

Draft Environmental Impact Report Sutter Pointe Specific Plan



SCH #2007032157

Volume 2

***(Section 3.6, Geology, Soils, and Paleontological
Resources through Chapter 8, Report Preparers)***

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December 2008

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Resources through Chapter 8, Report Preparers)***

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3.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

This section describes the existing geologic and soil conditions at the project site and provides an analysis of the potential geologic hazards associated with development of the proposed project. It also presents an analysis of whether unknown, potentially unique paleontological resources could be damaged during construction of the proposed project. Soil-related water quality impacts during construction (e.g., soil erosion and stormwater discharges of suspended solids, increased turbidity) are addressed in Section 3.7, “Hydrology and Water Quality.” Geology and soils information presented in this section is based partially upon two geotechnical reports prepared by Wallace Kuhl & Associates in 2004 and 2005 (which covered approximately 50% of the project site) and partially upon professional judgment following a review of relevant published maps and literature.

3.6.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through postearthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey (USGS).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code Sections 2621–2630) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6) addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that the lead agency for a project may withhold

development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations [CFR] 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these federal regulations, an operator must obtain a general permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. The general permit requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and to control erosion. One element of compliance with the NPDES permit is preparation of a storm water pollution prevention plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction. (See Section 3.7, "Hydrology and Water Quality," for more information about the NPDES and SWPPPs.)

California Building Standards Code

The California Building Standards Commission (BSC) is responsible for coordinating, managing, adopting, and approving building codes in California. In July 2007, the BSC adopted and published the 2006 International Building Code as the 2007 California Building Standards Code (CBC). This new code became effective on January 1, 2008, and updated all the subsequent codes under the California Code of Regulations Title 24. Sutter County has adopted the 2007 CBC. The State of California provides minimum standards for building design through the 2007 CBC (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 of the 2007 CBC regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The 2007 CBC replaces the previous "seismic zones" (assigned a number from 1 to 4, where 4 required the most earthquake-resistant design) with new Seismic Design Categories A through F (where F requires the most earthquake-resistant design) for structures designed for a project site. With the shift from seismic zones to seismic design, the CBC philosophy has shifted from "life safety design" to "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards. (The Wallace Kuhl & Associates [2004, 2005] geotechnical reports prepared for the proposed project used the earlier seismic zone method, which was appropriate at the time because it was in effect at the time those reports were prepared. However, that older method has now been replaced by the requirements of the adopted 2007 CBC.)

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires addressing mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and

source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the 2007 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Disaster Planning

The County's principal emergency response plan is the Draft Sutter County, California Multi-Hazard Mitigation Plan (Sutter County 2007). The purpose of the plan is to meet the requirements of the Disaster Mitigation Act and thereby maintain continued eligibility for certain hazard mitigation (or disaster loss reduction) programs from the Federal Emergency Management Agency (FEMA). The plan lays out the strategy that will enable Sutter County to become less vulnerable to future disaster losses. The plan reviews the County's capabilities with regard to reducing impacts of natural hazards (e.g., flooding, dam failure, wildfires, drought) and identifies recommended action items to reduce vulnerability to these hazards. The plan addresses the unincorporated county, as well as the cities of Yuba City and Live Oak. Although the multi-hazard mitigation plan does provide background information related to seismicity and soil hazards, it does not contain any policies, regulations, or ordinances related to those issues based on a determination that "the risk of hazard occurring within the Sutter County Planning Area is unlikely or non-existent or if they do occur, the vulnerability of the area is low or existing capability measures were in place to mitigate the affects of these hazards."

Sutter County

Sutter County General Plan

The following policy from the Sutter County General Plan (Sutter County 1996) regarding geology and soils is applicable to the proposed project. Sutter County does not have policies, regulations, or ordinances related to paleontological resources.

- ▶ **Policy 7.B-2:** The County may require the preparation of a soils engineering and/or geologic-seismic analysis prior to permitting development in areas of geologic or seismic hazards (i.e., groundshaking, landslides, liquefaction, expansive soils).

Sutter County Grading and Control Ordinance

Sutter County does not currently have a grading and erosion control ordinance. However, the County is in the process of writing such an ordinance, and its adoption is expected within the next three to four months (i.e., January-February 2009) (Peterson, pers. comm., 2008).

Placer County

Placer County General Plan

The following policies from the Placer County General Plan (Placer County 1994) regarding paleontological resources, geology, and soils are applicable to the proposed project:

- ▶ **Policy 5.D.7:** The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

- ▶ **Policy 8.A.9:** The County shall require that the location and/or design of any new buildings, facilities, or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.
- ▶ **Policy 8.A.10:** The County shall require that new structures permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

Sacramento County

Sacramento County General Plan

The following policies from the Sacramento County General Plan (Sacramento County 1993) regarding geology and soils are applicable to the proposed project. Sacramento County does not have policies, regulations, or ordinances related to paleontological resources.

- ▶ **Policy CO-13:** Roads and structures shall be designed, built and landscaped so as to minimize erosion during and after construction.
- ▶ **Policy CO-14:** Roads and structures shall be designed to minimize grading on slopes above 20 percent.
- ▶ **Policy SA-1:** The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

PROFESSIONAL PALEONTOLOGICAL STANDARDS

The Society of Vertebrate Paleontology (1995, 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society of Vertebrate Paleontology assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

3.6.2 ENVIRONMENTAL SETTING

GEOLOGY

Regional Geology

The project site and off-site improvement areas are located in the Sacramento Valley, which forms the northern portion of the Great Valley geomorphic province of California. The Great Valley is a northwest-trending asymmetrical depression (formed by intersecting, downward-sloping folds of bedrock) approximately 50 miles wide and 400 miles long. It lies between the mountains and foothills of the Sierra Nevada to the east, the Cascade Range and Klamath Mountains to the north, and the Coast Ranges to the west. The Great Valley was once an arm of the ocean. As the mountain ranges formed to the east, north, and west and eventually rose above sea level, the marine sediments from the receding ocean were covered by river deposits (alluvial deposits) washing down from the mountains. Siltstone, claystone, and sandstone are the primary types of sedimentary rocks in the Great Valley.

The Great Valley is bounded on the west by the Great Valley fault zone and the Coast Ranges and on the east by the Sierra Nevada and the Foothills fault zone. Relatively few faults in the Great Valley have been active during the last 10,000 years.

Local Geology

The project site is located within the USGS Pleasant Grove 7.5-Minute Quadrangle map. The project site is a generally flat, low-lying alluvial plain. The topography varies from approximately 15 feet above mean sea level at

the west end of the site to 37 feet above mean sea level at the east end of the site. The site was historically part of a larger area of marshland until the Sacramento River levee system was completed in approximately 1915. Eventually, the site was drained by a network of canals and pumping stations and converted to farmland in the 1930s. The project site and proposed locations for off-site utilities are underlain by Holocene-age alluvial basin deposits, and Pleistocene-age alluvial deposits of the Riverbank, Modesto, and Turlock Lake Formations (Wagner et al. 1987), which are discussed in greater detail below. Exhibit 3.6-1 shows the locations of the geologic formations on the project site and off-site locations.

Holocene Alluvium (Qa and Qb)

The Holocene basin deposits (occurring within the last 11,000 years) consist of fine-grained silt and clay derived from the nearby mountain ranges and deposited by the Sacramento and American Rivers (Helley and Harwood 1985, Wagner et al. 1987) (Exhibit 3.6-1). In general, these deposits consist primarily of unconsolidated sand and silt. Holocene alluvial deposits overlie an older alluvial fan system composed of Pleistocene-age sediments.

Modesto Formation (Qm)

Piper et al. (1939) were the first to publish detailed geologic maps in the southern Sacramento/northern San Joaquin Valley areas, and they designated the older alluvial Pleistocene deposits as the Victor Formation. However, in 1959, Davis and Hall proposed a subdivision of the Victor Formation into the Turlock Lake (oldest), Riverbank (middle), and Modesto (youngest) Formations. The type section of Modesto was designated along the south bluff of the Tuolumne River south of Modesto. Marchand and Allwardt (1981) proposed that the name Victor Formation be abandoned and that the Turlock Lake, Riverbank, and Modesto Formations be adopted as formal nomenclature for Quaternary deposits in the Sacramento and San Joaquin Valleys. Most later researchers have followed this recommendation.

In the Sacramento Valley, the Modesto Formation represents the lowest alluvial deposits that occur topographically just above the Holocene deposits along streams and valleys. It is composed of unconsolidated gravel, sand, silt and clay. At the project site, the Modesto Formation consists of ancient alluvial fans of the Feather and Sacramento Rivers and can be divided into upper and lower members. The Modesto Formation is Pleistocene in age; estimates place the age of this formation at approximately 12,000–42,000 years Before Present (BP) by Marchand and Allwardt (1981) and 9,000–73,000 years BP by Atwater (1982). At the project site, the Modesto Formation is found in approximately the northern 1.5 miles of the site (Exhibit 3.6-1).

Riverbank Formation (Qr)

The type section of the Riverbank Formation is located in the City of Riverbank in an area along the south bank of the Stanislaus River. Sediments in the Riverbank Formation consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans. In the Sacramento Valley, this formation contains more mafic rock fragments than the San Joaquin Valley and thus tends toward stronger soil-profile developments that are more easily distinguishable from the Modesto Formation (Helley and Harwood 1985).

The Riverbank Formation is Pleistocene in age and is older than the Modesto Formation. Estimates place the age of the Riverbank Formation between 130,000 and 450,000 years BP (Helley and Harwood 1985). In the project vicinity, the Riverbank Formation forms higher alluvial fans and terraces of the Sacramento and Feather Rivers and can be divided into upper and lower members. It is found in most of the southeast portion of the site and in the western 0.75 mile of the site. Most of the off-site infrastructure also runs through the Riverbank Formation, including most of the proposed natural gas extension, alignment for Comcast Cable facilities, raw water transmission pipeline, and off-site sewer force main (Exhibit 3.6-1).

Turlock Lake Formation (Qtl)

As discussed above, the Turlock Lake Formation was named by Davis and Hall (1959) as the oldest subdivision of the Victor Formation. Sediments of the Turlock Lake Formation consist of weathered arkosic gravels with small amounts of metamorphic rock fragments and quartz pebbles.

The Turlock Lake Formation is Pleistocene in age and is oldest of the sediments exposed in the project area. Estimates place the age of the Turlock Lake between 450,000 and 600,000 years BP (Helley and Harwood 1985). This formation represents eroded alluvial fans derived primarily from the plutonic rocks of the Sierra Nevada to the east.

The Turlock Lake Formation is from the early to middle Pleistocene period and is older than the Riverbank Formation. Sediments in the Turlock Lake Formation consist of brown to tan sandstone and siltstone. The Turlock Lake Formation is found in approximately the eastern 4,000 feet of the proposed natural gas extension and approximately the eastern 5 miles of the proposed alignment for Comcast Cable facilities (Exhibit 3.6-1).

REGIONAL SEISMICITY AND FAULT ZONES

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, liquefaction, and subsidence. Each of these potential hazards is discussed below.

Fault Ground Rupture

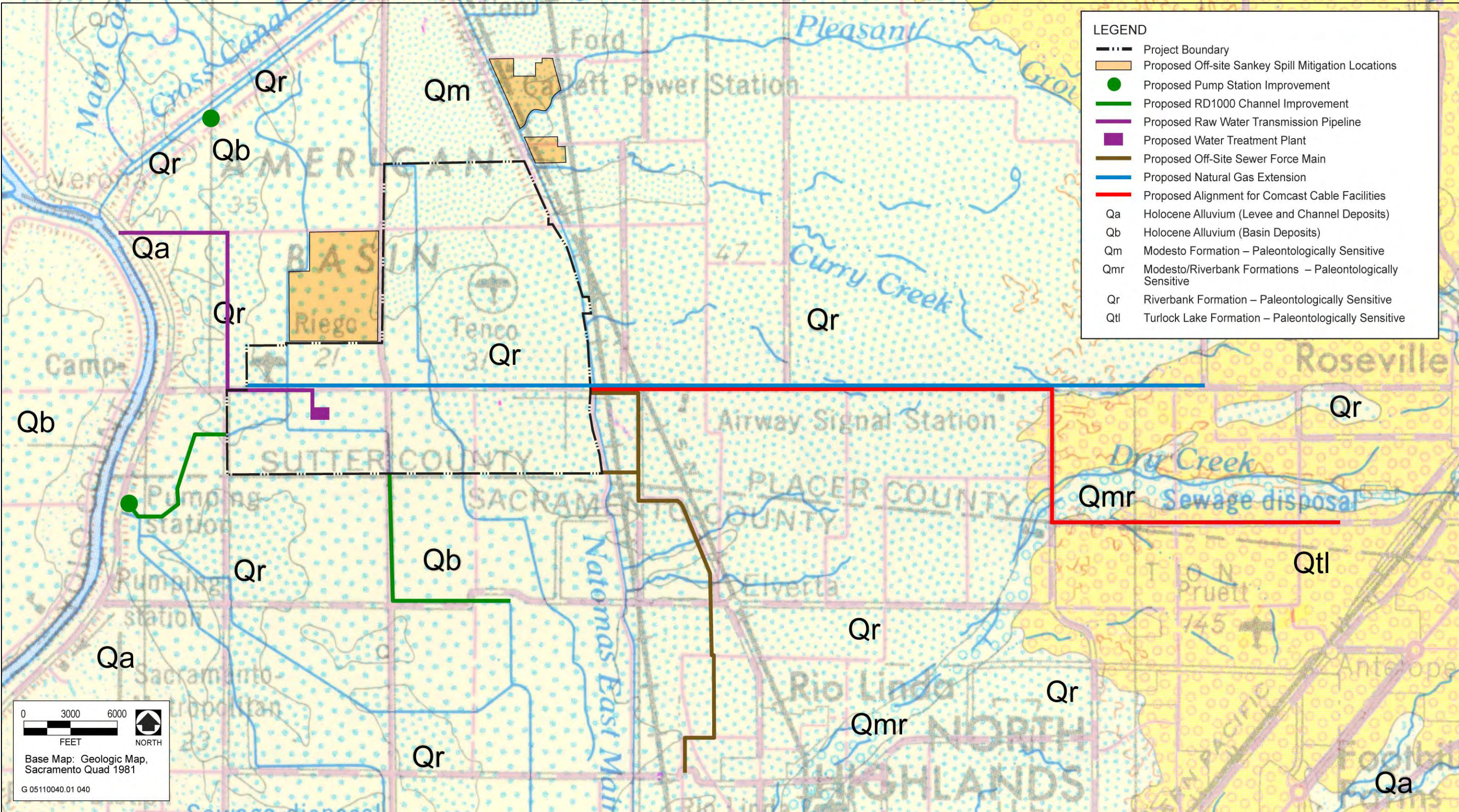
Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. Surface ground rupture along faults is generally limited to a linear zone a few meters wide. The Alquist-Priolo Act (see Section 3.6.1, “Regulatory Background,” above) was created to prohibit the location of structures designed for human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. Because no active faults have been mapped across the project site by the California Geological Survey (CGS) or USGS and the project site is not located in an Alquist-Priolo Earthquake Fault Zone, fault ground rupture does not represent a hazard at the project site (CGS 2007, Hart and Bryant 1999).

Seismic Ground Shaking

Ground shaking, motion that occurs as a result of energy released during faulting, could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock and, where structures exist, the building materials used and the workmanship of the structures.

Fault Zones in the Project Vicinity

The Willows fault zone runs through the middle of the project site in a southeast-to-northwest direction. The zone roughly parallels Interstate 5 from Sacramento to Red Bluff. The system is not considered active (i.e., having surface displacement within the last 11,000 years, during the Holocene epoch) by the CGS (Petersen et al. 1996). Geomorphic evidence indicates that fault movement occurred during the Pre-Quaternary Period (more than approximately 1.6 million years ago) (Lettis 1982, Bartow 1991, Jennings 1994). The project site is located approximately 15 miles from the Dunnigan Hills (Zamora) fault, which shows evidence of displacement during the Holocene epoch.



Source: Wagner et al. 1987, adapted by EDAW 2008

Geologic Formations

Exhibit 3.6-1

Table 3.6-1 identifies faults that have been designated by the CGS as active and that therefore might pose a potential geologic hazard to the project site. These faults show evidence of displacement during Holocene time (11,000 years ago to present). In addition, Table 3.6-1 identifies the faults' approximate distance from the project site, fault type, and maximum moment magnitude (M). The CBC specifies more stringent design guidelines where a project would be located adjacent to a Class A or B fault as designated by the California Probabilistic Seismic Hazard Maps. As shown in Table 3.6-1 and as discussed in the geotechnical reports (Wallace Kuhl & Associates 2004, 2005), the project site is located approximately 30 miles from the nearest Class A or B fault.

Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels. The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristics of the source. Wallace Kuhl & Associates (2005) used the 2001 CBC standards to place the site in Seismic Zone 3. This location implies a minimum horizontal acceleration of 0.3g for use in earthquake resistant design. However, the 2007 CBC requires a different set of site-specific design calculations that will need to be performed in the final geotechnical report.

