

7.0 BIOLOGICAL RESOURCES

ENVIRONMENTAL SETTING

An inventory of the biological resources of the project area was prepared at a general level by Moore Biological Consultants (2010). The focus of this work was to conduct a preliminary evaluation of the Primary Route for wetlands and suitable habitat for or presence of special-status plant and wildlife species. The 2010 letter report from Moore Biological Consultants, which documents methodology and results, is available in Appendix B.

Moore Biological conducted a search of California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDDB, 2010) to identify wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. The CNDDDB records search encompassed the Lodi South and Terminous USGS 7.5-minute topographic quadrangles, an area of approximately 240 square miles surrounding the project site.

Field surveys were conducted in December 2009 and January and March 2010, which consisted of driving and walking along the proposed project alignment, making observations and noting habitat conditions, surrounding land uses, and plant and wildlife species. The fieldwork included an assessment of potential jurisdictional Waters of the U.S. and wetlands, as defined by the U.S. Army Corps of Engineers (ACOE, 1987, 2008), and a search for special-status species and suitable habitat for these species (e.g., blue elderberry shrubs, vernal pools). Additionally, trees along the alignment were assessed for the potential use by nesting raptors, especially Swainson's hawk, and burrows along the alignment were inspected for evidence of burrowing owl occupancy.

Vegetation

The Primary Route follows roads for most of its length (see photographs in Appendix C). Habitats along the Primary Route are primarily highly-disturbed agricultural lands. Virtually all of the parcels along the Primary Route are farmed in alfalfa, vineyards, or almond and fruit orchards.

The orchard floors, vineyard edges, road shoulders, and other ruderal (weedy) areas along the Primary Route are vegetated with various native and non-native annual grass and weed species. Oats, soft chess brome, ripgut brome, foxtail barley, annual bluegrass, Bermuda grass and perennial ryegrass are dominant grass species in these areas. Other grassland species are intermixed with the predominant grasses, such as fiddleneck, black mustard, bull thistle, prickly lettuce, pigweed, dove weed, common mallow and filaree.

Beyond the orchards, trees along the Primary Route include blue gum, willows, Fremont cottonwood, olive, valley oak, mulberry, black locust and a number of other ornamentals.

Very few of these trees appear to be in potential conflict with some of the new poles and lines. No blue elderberry shrubs were observed within or adjacent to the Primary Route.

Wildlife

A variety of wildlife species were observed along the Primary Route. Some of the more common birds observed include red-tailed hawk, mourning dove, western scrub jay, American crow, yellow-billed magpie, northern mockingbird, white-crowned sparrow and house finch. All of these are species commonly found in agricultural areas in the greater project vicinity.

A limited variety of mammals common to agricultural and semi-rural areas are expected to use habitats along the Primary Route. A few California ground squirrels and sign of raccoon were observed along the Primary Route. Coyote, black-tailed hare, striped skunk, and Virginia opossum are expected to occur in the area. A number of species of small rodents, including mice and voles, also likely occur.

Based on habitat types present, only a few amphibian and reptile species are expected to use habitats along the Primary Route. Although none were observed, western fence lizard, Pacific chorus frog, western toad, coast horned lizard, gopher snake, common king snake, and common garter snake are expected to occur in the area.

Special-Status Species

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species. Both FESA and CESA prohibit unauthorized "take" (i.e., killing) of listed species, with take broadly defined in both acts to include activities such as harassment, pursuit and possession.

Special-status wildlife species also include species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The federal Migratory Bird Treaty Act and the California Fish and Game Code protect special-status bird species year-round, as well as their eggs and nests during the nesting season. The Fish and Game Code also provides protection for mammals and fish.

Special-status plants include species that are designated rare, threatened, or endangered and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS). Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS, 2001). Finally, sensitive plants may include other species that are considered sensitive or of special concern due to limited distribution or

lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the CNPS Inventory.

Table 7-1 provides a summary of the listing status and habitat requirements of special-status plant and wildlife species that have been documented in the project vicinity, or for which there is potentially suitable habitat along the Primary Route. This table also includes an assessment of the likelihood of occurrence of each of these species along the Primary Route. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

Of the special-status species identified in the CNDDDB, Swainson's hawk, burrowing owl, and tricolored blackbird are the only species that have potential to occur along the Primary Route on more than a transitory or very occasional basis. These species are discussed in more detail below.

Swainson's Hawk

The Swainson's hawk is a migratory hawk listed by the State of California as a threatened species. The Migratory Bird Treaty Act and Fish and Game Code of California protect Swainson's hawks year-round, as well as their nests during the nesting season (March 1 through September 15). Swainson's hawk are found in the Central Valley primarily during their breeding season (March 1 through September 15); a population is known to winter in the San Joaquin Valley.

Swainson's hawks prefer nesting sites that provide sweeping views of nearby foraging grounds consisting of grasslands, irrigated pasture, hay, and wheat crops. Most Swainson's hawks are migratory, wintering in Mexico and breeding in California and elsewhere in the western United States. This raptor generally arrives in the Central Valley in mid-March, and begins courtship and nest construction immediately upon arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August.

The CNDDDB contains several records of nesting Swainson's hawk in the project vicinity. The nearest occurrence of nesting Swainson's hawks is right along the Primary Route on Kingdon Road, approximately one-half mile west of Ray Road. During the March 19, 2010 survey, a few Swainson's hawks were observed soaring and perching on poles and trees near Interstate 5.

Burrowing Owl

The Migratory Bird Treaty Act and California Fish and Game Code protect burrowing owls year-round, as well as their nests during the nesting season (February 1 through August 31). Burrowing owls are a year-long resident in a variety of grasslands as well as scrub lands that have a low density of trees and shrubs with low growing vegetation. Burrowing owls that nest in the Central Valley may winter elsewhere.

