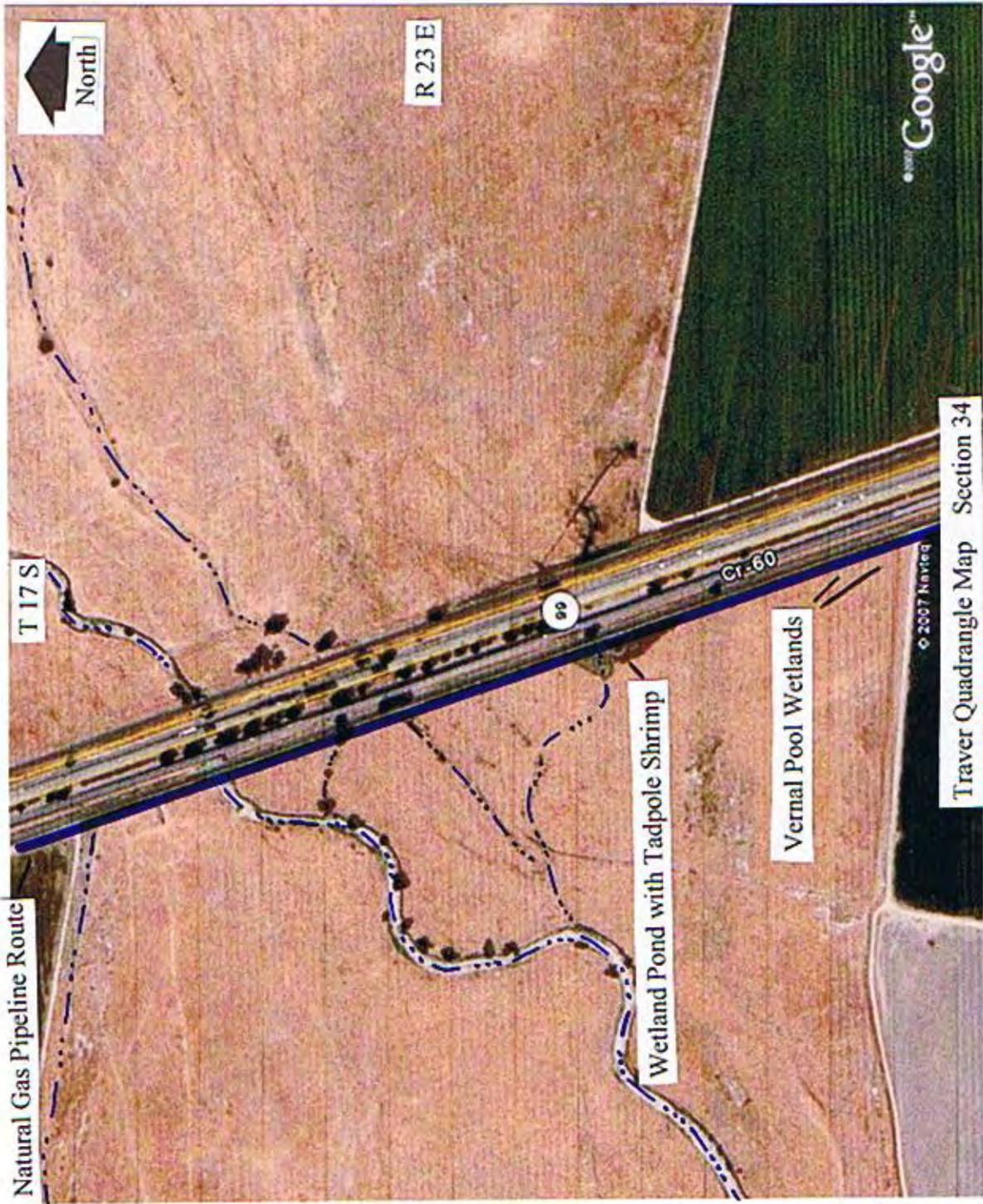
Energy for our Future



HALSTEAD & ASSOCIATES
 Endangered Species / Environmental Consultants
 296 Burgan Avenue, Clovis, CA 93611