Table 3.6-1 Active Faults in the Project Vicinity			
Fault	Approximate Distance from the Project Site (miles)	Fault Type ¹	Maximum Moment Magnitude ²
Dunnigan Hills (Zamora)	15	NA	NA
Great Valley	30	B	6.5
Hunting Creek	43	B	6.9
Green Valley	43	A	6.5
Concord	54	A	6.2
Clayton-Marsh Creek-Greenville	57	A	6.9
Note: NA = not available. ¹ Designations from California Probabilistic Seismic Hazard Maps. Faults with an A classification are capable of producing large-magnitude (M) events (M greater than 7.0), have a high rate of seismic activity (e.g., slip rates greater than 5 millimeters per year), and have well-constrained paleoseismic data (e.g., evidence of displacement within the last 700,000 years). Class B faults are those that lack paleoseismic data necessary to constrain the recurrence intervals of large-scale events. Faults with a B classification are capable of producing an event of M 6.5 or greater. ² The moment magnitude scale is used by seismologists to compare the energy released by earthquakes. Unlike other magnitude scales, it does not saturate at the upper end, meaning there is no particular value beyond which all earthquakes have about the same magnitude, which makes it a particularly valuable tool for assessing large earthquakes. Sources: Jennings 1994, Petersen et al. 1996, data compiled by EDAW			

Seismic Seiches

Earthquakes may affect open bodies of water by creating seismic sea waves and seiches. Seismic sea waves (often called "tidal waves") are caused by abrupt ground movements (usually vertical) on the ocean floor in connection with a major earthquake. Because of the long distance of the project site from the ocean, seismic sea waves would not be a factor at the project site. A seiche is a sloshing of water in an enclosed or restricted water body, such as a basin, river, or lake, that is caused by earthquake motion; the sloshing can occur for a few minutes or several hours. Although an 1868 earthquake along the Hayward fault in the San Francisco Bay Area is known to have generated a seiche along the Sacramento River, the affected area was located in the Sacramento–San Joaquin River Delta. Seiches are not likely to occur in the vicinity of the project site.

Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors

determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, whereas clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in insufficient bearing capacity to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. The possibility that liquefaction will occur is greatest in loose sands and peat deposits where the groundwater level is near the ground surface and an active seismic source is located relatively close by.

The Wallace Kuhl & Associates *Geotechnical Engineering Report* (2004), prepared for the 850-acre property at the southwest corner of the intersection of Riego Road and State Route (SR) 99/70, concluded that despite the shallow groundwater table (5–10 feet below the ground surface), liquefaction would be extremely unlikely because the property is underlain by stiff and dense soils.

The Wallace Kuhl & Associates *Preliminary Geotechnical Engineering Report* (2005), prepared for the 2,700-acre property at the intersection of Riego Road and SR 99/70, concluded that because that property is underlain by loose, cohesionless soils that are saturated (because of the low groundwater table), it could be susceptible to liquefaction. In 2006, Wallace Kuhl & Associates performed a *Supplementary Geotechnical Engineering Liquefaction Study* for this property. Although the testing results indicated that only one-quarter inch of settlement would be likely if liquefaction were to occur, which is not a substantial hazard to development, Wallace Kuhl noted that only a limited amount of testing was performed and due to the large size of the property, recommended that additional site-specific testing related to liquefaction hazards should be performed.

The remainder of the project site has not been evaluated for potential hazards related to liquefaction.

Subsidence and Lateral Spreading

Subsidence is a gradual settling or sinking of the earth's surface with little or no horizontal motion. This lowering of the ground surface can be caused by the compaction or loss of unconsolidated soils by seismic activity; compaction by heavy structures; the erosion or oxidation of peat (organic) soils; or the extraction of groundwater, gas, oil, or geothermal energy resources. Subsidence (and its opposite, uplift) can also be triggered by seismic activities. Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. The potential for failure from subsidence and lateral spreading is highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where creek banks or levees are relatively high. According to Wallace Kuhl & Associates (2005), the potential for lateral spreading occurring during or after seismic events at the 2,700-acre Riego Road property is low, provided prudent geotechnical engineering recommendations are followed during site preparation and foundation construction. The remainder of the project site has not been evaluated by a geotechnical engineer for potential hazards related to subsidence and lateral spreading.

SLOPE STABILITY

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. This process typically involves the surface soil and an upper portion of the underlying bedrock. Furthermore, expansive soil on slopes tends to shrink and swell in response to moisture content changes; during this shrinking and swelling process, gravity tends to work the soil downslope. Movement may be rapid or so slow that a change of position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles.

A review of topographic maps and aerial photographs indicates that the project site is located in an area of nearly flat topography, and it is not located adjacent to any steep slopes where a landslide could occur or has occurred in the past.

PALEONTOLOGICAL RESOURCES

Paleontological Resource Inventory Methods

A stratigraphic inventory was completed to develop a baseline paleontological resource inventory of the project site and surrounding area by rock unit and to assess the potential paleontological productivity of each rock unit. Research methods included a review of published and unpublished literature and a search for recorded fossil sites at the University of California Museum of Paleontology (UCMP). These tasks complied with Society of Vertebrate Paleontology (1995) guidelines.

Stratigraphic Inventory

Geologic maps and reports covering the geology of the project site and surrounding area were reviewed to determine the exposed rock units and to delineate their respective aerial distributions in the project area.

Paleontological Resource Inventory

Published and unpublished geological and paleontological literature were reviewed to document the number and locations and previously recorded fossil sites from rock units exposed in and near the project site and vicinity, as well as the types of fossil remains each rock unit has produced. The literature review was supplemented by an archival search conducted at the UCMP in Berkeley, California, on September 18, 2007.

Paleontological Resource Field Survey

Portions of the ground surface were completely obscured by vegetation; in those areas where the ground surface was visible, no evidence of paleontological resources was present during a reconnaissance-level field survey conducted by EDAW in June 2007.

Paleontological Resource Assessment Criteria

The potential paleontological importance of the project site can be assessed by identifying the paleontological importance of exposed rock units within the project site. Because the areal distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of the project site that are of higher and lower sensitivity for paleontological resources and to delineating parts of the project site that may require monitoring during construction.

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at the project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the project site.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved and it meets one of the following criteria:

- ▶ a type specimen (i.e., the individual from which a species or subspecies has been described);
- ▶ a member of a rare species;

- ▶ a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- ▶ a skeletal element different from, or a specimen more complete than, those now available for its species; or
- ▶ a complete specimen (i.e., all or substantially all of the entire skeleton is present).

For example, identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare. The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Marine invertebrate fossil specimens are generally common, well developed, and well documented. They would generally not be considered a unique paleontological resource.

The following tasks were completed to establish the paleontological importance of each rock unit exposed at or near the project site:

- ▶ The potential paleontological productivity of each rock unit was assessed, based on the density of fossil remains previously documented within the rock unit.
- ▶ The potential for a rock unit exposed at the project site to contain a unique paleontological resource was considered.

Paleontologic Resource Inventory Results

Stratigraphic Inventory

Regional and local surficial geologic mapping and correlation of the various geologic units in the vicinity of the project site have been provided at a scale of 1:62,500 by Helley and Harwood (1985) and 1:250,000 by Wagner et al. (1987).

Paleontological Resource Inventory and Assessment by Rock Unit

Holocene Alluvium

By definition, to be considered a fossil, an object must be more than 11,000 years old. Therefore, Holocene alluvium at the project site would not contain paleontological resources.

Modesto and Riverbank Formations

Surveys of late Cenozoic land mammal fossils in northern California have been provided by Hay (1927), Lundelius et al. (1983), Jefferson (1991a, 1991b), Savage (1951), and Stirton (1939). On the basis of his survey of vertebrate fauna from the nonmarine late Cenozoic deposits of the San Francisco Bay region, Savage (1951) concluded that two major divisions of Pleistocene-age fossils could be recognized: the Irvingtonian (older Pleistocene fauna) and the Rancholabrean (younger Pleistocene and Holocene fauna). These two divisions of Quaternary Cenozoic vertebrate fossils are widely recognized today in the field of paleontology. The age of the later Pleistocene, Rancholabrean fauna was based on the presence of bison and on the presence of many mammalian species that are inhabitants of the same area today. In addition to bison, larger land mammals identified as part of the Rancholabrean fauna include mammoths, mastodons, camels, horses, and ground sloths.

Remains of land mammals have been found in the project region at various localities in alluvial deposits referable to the Modesto and Riverbank Formations. Jefferson (1991a, 1991b) compiled a database of California late

Pleistocene vertebrate fossils from published records, technical reports, unpublished manuscripts, information from colleagues, and inspection of museum paleontological collections at more than 40 public and private institutions. He listed two sites in Sutter County that have yielded Rancholabrean vertebrate fossils near Yuba City (approximately 25 miles north of the project site). These sites yielded a Pleistocene-age bison in sediments referable to the Modesto Formation and a Pleistocene-age horse in sediments referable to the Riverbank Formation.

A records search of the UCMP paleontology collections database yielded information regarding a number of vertebrate fossil localities referable to either the Modesto or the Riverbank Formation. UCMP Localities V-91247, V-91204, and V-3402 west of Woodland (approximately 18 miles from the project site) yielded Rancholabrean-age horse and mammoth specimens from mixed sediments containing both the Modesto and Riverbank Formations. UCMP Localities V-5430, V-6911, and V-76199 west of Davis (approximately 23 miles from the project site) yielded Rancholabrean-age Harlan's ground sloth and saber-toothed cat specimens also from mixed sediments containing both the Modesto and the Riverbank Formations. UCMP Locality V-96015 north of Davis (approximately 15 miles from the project site) yielded eight specimens of Rancholabrean-age rodents and reptiles from sediments of the Modesto Formation. UCMP Localities V-6846, V-68141, V-74086, V-69129, V-6747, V-69129, and V-75126, all in Sacramento (approximately 10 miles from the project site), yielded specimens of bison, camel, coyote, horse, Harlan's ground sloth, mammoth, packrat or woodrat, Sacramento blackfish, mole, garter snake, and gopher from sediments of the Riverbank Formation. In addition, fossil specimens recovered from excavation activities at ARCO Arena north of Sacramento in the Riverbank Formation (approximately 5 miles from the project site) included specimens of Harlan's ground sloth, bison, coyote, horse, camel, squirrel, antelope or deer, mammoth, and several types of plants (Hilton, Dailey, and McDonald 2000).

Fossil specimens from the Modesto Formation have been reported by Marchand and Allwardt (1981) near the type locality in the city of Modesto. These authors also reported fossil specimens from the Riverbank Formation near its type locality in the city of Riverbank. Fossil specimens from sediments referable to the Modesto Formation have been reported at numerous other locations throughout the San Joaquin Valley (UCMP 2007), including Lathrop, Modesto, Stockton, Tracy (along the Delta-Mendota Canal), Manteca, and Merced. The Tranquility site in Fresno County (UCMP V-4401) has yielded more than 130 Rancholabrean-age fossils of fish, turtles, snakes, birds, moles, gophers, mice, wood rats, voles, jackrabbits, coyote, red fox, grey fox, badger, horse, camel, pronghorn antelope, elk, deer, and bison from sediments referable to the Modesto Formation. The Fairmead Landfill near Chowchilla is an active paleontological dig site in sediments of the Riverbank Formation. To date, more than 13,000 fossil specimens have been uncovered at the site, including 35 different species of mammals.

Turlock Lake Formation

Vertebrate fossils have been recovered from the Turlock Lake Formation in the Central Valley. The Fairmead Landfill site, near Chowchilla, which is located within sediments of both the Turlock Lake Formation and the Riverbank Formation, has yielded more than 3,000 Pleistocene-age specimens from 35 species, including mammoth, ground sloth, bear, sabertooth cat, wolf, deer, camel, horse, antelope, rodents, birds, reptiles, and plants. Excavations for the California Department of Transportation's Fresno SR 180 West Freeway project uncovered fossil specimens from a Pleistocene-age camel in sediments of the Turlock Lake Formation in Fresno County (Hansen 2008). Fossilized fish specimens, plant fragments, petrified wood, and ichnofossils were reported in the sediments of the Turlock Lake Formation near Roseville (Fisk and Butler 2005, cited in URS 2006).

Results of a paleontological records search at the UCMP indicated no record of fossil remains within the project site, and no fossils were observed during a cursory field visit. However, the occurrence of Pleistocene vertebrate fossil remains in sediments referable to the Modesto and Riverbank Formations from Yuba City, Davis, Woodland, and Sacramento, as well as their widespread occurrence throughout the San Joaquin Valley, suggests there is a potential for uncovering additional similar fossil remains during construction-related earth-moving activities within the project site and off-site improvement areas.

SOILS

On-Site Soils

Review of the Soil Survey of Sutter County (U.S. Natural Resources Conservation Service 1988) indicates that near-surface soils on the project site are as follows:

- ▶ Capay clay, hardpan substratum, 0 to 2% slopes;
- ▶ Clear Lake clay, 0 to 2% slopes;
- ▶ Clear Lake clay, hardpan substratum, 0 to 2% slopes;
- ▶ Galt clay, 0 to 2% slopes;
- ▶ Jacktone clay, 0 to 2% slopes;
- ▶ Marcum clay loam, siltstone substratum, 0 to 1% slopes;
- ▶ San Joaquin sandy loam, 0 to 2% slopes; and
- ▶ San Joaquin-Arents-Durochrepts complex, 0 to 1% slopes.

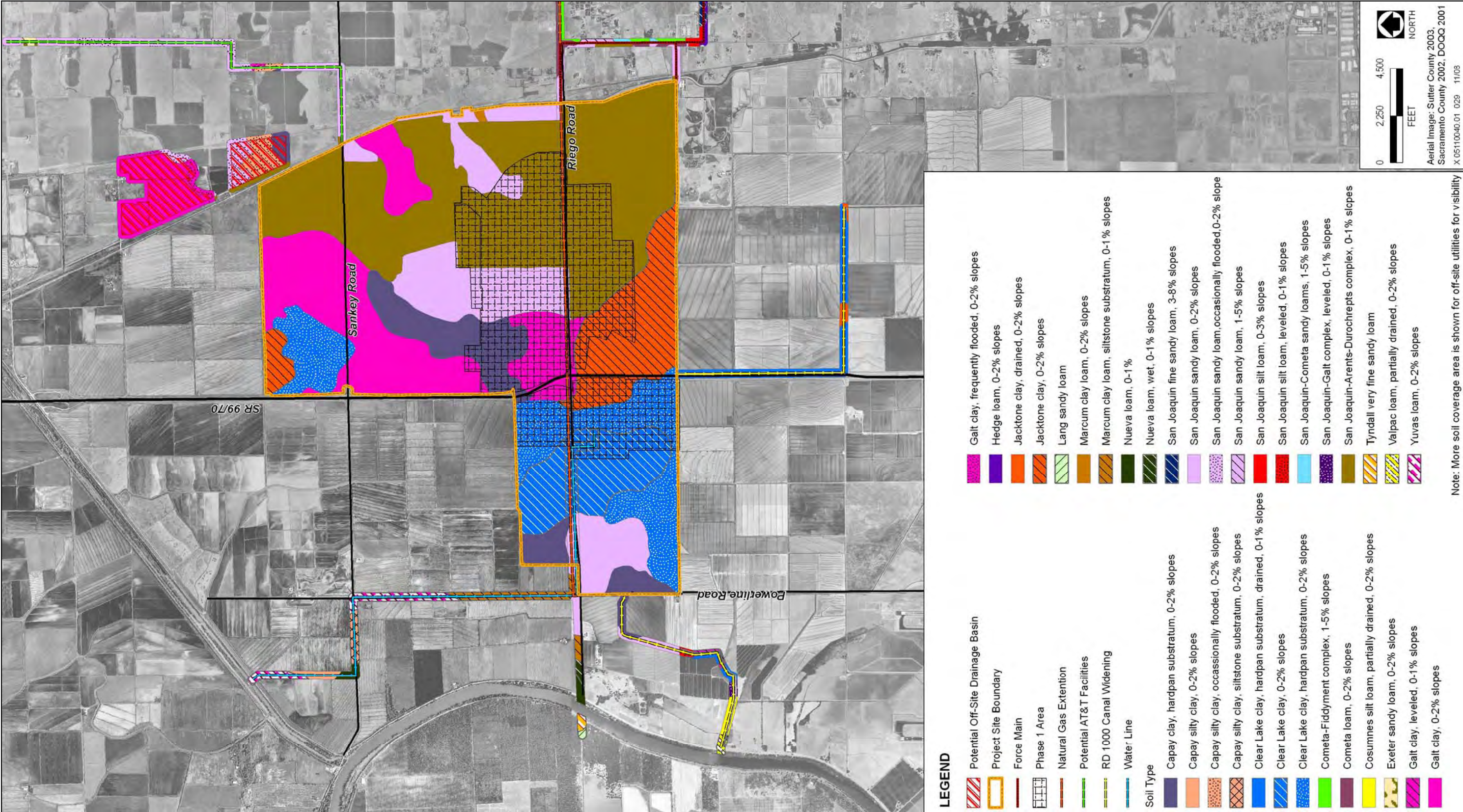
Exhibits 3.6-2a and 3.6-2b show the location of the soils at the project site. As shown in Exhibit 3.6-2a, Galt clay, San Joaquin-Arents-Durixeralfs complex, and, to a lesser extent, San Joaquin sandy loam are the primary types covering the project site. All of these soil units formed as alluvium derived from mixed-rock sources, especially granite.