TABLE 7-1
SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status ¹	State Status ²	CNPS List ³	Habitat	Likelihood of Occurrence in Project Area
PLANTS						
Rose-mallow	<i>Hibiscus lasiocarpus</i>	None	None	2	Freshwater marshes and swamps; blooms August-September.	Unlikely; there is no suitable marsh or swamp habitat along the Primary Route. The nearest occurrence of rose-mallow is approximately 1 mile west of the Primary Route.
Delta tulle pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	None	None	1B	Freshwater and brackish marshes, usually along the edges; blooms May-September.	Unlikely; there is no suitable marsh or swamp habitat along the Primary Route. The nearest occurrence of Delta tulle pea is approximately 3 miles northwest of the Primary Route.
Legenere	<i>Legenere limosa</i>	None	None	1B	Vernal pools; blooms April – June.	Unlikely; there is no suitable vernal pool habitat along the Primary Route. The nearest occurrence of legenere is approximately 8 miles north of the Primary Route.
Mason’s lilaopsis	<i>Lilaopsis masonii</i>	None	R	1B	Freshwater and brackish marshes, riparian scrub; blooms April - November.	Unlikely; there is no suitable marsh habitat along the Primary Route. The nearest occurrence of Mason’s lilaopsis is approximately 6 miles northwest of the Primary Route.
Delta mudwort	<i>Limosella subulata</i>	None	None	2	Marshes and swamps.	Unlikely; there is no suitable marsh or swamp habitat along the Primary Route. The nearest occurrence of Delta mudwort is approximately 7 miles northwest of the Primary Route.
Blue skullcap	<i>Scutellaria lateriflora</i>	None	None	2	Marshes and swamps.	Unlikely; there is no suitable marsh or swamp habitat along the Primary Route. The nearest occurrence of blue skullcap is approximately 7 miles west of the Primary Route.
Suisun marsh aster	<i>Symphotrichum lentum</i>	None	None	1B	Marshes and swamps.	Unlikely; there is no suitable marsh or swamp habitat along the Primary Route. The nearest occurrence of Suisun marsh aster is approximately 4 miles west of the Primary Route.
WILDLIFE						
Burrowing owl	<i>Athene cucularia</i>	None	SC	N/A	Open, dry grasslands, deserts and scrublands characterized by low-growing vegetation.	Low; there are very few ground squirrels and ground squirrel burrows along the Primary Route. No burrowing owls or evidence of occupancy were found during the 2010 survey. The nearest occurrence of nesting burrowing owls is approximately 4 miles south of the Primary Route.

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SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status ¹	State Status ²	CNPS List ³	Habitat	Likelihood of Occurrence in Project Area
Swainson's hawk	<i>Buteo swainsoni</i>	None	T	N/A	Nesting: large trees, usually within riparian corridors. Foraging: agricultural fields and annual grasslands.	Moderate: there are a few suitable nest trees along and near the Primary Route. The open grassland, alfalfa, and other cropland near these trees provide high-quality foraging habitat and increases the suitability of the trees in the area being used for nesting. There are numerous occurrences of nesting Swainson's hawks, including one occurrence right along the Primary Route on Kingdon Road.
Tricolored blackbird	<i>Agelaius tricolor</i>	None	SC	N/A	Requires open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	Moderate: blackberry brambles and marsh vegetation associated with wetlands in the vicinity of the west end of the Primary Route are suitable nesting habitat for this species. Grasslands along the Primary Route are also suitable for foraging. There are two occurrences of nesting tricolored blackbirds in the CNDDDB search area, with the closest being approximately 8 miles northeast of the Primary Route.
California black rail	<i>Laterallus jamaicensis coturniculus</i>	None	T	N/A	Salt marshes bordering larger bays.	Unlikely: there are no salt marshes along the Primary Route. The nearest occurrence of California black rail is approximately 0.5 miles west of the west tip of the Primary Route.
California tiger salamander	<i>Ambystoma californiense</i>	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) near grassland/ woodland habitats with summer refugia (i.e., burrows).	Unlikely: there is no suitable habitat along the Primary Route. The only record of California tiger salamander documented in the CNDDDB within the 240+/- square-mile search area is an historical occurrence approximately 8 miles north of the Primary Route in downtown Galt; this population is described as "extirpated" (i.e., no longer existent). The Primary Route is not within designated critical habitat for California tiger salamander (USFWS, 2005a).
Giant garter snake	<i>Thamnophis gigas</i>	T	T	N/A	Freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	Unlikely: while giant garter snake is known from Delta waterways just west of the west end of the Primary Route, the upland habitats along the Primary Route are unsuitable for this species. The closest occurrence of giant garter snake is approximately 1 mile northwest of the Primary Route.
Foothill yellow-legged frog	<i>Rana boylei</i>	None	SC	N/A	Partly shaded, shallow streams with a rocky substrate in a variety of habitats.	Unlikely: there is no habitat along the Primary Route. The nearest documented occurrence of this species is a 1958 record approximately 5 miles north of the Primary Route.

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Common Name	Scientific Name	Federal Status ¹	State Status ²	CNPS List ³	Habitat	Likelihood of Occurrence in Project Area
Western pond turtle	<i>Actinemys marmorata</i>	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Unlikely: while western pond turtle is known from Delta waterways west of the west end of the Primary Route, the upland habitats along the Primary Route are unsuitable for this species. The closest occurrence of western pond turtle is approximately 1 mile west of the Primary Route.
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	None	SC	N/A	Lakes and rivers of the central valley.	Unlikely: there is no habitat along the Primary Route. The closest occurrence of Sacramento splittail is 3 miles north of the Primary Route in the Mokelumne River.
Vernal tadpole shrimp	<i>Lepidurus packardii</i>	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools along the Primary Route. The CNDDB contains one record of vernal pool tadpole shrimp within the 240+/- square-mile search area, which is only generally mapped in the Lodi area. The Primary Route is not within designated critical habitat for vernal pool species (USFWS 2005b).
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	None	N/A	Elderberry shrubs, usually in Central Valley riparian habitats	Unlikely: there are no blue elderberry shrubs along the Primary Route. The nearest documented occurrence of valley elderberry longhorn beetle is approximately 10 miles northeast of the Primary Route.

1 T = Threatened; E = Endangered.

2 T = Threatened; E = Endangered; SC= State of California Species of Special Concern.

3 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes species that are rare, threatened, or endangered in California, but more common elsewhere.

Source: Moore Biological Consultants, 2010.

The primary habitat requirement of the burrowing owl is small mammal burrows for nesting. The owl usually nests in abandoned ground squirrel burrows, although they have been known to dig their own burrows in softer soils. In urban areas, burrowing owls often utilize artificial burrows, including pipes, culverts and piles of concrete pieces. This semi-colonial owl breeds from March through August, and is most active while hunting during dawn and dusk.

The nearest occurrence of nesting burrowing owls in the CNDDDB (2010) search area is approximately 4 miles south of the Primary Route. No burrowing owls were observed along the Primary Route during the 2009 and 2010 surveys.

Tricolored Blackbird

The tricolored blackbird is a State of California Species of Concern and is also protected by the federal Migratory Bird Treaty Act. Tricolors are colonial nesters requiring very dense stands of emergent wetland vegetation and/or dense thickets of wild rose or blackberries adjacent to open water for nesting. This species is endemic to California.

There are two occurrences of nesting tricolored blackbirds in the CNDDDB (2010) search area, with the closest being approximately 8 miles northeast of the Primary Route. No tricolored blackbirds were observed nesting, foraging or perching along the Primary Route during the 2009 or 2010 surveys.

San Joaquin County Multi-Species Habitat Conservation Plan

San Joaquin County, the San Joaquin County COG, the City of Lodi and other municipalities and agencies within the county adopted the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) in 2000-2001 after considering the Final EIR/EIS prepared for the plan. The EIR/EIS, known as the *Final EIR/EIS for the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan*, was certified by the San Joaquin Council of Governments on December 7, 2000.