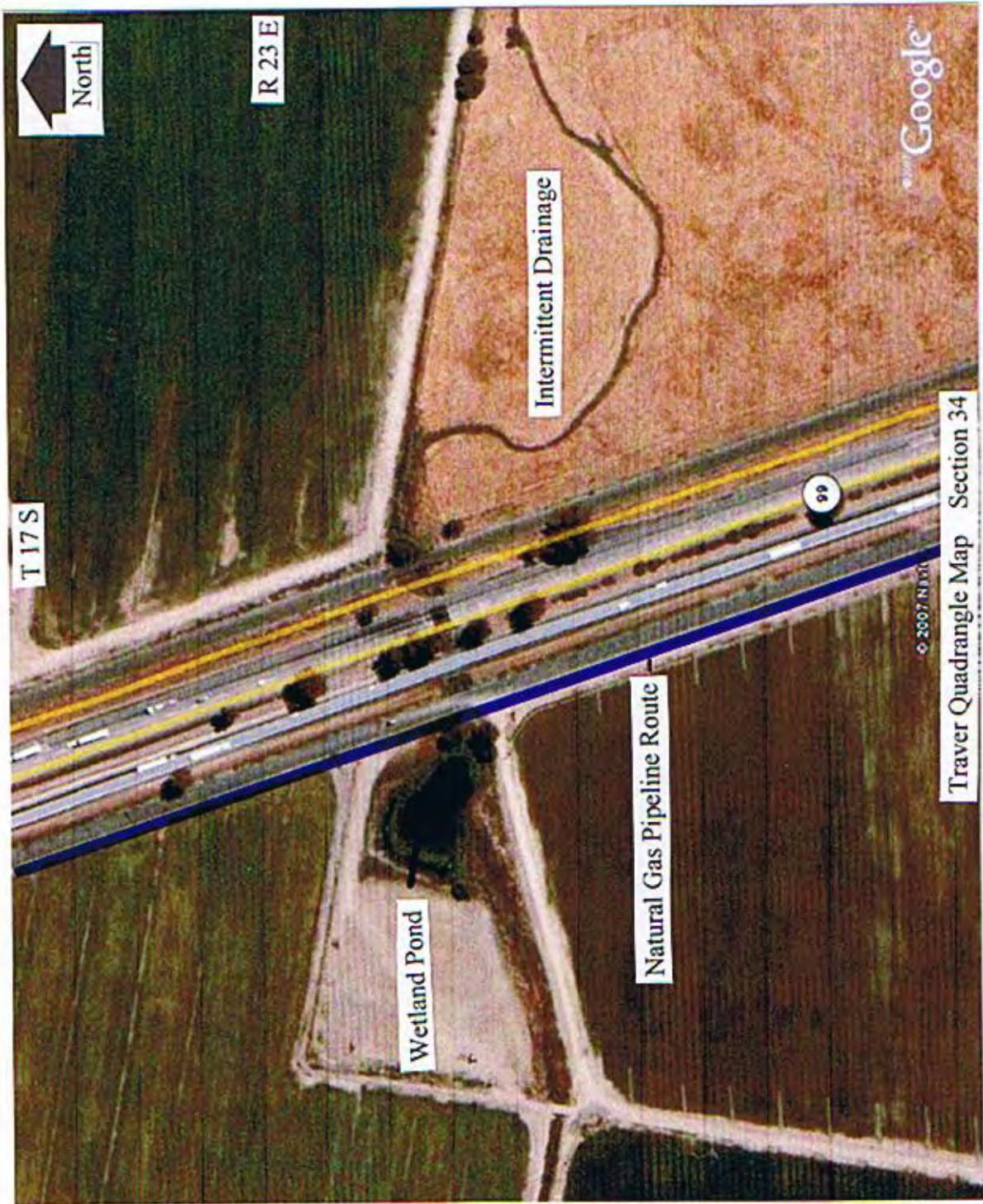
Manning Recharge Basin



HALSTEAD & ASSOCIATES
 Endangered Species / Environmental Consultants
 296 Burgan Avenue, Clovis, CA 93611