The characteristics of these soils are summarized in Table 3.6-2. These soils are generally characterized by their high shrink-swell potential, low strength, generally slow permeability and runoff, and, in some cases, tendency to drain (flooding potential). These factors can limit the urban uses suitable for these soils, such as building foundation types. The project site is generally flat, so the tendency of soils to pond water would be greater than on a sloped site with the same soils. The seasonal high-water table can reach a height of 48–60 inches in Clear Lake clays, and the perched water table is at a depth of 18–36 inches in December through April in Jacktone clay (U.S. Natural Resources Conservation Service 1988). Wallace Kuhl & Associates (2004, 2005), in its preliminary geotechnical investigations of two portions of the site, noted groundwater at several locations was approximately 10–15 feet below the surface (also potentially 5–7 feet below the surface in wet periods) in the eastern area of the project site and approximately 5–10 feet below the surface in an area immediately west of SR 99/70.

Expansive Soils

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried. Because of this effect, building foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies underneath different parts of a single building, foundations may crack, structural portions of the building may be distorted, and doors and windows may become warped and no longer function properly. The potential for soil to undergo shrink and swell is greatly enhanced by the presence of a fluctuating, shallow groundwater table. Volume changes of expansive soils can result in the consolidation of soft clays following the lowering of the water table or the placement of fill.

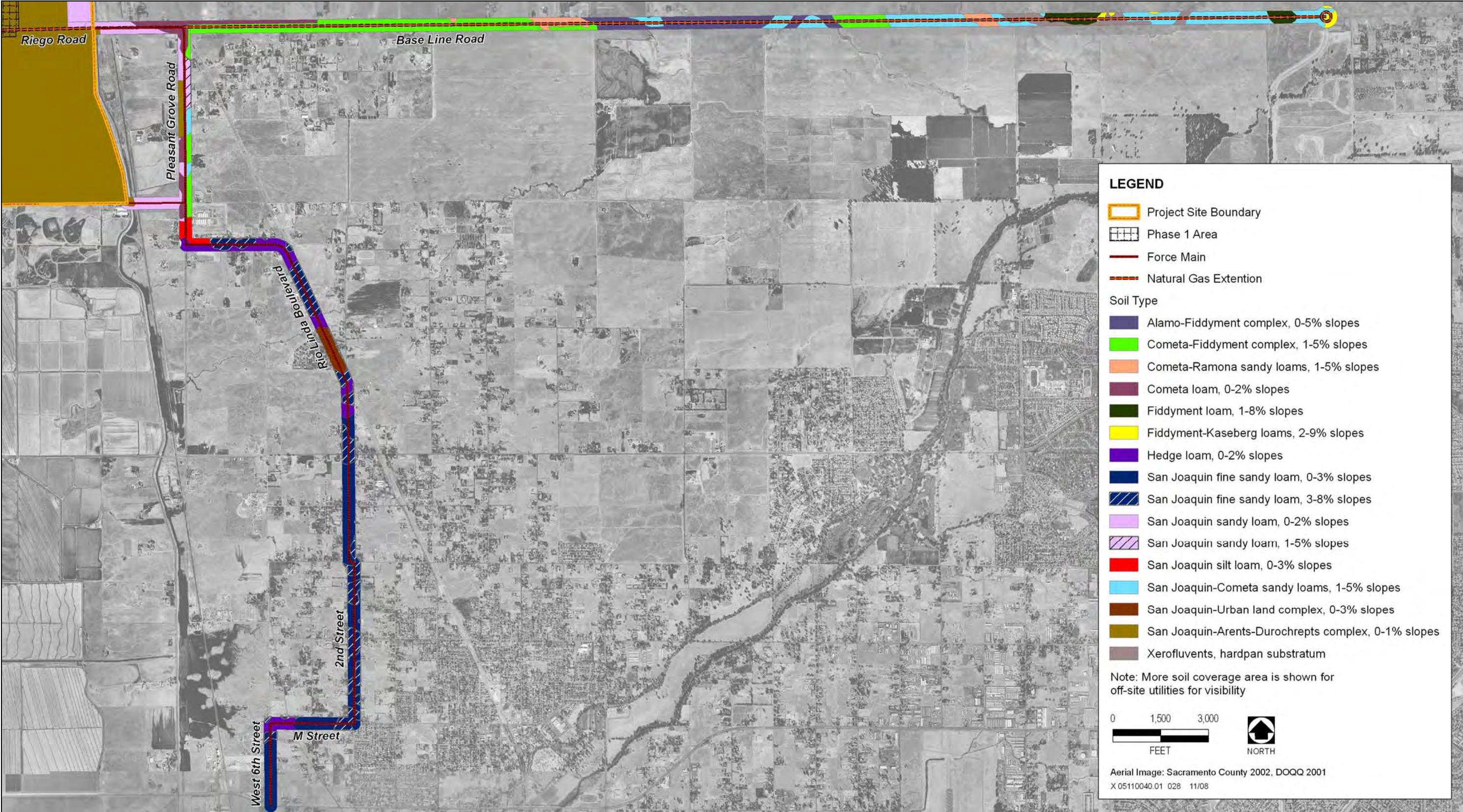
The results of laboratory testing of the near-surface clays in the eastern area of the project site indicate these materials possess a medium to high expansion potential when tested in accordance with the standards of American Society for Testing and Materials (ASTM) D4829 (UBC 29-2) (Wallace Kuhl & Associates 2004). The results of testing of the near-surface clays in an area immediately west of SR 99/70 indicate these materials also possess a very high expansion potential when tested in accordance with ASTM D4829 (UBC 18-2) (Wallace Kuhl & Associates 2005). On the basis of the laboratory results, Wallace Kuhl & Associates (2004, 2005) concluded that the near-surface clayey soils would be capable of exerting substantial expansion pressures on structural foundations and exterior flatwork. These soils would be expected to undergo volume changes with increasing or decreasing soil moisture content (Wallace Kuhl & Associates 2004, 2005).



Source: Adapted by EDAW from SSURGO, NRCS 2004

Soil Types at Proposed On-Site and Off-Site Improvement Areas

Exhibit 3.6-2a



Source: Adapted by EDAW from SSURGO, NRCS 2004

Soil Types at Proposed On-Site and Off-Site Improvement Areas

Exhibit 3.6-2b

Table 3.6-2 Soil Mapping Unit Descriptions for On-Site Soils											
Soil Series Name	Depth (inches)	USDA Texture	Shrink-Swell Potential	Perme- ability (in/hr)	Drainage	Erosion Hazard	Erosion Factors ¹		pH	Plasticity Index ²	Limitations (for excavations, dwellings, small buildings, roads, and landscaping)
							K	T			
Capay clay	0–26	Clay	High	0.6–2.0	Moderately well drained	Slight	0.24	3	6.6–7.3	20–35	Severe: cutbanks cave, flooding, shrink-swell, low strength, too clayey
	26–42	Clay, silty clay	High	0.6–2.0			0.28		6.6–8.4	20–35	
	42–46	Cemented	—	—			—		—	—	
	46–60	Clay loam, loam	Moderate	0.6–2.0			0.37		7.4–8.4	5–20	
Clear Lake clay	0–42	Clay	High	0.06–0.2	Poorly drained ³	Slight	0.24	5	6.6–8.4	20–40	Severe: cutbanks cave, flooding, shrink-swell, low strength, too clayey
	42–60	Clay, silty clay	High	0.06–0.2			0.24		7.4–8.4	20–40	
Clear Lake clay, hardpan substratum	0–14	Clay	High	0.06–0.2	Poorly drained ³	Slight	0.24	3	6.1–7.8	20–35	Severe: cutbanks cave, flooding, shrink-swell, low strength, too clayey
	14–35	Clay, silty clay	High	0.06–0.2			0.24		7.4–8.4	15–30	
	35–48	Clay loam, silty clay loam, loam	Moderate	0.06–0.2			0.32		7.9–8.4	5–20	
	48–60	Cemented	—	—			—		—	—	
Galt clay	0–10	Clay	High	0.06–0.2	Moderately well drained	Slight	0.24	2	6.1–7.3	20–40	Severe: cemented pan, cutbanks cave, flooding, shrink-swell, low strength, too clayey
	10–21	Clay, silty clay	High	0.06–0.2			0.24		6.6–8.4	20–40	
	21–42	Cemented	—	—			—		—	—	
	42–62	Loam	Low	0.6–0.2			0.32		7.4–8.4	5–10	
Jacktone clay	0–25	Clay	High	0.06–0.2	Somewhat poorly drained ³	Slight	0.24	2	6.6–8.4	20–35	Severe: cemented pan, wetness, cutbanks cave, flooding, shrink-swell, low strength, too clayey
	25–35	Clay loam, clay, silty clay	High	0.06–0.2			0.24		7.4–8.4	20–35	
	35–39	Indurated	—	—			—		—	—	
	39–60	Cemented	—	—			—		—	—	

Soil Mapping Unit Descriptions for On-Site Soils

Soil Series Name	Depth (inches)	USDA Texture	Shrink-Swell Potential	Permeability (in/hr)	Drainage	Erosion Hazard	Erosion Factors ¹		pH	Plasticity Index ²	Limitations (for excavations, dwellings, small buildings, roads, and landscaping)
							K	T			
Marcum clay loam, siltstone substratum	0–16	Clay loam	Moderate	0.2–0.6	Moderately well drained	Slight	0.32	3	6.6–8.4	10–20	Severe: low strength Moderate: too clayey, shrink-swell
	16–28	Silty clay loam, clay loam	Moderate	0.2–0.6			0.37		6.6–8.4	15–25	
	28–40	Silty clay, clay	High	0.06–0.2			0.28		6.6–8.4	20–35	
	40–43	Clay loam	Moderate	0.2–0.6			0.32		6.6–8.4	15–25	
	43	Weathered bedrock	—	—	—		—	—	—		
San Joaquin sandy loam	0–16	Sandy loam	Low	0.6–0.2	Well drained	Slight	0.32	2	5.6–6.5	NP–5	Severe: cemented pan, flooding, shrink-swell, low strength Moderate: droughty, thin layer
	16–27	Clay loam, clay	High	<0.06			0.24		5.6–7.8	25–35	
	27–31	Indurated	—	—			—		—	—	
	31–60	Stratified sandy loam to loam	Low	0.06–0.2			0.32		6.1–7.8	NP–10	
San Joaquin-Arents-Durochrepts complex	0–16	Sandy loam	Low	0.6–2.0	Well drained	Slight	0.32	2	5.6–6.5	NP–5	Severe: cemented pan, shrink-swell, low strength Moderate: droughty, thin layer
	16–27	Clay loam, clay	High	<0.06			0.24		5.6–7.8	25–35	
	27–31	Indurated	—	—			—		—	—	
	31–60	Stratified sandy loam to loam	Low	0.06–0.2			0.32		6.1–7.8	NP–10	
Notes: in/hr = inches per hour. NP = not plastic. USDA = U.S. Department of Agriculture. — = either not measured or not applicable. ¹ K is a measurement of relative susceptibility to sheet and rill erosion by water. It ranges from 0.10 to 0.64, with lower values representing a lower susceptibility to erosion. ² T represents soil loss tolerance, which is defined as the maximum rate of soil erosion (wind and water) without reducing crop production or environmental quality. Values range from 1 to 5 tons of soil loss per acre per year, with 5 representing soils less sensitive to erosion. ³ Soils with a high plasticity index have a wide range of moisture content in which the soil performs as a plastic material. Larger plasticity index values (e.g., 20–40) indicate highly plastic soils. ³ This level of drainage would occur under natural conditions; however, drainage has been improved by the use of open ditches and flood control structures. Source: U.S. Natural Resources Conservation Service 1988											

Off-Site Improvement Areas Soils

The soil types of the proposed off-site improvement areas are shown in Table 3.6-3.

Table 3.6-3 Soil Mapping Unit Descriptions for Off-Site Improvement Area Soils				
Name	Permeability	Runoff	Erosion	Shrink-Swell
Alamo-Fiddymment Complex	Very slow	Slow	Slight	High
Capay Clay	Slow	Very slow	Slight	High
Clear Lake Clay	Slow	Very slow	Slight	High
Cometa Loam	Very slow	Very slow	Slight	Moderate
Cometa-Fiddymment Complex	Very slow	Slow	Slight	Moderate
Cometa-Ramona Sandy Loams	Very/moderately slow	Slow/medium	Slight	Moderate
Cosumnes Silt Loam	Slow	Slow	Slight	High
Exeter Sandy Loam	Moderate	Slow	Slight	Low
Fiddymment Loam	Very slow	Slow to medium	Slight	Moderate
Fiddymment-Kaseberg Loams	Very slow to moderate	Slow to medium	Slight to moderate	Moderate
Galt Clay	Slow	Very slow	Slight	High
Hedge Loam	Moderately slow	Slow	Slight	Low
Jacktone Clay	Slow	Very slow	Slight	High
Lang Sandy Loam	Rapid	Very slow	Slight	Low
Marcum Clay Loam	Slow	Very slow	Slight	Moderate
Nueva Loam	Moderate to moderately slow	Slow	Slight	Low to moderate (depending on depth)
San Joaquin Sandy Loam	Moderate to very slow	Very slow	Slight	Low
San Joaquin-Arents-Durochrepts Complex	Very slow to rapid	Very slow	Slight	Moderate
San Joaquin-Cometa Sandy Loams	Very slow	Slow	Slight	Moderate
San Joaquin-Galt Complex	Slow to very slow	Very slow	None or slight	High
San Joaquin-Urban Land Complex	Very slow	Very slow to slow	Slight	High
Tyndall Very Fine Sandy Loam	Moderately rapid	Very slow	None to slight	Low to moderate (depending on depth)
Valpac Loam, Partially Drained	Moderately slow	Slow	Slight	—
Xerofluvents, Hardpan Substratum	Moderately slow	Slow	Slight	—
Yuvas Loam	Very slow to Moderate	Very slow	Slight	Moderate
Note: — = either not measured or not applicable. Source: U.S. Natural Resources Conservation Service 1988				

3.6.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Geology and Soils

This analysis is based on review of the preliminary geotechnical engineering report for an area of the site west of SR 99/70 and the geotechnical engineering report for the eastern area of the site, both prepared by Wallace Kuhl & Associates, in 2005 and 2004, respectively. This analysis also relies on review of the *Soil Survey of Sutter County, California* (U.S. Natural Resources Conservation Service 1988), as well as published geologic maps and literature.

Paleontological Resources

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the significance criteria of the Society of Vertebrate Paleontology (1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value.

THRESHOLDS OF SIGNIFICANCE

Geology and Soils

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A geology and soils impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ result in substantial soil erosion or the loss of topsoil;
- ▶ expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - the rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault;
 - strong seismic ground shaking;
 - seismic-related ground failure, including liquefaction; or
 - landslides;
- ▶ be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse; or

- be located on expansive soil, as defined in Table 18-1-B of the UBC (1994), creating substantial risks to life or property.

Paleontological Resources

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G to the State CEQA Guidelines and consider a paleontological resources impact to be significant if implementation of the proposed project would directly or indirectly destroy a unique paleontological resource or site. For the purposes of this EIR, a unique paleontological resource or site is one that is considered significant under the professional paleontological standards listed previously in this section under “Paleontological Resource Assessment Criteria.”

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at the project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the project site.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.6-1	Potential Temporary, Short-Term Construction-Related Erosion. <i>Construction activities during project implementation would involve extensive grading and movement of earth, which could temporarily expose soils to erosion.</i>

On-Site and Off-Site Elements

Project implementation would include substantial construction activity over approximately 7,528 acres, including soil removal, trenching, pipe installation, fabrication of concrete channels, grading, and revegetation. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to winter storm events. Rain of sufficient intensity could dislodge soil particles from the soil surface. After particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during summer as a result of construction activities could result in soil loss because of wind erosion. A **direct, potentially significant** impact from soil erosion could result from construction activities associated with the proposed project. **No indirect** impacts would occur.

Mitigation Measure 3.6-1: Prepare and Implement a Grading and Erosion Control Plan.

On-Site and Off-Site Elements

A grading and erosion control plan shall be prepared by a California Registered Civil Engineer retained by the project applicant(s) of all project phases. The grading and erosion control plan shall be submitted to the applicable County Public Works Department(s) before issuance of grading permits for all new development on the project site and all supporting elements. The plan shall be consistent with the state’s NPDES permit requirements and shall include the site-specific grading associated with development for all project phases. The plan shall include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, a description of measures designed to control dust and stabilize the construction site road and entrance, and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing; and covering

or watering of stockpiled soils to reduce wind erosion. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot.

Implementation of Mitigation Measure 3.7-1 (discussed in Section 3.7, “Hydrology and Water Quality”) also would help to reduce erosion-related impacts.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: Prior to the issuance of grading permits for all project phases and all on-site and off-site elements throughout project construction.