The SJMSCP is a voluntary plan through which development projects can obtain coverage under the state and federal Endangered Species Acts. The SJMSCP includes an overall inventory of the special-status biological resources of the County, an analysis of the potential biological impacts of land development and other anticipated conversion of habitats, and a plan for habitat acquisition and enhancement that is expected to reduce the potential biological effects of various habitat conversion activities to a less than significant level. Participation in the SJMSCP is considered sufficient to reduce the potential environmental impacts of a project on species covered by the plan to a less than significant level.

SJMSCP covered species include those ordinarily occurring along the Primary Route. Losses of habitat values associated with conversion of such lands are compensated by payment of fees that are used for habitat acquisition and improvement. The most recent

(2010) HCP per-acre fees are listed below; the “Agriculture” fees would apply to the upland portions of the SPA.

Multi-Purpose Open Space	\$7,307
Agriculture	\$14,615
Grasslands	\$42,071
Wetlands	\$80,766

The majority of the Primary Route is located within public road alignments outside the City of Lodi and is not classified by the SJMSCP although the project is eligible for coverage. Lands adjacent to the proposed alignment are predominantly Multi-Purpose Open Space and Agriculture.

Waters of the U.S. and Wetlands

Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, many of their tributaries, and adjacent wetlands. State and federal agencies regulate these habitats and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into waters of the U.S. Both CDFG and ACOE have jurisdiction over modifications to riverbanks, lakes, stream channels and other wetland features.

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* (ACOE, 1987). Waters of the U.S. are drainage features or water bodies as described in 33 CFR 328.4. Currently, ACOE and the U.S. Environmental Protection Agency (EPA) share authority to determine the jurisdictional status of waters of the U.S., including wetlands. Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages; lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands.

Potentially jurisdictional waters of the U.S. along the Primary Route include irrigation laterals and ditches and a relatively large ditch that is tributary to White Slough near the western terminus of the project. There are also seasonal wetlands in soil borrow areas adjacent to Interstate 5 and some ditches and other low areas supporting wetlands near the existing NCPA power plant (west end of the Primary Route).

The westernmost approximately 2,000 feet of the Primary Route (i.e., west of Interstate 5) parallels a channelized tributary to White Slough, prior to turning north and connecting to the existing substation. In this area, the Primary Route is in upland grasslands just north of the channelized tributary. White Slough is a jurisdictional water of the U.S. that drains into the San Joaquin River delta. This hydrologic relationship of the channelized tributary to White Slough with the delta would likely lead to a jurisdictional determination by ACOE.

The Primary Route crosses over a number of irrigation laterals and ditches. Review of USGS topographic maps reveals that the network of irrigation laterals in the project vicinity is mapped as intermittent "blue-line" streams. These irrigation laterals and ditches return excess water back to the San Joaquin River delta and the hydrologic relationship of the irrigation laterals and ditches with the delta would likely lead to a jurisdictional determination by ACOE.

To the north and south of the Interstate 5 Frontage Road under-crossing of Interstate 5, there are seasonal wetlands in soil borrow areas adjacent to the elevated freeway. In this area, the Primary Route follows a fence line along the east edge of the soil borrow areas. The wetlands do not appear to pond water, but remain saturated long enough in the winter and spring to support hydrophytic vegetation. Due to hydrologic isolation from jurisdictional water of the U.S., it is considered unlikely ACOE would assert jurisdiction over the seasonal wetlands in these soil borrow areas.

Finally, there are some ditches and low areas supporting wetlands in the vicinity of the entrance to the power plant (west end of the Primary Route) that appear to have been excavated during construction of roads, the power plant, and the substation. The Primary Route is in upland grasslands and/or along the edge of a dirt road just north of the channelized tributary to White Slough and will not encroach into any of these ditches and low areas supporting wetlands.

No other areas were observed along the Primary Route appearing to have any potential to fall under ACOE jurisdiction. Specifically, no vernal pools, seasonal wetlands, marshes, ponds, or lakes of any type were observed along the alignment. The minor roadside drainage ditches and agricultural tailwater return ponds in parcels along the Primary Route do not meet the technical or regulatory criteria of jurisdictional Waters of the U.S. or wetlands.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Significance Thresholds

For the purposes of this EIR, impacts related to biological resources are considered significant if the proposed project would:

- Adversely 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).
- 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 CDFG or USFWS.

- 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 CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

Impacts on Special Status Plants

Special-status plants identified in the CNDDDB query, and listed in Table 7-1, include rose-mallow, legenere, Delta tule pea, Mason’s lilaepsis, delta mudwort, blue skullcap, and Suisun marsh aster. All of the special-status plants found in the greater project vicinity generally occur in relatively undisturbed areas within vegetation communities such as vernal pools, marshes and swamps, and riparian scrub. None of these habitat types occur along the Primary Route. Due to lack of suitable habitat, no special-status plant species are expected to occur along the Primary Route. Therefore, the project would have no impact on any special-status plant species.

Level of Significance: Less than significant

Mitigation Measures: None required

Impacts to Special Status Wildlife Species

The potential for intensive use of habitats along the Primary Route by special-status wildlife species is generally considered low. Sensitive wildlife species that have been recorded in the greater project vicinity include Swainson’s hawk, burrowing owl, tricolored blackbird, California black rail, California tiger salamander, giant garter snake, foothill yellow-legged frog, western pond turtle, Sacramento splittail, vernal pool tadpole shrimp, and valley elderberry longhorn beetle.

While the Primary Route and surrounding areas may have provided habitat for some of the special-status wildlife species listed in Table 7-1 at some time in the past, farming, development, and road and canal construction and maintenance along the Primary Route

and in surrounding parcels have substantially modified natural habitats within the greater project vicinity. Of the special-status wildlife species identified, Swainson's hawk, burrowing owl, and tricolored blackbird are the only species that have potential to occur along the Primary Route on more than a transitory or very occasional basis. These species are discussed further below because they could be disturbed by construction if they nest along or near the Primary Route during construction. Other special-status birds may fly over the area on occasion, but would not be expected to nest along the Primary Route. There is no habitat along the Primary Route for the remaining species in Table 7-1.

As previously noted, Swainson's hawk has been observed in the project area. There are a few suitable nest trees along and near the Primary Route and there are some notable raptor stick nests in some large oaks and willows near Interstate 5. It is likely one or more of these nests have been used by nesting Swainson's hawks in the past. Open grassland, alfalfa, and other cropland near these trees provide high-quality Swainson's hawk foraging habitat and increases the suitability of the trees in the area to be used for nesting.

No burrowing owls were observed in the field surveys. However, there are a few areas of open grassland and cropland near the Primary Route that could be used by foraging burrowing owls. In addition, a few suitable ground squirrel burrows were observed along ditches, banks of irrigation laterals, and in some of the parcels adjacent to the Primary Route. None of these burrows had any evidence of burrowing owl occupancy (i.e. whitewash, feathers and/or pellets). Despite these negative findings, burrowing owls could nest along or near the Primary Route in the future.