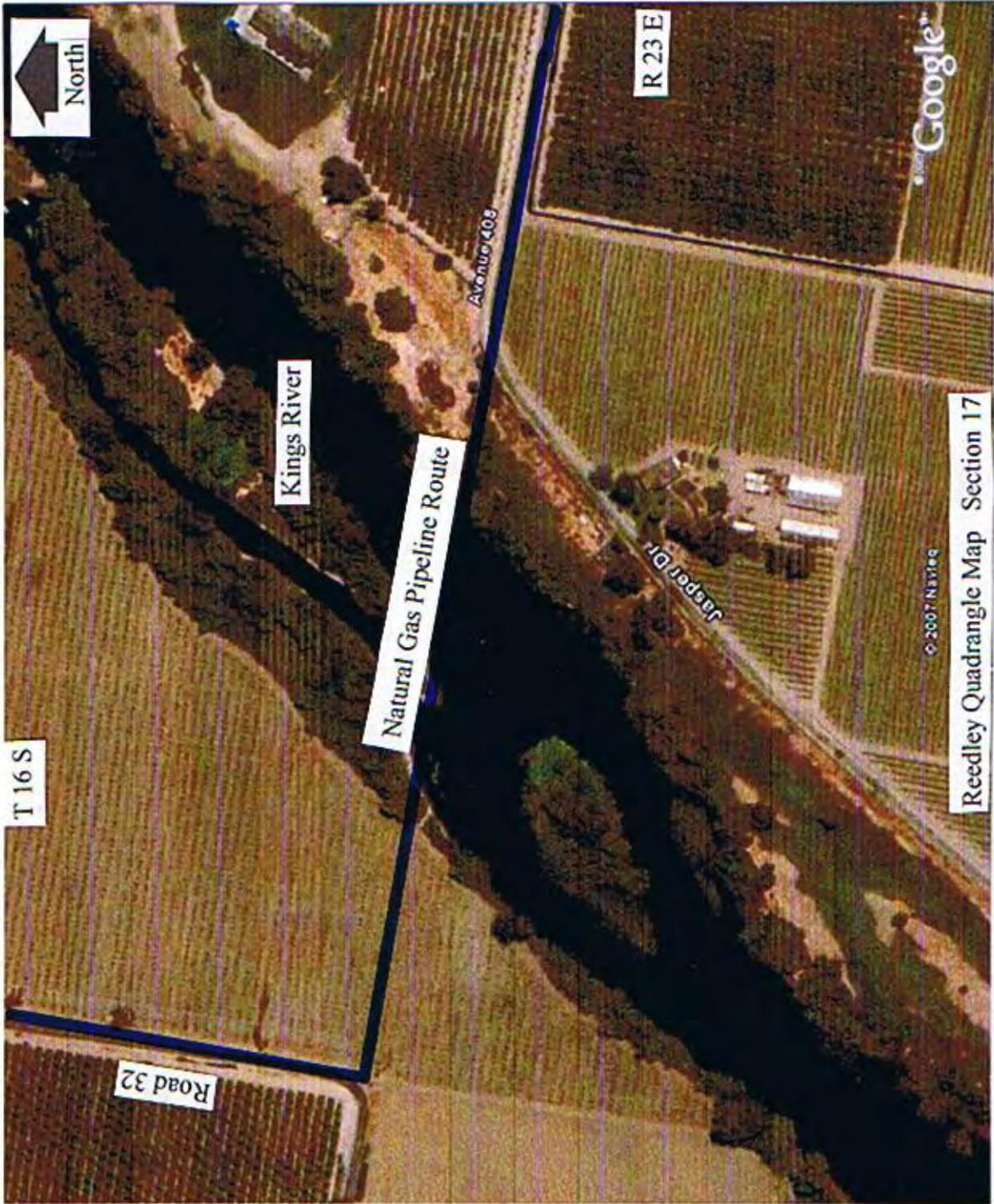
Cross Creek South



HALSTEAD & ASSOCIATES
Endangered Species / Environmental Consultants
296 Burgan Avenue, Clovis, CA 93611



Cross Creek North



HALSTEAD & ASSOCIATES
 Endangered Species / Environmental Consultants
 296 Burgan Avenue, Clovis, CA 93611



Kings River

Appendix B

Intermittent drainages of Cross Creek
at Road 60 along the gas pipeline route



Figure 1. Cross Creek looking north along Road 60.



Figure 2. Cross Creek channel looking west from Road 60.



Figure 3. Cross Creek channel looking west from Road 60.



Figure 4. Cross Creek looking south along Road 60.

**Main channel of Cross Creek at Road 60 along gas pipeline route. Photos by H&A in May 2007.
Kings River Conservation District Community Power Plant**



Figure 1. Medium-size creek channel and road bridge crossing.



Figure 2. Wet channel of Cross Creek entering into basin.



Figure 3. Small-size creek channel & culvert crossing.



Figure 4. Cross Creek channel adjacent to gas pipeline route.

**Smaller channels of Cross Creek at Road 60 along the gas pipeline route. Photos by H&A in May 2007.
Kings River Conservation District Community Power Plant**

Appendix C

Wetlands in Cross Creek area and Kings River
along gas pipeline route



Figure 1. Vernal pool adjacent to pipeline route.



Figure 2. Natural gas pipeline route at Kings River.



Figure 3. Cross Creek drainage pond adjacent to pipeline route.



Figure 4. Cross Creek pond & culvert with Tadpole Shrimp.

**Wetlands in Cross Creek area and Kings River along gas pipeline route. Photos by H&A in May 2007.
Kings River Conservation District Community Power Plant**

Appendix D

Wetlands in Manning recharge basin along transmission line route



Figure 1. Example of existing tower in recharge basin.



Figure 2. Wetland habitat in recharge basin.



Figure 3. Proposed area of the transmission line towers.



Figure 4. Wetland vegetation of rush and bullrush in basin.

Wetlands in recharge basin along transmission line route. Photos by H&A in May 2007.

Appendix E

Examples of maintained ditches along gas pipeline route



Figure 1. Ditch at Mountain View Avenue looking east.



Figure 2. Same ditch as Figure 1 looking north.



Figure 3. Ditch at Road 40 looking north.



Figure 4. Same ditch as Figure 3 looking northeast.

**Examples of maintained ditches along gas pipeline route. Photos by H&A in May 2007.
Kings River Conservation District Community Power Plant**