Enforcement: Applicable county public works department(s).

Significance after Mitigation

Implementation of Mitigation Measure 3.6-1, along with Mitigation Measure 3.7-1, would reduce the potentially significant temporary, short-term construction-related erosion impact to a **less-than-significant** level by requiring preparation and implementation of a grading and erosion control plan, which includes implementation of specific actions and BMPs, such as installation of berms, swales, wattles, and silt fencing, and measures to control track-out, that would limit the amount of construction-related erosion.

IMPACT 3.6-2	Risks to People and Structures Caused by Surface Fault Rupture and Strong Seismic Ground Shaking. <i>People and structures on the project site could be susceptible to damage from strong seismic ground shaking.</i>

On-Site and Off-Site Elements

Although the Willows fault zone crosses the project site, this fault has not been active during the last 1.6 million years and therefore is not zoned as an “active” fault by CGS. Because no active faults have been mapped across the project site by the CGS or USGS and the project site is not located in an Alquist-Priolo Earthquake Fault Zone, fault ground rupture does not represent a hazard at the project site.

With regard to seismic ground shaking, the Dunnigan Hills (Zamora) fault is located approximately 15 miles west of the project site. This fault shows evidence of displacement within the last 11,000 years (Holocene time). The geotechnical reports prepared by Wallace Kuhl & Associates (2004, 2005) were preliminary in nature and did not include site-specific seismic design calculations. Furthermore, since those reports were prepared, the CBC has changed, and now incorporates more stringent standards for seismic design and requirements for different calculations to determine the site-specific seismic hazard.

Because there is a potential for damage from strong seismic ground shaking at the project site, and because the 2007 CBC requirements for seismic design have changed and require a different type of site-specific calculations, the risk to people and structures from strong seismic ground shaking is a **potentially significant, direct** impact. **No indirect** impacts would occur.

Mitigation Measure 3.6-2a: Prepare a Final Geotechnical Report, and Implement All Applicable Recommendations.

On-Site and Off-Site Elements

Before construction begins for all project phases and all off-site elements, a final geotechnical subsurface investigation report shall be prepared by the project applicant(s) for the proposed development and shall be submitted to the applicable county public works department(s). The final geotechnical engineering report shall be

prepared according to the standards adopted in the 2007 or subsequently adopted CBC, and shall address and make recommendations on the following that shall be implemented by the project applicant(s) of all project phases:

- ▶ seismic design;
- ▶ site preparation;
- ▶ appropriate sources and types of fill;
- ▶ potential need for soil amendments;
- ▶ road, pavement, and parking areas;
- ▶ structural foundations, including retaining wall design;
- ▶ grading practices;
- ▶ erosion/winterization;
- ▶ shallow surface water table;
- ▶ expansive soils/lateral spreading/subsidence;
- ▶ unstable soils; and
- ▶ liquefaction.

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions for both on-site and off-site project elements and shall determine appropriate foundation designs that are consistent with the 2007 or subsequently adopted CBC. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant(s) of all project phases. Special recommendations contained in the geotechnical engineering report shall be noted on the grading plans and implemented as appropriate before on- and off-site construction begins. Design and construction of all new development in all phases of the project shall be in accordance with the 2007 or subsequently adopted CBC. It is the responsibility of the project applicant(s) to provide for engineering inspection and certification that earthwork has been performed in conformity with recommendations contained in the geotechnical report.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: Before building permits are issued and before construction begins for all project phases and all on-site and off-site elements.

Enforcement: Applicable county public works department(s).

Mitigation Measure 3.6-2b: Monitor On- and Off-Site Earthwork.

On-Site and Off-Site Elements

All earthwork shall be monitored by a licensed geotechnical or soils engineer retained by the project applicant(s) of all project phases and all off-site elements. The geotechnical or soils engineer shall provide oversight during all excavation, placement of fill, and disposal of materials removed from and deposited on the project site.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: During construction activities where earthwork is occurring for all project phases and all on-site and off-site elements.

Enforcement: Applicable county public works department(s).

Significance after Mitigation

Implementation of Mitigation Measures 3.6-2a and 3.6-2b would reduce the potentially significant impact of seismically induced risks to people and structures to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer in accordance with the 2007 or subsequently adopted CBC be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from seismic events, and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT 3.6-3	Seismically Induced Risks to People and Structures Caused by Liquefaction. <i>Soil and groundwater conditions within a portion of the project site render it susceptible to liquefaction from strong seismic ground shaking.</i>

On-Site and Off-Site Elements

A combination of factors contributes to the potential for seismically induced liquefaction, including the intensity of ground shaking, the soil type and density, and the depth to groundwater. Groundwater was encountered at the project site at a minimum depth of 5–15 feet below the ground surface. Wallace Kuhl & Associates (2004) concluded that the stiff, cohesive soil underlying the 850-acre property along Riego Road resulted in an extremely low liquefaction potential for that property. However, for the 2,700-acre portion of the project site on Riego Road, Wallace Kuhl & Associates (2005) determined that that property is underlain by loose, cohesionless soils that, in combination with the saturated soil conditions that result from the shallow groundwater table, could make the site susceptible to liquefaction. In 2006, Wallace Kuhl & Associates performed a *Supplementary Geotechnical Engineering Liquefaction Study* for the 2,700-acre property on Riego Road. While the testing results indicated that only one-quarter inch of settlement would be likely if liquefaction were to occur, which is not a substantial hazard to development, Wallace Kuhl noted that only a limited amount of testing was performed and, because of the large size of the property, recommended that additional site-specific testing related to liquefaction hazards should be performed. The remainder of the project site and the off-site elements have not been evaluated by a geotechnical engineer for potential liquefaction hazard. Therefore, the potential exists for liquefaction within the project site and for off-site elements, which is a **potentially significant, direct** impact. **No indirect** impacts would occur.

Mitigation Measures: Implement Mitigation Measures 3.6-2a and 3.6-2b.

Significance after Mitigation

Implementation of Mitigation Measures 3.6-2a and 3.6-2b would reduce the potentially significant impact of seismically induced risks to people and structures caused by liquefaction to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer, in accordance with the 2007 or subsequently adopted CBC, be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from liquefaction, and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT 3.6-4	Seismically Induced Risks to People and Structures Caused by Landslides. <i>The project site and off-site elements are located in an area of relatively flat topography and are not located in or near a landslide hazard area.</i>

On-Site and Off-Site Elements

The project site and off-site elements have an elevation change of only 22 feet in 4.5 miles and therefore have a relatively flat topography. In addition, the project site and off-site elements are not located near an area of steep topography where a landslide could occur or has occurred in the past. Therefore, the potential risk to people and

structures associated with landsides both on- and off-site is a **less-than-significant, direct** impact. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.6-5	Potential Damage to Structures and Infrastructure from Construction on Expansive/Unstable Soils. <i>Portions of the project site and off-site improvements are underlain by soils that have a moderate to high potential for expansion when wet and may also contain areas of unstable soils.</i>

On-Site and Off-Site Elements

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the changing soil conditions. Volume changes of expansive soils also can result in the consolidation of soft clays following the lowering of the water table or the placement of fill. Placing buildings or constructing infrastructure on or within unstable soils can result in structural failure. Portions of the project site, as well as the off-site elements, are underlain by clayey soils with a plasticity index approaching 40 (the maximum value), which indicates a high expansion potential. Soil expansion, including volume changes during seasonal fluctuations in moisture content, could adversely affect road surfaces, interior slabs-on-grade, landscaping hardscapes, and underground pipelines.

Subsidence is a gradual settling or sinking of the earth's surface with little or no horizontal motion. This lowering of the ground surface can be caused by the compaction or loss of unconsolidated soils through seismic activity. Subsidence can also occur as a result of compaction by heavy structures. Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. Subsidence and/or lateral spreading can result in damage to roads, building foundations, and underground infrastructure. Because the preliminary geotechnical reports did not address soil subsidence or lateral spreading, the potential for these geologic hazards at the project site and the location of the off-site elements is currently unknown.

Because the project site contains expansive soils, and because the project site may contain soils subject to subsidence and/or lateral spreading, the potential for project-related structures and infrastructure to be damaged by expansive/unstable soils is a **potentially significant, indirect** impact. **No direct** impacts would occur.

Mitigation Measures: Implement Mitigation Measures 3.6-2a and 3.6-2b.

Significance after Mitigation

Implementation of Mitigation Measures 3.6-2a and 3.6-2b would reduce the potentially significant impact of damage to structures from construction on expansive/unstable soils to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer consistent with the 2007 or subsequently adopted CBC be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from expansive/unstable soils and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT 3.6-6	Possible Damage to Unknown, Potentially Unique Paleontological Resources during Earthmoving Activities. <i>Construction activities could disturb previously unknown paleontological resources at the project site and along the alignments of the off-site elements.</i>

On-Site and Off-Site Elements

As shown in Exhibit 3.6-1, portions of the project site are underlain by Holocene-age (less than 11,000 years old) basin deposits. By definition, to be considered a fossil, an object must be more than 11,000 years old. Therefore, construction activities that occur in the Holocene deposits would have no impact on paleontological resources.

However, the remainder of the project site (Exhibit 3.6-1) is underlain by Pleistocene-age sediments of the Modesto, Riverbank, and Turlock Lake Formations, which are considered paleontologically sensitive rock units under Society of Vertebrate Paleontology guidelines (1995). As discussed in detail in the section above titled “Paleontological Resource Inventory and Assessment by Rock Unit,” numerous vertebrate fossil specimens have been recorded from the Modesto and Riverbank Formations in Yuba City, Woodland, Davis, and Sacramento. One of the largest mid-Pleistocene fossil deposits in California is located near Chowchilla in sediments of the Riverbank and Turlock Lake Formations. The fact that vertebrate fossils have been recovered near the project site, that other recorded vertebrate fossil localities have been recorded throughout the Sacramento and San Joaquin Valleys, and that all have been in sediments referable to the Modesto, Riverbank, and Turlock Lake Formations, suggests that there is a potential for uncovering additional similar fossil remains during construction-related earthmoving activities at the project site and in the locations of the off-site elements. Therefore, the potential for damage to unique paleontological resources during earthmoving activities at the project site is a **direct, potentially significant** impact. **No indirect** impacts would occur.

Mitigation Measure 3.6-6: Conduct Construction Worker Personnel Training, Stop Work if Paleontological Resources Are Encountered, and Implement Paleontological Resources Recovery Plan.

On-Site and Off-Site Elements

To minimize potential adverse impacts on unique, scientifically important paleontological resources, the project applicant(s) of all project phases and off-site elements shall do the following:

- ▶ Before the start of grading or excavation activities within the Modesto, Riverbank, or Turlock Lake Formations as shown in Exhibit 3.6-1, the project applicant(s) shall retain a qualified paleontologist or archaeologist to train all construction personnel (including the site superintendent) involved with earthmoving activities, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.
- ▶ If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify the applicable County Public Works Department. The project applicant(s) shall retain a qualified paleontologist to evaluate the resource and prepare a proposed recovery plan in accordance with Society of Vertebrate Paleontology guidelines (1996). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations determined by the county to be necessary and feasible shall be implemented before construction or demolition activities can resume at the site where the paleontological resources were discovered.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: Before and during all on- and off-site earthmoving activities.

Enforcement: Applicable county public works department(s).

Significance after Mitigation

Implementation of Mitigation Measure 3.6-6 would reduce potentially significant impacts related to potential damage to unique paleontological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering paleontological resources, and in the event that resources were encountered, fossil specimens would be recovered and recorded, and would undergo appropriate curation.

Additional Detailed Analysis of On-Site Elements—Impacts and Mitigation Measures

IMPACT 3.6-7 Potential Temporary, Short-Term Construction-Related Erosion. *Construction activities during Phase 1 and Phase A would involve extensive grading and movement of earth, which could expose soils to erosion.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-1 for further discussion of this impact.

Implementation of Mitigation Measure 3.6-1, along with Mitigation Measure 3.7-1, would reduce the potentially significant temporary, short-term construction-related erosion impact to a **less-than-significant** level by requiring preparation and implementation of a grading and erosion control plan, which includes implementation of specific actions and BMPs, such as installation of berms, swales, wattles, and silt fencing, and measures to control track-out, that would limit the amount of construction-related erosion.

IMPACT 3.6-8 Risks to People and Structures Caused by Surface Fault Rupture and Strong Seismic Ground Shaking. *Phase 1 and Phase A are susceptible to damage from strong seismic ground shaking.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-2 for further discussion of this impact.

Implementation of Mitigation Measures 3.6-2a and 3.6-2b would reduce the potentially significant impact of seismically induced risks to people and structures to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer in accordance with the 2007 or subsequently adopted CBC be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from seismic events, and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT 3.6-9 Seismically Induced Risks to People and Structures Caused by Liquefaction. *Soil and groundwater conditions within Phase 1 and Phase A render it susceptible to liquefaction from strong seismic ground shaking.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-3 for further discussion of this impact.

Implementation of Mitigation Measures 3.6-2a and 3.6-2b would reduce the potentially significant impact of seismically induced risks to people and structures caused by liquefaction to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer in accordance with the 2007 or subsequently adopted CBC be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from liquefaction, and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT Seismically Induced Risks to People and Structures Caused by Landsides. *Phase 1 and Phase A are*
3.6-10 *located in an area of relatively flat topography and are not located in or near a landslide hazard area.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-4 for further discussion of this impact.

IMPACT Potential Damage to Structures and Infrastructure from Construction on Expansive/Unstable Soils.
3.6-11 *Phase 1 and Phase A are underlain by soils that have a moderate to high potential for expansion when wet and may also contain areas of unstable soils.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-5 for further discussion of this impact.

Implementation of Mitigation Measures 3.2-a and 3.2-b would reduce the potentially significant impact of damage to structures from construction on expansive/unstable soils to a **less-than-significant** level by requiring that the design recommendations of a geotechnical engineer consistent with the 2007 or subsequently adopted CBC be incorporated into buildings, structures, roadways, and infrastructure to reduce potential damage from expansive/unstable soils, and that a licensed geotechnical or soils engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans.

IMPACT Possible Damage to Unknown, Potentially Unique Paleontological Resources during Earthmoving
3.6-12 *Activities. Construction activities within Phase 1 and Phase A could disturb previously unknown paleontological resources at the project site and along the alignments of the off-site elements.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.6-6 for further discussion of this impact.

Implementation of Mitigation Measure 3.6-6 would reduce potentially significant impacts related to potential damage to unique paleontological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering paleontological resources, and in the event that resources were encountered, fossil specimens would be recovered and recorded and would undergo appropriate curation.

3.6.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures listed above, implementation of the proposed project would not result in any residual significant impacts related to geology, soils, or paleontological resources.

3.7 HYDROLOGY AND WATER QUALITY

This section evaluates the potential impacts of the proposed project on hydrology and water quality. It describes the existing hydrologic conditions in the project site and vicinity, presents a summary of the federal, state, regional, and local regulatory context, analyzes the hydrology and water quality impacts of the proposed project, and provides feasible mitigation measures needed to reduce or avoid any significant impacts.

3.7.1 REGULATORY BACKGROUND

Detailed below are the federal, state, regional, and local laws, regulations, and policies that pertain to surface water and groundwater in the project site and vicinity. They provide the regulatory framework for addressing all aspects of hydrology and water quality impacts for the proposed project.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Water Quality

Federal Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for managing water quality. The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes EPA and the states to implement activities to control water quality. The various elements of the CWA that address water quality and are applicable to the proposed project are discussed below. Wetland protection elements administered by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA, including permits to dredge or fill wetlands, are discussed in Section 3.13, “Biological Resources.”

Water Quality Criteria and Standards

Under federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. EPA is the federal agency with primary authority for implementing regulations adopted under the CWA. EPA has delegated to the State of California the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the state’s Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

National Pollutant Discharge Elimination System Permit Program

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial (M&I) discharges to surface waters of the United States. A discharge from any point source is unlawful unless the discharge is in compliance with an NPDES permit. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

In November 1990, EPA published regulations establishing NPDES permit requirements for M&I stormwater discharges. Phase 1 of the permitting program applied to municipal discharges of stormwater in urban areas where

the population exceeded 100,000 persons. Phase 1 also applied to stormwater discharges from a large variety of industrial activities, including general construction activity if the project would disturb more than 5 acres. Phase 2 of the NPDES stormwater permit regulations, which became effective in March 2003, required that NPDES permits be issued for construction activity for projects that disturb 1 acre or more. Phase 2 of the municipal permit system (known as the NPDES General Permit for Small Municipal Separate Storm Sewer Systems) required small municipal areas of less than 100,000 persons to develop stormwater management programs. California's regional water quality control boards (RWQCBs) are responsible for implementing the NPDES permit system (see additional information below). The proposed project is within the jurisdiction of the Central Valley RWQCB.

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to the nine RWQCBs.

Antidegradation Policy

The federal antidegradation policy, established in 1968, is designed to protect existing uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- ▶ Existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected.
- ▶ Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development.
- ▶ Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA's primary and secondary maximum contaminant levels (MCLs), which are applicable to treated water supplies delivered to the distribution system. MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting MCLs for drinking water.