As previously noted, no tricolored blackbirds were observed nesting, foraging or perching along the Primary Route during field surveys. However, the patches of blackberry brambles and marsh vegetation associated with wetlands in the vicinity of the west end of the Primary Route provides potentially suitable nesting habitat for tricolored blackbird. Open grassland and cropland in and near the Primary Route may be used for foraging.

There are a number of relatively large trees along the Primary Route that are suitable for nesting raptors and other protected migratory birds, including Swainson's hawk. The final survey was conducted in the very early part of the avian nesting season, and no active raptor nests were observed. However, there are some notable raptor stick nests in some large oaks and willows near Interstate 5, and both Swainson's hawks and red-tailed hawks were observed soaring and perching on poles and trees in the area. There are also a number of large eucalyptus and other ornamentals throughout the project area that could support nesting raptors. Given the presence of trees along the Primary Route and raptor foraging habitat (i.e., open fields) near the Primary Route, it is likely one or more pairs of raptors, plus a variety of songbirds, nest along one or more of the Primary Route each year.

Mitigation for the identified potential impacts would be addressed by conducting pre-construction surveys to identify whether lands or trees adjoining the project site are in use by special-status species. The mitigation measures specified below would reduce these potential impacts to a less than significant level. Alternatively, the City could participate in the SJMSCP, which would also have the effect of reducing potential impacts to a less than significant level.

Level of Significance: Potentially significant

Mitigation Measures:

- 7-1. Pre-construction surveys for nesting Swainson's hawks along the Primary Route shall be conducted if construction commences between March 1 and September 15. The surveys shall include all large trees visible from the Primary Route. If active nests are found, a qualified biologist shall recommend any necessary temporal restrictions on construction to avoid or minimize disturbance of the nests. Such restrictions may include, but are not limited to, a buffer area around nests within which no construction activities would occur until the young have fledged.
- 7-2. Pre-construction surveys for burrowing owls along the Primary Route shall be conducted if construction commences between February 1 and August 31. The surveys shall include the ruderal areas along the roads that the Primary Route follows, and all areas of open grassland visible from the Primary Route. If occupied burrows are found, a qualified biologist shall recommend any necessary temporal restrictions on construction to avoid or minimize disturbance of the nests. Such restrictions may include, but are not limited to, a buffer area around nests within which no construction activities would occur until the young have fledged.
- 7-3. Pre-construction surveys for tricolored blackbird shall be conducted if construction commences between March 15 and August 1. The survey shall include the blackberry brambles and marsh vegetation associated with wetlands in the vicinity of the west end of the Primary Route. If active nests are found, a qualified biologist shall recommend any necessary temporal restrictions on construction to avoid or minimize disturbance of the nests. Such restrictions may include, but are not limited to, a buffer area around nests within which no construction activities would occur until the young have fledged.
- 7-4. Any trees that need to be removed or trimmed as part of the project shall be felled or trimmed outside of the general bird nesting season (February 1 through August 31), or a nesting bird survey shall be conducted immediately prior to the proposed tree removal or trimming. If active nests are found, tree felling or trimming shall be delayed until the young have fledged.
- 7-5. As an alternative to the above mitigation measures, the proponent may seek coverage under the SJMSCP. In this event, the proponent shall request coverage under the SJMSCP, pay required fees and observe any Incidental Take Minimization Measures specified for the project by the San Joaquin County COG.

Significance After Mitigation: Less than significant

Implementation: The Lodi EUD shall hire a qualified biologist to conduct the required surveys. The Lodi EUD, and any contractors hired by the EUD, shall be responsible for implementing the recommendations of the qualified biologist. The Lodi EUD will be responsible for obtaining SJMSCP coverage if desired and for fulfilling SJMSCP-related requirements.

Monitoring: The Lodi EUD will monitor all construction activities and will ensure compliance with the mitigation measures, including any ITMMs that may be prescribed by the SJCOG.

Impacts on Wetlands and Waters of the U.S.

Potentially jurisdictional waters of the U.S. were identified along the Primary Route by field surveys, as previously noted. They include irrigation laterals and ditches and a relatively large ditch that is tributary to White Slough adjacent to the western portion of the Primary Route. There are also seasonal wetlands in soil borrow areas adjacent to Interstate 5 and some ditches and other low areas supporting wetlands near the power plant. Beyond these features, no vernal pools, stock ponds, streams, lakes, or other potentially jurisdictional waters of the U.S. or wetlands of any kind were observed along the Primary Route. The minor roadside drainage ditches and agricultural tailwater return ponds in parcels along the Primary Route do not meet the technical or regulatory criteria of jurisdictional Waters of the U.S. or wetlands.

The project is expected to avoid direct impact of these potential waters of the U.S. and wetlands. The poles would not be placed in any of the irrigation laterals and ditches in the project area, nor is it anticipated that the project would disturb the seasonal wetland area adjacent to I-5. While power poles will be placed along the tributary ditch to White Slough (near the proposed western terminus of the project), it is expected the poles will be installed in ruderal uplands adjacent to the ditch.

Under this scenario of complete avoidance of all potential waters of the U.S. and wetlands, the project would not require a Section 404 permit from ACOE or a Section 1602 permit from CDFG. However, if material from the holes drilled for the power poles discharges or spills into potential waters of the U.S. and wetlands, or if modifications to the banks of potential waters of the U.S. and wetlands are required to support pole installation, a Section 404 permit from ACOE and/or a Section 1602 permit from CDFG may be required. Both permits typically include attached conditions designed to reduce the environmental impact of a project on an affected water body or wetland.

Level of Significance: Potentially significant

Mitigation Measures:

7-6. Potentially jurisdictional waters of the U.S. and wetlands shall be avoided to the maximum extent practicable through placing the power poles outside the potentially jurisdictional areas. If power poles must be placed within potentially jurisdictional water of the U.S. or wetland and/or modifications to the jurisdiction areas are needed to support the pole installation, a wetland

delineation shall be conducted and submitted to ACOE to determine the jurisdictional or non-jurisdictional status of mapped features. If the project will involve encroachment into potentially jurisdictional waters of the U.S. and wetlands, all necessary permits and/or certification shall be obtained from ACOE, CDFG, and the Regional Water Quality Control Board, and the project shall comply with all conditions of these permits and/or certifications.

Significance After Mitigation: Less than significant

Implementation: The Lodi EUD, or its subcontractors, shall retain a qualified biologist to conduct the wetland delineation if necessary, and shall obtain any required permits. The Lodi EUD, and any contractors hired by the EUD, shall be responsible for implementing the conditions of any required permits.

Monitoring: The Lodi EUD will monitor all construction activities and will ensure compliance with permit conditions.

Other Biological Resource Impacts and Related Conservation Plan

The Moore Biological report did not indicate any project impacts on special-status fish species, such as salmon. It also did not indicate any impacts on wildlife corridors or native wildlife nesting sites, other than potential nesting sites for bird species discussed previously. No sensitive natural communities were identified in the Moore Biological report.