EPA has delegated to the California Department of Public Health (DPH) the responsibility for administering California's drinking-water program. DPH is accountable to EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by EPA. The applicable state primary and secondary MCLs are set forth in Title 22, Division 4, Chapter 15, Article 4 of the California Code of Regulations, and described in "Title 22 Standards" below.

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities

and industries). Section 303(d) requires that the state develop a Total Maximum Daily Load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows links between loading reductions and the attainment of water quality objectives. The EPA must either approve a TMDL prepared by the state or, if it disapproves the state's TMDL, issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of a TMDL, it is intended that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

Hydrology

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (AEP) (i.e., the 100-year flood event). Specifically, where levees provide flood protection, the levee crown is required by FEMA to have 3 feet of freeboard (i.e., the distance between the water surface and the top of the levee) above the 1-in-100-AEP water surface elevation, except in the vicinity of a structure such as a bridge, where the levee crown must have 4 feet of freeboard for a distance of 100 feet upstream and downstream from the structure. As developments are proposed and constructed FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision and Letters of Map Revision through the local agencies that work with the National Flood Insurance Program.

U.S. Army Corps of Engineers Sacramento and San Joaquin River Basins Comprehensive Study

The Sacramento and San Joaquin River Basins Comprehensive Study is a joint effort by the State Reclamation Board and USACE, in coordination with federal, state, and local agencies, groups, and organizations in California's Central Valley, to develop a comprehensive plan for flood damage reduction and environmental restoration for the Sacramento and San Joaquin River Basins. The study is a regionwide planning effort, rather than a regulatory program; however, consistency with its goals and objectives is important for any project affecting flood control in the Sacramento and San Joaquin River basins. The proposed project is in the Lower Sacramento River Region of the comprehensive study area.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Water Quality

In California, the SWRCB has broad authority over water-quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include DPH (for drinking-water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Game (DFG), and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt Basin Plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or "criteria" under the CWA) are found in the Basin

Plans adopted by SWRCB and each of the nine RWQCB. The Central Valley RWQCB is responsible for the regional area in which the project site is located. State regulations applicable to the demonstration of adequate water supply for the future water demands resulting from implementation of the proposed project are addressed in Section 3.10, “Public Utilities.”

Title 22 Standards

Water quality standards are enforceable limits composed of two parts: (1) the designated beneficial uses of water and (2) criteria (i.e., numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply (MUN) is among the “beneficial uses” as defined in Section 13050(f) of the Porter-Cologne Act, which defines them as uses of surface water and groundwater that must be protected against water quality degradation. Maximum contaminant levels, MCLs, are components of the drinking water standards adopted by the California Department of Public Health (DPH) pursuant to the California Safe Drinking Water Act. California MCLs may be found in Title 22 of the California Code of Regulations (CCR), Division 4, Chapter 15, Domestic Water Quality and Monitoring. DPH is responsible for Title 22 of the CCR (Article 16, Section 64449) as well, which also defines secondary drinking water standards, established primarily for reasons of consumer acceptance (i.e., taste) rather than because of health issues. Table 3.7-1 lists the Title 22 constituent standards, as well as those for the Central Valley Basin Plan above and the California Toxics Rule described below.

Drinking water MCLs are directly applicable to water supply systems “at the tap” (e.g., at the point of use by consumers in their home and office), and are enforceable by DPH and Sutter County Health Department. California MCLs, both Primary and Secondary, are directly applicable to groundwater and surface water resources when they are specifically referenced as water quality objectives in the pertinent Basin Plan. In such cases, MCLs become enforceable limits by SWRCB and the RWQCBs. When fully health protective, MCLs may also be used to interpret narrative water quality objectives prohibiting toxicity to humans in water designated as a source of drinking water (MUN) in the Basin Plan.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California’s statutory authority for the protection of water quality. Under the act, the state must adopt water quality policies, plans, and objectives that protect the state’s waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update Basin Plans. Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge (RWDs) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWDs and/or WDRs for broad categories of “low threat” discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

California State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described above, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- ▶ Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State and would not unreasonably affect present and anticipated beneficial uses of such water.

Table 3.7-1 Surface Water and Groundwater Quality Standards of Conventional Contaminants for the Proposed Project			
Constituent	Minimum Level Required for Detection ⁽¹⁾	Water Quality Objective (WQO) Source	WQO Value
Conventional Pollutants mg/L ⁽²⁾			
Oil and Grease	5	Basin Plan	Narrative (3)
Cyanide	0.005	Primary MCL, DPH Title 22 of CCR	150
pH	0–14	Basin Plan	6.5 to 8.5 (range)
Temperature	None	Basin Plan	Narrative (4)
Dissolved Oxygen	Sensitivity to 5 mg/L	Basin Plan	7.0
Bacteria			
Total coliform	<20 mpn/100ml	Basin Plan	Narrative (6)
Fecal coliform	<20 mpn/100ml	Basin Plan	Narrative (6)
E. coli (fresh waters)	<20 mpn/100ml	Basin Plan	Narrative (6)
General mg/L ⁽²⁾			
Total Phosphorus	0.05	--	--
Turbidity	0.1NTU	Basin Plan	Narrative (7)
Suspended Sediments	2	Basin Plan	Narrative (10)
Total Dissolved Solids	2	Secondary MCL, DPH Title 22 of CCR	500 mg/L
Total Petroleum Hydrocarbon	5	Basin Plan	Narrative (8)
Nitrate	0.1	Primary MCL, DPH Title 22 of CCR	45 mg/L (or 10 mg/L as N)
Nitrite	0.1	Primary MCL, DPH Title 22 of CCR	1 mg/L
Specific Conductance	1umho/cm	Secondary MCL, DPH Title 22 of CCR	900 µmhos/cm
Chloride	2	Secondary MCL, DPH Title 22 of CCR	250 mg/L
Fluoride	0.1	Primary MCL, DPH Title 22 of CCR	2 mg/L
Methyl tertiary butyl ether (MTBE)	1	Primary MCL, DPH Title 22 of CCR	13 µg/L
Metals µg/L			
Aluminum	100	Primary MCL, DPH Title 22 of CCR	1000
Antimony	0.5	Primary MCL, DPH Title 22 of CCR	6
Arsenic	1	USEPA Section 304(a)	10 (EPA MCL) 50 (DPH MCL)
Beryllium	0.5	Primary MCL, DPH Title 22 of CCR	4
Cadmium	0.25	Primary MCL, DPH Title 22 of CCR	5
Chromium (total)	0.5	Primary MCL, DPH Title 22 of CCR	50
Copper	0.5	Primary MCL, DPH Title 22 of CCR	1300
Iron	NA	Secondary MCL, DPH Title 22 of CCR	300
Lead	0.5	Primary MCL, DPH Title 22 of CCR	15
Manganese	NA	Secondary MCL, DPH Title 22 of CCR	50
Magnesium		EPA Section 304(a)	10 (EPA MCL) 50 (DPH MCL)

Table 3.7-1 Surface Water and Groundwater Quality Standards of Conventional Contaminants for the Proposed Project				
Constituent	Minimum Level Required for Detection ⁽¹⁾	Water Quality Objective (WQO) Source		WQO Value
Mercury	0.5	Primary MCL, DPH Title 22 of CCR		2
Nickel	1	Primary MCL, DPH Title 22 of CCR		100
Selenium	1	Primary MCL, DPH Title 22 of CCR		50
Silver	0.25	Secondary MCL, DPH Title 22 of CCR		100
Thallium	1	Primary MCL, DPH Title 22 of CCR		2
Zinc	1	Secondary MCL, DPH Title 22 of CCR		5000
Organophosphate Pesticides		Ng/L		
Chlorpyrifos	10.0	DFG		51 (9)
Diazinon	50.0	DFG		14 (9)
Molinate	2	DFG		13,000 (11)
Carbofuran	2	Secondary MCL, DPH Title 22 of CCR/ DFG		40,000 / 500 (11)
Herbicides		µg/L		
Glyphosate	5	Primary MCL, DPH Title 22 of CCR		700
2,4-D	0.02	Primary MCL, DPH Title 22 of CCR		70
2,4,5-TP-SILVEX	0.2	Primary MCL, DPH Title 22 of CCR		50
Notes:		⁴ The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the RWQCB that such alteration in temperature does not adversely affect beneficial uses.		
MCL = Maximum Contaminant Level.		⁵ placeholder		
DPH = California Department of Public Health.		⁶ The most probable number of coliform organisms over any seven-day period shall be less than 2.2MPN/100 ml. This limit would only be applicable for groundwater used for domestic or municipal supply.		
CCR = California Code of Regulations.		⁷ The 30-day average for turbidity shall not exceed the following limits:		
DPH = California Department of Public Health.		i. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.		
EPA = U.S. Environmental Protection Agency.		ii. More than 20% where natural turbidity is between 5 and 50 NTUs.		
WDR =Waste Discharge Requirements.		iii. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.		
mg/L = milligrams per liter (parts per million).		iv. More than 10% where natural turbidity is greater than 100 NTUs.		
µg/L = micrograms per liter (parts per billion).		⁸ The RWQCB has prohibited the discharge of oil or any residuary product of petroleum to the waters of the State, except in accordance with waste discharge requirements or other provisions of Division 7, California Water Code.		
ng/L = nanograms per liter (parts per trillion).		⁹ Aquatic Life guidance Value for 4-Day Average Concentration		
NA = not applicable.		¹⁰ RWQCB Basin Plan Narrative Objective: Water shall not contain constituent concentrations that would cause nuisance or adversely affect beneficial uses.		
¹ From the State Implementation Plan of the California Toxics Rule (SIP CTR), Appendix 4. Note that some Water Quality Objective values are lower than the Minimum Level values.		¹¹ DFG hazard assessment value		
² Unless otherwise noted				
³ Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.				
Sources: Central Valley RWQCB 2003, 2004				

- ▶ Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements, which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State would be maintained.

California Toxics Rule and State Implementation Plan

The California Toxics Rule (CTR) was issued in 2000 in response to requirements of the EPA National Toxics Rule (NTR), and establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The CTR criteria are regulatory criteria adopted for inland surface waters, enclosed bays, and estuaries in California that are subject CWA Section 303(c). The CTR includes criteria for the protection of aquatic life and human health. Human health criteria (water and organism based) apply to all waters with a Municipal and Domestic Water Supply Beneficial Use designation as indicated in the Basin Plans.

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, also known as the State Implementation Plan (SIP), was adopted by SWRCB in 2000. It establishes provisions for translating CTR criteria, NTR criteria, and Basin Plan water quality objectives for toxic pollutants into NPDES permit effluent limits, effluent compliance determinations, monitoring for 2,3,7,8-TCDD (dioxin) and its toxic equivalents, chronic (long-term) toxicity control provisions, initiating site-specific water quality objective development, and granting of exceptions for effluent compliance. The goal of the SIP is to establish a standardized approach for the permitting of discharges of toxic effluents to inland surface waters, enclosed bays, and estuaries in a consistent fashion throughout the state.

NPDES Permit System and Waste Discharge Requirements for Construction

The SWRCB and Central Valley RWQCB have adopted specific NPDES permits for a variety of activities that have potential to discharge wastes to waters of the state. The SWRCB's statewide stormwater general permit for construction activity (Order 99-08-DWQ, as amended) is applicable to all land-disturbing construction activities that would disturb more than 1 acre. The Central Valley RWQCB's general NPDES permit for construction dewatering activity (Order 5-00-175) authorizes direct discharges to surface waters up to 250,000 gallons per day for no more than a 4-month period each year. All of the NPDES permits involve similar processes, including submittal to the Central Valley RWQCB of notices of intent (NOIs) to discharge, and implementation of storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs) to minimize those discharges. As mentioned above, the Central Valley RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the state. In particular, Central Valley RWQCB Resolution R5-2003-0008 identifies activities subject to waivers of RWDs and/or WDRs, including minor dredging activities and construction dewatering activities that discharge to land.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of permanent postconstruction BMPs that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. In response to a court decision, the Central Valley RWQCB also implemented mandatory water quality sampling requirements in Resolution 2001-046 for visible and nonvisible contaminants in discharges from construction activities. Water quality sampling is now required if the activity could result in the discharge of turbidity or sediment to a water body that is listed as impaired under Section 303(d) because of sediment or siltation, or if a release of a nonvisible contaminant occurs. Where such pollutants are known or should be known to be present and have the potential to contact runoff, sampling and analysis is required. NPDES permits require the implementation of design and operational BMPs to reduce the level of contaminant runoff. Types of BMPs include source controls, treatment controls, and site planning measures.

Discharges subject to the SWRCB's NPDES general permit for construction activity are subject to development and implementation of a SWPPP. The SWPPP includes a site map and description of construction activities and identifies the BMPs that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources.

Recycled Wastewater Requirements

Wastewater recycling in California is regulated under Title 22, Division 4, of the CCRs under the jurisdiction of DPH. The intent of these regulations is to ensure protection of public health associated with the use of recycled water. The regulations establish acceptable levels of constituents in recycled water for a range of uses and prescribe means for ensuring reliability in the production of recycled water. Using recycled water for nonpotable uses is common throughout the state and is an effective means of maximizing use of water resources. The RWQCB establishes water reclamation requirements under the Title 22 regulations and is responsible for implementing wastewater recycling projects.

While there are no immediate plans to implement a recycled-water supply program, the proposed project includes installation of "purple pipe" irrigations systems in all open space, parks, and detention basins on the project site. Purple is the color commonly used to identify reclaimed water conveyance facilities. The irrigation system would be connected to the potable-water conveyance facilities and would be designed so that it could be easily converted from a potable-water supply to a recycled-water supply at some future date.

Hydrology

Reclamation District 1000

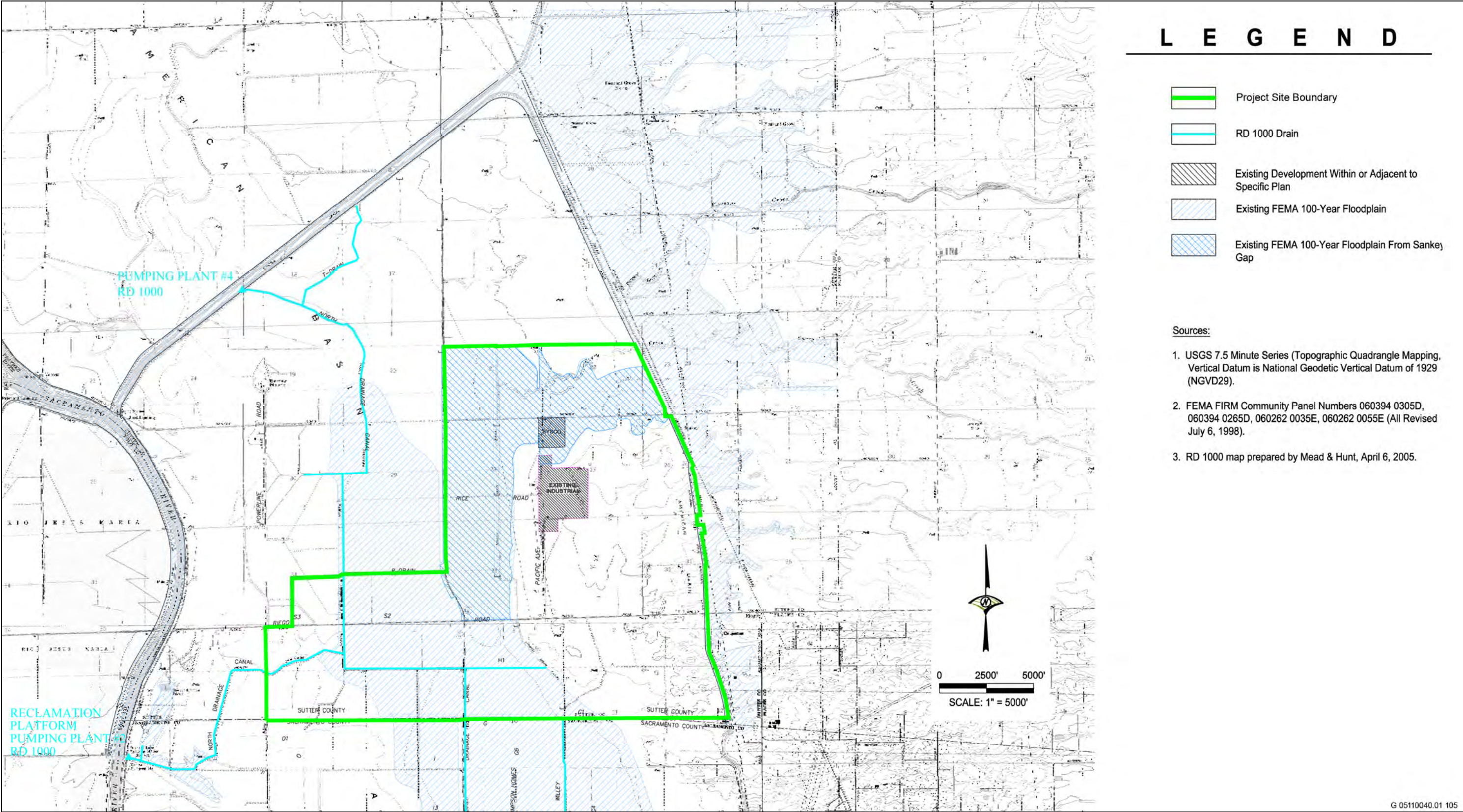
Reclamation District (RD) 1000 operates and maintains facilities that provide drainage and flood control protection for land within the Natomas Basin (Exhibit 3.7-1, Natomas Basin shown in Exhibit 3.7-2). RD 1000 was created to reclaim and protect land within its boundaries from floodwaters of the American and Sacramento Rivers. To this end, levees were constructed around the perimeter and a drainage system was constructed inside the levees to capture and discharge runoff. RD 1000 now has 42 miles of levees around an area of 81 square miles and is responsible for maintaining the levees in accordance with standards established by the USACE and an assurance agreement with the State of California. RD 1000 also operates and maintains a large drainage system within its boundaries to convey agricultural and urban runoff. This system includes seven large pumping plants and 180 miles of canals and ditches. In October 2000, the County and RD 1000 entered into an agreement defining the roles and responsibilities relative to planning and development for drainage in the south Sutter County area where the proposed project is located. Three primary criteria for development within the Natomas Basin are:

- ▶ development cannot raise the 100-year storm water elevation in the drainage system;
- ▶ development must provide detention to prevent runoff in excess of agricultural runoff; and
- ▶ development must provide additional pumping and carrying capacity to the extent that such demands on RD 1000 pumping plants and canals are increased.

Senate Bill 5

Senate Bill (SB) 5, signed into law on October 10, 2007, enacts the Central Valley Flood Protection Act of 2008. The following list identifies the requirements of the California Department of Water Resources (DWR) and the Central Valley Flood Protection Board (previously known as the State Reclamation Board) under SB 5:

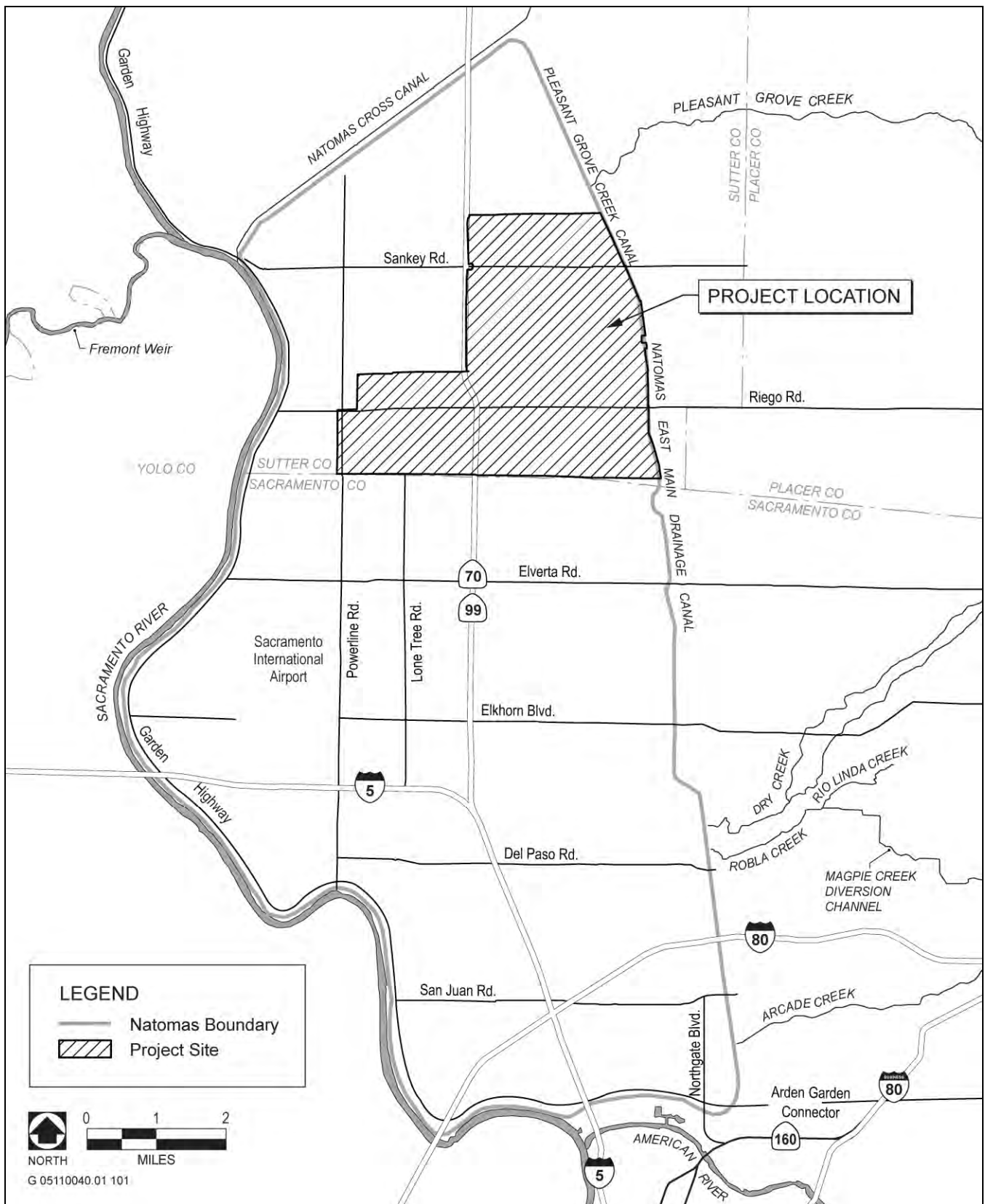
- ▶ To prepare and adopt a Central Valley Flood Protection Plan (the Plan) (described below) by 2012.



Source: Adapted by EDAW from Wood Rodgers 2008

Existing Conditions

Exhibit 3.7-1



Source: Adapted by EDAW 2008

Natomas Basin Map

Exhibit 3.7-2

- ▶ To establish 200-year protection as the minimum urban level of flood protection, effective with respect to specific development projects as of 2015 or 2025, as explained below.
 - The DWR is directed to produce preliminary (i.e. Best Available) maps for 100-year and 200-year floodplains protected by project levees, and to make them available to cities and counties in the Sacramento-San Joaquin Valley (“Central Valley”). (Water Code Section 9610[a]) These best available maps were made available on September 8, 2008, and can be found at the California Department of Water Resources <http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/>
- ▶ Sets deadlines for cities and counties in the Central Valley to amend their general plans and their zoning ordinances to conform to the Plan within 24 months and 36 months (i.e., approximately 2014 and 2015), respectively, of its adoption.
- ▶ Obligates Central Valley counties to develop flood emergency plans within 24 months of adoption of the Plan.
- ▶ By 2009 the Department of Water Resources (“Department”) must propose amendments to the California Building Standards Code (“Building Code”) to protect areas with flood depths anticipated to exceed three feet for the 200-year flood event. SB 5 requires that the Building Code amendments are designed to reduce the risk of flood damage and increase safety.

No later than 2015, but potentially sooner depending on when the Central Valley Flood Protection Plan takes effect, SB 5 prohibits local governments from entering development agreements or approving entitlements or permits, including ministerial permits resulting in construction of a new residence in a flood hazard zone, which result in construction of a new residence in a flood zone unless one of three conditions are met:

- ▶ flood management facilities provide level of protection necessary to withstand 200-year flood event;
- ▶ the development agreement or other entitlements include conditions that provide protections necessary to withstand 200-year flood event; or
- ▶ the local flood management agency has made adequate progress on construction of a flood protection system that shall result in protections necessary to withstand 200-year flood event by 2025.

Central Valley Flood Protection Plan

The Central Valley Flood Protection Plan (CVFPP, as set forth in Water Code, Section 9614) is a descriptive document that includes the following elements:

1. a description of the Flood Management System, its performance, and the challenges to modifying it;
2. a description of the facilities included in the State Plan of Flood Control;
3. a description of probable impacts of projected climate change, land-use patterns, and other potential challenges;
4. an evaluation of needed structural improvements and a list of facilities recommended for removal; and
5. a description of both structural and nonstructural methods for providing an urban level of flood protection to currently urbanized areas in the Central Valley.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Natomas-Central Mutual Water Company

The Natomas-Central Mutual Water Company (NCMWC) operates and maintains facilities that provide irrigation water to land within the Natomas Basin. Although the NCMWC has no general provisions or regulations limiting planning pertaining to water supplies, nor does it govern land use decisions, it does facilitate requests regarding specific projects, and it is the general policy of the NCMWC that proposed development must not adversely impact water users outside of the development area. The NCMWC boundaries generally correspond with the boundaries of RD 1000, and RD 1000 and NCMWC operate and maintain 310 miles of drainage ditches and irrigation canals.

Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) was formed in September 1989 to work with USACE, Sacramento District and the State through the Reclamation Board (now the Central Valley Flood Protection Board) to provide all of Sacramento's floodplains that are protected within the Sacramento River Flood Control Project (SRFCP) with at least a 100-year level of flood protection as quickly as possible, while working to achieve a 200-year level of flood protection over time. A related goal is to meet FEMA criteria for designating the Natomas Basin as an A99 zone, which is a special flood hazard zone in which enough progress has been made on the flood protection system that it is considered complete for insurance rating purposes; however, flood insurance for homeowners is still mandatory in this zone. As of December 8, 2008, the Natomas Basin will be mapped as the more restrictive AE zone, which requires that all new construction must be elevated above mapped flood levels. The A99 zone would not require elevation of new structures, and flood insurance rates for homeowners would be lower than under an AE zone. The SRFCP is an integrated system of levees, overflow bypass channels, and dams that was designed and constructed by federal, state, and local interests over several decades to protect farmlands, towns, and cities in the Sacramento Valley from large floods.

Although a 100-year level of flood protection is the minimum national standard for protecting urban areas, the likely consequences of an uncontrolled flood in the Sacramento area made it necessary to work toward the higher standard of protection from at least a 200-year flood because this was considered to be representative of the most severe flood that could be reasonably expected to occur along the Sacramento and American Rivers. This policy is consistent with the recently passed SB 5, discussed above. A 200-year level of flood protection was also consistent with the minimum level of protection provided in other urban areas in the United States with substantial development in protected floodplains. This flood risk reduction program was subsequently characterized as progressing from high risk (less than 100-year protection), through moderate risk (greater than 100-year but less than 200-year protection), to low risk (greater than 200-year protection).

Sutter County General Plan

The following goals and policies from the Sutter County General Plan (Sutter County 1996) related to hydrology and water quality pertain to the proposed project. The policies of the general plan do not yet reflect the requirements established by SB 5 pertaining to planning and other efforts necessary to ultimately provide for 200-year flood protection; under the act, the general plan would need to be modified sometime after 2012, when the Central Valley Flood Protection Plan is scheduled to be adopted. See the discussion above.

- ▶ **GOAL 3.D** To collect and dispose of storm water in a safe and efficient manner.
 - **Policy 3.D-1** The County shall continue to require that all new development outside the Special Flood Hazard Area as defined by the Federal Emergency Management Agency (FEMA) must be protected from a 50 year storm event.

- **Policy 3.D-2** The County shall require new development to adequately mitigate increases in storm water flows and/or volume and to avoid cumulative increases in downstream flows.
 - **Policy 3.D-3** The County shall discourage residential development in areas which are subject to inundation by surface water.
 - **Policy 3.D-4** The County shall require that new development conforms to the appropriate County requirements and standards governing drainage.
 - **Policy 3.D-5** The County shall require new development projects to provide adequate drainage facilities.
 - **Policy 3.D-6** The County shall restrict new development in areas prone to flooding, or that have a seasonal high water table and/or water seepage problems, in order to prevent the contamination of ground and surface water by septic systems.
- **GOAL 4.A** To preserve and protect the water resources of the County.
- **Policy 4.A-1** The County shall require development setbacks from all water courses.
 - **Policy 4.A-2** The County shall strive to protect groundwater resources by:
 - Identifying and controlling sources of potential contamination.
 - Protecting groundwater recharge areas.
 - Discouraging overdraft.
 - Encouraging the preparation and implementation of groundwater management plans.
 - Encouraging regional coordination of issues related to the groundwater basins.
 - **Policy 4.A-3** The County shall encourage water conservation practices, including drought-resistant landscaping, drip irrigation systems and the use of “graywater” for landscaping irrigation.
 - **Policy 4.A-4** Monitoring of agricultural water runoff should be encouraged to ensure that pollutants are not being returned to the overall water system.
- **GOAL 7.C** To minimize the risk of personal injury, property damage and the economic and social disruptions associated with floods.
- **Policy 7.C-1** The County shall continue to participate in the Federal Flood Insurance Program.
 - **Policy 7.C-2** When new development or substantial improvement of existing development occurs within a special flood hazard area, as defined by FEMA, the development or improvement shall comply with the County Flood Damage Prevention Regulations.
 - **Policy 7.C-3** The County shall coordinate efforts with local, regional, state, and federal agencies to maintain the existing levee system to protect life and property from the Intermediate Regional Flood (100-year storm event).

Other Sutter County Plans, Policies, Regulations, and Ordinances

The Sutter County Department of Public Works Design Standards, adopted by the Sutter County Board of Supervisors on January 24, 2006, sets guidelines for regulating and designing streets, highways, alleys, drainage, sewerage, street lighting, water supply facilities, and related public improvements (Sutter County 2006). It is the policy of Sutter County to protect all new habitable structures, and two lanes of travel in each direction for arterial roadways, from the 100-year flood event (Sutter County 2007).

Section 5 of the Design Standards “Storm Drainage Design” details the stormwater design criteria and includes the following:

5-4 National Flood Insurance Program – Petitions for a Letter of Map Amendment (L.O.M.A.) or Letter of Map revision (L.O.M.R.), including any fee required by Federal Emergency Management Agency (F.E.M.A.), shall be submitted to the Public Works Department prior to approval of a tentative map or approval of improvement plans.

5-5 Drainage Capacity Design – All drainage systems shall be designed to accommodate the ultimate development of the entire upstream watershed.

5-6 Surface Drainage Guidance Design – The engineer shall be responsible for designing a grading plan which ensures storm waters from a 100 year design storm flow through a development without flooding structures in the event of malfunction or overloading of the drainage collection system.

5-7 Drainage Diversions

A. The diversion of natural drainage shall be allowed only within the limits of the proposed improvement, and natural drainage shall enter and leave the improved area at its original horizontal and vertical alignment unless an agreement, the form of which shall be approved by the Director of Public Works (Director), has been executed with all affected property owners.

B. Temporary drainage diversions during construction shall be approved by the Director and appropriate district.

5-8 Drainage Easements

A. All publicly maintained drainage facilities shall be located in either a public street right-of-way, public utility easement specifically dedicated to include drainage facilities, or a dedicated drainage easement.

B. Offsite drainage easements shall be required whenever there is a concentrated discharge of drainage water.

C. Dedication of offsite easements shall be completed and submitted to the Director with copies of deeds or title reports for the affected properties before improvement plans shall be approved.

D. Closed Conduits Design Criteria.

E. Open Channels – Easements for open channels shall have sufficient width to contain the channel, fencing where required, and a 15 foot all weather access service road. A service road may not be required where the channel bottom is lined and a suitable access ramp is provided when approved by the Director.

5-9 Runoff Calculation Design Criteria – including peak discharge, runoff coefficient, and rainfall intensity

All development in Sutter County must comply with the County’s Flood Damage Prevention Ordinance. Sutter County is a participant in the National Flood Insurance Program, and is responsible for coordinating the processing of revisions to FIRMS via coordination with FEMA.

Sutter County Codes and Ordinances, Chapter 1780: Floodplain Management. The Floodplain Management Ordinance includes methods and provisions for:

(a) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

(b) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

- (c) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- (d) Controlling, filling, grading, dredging, and other development which may increase flood damage; and
- (e) Preventing or regulating the construction of flood barriers which would unnaturally divert flood waters or which may increase flood hazards in other areas.

Sec. 1780-530 Elevation and Floodproofing

- (a) Residential Construction. All new construction or substantial improvements of residential structures shall have the lowest floor, including basement:
 - (1) In AE, AH, A1-30 Zones, elevated at least one foot above the BFE.
 - (2) In an AO Zone, elevated above the highest adjacent grade to a height exceeding the depth number specified in feet on the FIRM by at least one foot, or elevated at least three feet above the highest adjacent grade if no depth number is specified.
 - (3) In an A Zone, without BFE's specified on the FIRM [unnumbered A zone], elevated at least one foot above the base flood elevation as determined by methods comparable to those in a Flood Insurance Study or by using the detailed methods as described in the most current edition of FEMA publication, FEMA 265, "Managing Floodplain Development in Approximate Zone A Areas – A Guide for Obtaining and Developing Base (100-year) Flood Elevations" or any successor FEMA document.
 - (4) In all other Zones and in local flood hazard areas, elevated at least one foot above the base flood elevation shown on the flood insurance rate map or one foot above the locally-determined base flood elevation if that elevation is higher. In Zone X, a condition of granting any building permit for construction outside a subdivision shall be that the lowest floor shall be placed at an elevation, as determined by a registered engineer, which will protect the structure from inundation as a result of a storm with a 100-year recurrence interval. If the Floodplain Administrator determines that developing data to establish the 100-year storm inundation elevation would be excessively expensive, the Floodplain Administrator may alternatively approve a lowest floor elevation which is one foot above the centerline of the closest county road at a point closest to the building site. This requirement shall exclude detached garages, accessory buildings and agricultural shops, provided that the owner signs an indemnity agreement for any future damages by flooding.