The only conservation plan potentially applicable to the project is the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), a comprehensive program/plan for assessing and mitigating the biological impacts of land development in San Joaquin County. The plan provides compensation for the conversion of open space to non-open space uses that affect plant, fish, and wildlife species covered by the plan. The plan is voluntary; applicants may use the plan or choose an alternate mitigation strategy for a project. Optional coverage of the project under the SJMSCP, including the implementation of any required Incidental Take Minimization Measures is available, and applicable conditions shall be observed by the contractor and/or City. A project that complies with the SJMSCP can be deemed to result in less than significant impacts on biological resources under CEQA.

The project area is located within the SJMSCP coverage area. However, project proponents may opt to not participate in the SJMHCP. Under this circumstance, the project proponent would be required to comply with all applicable local, state and federal laws and regulations concerning biological resource protection. As discussed in this chapter, the project would have little impact on biological resources, and mitigation measures would be implemented for identified impacts. These mitigation measures would be consistent with state and federal laws and regulations.

As previously noted, the SJMSCP covers conversion of open space to non-open space uses. The project would be located on existing public road and public utility rights-of-way, which are already non-open space uses. No additional open space would be converted as

a result of the project. Therefore, even if the project does not participate in the SJMSCP, the project would not conflict with the plan.

Level of Significance: Less than significant

Mitigation Measures: None required

8.0 CULTURAL RESOURCES

This section of the EIR describes the cultural resources in the project area. Cultural resources include prehistoric and historic structures, artifacts and sites. Information for this section comes from an archaeological survey of the project area by Sean Jensen of Genesis Society. Appendix C contains a copy of the survey report. The report includes results of a records search conducted at the Central California Information Center at CSU Stanislaus, part of the California Historical Resources Information System. It also includes consultation with affected Native American representatives and results of a field survey conducted in the project area.

Since the proposed project would involve physical disturbance to ground surface and sub-surface components, the potential exists to impact any cultural resources that may be located within the Area of Potential Effect (APE), also referred to as the Primary Route. In this case, the APE would consist of the approximate seven-mile linear corridor. Evaluation of the project's potential to impact significant cultural resources must be undertaken in conformity with San Joaquin County rules and regulations, and in compliance with requirements of CEQA and the CEQA Guidelines as amended.

ENVIRONMENTAL SETTING

Prehistoric Background

The project area is located within territory claimed by the Penutian-speaking Northern Valley Yokuts at the time of initial European-American entry into this region (c. 1800). The Yokuts occupied a fairly extensive area, extending from the crest of the Coast Range easterly into the foothills of the Sierra Nevada, north to the American River, and south to the upper San Joaquin River.

The basic social unit for the Yokuts was the family, although the village may also be considered a social, a political and economic unit. Villages were often located on elevated features adjoining streams (e.g., natural levees, knolls, ridges). They were inhabited mainly in the winter, as it was necessary to seasonally relocate, sometimes to hills and higher elevation zones, to establish temporary camps during food gathering seasons (spring, summer and fall). Villages typically consisted of a scattering of small structures, numbering from four or five to several dozen in larger villages, each house containing a single family of from three to seven people. Larger villages, from twelve to fifteen or more houses, might also contain an earth lodge.

As with most California Indian groups, economic life for the Yokuts revolved around hunting, fishing and the collecting of plant foods, with deer, acorns, and aquatic resources representing primary staples. The collection and processing of these various food resources was accomplished with the use of a wide variety of wooden, bone and stone

artifacts. The Yokuts were very sophisticated in their knowledge of the uses of local animals and plants, and of the availability of raw material sources that could be used in manufacturing an immense array of primary and secondary tools and implements. However, only fragmentary evidence of their material culture remains, due in part to perishability, and in part to the impacts to archaeological sites resulting from later (historic) land uses.

Historical Background

Anglo-American fur trappers, Russian scientists, and Spanish-Mexican expeditions visited the interior of California during the early part of the 19th century. These early explorations were followed by a rapid escalation of European-American activities, which culminated in the massive influx fostered by the discovery of gold at Coloma in 1848.

Early Spanish expeditions arrived from Bay Area missions as early as 1804, penetrating the northwestern San Joaquin Valley. By the mid-1820s, hundreds of fur trappers were annually traversing the Valley on behalf of the Hudson's Bay Company. By the late 1830s and early 1840s, several small permanent European-American settlements had emerged in the Central Valley and adjacent foothill lands, including ranchos in the interior Coast Range, and the settlement at New Helvetia (Sutter's Fort) at present-day Sacramento.

With the discovery of gold in the Sierra Nevada, large numbers of European-Americans, Hispanics and Chinese arrived in and traveled through the Valley. The Valley's eastside mining communities' demands for hard commodities led quickly to the expansion of ranching and agriculture throughout the Central Valley and the interior valleys of the Coast Range. Stable, larger populations arose and permanent communities slowly emerged in the Central Valley, particularly along major transportation corridors.

Of particular importance was the transformation brought about by the railroad. The Southern Pacific, Central Pacific, and Atchison Topeka and Santa Fe Railroads and a host of smaller interurban lines around the cities of Sacramento, Stockton and Modesto began intensive projects in the late 1860s. By the turn of the century, nearly 3,000 miles of lines connected the cities of Modesto and Stockton with points south and north. Many of the valley's cities, including many in San Joaquin and adjacent counties, were laid out as isolated railroad towns in the 1870s and 1880s by the Southern and Central Pacific.

Project Area Resources

Several sources of information were considered relevant to evaluating the types of archaeological and historical sites and site distribution that might be encountered within the project area. The information evaluated prior to conducting pedestrian field survey includes data maintained by the Central California Information Center at CSU Stanislaus, consultation with Yokuts tribal representatives, the Native American Heritage Commission (NAHC), and review of available published and unpublished documents relevant to regional prehistory, ethnography and early historic developments.

Records Search

Prior to conducting the pedestrian field survey, the official San Joaquin County archaeological records maintained by the Central California Information Center were examined for any existing recorded prehistoric or historic sites. Approximately five miles of the seven-mile APE (Primary Route) has been subjected to previous archaeological survey as a result of twelve previous investigations:

	<u>Report #</u>	<u>Author/Date</u>
1)	735	Cupples, 1977
2)	850	Wohlgemuth, 1990
3)	4508	Jones & Stokes, 2001
4)	5498	Leach-Palm, et al., 2004
5)	5501	Rosenthal, et al., 2004
6)	5503	Leach-Palm, et al., 2004
7)	5572	Busby, 2004
8)	6097	Jones & Matzen, 2006
9)	6185	Bonner, 2006
10)	6687	PMC, 2006
11)	6770	Lawson and Helton, 2008
12)	7085	Aspen Environmental Group, 2008

In addition to examining the official records of San Joaquin County as maintained by the Central California Information Center, the following were also reviewed by the Information Center, or separately:

- The National Register of Historic Places (1986, Supplements).
- The California Inventory of Historic Resources (State of California 1976).
- The California Historical Landmarks (State of California 1996).
- The California Points of Historical Interest (May 1992 and updates).
- The Directory of Properties in the Historic Property Data File (OHP listing 9/17/2009) and the Archaeological Determinations of Eligibility (OHP listing 9/17/2009).
- GLO Plat Maps and other historic maps referenced by the Information Center in the attached CCIC File # 7453L.
- The Native American Heritage Commission (NAHC) re. Sacred Land Listings.