At first form inspection, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor. Such certification or verification shall be provided to the Floodplain Administrator. Upon the completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered civil engineer or licensed land surveyor, and verified by the community building inspector to be properly elevated. Such certification and verification shall be provided to the Floodplain Administrator.

- (b) Nonresidential Construction. All new construction or substantial improvements of nonresidential structures shall either be elevated to conform with Section 1780-530(a) or:
 - (1) Be floodproofed, together with attendant utility and sanitary facilities, below the elevation recommended under Section 1780-530(a), so that the structure is watertight with walls substantially impermeable to the passage of water;
 - (2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

- (3) Be certified by a registered civil engineer or architect that the standards of Section 1780-520 & Section 1780-525 are satisfied. Such certification shall be provided to the Floodplain Administrator.
- (c) Flood Openings. All new construction and substantial improvements of structures with fully enclosed areas below the lowest floor (excluding basements) that are usable solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement for non-engineered openings must meet the following minimum criteria:
- (1) Have a minimum of two openings on different sides having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
 - (2) The bottom of all openings shall be no higher than one foot above grade;
 - (3) Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater; and
 - (4) Buildings with more than one enclosed area must have openings on exterior walls for each area to allow flood water to directly enter; or
 - (5) Be certified by a registered civil engineer or architect.
- (d) Garages and Low Cost Accessory Structures.
- (1) Attached garages:
 - (i) A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry of flood waters. Areas of the garage below the BFE must be constructed with flood resistant materials.
 - (ii) A garage attached to a nonresidential structure must meet the above requirements or be dry floodproofed. For guidance on below grade parking areas, see FEMA Technical Bulletin TB-6.
 - (2) Detached garages and accessory structures:
 - (i) "Accessory structures" used solely for parking (2 car detached garages or smaller) or limited storage (small, low-cost sheds), as defined in Section 1780-210, may be constructed such that its floor is below the BFE, provided the structure is designed and constructed in accordance with the following requirements:
 - (1) Use of the accessory structure must be limited to parking or limited storage;
 - (2) The portions of the accessory structure located below the BFE must be built using flood-resistant materials;
 - (3) The accessory structure must be adequately anchored to prevent flotation, collapse and lateral movement;
 - (4) Any mechanical and utility equipment in the accessory structure must be elevated or floodproofed to or above the BFE;
 - (5) The accessory structure must comply with floodplain encroachment provisions in Section 1780-555; and

- (6) The accessory structure must be designed to allow for the automatic entry of flood waters in accordance with Section 1780-530(c).
 - (ii) Detached garages and accessory structures not meeting the above standards must be constructed in accordance with all applicable standards in Sections 1780-520 through 1780-555.
- (e) Crawl space Construction. This sub-section applies to buildings with crawl spaces up to two feet below grade. Below-grade crawl space construction in accordance with the requirements listed below will not be considered basements.
 - (1) The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Crawl space construction is not allowed in areas with flood velocities greater than five feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer;
 - (2) The crawl space is an enclosed area below the BFE and, as such, must have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. For guidance on flood openings, see FEMA Technical Bulletin 1-93;
 - (3) Portions of the building less than one foot above the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawl space used to elevate the building, but also any joists, insulation, or other materials that extend less than one foot above the BFE;
 - (4) Any building utility systems within the crawl space must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions.
 - (5) The interior grade of a crawl space below the BFE must not be more than two feet below the lowest adjacent exterior grade (LAG), shown as D in figure 3 of Technical Bulletin 11-01;
 - (6) The height of the below-grade crawl space, measured from the interior grade of the crawl space to the top of the crawl space foundation wall must not exceed four feet (shown as L in figure 3 of Technical Bulletin 11-01) at any point;
 - (7) There must be an adequate drainage system that removes floodwaters from the interior area of the crawl space within a reasonable period of time after a flood event, not to exceed 72 hours; and,
 - (8) The velocity of floodwaters at the site should not exceed five feet per second for any crawl space. For velocities in excess of five feet per second, other foundation types should be used.
- (f) Gas or Liquid Storage Tanks. This sub-section applies to gas or liquid storage tanks. Construction and installation shall be in accordance with the requirements listed in FEMA 348, "Protecting Building Utilities from Flood Damage - Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems" or any successor FEMA document.

Sec. 1780-535 Standards for Utilities

- (a) All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate:
 - (1) Infiltration of flood waters into the systems; and,
 - (2) Discharge from the systems into flood waters.

- (b) On site waste disposal systems shall be located to avoid impairment to them, or contamination from them during flooding.

Sec. 1780-540 Standards for Subdivisions & Other Proposed Development

- (a) All new subdivision proposals and other proposed development, including proposals for manufactured home parks and subdivisions, shall:
 - (1) Identify the Special Flood Hazard Areas (SFHA) and BFE.
 - (2) Identify the elevations of lowest floors of all proposed structures and pads on the final plans.
 - (3) If the site is filled above the base flood elevation, the following as-built information for each structure shall be certified by a registered civil engineer or licensed land surveyor and provided as part of an application for a Letter of Map Revision based on Fill (LOMR-F) to the Floodplain Administrator:
 - (i) Lowest floor elevation.
 - (ii) Pad elevation.
 - (iii) Lowest adjacent grade.
- (b) All subdivision proposals and other proposed development shall be consistent with the need to minimize flood damage.
- (c) All subdivision proposals and other proposed development shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.
- (d) All subdivisions and other proposed development shall provide adequate drainage to reduce exposure to flood hazards.

Sec. 1780-555 Floodways

Located within areas of special flood hazard established in the Sutter County – Floodplain Management Ordinance are areas designated as floodways. Since floodways are an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- (a) Until a regulatory floodway is adopted, no new construction, substantial development, or other development (including fill) shall be permitted within Zones A1-30 and AE, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other development, will not increase the water surface elevation of the base flood more than one foot at any point within the County of Sutter.
- (b) Within an adopted regulatory floodway, the County of Sutter shall prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered civil engineer is provided demonstrating that the proposed encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- (c) If Sections 1780-555(a) & 1780-555(b) are satisfied, all new construction, substantial improvement, and other proposed new development shall comply with all other applicable flood hazard reduction provisions of Sections 1780-515 through 1780-550.

3.7.2 ENVIRONMENTAL SETTING

REGIONAL SETTING

The City of Sacramento is located at the confluence of the Sacramento River and American River in the Sacramento River Basin. The Sacramento Basin, covering approximately 27,200 square miles, supplies water for much of California's urban and agricultural areas. Annual runoff in the basin averages about 22.4 million acre feet, which is nearly one-third of the state's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. The two largest surface water projects in the region are Shasta Lake, a key component of the Central Valley Project, on the upper Sacramento River, and Lake Oroville, part of the State Water Project, on the Feather River. In all, there are more than 40 major surface water reservoirs in the region (DWR 2005). The primary tributary to the Sacramento River upstream of the project site is the Feather River. The confluence is located approximately 1 mile upstream of the northwest corner of the Natomas Basin. The Sacramento River joins the San Joaquin River approximately 40 miles south of the Natomas Basin, near Pittsburg in Contra Costa County. The combined waters from these two river systems flow into Suisun Bay, through the Carquinez Strait, and into San Pablo Bay, San Francisco Bay, and the Pacific Ocean.

The project site is situated within the Pleasant Grove hydrologic subarea (HSA 519.22) of approximately 340 square miles in area, located within the Valley-American hydrologic unit in the Sacramento Basin (CalWater 2007). The average rainfall in the project area is 18.1 inches, based on rain gage readings at the Sacramento Executive Airport Gauge taken between 1952 and 2006 (Luhdorff & Scalmanini Consulting Engineers 2008). Most rainfall occurs during the months of November through March, which is typical of the "Mediterranean" type climate in southern Sutter County characterized by mild wet winters and hot dry summers. The eastern portion of HSA 519.22 is characterized by low rolling uplands. The western portion, which includes the Natomas Basin where the project site is located, is a nearly flat historic flood basin for the Bear, Feather, Sacramento, and American Rivers, and several small east side tributaries. The general direction of drainage is west-southwest at an average grade of about 5% (DWR 2006).

REGIONAL HYDROLOGY

Major storm events can produce high flows throughout the Sacramento and American River systems. Flood control facilities along these rivers consist of a comprehensive system of dams, levees, overflow weirs (diversion structures intended to ensure a maximum flow in the river), drainage pumping plants, and flood control bypass channels. Such facilities control flood flows by regulating the amount of water passing through a particular reach of the river. Specifically, the City of Sacramento's (City's) stormwater drainage system consists of a network of natural channels, canals, levees, subsurface drains, and pumping stations that ultimately drain into the Sacramento and American Rivers. Urban runoff is disposed of via one of two methods: (1) conveyance to the Sacramento and American Rivers through sumps, pipelines, and treatment facilities organized, primarily, by drainage basin; or (2) conveyance by the City's Combined Sewer Service System, along with sewage, to the Sacramento Regional Wastewater Treatment Plant.

The volume of water flowing past the levee system that protects Sacramento from flooding is controlled by Folsom Dam on the American River, approximately 18 miles east of the project site, and the reserve overflow area of the Yolo Bypass on the Sacramento River. The majority of the City's corporate limits and the project site could be subject to flooding from failure along the Sacramento and American River levee systems. Folsom Dam was completed in 1956 and was designed to reduce flood flows in the American River to a flow rate that could be safely carried by the downstream levees. A dam is designed to contain a flood that has a certain probability of occurring in any given year. If a larger flood occurs, then that structure will either release water through its spillway or be overtopped. Overtopping is the primary cause of earthen dam failure. There have been no dam failures in Sacramento County since 1950 (City of Sacramento 2005).

Folsom Dam was designed to provide flood control for Sacramento up to a 500-year storm event. However, after the dam became operational a series of record storms and flood flows resulted in the downgrading of the dam's projected design flood in 1986 to approximately a 60-year storm (SAFCA 2005). The Folsom Joint Federal Project (JFP) is a collaborative effort by the U.S. Bureau of Reclamation and the USACE to improve the ability of Folsom Dam to manage large flood events by allowing more water to be safely released earlier in a storm event and leaving more storage capacity in the reservoir to hold back the peak inflow when it arrives. With a peak inflow of 450,000 cubic feet per second in a 200-year design storm, releases will be held to 160,000 cubic feet per second or less, which can be safely conveyed to the American River. The new auxiliary spillway also allows passage of the 200-year storm event without damaging the dam. The JFP will consist of a six-gated control structure, a 2,100-foot spillway with a stilling basin, and an approach channel in the reservoir leading to the control structure. Phase 1 of the JFP was a spillway excavation completed in 2008. Work on the JFP is expected to be completed in 2015 (SAFCA 2008a).

The Yolo Bypass is part of the Sacramento River Flood Control Project which includes six weirs, three flood control relief structures, and an emergency overflow roadway. Weirs located along the Sacramento River are lowered sections of levees that allow flood waters to flow in excess of the downstream channel capacity to escape into a bypass basin or channel (e.g., Yolo Bypass). The Yolo Bypass is a flood bypass area that primarily protects the City of Sacramento and surrounding communities from flooding along the Sacramento River. The Yolo Bypass conveys 80% of the Sacramento River's floodwaters through Yolo and Solano Counties until rejoining the Sacramento River a few miles upstream of Rio Vista. The Fremont Weir, located approximately 9 miles northwest of the project site and approximately 2 miles in length, marks the northern extent of the Yolo Bypass. The Fremont Weir is the main water input to the Yolo Bypass by allowing floodwaters to flow by gravity after water levels in the Sacramento River reach an overflow water surface elevation. The Sacramento Weir, located approximately 5 miles south of the project site, has a primary purpose to protect the City of Sacramento from excessive flood stages in the Sacramento River channel downstream of the American River. The Sacramento Weir is 1,920 feet long and consists of 48 gates that divert Sacramento and American River floodwaters to the Yolo Bypass (DWR 2003).

Natomas Basin

The Natomas Basin is a low-lying area east of the Sacramento River, north (upstream) of its confluence with the American River (Exhibit 3.7-2). The basin is served by a series of canals and levees, drains, pump stations, improved detention basins, and floodplain storage areas. In the undeveloped areas of Natomas, canals and drains serve the dual purpose of providing flood control and irrigation water. NCMWC diverts water from the Sacramento River and the Natomas Cross Canal to provide irrigation water for agricultural uses and habitat preservation. Drainage and flood control for the Natomas Basin is provided by RD 1000, a public agency that has a coinciding service area and several joint-use facilities with Natomas Mutual. RD 1000 operates the primary drainage canals within the Natomas Basin and is responsible for conveying and pumping urban and non-urban stormwater runoff from the basin. Runoff from developed and existing agricultural lands within the Natomas Basin flows into numerous local drainage ditches that ultimately drain into the primary RD 1000 canals. RD 1000's primary system of interior drains includes the following:

- ▶ The East Drainage Canal conveys drainage water from the northern and eastern Natomas Basin to its confluence with the Main Drainage Canal northwest of the Interstate 80 (I-80)/Interstate 5 (I-5) interchange.
- ▶ The West Drainage Canal conveys drainage water from the western Natomas Basin northwest of Sacramento International Airport to its confluence with the Main Drainage Canal. Fisherman's Lake, a natural slough, is a portion of the West Drainage Canal.
- ▶ The Main Drainage Canal conveys the combined flows of the East and West Drainage Canals from their confluence northwest of the I-80/I-5 interchange through South Natomas west of I-80. Drainage water from the Main Drainage Canal is pumped into the Sacramento River approximately nine land miles to the south (downstream) of the project site.

- ▶ The North Drainage Canal is an interior canal that conveys drainage water from the Sutter County portion of the Natomas Basin northward, where it is pumped into the Natomas Cross Canal.
- ▶ The Cross Canal conveys drainage water from central portions of Sutter County westward to the Sacramento River. The Cross Canal connects with the Sacramento River approximately 3 miles north of the project site.

The existing drainage and irrigation facilities on the project site are shown in Exhibit 3.7-1.

Historically, the flood control system within the Natomas Basin was adequate for agricultural use, but the urbanization of the basin has resulted in the need for an increased level of flood protection. The North Natomas Comprehensive Drainage Plan (CDP) is among the flood control efforts which created or modified storm water detention basins, detention basin pump stations, and trunk lines. As part of the North Natomas CDP, the North Area Local Project, a flood control project begun in 1993 under the direction of the SAFCA, was completed in 1998. As a result, North and South Natomas (including the project site) were deemed to have 100-year flood protection by FEMA. The levees were found to meet FEMA criteria for 100-year flood protection under a previous system of levee evaluation. However, the levees have recently been found to require additional improvements under the current evaluation criteria which now includes an underseepage analysis.

In March 2006, SAFCA completed a draft report of erosion, underseepage, and levee failure potential along the Natomas Basin levee system during a 200-year storm event. In addition, the study also evaluated the potential for levee failure from seepage during a 100-year storm event. The study concluded that several flood control facilities in the Natomas area do not provide sufficient freeboard during a 200-year storm event and some facilities are susceptible to underseepage and erosion during 100-year flood events (SAFCA 2006).

The 200-year storm event under a worst-case scenario for the Natomas Basin would be one in which the levees were overtopped (i.e., flood waters overflowed the levee) without levee failure occurring anywhere in the SRFCP system upstream of the project site. This would result in a higher flood stage and greater spill volume than would occur with levee failure. For instance, the flood stage at the Sacramento River at Verona would be three feet higher under a no levee failure scenario than the 1997 flood (Archer, pers. comm., 2008). However, empirical evidence indicates that upstream levees would fail before overtopping. There have been numerous levee failures in the system, none due to overtopping, and it is likely that the agricultural levees upstream and immediately across from the Natomas Basin would fail in the event of a 200-year flood, thus lowering water surface elevations around Natomas in comparison with the 200-year flood elevation (FEMA 2007a, 2007b; Archer, pers. comm., 2008).

Natomas Levee Improvement Program

As a result of the conclusions reached in the 2006 SAFCA report, SAFCA has begun implementation of the Natomas Levee Improvement Program (NLIP). The NLIP is a phased construction project designed to address deficiencies in the levee system surrounding the Natomas Basin. The NLIP is part of SAFCA's ongoing effort to provide "urban-standard," or "200-year," flood protection to the Sacramento area. The NLIP would be implemented in a minimum of four phases, subsequent to CEQA and NEPA analyses (SAFCA 2007a, 2007b). SAFCA projects the current schedule for completing NLIP goals as follows (SAFCA 2008b):

- ▶ Completion of 50 percent of the levee improvements by November 2010, with FEMA adequate progress remapping (A99 zone) in mid 2011;
- ▶ Completion of the 100-year levee improvements by November 2011, with FEMA 100-year remapping in mid 2012;
- ▶ Completion of the 200-year levee improvements by November 2012, with certification by mid 2013.