No prehistoric sites have been recorded within or adjacent to the Area of Potential Effect or Primary Route. One historic-era site has been identified, but not formally recorded, within the APE. The Western Pacific Railroad alignment (CA-SJO-292-H) trends generally northwest-southeast, and bisects the Primary Route at Harney Lane.

Archaeology Survey

An archaeological field survey was undertaken by Sean Michael Jensen on February 5 and 6, 2010. All of the project area was subjected to pedestrian survey, accomplished by walking two transects along both sides of the proposed 20-foot wide power line corridor. In searching for cultural resources, the surveyor took into account the results of

background research and was alert for any unusual contours, soil changes, distinctive vegetation patterns, exotic materials, artifacts, feature or feature remnants and other possible markers of cultural sites.

Disturbance to the ground surface and subsurface components has been moderate to substantial throughout the project area. Most of the power line corridor is located within/adjacent to existing paved road rights-of-way. Additionally, farming and residential developments have resulted in ground disturbance along the study corridor. Finally, Interstate 5, the White Slough Water Pollution Control Plant and the Northern California Power Agency facility have all resulted in substantial disturbance to the APE or Primary Route and immediately adjacent lands.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impacts on Prehistoric Cultural Resources

No evidence of prehistoric use or presence was observed during the pedestrian survey. No artifacts, flakes, and no elevated spots or other soil characteristics suggesting a possible village encampment were observed. The degree of prior disturbance to which all of the project area has been subjected partially explains the absence of prehistoric cultural material along the study corridor, combined with the absence of a permanent surface water source within the immediate vicinity.

As part of the process of identifying prehistoric cultural resources and in conjunction with the records search and background data review, Native American consultation was undertaken for this project. As noted, the NAHC was requested to supply any information they had concerning Sacred Land listings for the project area, with negative results. The contact list from the NAHC included individuals, groups and tribes, as follows:

- Katherine Erolinda Perez, North Valley Yokuts Tribe, Linden, California.
- Randy Yonemura, Sacramento, California.
- Buena Vista Rancheria, Sacramento, California.
- Silvia Burley, California Valley Miwok Tribe, Stockton, California.
- Debra Grimes, California Valley Miwok Tribe, West Point, California.
- Briana Creekmore, California Valley Miwok Tribe, Wilseyville, California.
- Matthew Franklin, Lone Band of Miwok Indians, Lone, California.
- Billie Blue, Lone Band of Miwok Indians, Galt, California.
- Mary Daniels-Tarango, Wilton Rancheria, Sacramento, California.
- Leland Daniels, Wilton Rancheria, Sacramento, California.

All of the listed parties were requested, via letter, to supply any specific information they might have concerning prehistoric sites, traditional use areas or other concerns they might have for lands within or near the project area. To date, one response had been received. On January 29, Ms. Billie Blue, representing the Lone Band of Miwok Indians, responded

via email. Ms. Blue indicated that the Lone Band did not have any information or comments at this time.

The present evaluation is based on the findings of an inventory-level surface survey only. There is always the possibility that important unidentified cultural materials could be encountered on or below the surface during the course of future development or construction activities. This possibility is particularly relevant considering the constraints generally to archaeological field surveys, and particularly where past road construction and farming activities have either completely (roadways) or partially (agricultural fields) obscured ground surface visibility, as in the present case. Proper treatment of any resources encountered during construction would be necessary to avoid significant environmental effects. Evidence of human burial or scattered human remains related to prehistoric occupation of the area could be inadvertently encountered during actions involving disturbance to the ground surface and subsurface components. The following mitigation measures would address these issues.

Level of Significance: Potentially significant

Mitigation Measures:

- 8-1 If any subsurface cultural resources, including either prehistoric or historic resources, are encountered during construction, all construction activities in the vicinity of the encounter shall be halted until a qualified archaeologist can examine these materials and make a determination of their significance.
- 8-2 If human remains are encountered at any time during the development of the project, all work in the vicinity of the find shall halt and the County Coroner shall be notified immediately. If it is determined that the remains are those of a Native American, the Coroner must contact the Native American Heritage Commission. At the same time, a qualified archaeologist must be contacted to evaluate the archaeological implications of the finds. The CEQA Guidelines detail steps to be taken when human remains are found to be of Native American origin.

Significance After Mitigation: Less than significant

Implementation: The EUD will be responsible for imposing cultural resource protection controls on line construction contractors, and for retaining a qualified archaeologist if cultural resources are encountered during construction.

Monitoring: The EUD will be responsible for ensuring that archaeological monitoring occurs, if necessary. Monitoring shall consist of comparing construction activities to the archaeologist's recommendations.

Potential Project Effects on Historic Resources

As noted previously, one historic-era site, the Western Pacific Railroad (CA-SJO-292-H), bisects Harney Lane and the Primary Route. However, pole placement for the proposed 60 kV power line would not encroach within the existing railroad right-of-way. Consequently, no historic-era sites are located within the APE (Primary Route).

Similar to prehistoric resources, there is always the possibility that potentially significant but unidentified historic cultural materials could be encountered below the surface during construction activities. Mitigation Measure 8-1 described above for prehistoric resources would account for this potential and reduce potential impacts to less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

- 8-3 The EUD shall be responsible for compliance with Mitigation Measure 8-1, if necessary, regarding unidentified subsurface cultural resources exposed during excavation activities, including unidentified historic resource.

Significance After Mitigation: Less than significant

Implementation: The EUD will be responsible for imposing cultural resource protection controls on grading and excavation contractors, and for retaining a qualified archaeologist if cultural resources are encountered during construction.

Monitoring: The EUD will be responsible for ensuring that archaeological monitoring occurs, if necessary. Monitoring shall consist of comparing construction activities to the archaeologist's recommendations.

9.0 GEOLOGY AND SOILS

This section of the EIR describes the existing geology, soils, seismic conditions and mineral resources in the project area and analyzes the potential physical environmental effects related to seismic hazards and erosion. Information used in preparation of this section were obtained primarily from a soil survey report from the U.S. Department of Agriculture, Natural Resources Conservation Service (formerly the Soil Conservation Service); previously published information from the California Geological Survey (formerly the California Division of Mines and Geology); and from the Lodi Energy Center EIR.

ENVIRONMENTAL SETTING

Geology and Topography

The proposed project area is located near the approximate center of California's Central Valley, a large, northwest-trending, sediment-filled trough that extends more than 400 miles from the Tehachapi Mountains in the south to the Cascade Range on the north. The Central Valley of California is an expansive plain formed from a combination of marine sediments and Sierra Nevada and Coastal Range alluvial sediments. The Central Valley formed as a consequence of the accumulation of sediments that eroded from the Sierra Nevada to the east, and were deposited in this region approximately 65 million years ago. Six to 10 miles of sediment have been deposited in the Central Valley, including both marine and continental gravels, sands, silts, and clays.

The California Division of Mines and Geology's Geologic Map of the Sacramento Quadrangle (1981) indicates that the underlying geology of the project area is the Modesto Formation, which consists of alluvium (soil deposited by a river or other running water).

The eastern end of the Primary Route of the project is at an elevation of approximately 30 feet above mean sea level. The western end of the Primary Route has an elevation slightly greater than 5 feet above mean sea level. The general gradient of the project area slopes to the southwest. The project area is relatively flat, with little surface relief.

Soils

Soils generally are moderately deep to very deep, with slow runoff. Most soils are varieties of sandy loam. The sandy loams generally are moderately well-drained and have moderately rapid permeability, indicating that rain will more readily percolate into the ground, thereby reducing the amount of standing water and potential flooding. Table 9-1 lists the characteristics of the soils in the project area.

TABLE 9-1
SOIL CHARACTERISTICS
LODI WEST 60 KV POWER LINE PROJECT AREA

Name*	Depth	Drainage	Permeability	Shrink/Swell	Runoff	Water Erosion Hazard
101 - Acampo Sandy Loam	Deep to hardpan	Moderately well-drained	Moderately rapid	Low	Slow	Slight
149 - Devries Sandy Loam	Moderately deep to hardpan	Somewhat poorly drained	Moderately rapid	Low	Slow	Slight
189 - Kingdon Fine Sandy Loam	Very deep	Moderately well-drained	Moderate	Low	Slow	Slight
256 - Tokay Fine Sandy Loam	Very deep	Well-drained	Moderately rapid	Low	Slow	Slight
259 - Tujunga Loamy Sand	Very deep	Somewhat excessively drained	Rapid	Low	Slow	Slight

*Refer to Figure 9-1 for location of soil types.

Sources: US Dept. of Agriculture, Soil Conservation Service, Soil Survey of San Joaquin County, California, 1992; US Dept. of Agriculture, Natural Resources Conservation Service, Custom Soil Resource Report for San Joaquin County, California, Lodi EUD Power Line, 2009

Approximately 46% of the soils on the site are classified as Devries sandy loam, 27% are Acampo sandy loam, and 20% are Tokay fine sandy loam. The remaining soils consist of fine sandy loam and loamy sand.

Soil Hazards

Soil erosion is the process by which soil particles are removed from a land surface by wind, water, or gravity. Most natural erosion occurs at slow rates; however, the rate of erosion increases when land is cleared of vegetation or structures, or otherwise altered and left in a disturbed condition. Soil erosion potential is a function of soil texture, steepness, rainfall and runoff and disturbance. Table 9-1 indicates that erosion hazards are slight throughout the project area.

Expansive soils are those with generally high clay mineral content which, when wetted and dried, are subject to expansion and shrinkage (shrink/swell). Expansion/contraction can lead to damage to structures placed in or on these soils. All soils in the project area have low shrink-swell potential.

Subsidence is the lowering of the ground surface. Ground subsidence is the result of hydrocompaction, groundwater withdrawal or peat oxidation. Hydrocompaction is the settling and hardening of land due to application of large amounts of water for irrigation. Removal of groundwater from alluvial materials results in settlement and compaction of these materials and cumulative reductions in elevation at ground level. This phenomenon

occurs widely in the San Joaquin Delta area. Peat oxidation subsidence, which occurs widely in the Delta area together with groundwater withdrawal subsidence, is the result of oxidation, burning, wind erosion, drying and machine compaction. Most of the subsidence in the Delta area has occurred in the western portion, where subsidence greater than 15 feet has been noted. In the eastern portion, subsidence has ranged from zero to 10 feet (USGS, 2000, cited in NCPA, 2008).

Seismicity and Seismic Hazards

San Joaquin County is situated in an area considered seismically active. The seismicity of the region is related to activity on the San Andreas fault system, which forms the boundary between the North American and Pacific tectonic plates (Jennings, 1994). However, there are no active or potentially active faults located in the project area, and no Alquist-Priolo Special Studies Zones are designated there (see Regulatory Setting below). The nearest active fault is known as Segment 5 of the Great Valley Fault, located approximately 20 miles west of the project area. Other faults within a 50-mile radius of the project area include the Greenville Fault, the Concord-Green Valley Fault, the Calaveras Fault and the Hayward Fault. Ground shaking from a magnitude 7.3 earthquake could occur within a 50-mile radius of the project area (NPCA, 2008).

The Lodi area is subject to seismic shaking from the distant fault features located east and west of the City. The Lodi General Plan states that the maximum earthquake intensity to be reasonably expected in the Lodi area would correspond to Modified Mercalli Intensity VIII, on a scale of I to X, with X being the most intense. Table 9-2 shows the Modified Mercalli Intensity Scale, along with descriptions of potential affects associated with each intensity level.

During an Intensity VIII event, some damage would occur to well-made structures and chimneys, and poorly constructed or weak structures would be heavily damaged. However, an Intensity VIII event would be most probable in areas where the water table is shallow. Where the water table is deeper than 30 feet, a maximum earthquake intensity of VII would be more reasonably expected. At intensity VII, well-built structures would experience slight damage (City of Lodi, 1991). In the project area, the groundwater table varies in elevation both seasonally and by location. At the Lodi WPCF site, groundwater elevations tend to be less than 30 feet deep, while elevations in the eastern portion of the project area tend to be deeper than 30 feet (City of Lodi, 2006). Chapter 12.0, Hydrology and Water Quality, discusses groundwater in detail.

During a strong earthquake, soils that are loose and saturated can experience a temporary loss of strength and act as a fluid – a phenomenon known as liquefaction. The occurrence of liquefaction depends on the depth to groundwater, soil grain size distribution, relative soil density, degree of saturation, and intensity and duration of the earthquake. The potential hazard associated with liquefaction is seismically induced settlement.

No other geologic hazards have been identified in the project area. Tsunamis and seiches are not considered significant threats in the area, since there are no oceans or large bodies of water nearby. There is insufficient slope in the project area to promote landslides, and the nearest active volcanic area, Mt. Lassen, is approximately 175 miles to the northeast.

TABLE 9-2
MODIFIED MERCALLI INTENSITY SCALE

Modified Mercalli Intensity	Description
I	Detected by only sensitive instruments
II	Felt by a few people at rest
III	Felt noticeably indoors, but not always recognized as a quake; vibration like a passing truck
IV	Felt indoors by many and outdoors by few
V	Felt by most people. Some breakage of windows, dishes, and plaster
VI	Felt by all; falling plaster and chimneys; damage small
VII	Damage to buildings varies; depends on quality of construction
VIII	Walls, monuments, chimneys fall; panel walls thrown out of frames
IX	Buildings shift off foundations; foundations crack; ground cracks; underground pipes break
X	Most masonry and frame structures destroyed; ground cracks; landslides
XI	Ground fissures; pipes break; landslides; rails bent; new structures remain standing
XII	Damage total; waves seen on ground surface; objects thrown into the air

SOURCE: Nuclear Reactors and Earthquakes, Atomic Energy Commission, TID7024.

Mineral Resources

The California Division of Mines and Geology prepares Mineral Land Classification Maps. These maps designate Mineral Resource Zones that indicate the presence of significant mineral deposits, or lack thereof. For the Stockton-Lodi area, the Division of Mines and Geology evaluated potential Portland cement concrete (PCC) grade aggregate (sand and gravel) deposits. The project area does not have any classified Mineral Resource Zones. However, classified areas adjacent to the project area have the designation MRZ-1, which indicates that no significant mineral deposits are present, or that the likelihood of their presence is small (Division of Mines and Geology, 1988).

Natural gas deposits have been identified in the Delta region. Gas fields of potential value are present within five miles of the project area. Although several wells have been drilled within two miles of the Lodi WPCF site, most were labeled as “plugged and abandoned – dry hole,” according to maps by the California Division of Oil, Gas and Geothermal Resources.

The nearest known active gas field is the King Island Gas field, approximately two miles to the west-southwest. One active well, “Piacentine,” was identified. The Lodi Airport Gas field, approximately 2.5 miles to the southeast, is present, but this field contains no completed wells. The abandoned Harte Gas field is approximately three miles to the south-southwest (NCPA, 2008).

REGULATORY SETTING

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture, and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development projects within the zones, and may withhold permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. Surface fault rupture is not necessarily restricted to the area within an Alquist-Priolo Zone. No Alquist-Priolo zones have been identified in the project area or in San Joaquin County.

Local

San Joaquin County General Plan Safety Element

The Safety Element is one of the seven State-mandated elements of local general plans, and contains goals, policies, and implementation actions for the protection of the city or county from risks associated with seismic and geologic hazards, flooding, and wildland and urban fires. As such, all counties and cities include seismic and other geologic hazards in the development of their respective general plans and zoning. San Joaquin County has developed general plan goals and policies that specifically address reduction of geologic hazards within its jurisdiction. The County regulates earthwork and construction activities through the land use entitlement and permit review process. This review process ensures consistency with County codes and ordinances and also provides consistency review with the Uniform Building Code and the California Building Code. Grading permits are required for most types of earthwork, and additional permits are typically needed depending on the type of construction proposed.

City of Lodi General Plan

The Health and Safety Element of the City of Lodi's General Plan contains goals pertinent to geology, soils and seismicity issues, including:

Goal B. To prevent loss of lives, injury, and property damage due to the collapse of buildings and critical facilities and to prevent disruption of essential services in the event of an earthquake.

Goal F. To ensure that City emergency procedures are adequate in the event of potential natural or human-made disasters.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Significance Thresholds

For the purposes of this EIR, impacts related to geology and soils are considered significant if the proposed project would:

- Expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;
- Locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the proposed project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Locate project facilities on expansive soil, creating substantial risks to property;
- Result in substantial soil erosion or the loss of topsoil;
- Result in the loss of availability of known mineral resources that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resources recovery site delineated on the general plan.

Project Exposure to Faulting and Seismic Shaking Hazards

There are no active or potentially active faults located on or in the vicinity of the Primary Route. As a result, no portion of the 60 kV power line would be exposed to fault rupture hazards.

The 60 kV power line would be exposed to potential ground shaking associated with earthquake activity occurring on more distant fault systems to a potential Modified Mercalli Intensity of VIII. The concern related to ground shaking would be the stability of the poles carrying the power line. The power line would be constructed in accordance with adopted Lodi EUD construction standards, which would avoid the potential for substantial seismic damage. Specifically, as discussed in Chapter 2.0, Project Description, new steel and wooden poles would be used to carry the power line. Steel poles would be anchored by bolts to a concrete foundation or placed below grade similar to a wooden pole installation. Wooden poles would be 65 feet in length but would be only 57 feet in height above ground surface, indicating that eight feet of pole would be buried under ground. This would provide structural stability for the exposed portions of the wooden poles. Pole construction, therefore, would reduce the likelihood of pole collapse and subsequent damage during an anticipated maximum earthquake intensity event (Intensity VIII).

Level of Significance: Less than significant

Mitigation Measures: None required

Project Exposure to Liquefaction

The potential hazard of liquefaction depends in part on the depth to groundwater. As discussed in Chapter 12.0, Hydrology and Water Quality, the depth to groundwater ranges from shallow in the western portion of the project area to moderately deep in the eastern portion. Based on this information, the potential for liquefaction would most likely occur near the western endpoint of the Primary Route – the Lodi WPCF area. A geotechnical report for the proposed Lodi Energy Center adjacent to the WPCF site indicated that the likelihood of liquefaction is moderate (NCPA, 2008).

Liquefaction of an area where a pole has been installed may lead to the pole sagging. However, this would not likely lead to a downed power line unless several poles in the same area were to sag or fall down to the ground. The probability of this is considered low due to the spacing of poles over the approximately 7-mile route. Moreover, the only area of concern would be the area surrounding the Lodi WPCF site. This area is void of residential units, so no residents would be exposed to the hazard. Construction of the poles as described in Chapter 2.0, Project Description, would reduce the hazard posed by liquefaction.

Level of Significance: Less than significant

Mitigation Measures: None required

Exposure of Project to Soil Hazards

The installation of overhead power lines would involve minimal physical disturbance, as described in Chapter 2.0, Project Description. Most soils along the Primary Route have at least moderate permeability and low shrink/swell potential (see Table 9-1). A limited amount of soils would be exposed to potential erosion, but the project area is relatively flat and the soils have only a slight erosion hazard. As indicated by Table 9-1, erosion hazards are slight throughout the project area. This is probably due to the existence of little to no slopes.

The project area is located on the eastern edge of the Delta region. As such, it is in an area where subsidence has not been severe. Subsidence has not been identified as a hazard at the Lodi WPCF site, according to the seismic and geological hazards section of the San Joaquin County General Plan (San Joaquin County, 1992, cited in NCPA, 2008).

Level of Significance: Less than significant

Mitigation Measures: None required

Effects on Mineral Resources

There are no known mineral resources present in the project area. Based on the results of previously drilled wells, there are no natural gas deposits. The project would be limited mostly to rights-of-way along existing roads, so it would have no effect on the availability of or access to any mineral resources that may be discovered in the future.

Level of Significance: Less than significant

Mitigation Measures: None required