The four, or potentially additional phases, designed to provide at least 100-year flood protection as quickly as possible (while laying the groundwork to achieve at least 200-year flood protection pursuant to SB 5 requirements), are as follows:

- ▶ The Phase 1 Project involved improvements to address underseepage deficiencies affecting a 1.9-mile segment of the NCC. The environmental impacts of these improvements were evaluated in the Local Funding EIR, which the SAFCA Board certified in February 2007. These improvements were completed in October 2008.
- ▶ The Phase 2 Project focuses on improvements to address remaining underseepage and levee height deficiencies along the entire 5.3-mile length of the NCC as well as underseepage, erosion, encroachment, and levee height deficiencies along the northernmost 4.5 miles of the Sacramento River east levee. The environmental impacts of these improvements are evaluated in detail in the EIR on the Natomas Levee Improvement Program, Landside Improvements Project (2007 Landside EIR), which the SAFCA Board certified in November 2007, and the Draft EIS for 408 Permission and 404 Permit to SAFCA for the Natomas Levee Improvement Project, Sacramento, CA (Phase 2 Project EIS), which was issued in June 2008. A draft supplement to the 2007 Landside EIR for the Phase 2 Project was released in November 2008.
- ▶ The Phase 3 Project, which will be addressed in a DEIS/DEIR in preparation, focuses on underseepage, erosion, encroachment, and levee height deficiencies along 4.5 miles of the Sacramento River east levee, 3.2 miles of the PGCC west levee, and 6.2 miles of the NEMDC west levee.
- ▶ The Phase 4 Project focuses on underseepage, erosion, encroachment, and levee height deficiencies along 9 miles of the Sacramento River east levee, 7.1 miles of the NEMDC west levee, and 0.6 mile of the American River north levee, the impacts of which will be addressed in a separate EIS/EIR.

LOCAL SURFACE WATER HYDROLOGY

The project site generally slopes toward State Route (SR) 99/70 and southward. Elevations on the eastern end of the project site range from approximately 37 to 25 feet above mean sea level.

The western end of the project site is relatively flat with elevations ranging from 22 to 19 feet. The southern end of the project site reaches a low elevation of approximately 14 feet. The Natomas East Main Drain is located along the eastern boundary of the project site with levee elevations ranging from 44 to 30 feet. The Pleasant Grove Canal is located to the east-northeast of the project site. At the southeast corner of the project site elevations are approximately 25 feet, and slope is in a southwesterly direction (MacKay & Soms 2008).

The 100-year floodplain within the proposed project is shown in Exhibit 3.7-1. Preliminary maps for levee protection zones, including those lands where flood levels would be more than three feet deep in the event of a project levee failure, are scheduled to be available by December 31, 2008 under the requirements of SB 5. The capacity of the Pleasant Grove Canal is exceeded during a 100-year flow event. The overflow enters the Natomas Basin at the Sankey Gap, a low point in the levee where Sankey Road crosses the Canal, which is the RD 1000 eastern boundary. The peak flow during the 100-year storm event is 1,200 cubic feet per second (cfs) totaling 3,740 acre-feet, based on RD 1000 reports (Wood Rodgers 2008). The Sankey Gap flow travels west along Sankey Road, and comprises the 100-year floodplain north of Riego Road and east of SR 99/70. The cause of the Sankey Gap overflow is a lack of conveyance capacity in the Cross Canal that would allow runoff from Pleasant Grove Creek and adjacent watersheds to enter the Sacramento River. Additionally, during high stages in the Sacramento River, water backs up in the Cross Canal and ponds in the Pleasant Grove Canal and adjacent areas. The FEMA FIRMS that include the project site are Community Panel Numbers 060394 0265 D and 060394 0305 D.

Groundwater Hydrology

The project site is located within the North American Groundwater Subbasin, in the eastern central portion of the Sacramento Groundwater Basin. It is bounded on the north by the Bear River, on the west by the Feather and Sacramento Rivers, and on the south by the American River. The eastern boundary is a north-south line extending from the Bear River south to Folsom Lake. The water-bearing materials of the subbasin are composed mostly of Late Tertiary and Quaternary age unconsolidated continental deposits, including Miocene and Pliocene volcanic formations, older alluvium, and younger alluvium. The alluvium constitutes the upper aquifer zone, and occupies the upper 200 to 300 feet below ground surface. The lower aquifer zone generally occurs deeper than 300 feet towards the west side of the sub-basin, and consists of the Mehrten and older geologic units. The cumulative thickness of these deposits increases from a few hundred feet near the Sierra Nevada foothills on the east to over 2,000 feet along the western margin of the subbasin. Most of the groundwater is produced in the northern portion of the subbasin (DWR 2006).

Groundwater conditions vary considerably across the North American Subbasin. Groundwater levels have been high and relatively stable in the northern and western portions of the subbasin, in contrast to much of the central, eastern, and southern portions of the subbasin where groundwater level declines have historically occurred. Overdraft appears to still be occurring in the central portion of the subbasin east of the project site and the Natomas Basin. In recent years, groundwater levels have stabilized in other areas where historical overdraft has been reported. This suggests that overdraft conditions have abated in most of the subbasin. Groundwater levels are generally higher in the upper zone, creating a downward gradient for vertical flow (Luhdorff & Scalmanini Consulting Engineers 2008).

In the Natomas Basin, groundwater levels have generally been high and relatively stable in the northern and western portion but have declined in recent years in a few wells in the southern portion. Groundwater levels along the eastern edge of the Natomas Basin show historical declines followed by stabilization. Groundwater levels in this area are substantially affected by cones of depression east of the Natomas Basin. The cones of depression were caused by groundwater pumping. The maximum drawdown in the cones of depression east of the Natomas Basin is approximately two feet. The direction of groundwater flow is easterly toward these pumping depressions, and the gradient for flow is relatively steep in this area. Water level data for the project site are limited, but groundwater levels appear to have been consistently high (generally within 10 feet of the ground surface in spring) and relatively stable in recent years. Similar to the rest of the Natomas Basin, groundwater levels near the eastern edge of the project site are substantially affected by an existing cone of depression centered about 3 miles to the east (Luhdorff & Scalmanini Consulting Engineers 2008).

WATER QUALITY

Surface Water

Designated beneficial uses for the Sacramento River and all tributaries from the Colusa Basin Drain upstream of the project site, to the I Street Bridge in Sacramento downstream of the project site, as defined by the Basin Plan (Central Valley RWQCB 2004) are:

- ▶ municipal, industrial, and agricultural supply;
- ▶ irrigation;
- ▶ contact and noncontact recreation;
- ▶ coldwater fish habitat, migration, and spawning;
- ▶ warmwater fish habitat, migration, and spawning;
- ▶ wildlife habitat;
- ▶ power generation; and
- ▶ navigation.

Surface water quality in the hydrologic region is generally good, although possible sources of contamination that can affect water quality include turbidity, pesticides and fertilizer from agricultural runoff, water temperature exceedances, and toxic heavy metals such as mercury, copper, zinc, and cadmium from acid mine drainage (USGS 2000, DWR 2005). The portion of the Sacramento River that is the receiving water for the Natomas Cross Canal and other Natomas Basin drainage discharge points is part of a 16-mile segment from Knights Landing to the Delta that is on the 303(d) list for Diazinon from agricultural sources, mercury from abandoned mines, and toxicity from unknown sources (Central Valley RWQCB 2006). The Natomas East Drainage Canal upstream of Arcade Creek is on the 303(d) list for polychlorinated biphenyls (PCBs), and downstream of Arcade Creek for PCBs and Diazinon (SWRCB 2007).

Monitoring of several urban and rural creek sites near the project site is performed as part of the Sacramento Stormwater Quality Partnership (SSQP) Joint Program to comply with monitoring requirements specified in the Sacramento Municipal Separate Storm Sewer System NPDES Stormwater Permit (SSQP 2007a). Monitoring activities required by the permit included urban runoff (discharge) characterization, receiving water, urban tributary (creek), bioassessment, and additional pesticide monitoring including Diazinon and Chlorpyrifos. For the 2006/2007 monitoring year, the Sacramento River at the I-5 Veterans Bridge station, approximately 5 land miles from the project site, showed six water quality objective exceedances for total aluminum, four for total recoverable iron, and one for dissolved oxygen. The Natomas East Main Drain at Elkhorn Road, approximately 3.5 miles downstream from the proposed project, showed two water quality objective exceedances for dissolved oxygen, two for specific conductance, and one for temperature (SSQP 2007a).

Groundwater

Although there are many areas of good quality groundwater in the North American subbasin, some areas within the subbasin have shown elevated levels of total dissolved solids (TDS), chloride, sodium, bicarbonate, boron, fluoride, nitrate, iron manganese, and arsenic, based on applicable water quality standards and guidelines for domestic and irrigation uses. In an area along the Sacramento River extending from the Sacramento International Airport northward to the Bear River there are high levels of TDS, chloride, sodium, bicarbonate, manganese, and arsenic. The highest levels of TDS were found in an area north of the Natomas Basin, extending just south of Nicolaus to Verona, between RD 1001 and the Sutter Bypass. Some wells in the area showed TDS concentrations exceeding 1,000 milligrams per liter (mg/l) (DWR 2006). There are also areas in the Sacramento Valley region south of the project site where substantial groundwater contamination has occurred, including the former McClellan AFB, the Union Pacific Railroad Rail Yard in Roseville, and the Aerojet Superfund Site. Although the Aerojet site lies south of the North American subbasin, a contaminant plume extends north from Aerojet, under the American River and into the North American subbasin (Luhdorff & Scalmanini Consulting Engineers 2008).

An evaluation of groundwater quality for the proposed project, performed by Luhdorff & Scalmanini Consulting Engineers (2008), examined water quality data from 63 wells that are located on or near the project site (Exhibit 3.7-3). Water quality data were obtained from the following sources: U.S. Geological Survey (34 wells), DWR (20 wells), DPH (three wells), and Paulson monitoring wells installed as part of the Luhdorff & Scalmanini Consulting Engineers (2008) study (six wells). All available data for minerals, metals, and other trace elements are summarized in Appendix D of the 2008 Luhdorff & Scalmanini Consulting Engineers evaluation, which is available for public review at the Sutter County Department of Community Services. Wells within or in the vicinity of the project site with water level and/or water quality data are shown in Exhibit 3.7-3.

Groundwater salinity was low in most wells, but tended to be slightly higher in the upper zone. Median TDS concentrations were 342 mg/l in the upper zone, 335 mg/l in the lower zone, and 315 mg/l for wells completed in multiple or unknown zones. Results were similar for electrical conductivity (EC), which is another measure of salinity. In the project area, most wells had EC values between 250 and 500 micromhos per centimeter ($\mu\text{mhos/cm}$), which is indicative of low salinity groundwater. Only one well in the project area had an EC value above 500 $\mu\text{mhos/cm}$.

Source: Luhdorff & Scalmanini Consulting Engineers 2008

Wells in the Project Site and Vicinity with Water Level and/or Water Quality Data

Exhibit 3.7-3

Arsenic concentrations were generally higher in the western and central portions of the Natomas Basin, except for a few wells along the Sacramento River that had lower concentrations. Arsenic concentrations were also low in the southeastern corner of the Natomas Basin, and were lowest in wells located east of the Natomas Basin. Concentrations of arsenic and some other trace elements tended to be lower in shallower wells than in deeper wells. The primary MCL for arsenic is 10 µg/L. The median arsenic concentrations were 13 micrograms per liter (µg/L) for the upper zone, 27 µg/L in the lower zone, and 23 µg/L for wells completed in multiple or unknown zones. This was also the case for the Paulson monitoring wells on the project site, where the arsenic concentrations were 12 and 24 µg/L at the shallower (210–240 feet below ground surface [bgs]) and deeper (360–390 feet bgs) completions, respectively. At the Paulson production well, the arsenic concentration was 14 µg/L.

Manganese is the other trace element that showed elevated levels in groundwater from wells near the project site. Median manganese concentrations were similar in the upper and lower zones (97 and 103 µg/L, respectively), but higher (154 µg/L) for wells completed in multiple or unknown zones. Manganese concentrations at the Paulson monitoring wells were 56 and 65 µg/L at the shallower and deeper completions, respectively. At the Paulson production well, the manganese concentration was 47 µg/L. This concentration is slightly below the secondary MCL of 50 µg/L.

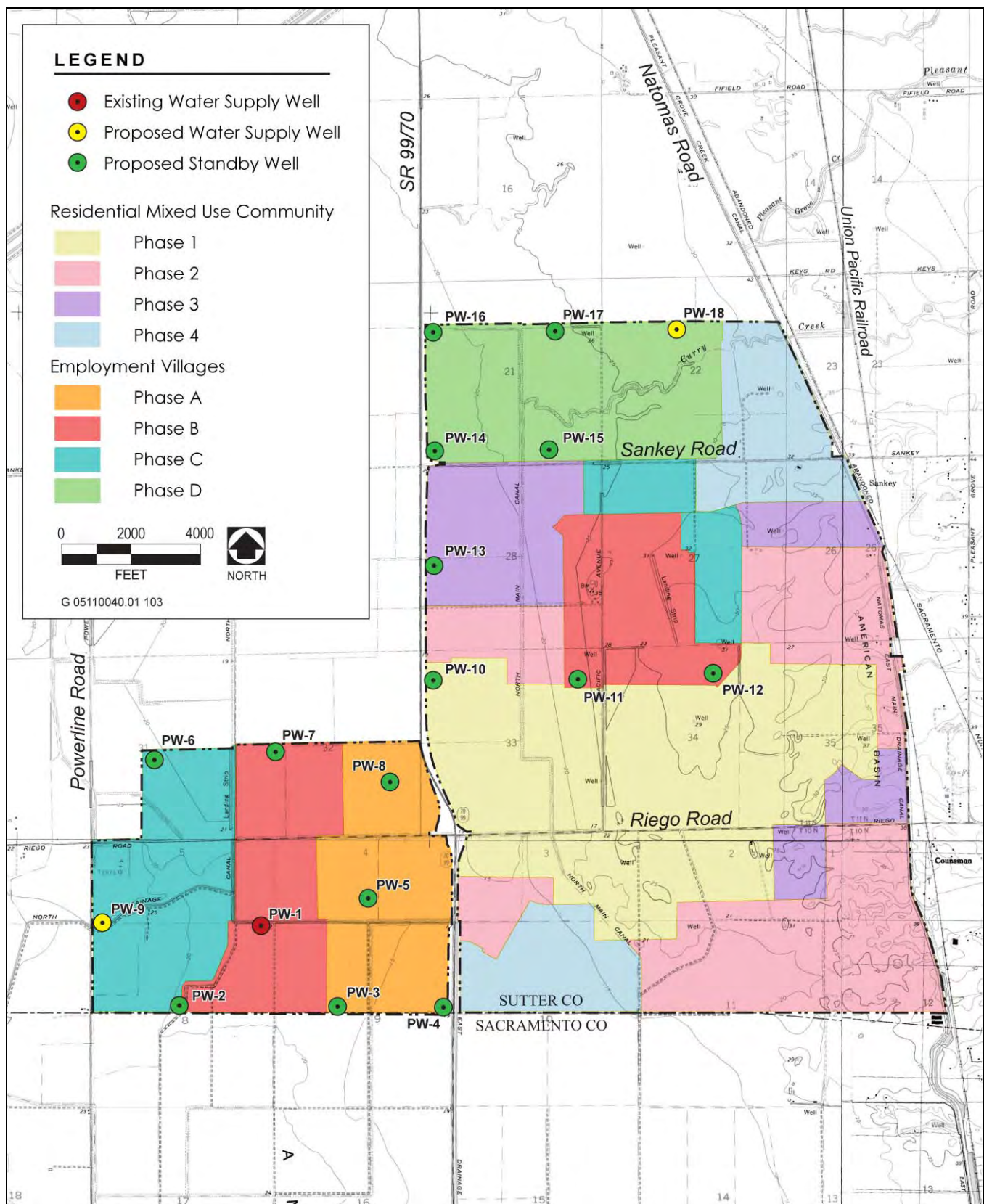
The Luhdorff & Scalmanini Consulting Engineers (2008) groundwater assessment found that the Holt of California (Holt) facility on Pacific Avenue, which is within the project site, has groundwater contamination resulting from leaking underground storage tanks. Those tanks had all been removed by 1992. Site characterization activities have included the installation of 19 monitoring wells. Contaminants in shallow groundwater at the site include petroleum hydrocarbons, fuel oxygenates such as methyl tertiary butyl ether (MTBE), and volatile organic compounds (VOCs). A pump-and-treat system with two extraction wells was installed for remediation in 2005; the system was removed from service in February 2006 and as of April 2008 it had not been reinstalled. Available data suggest that horizontal groundwater contamination is localized in the vicinity of the former underground tanks and has not spread off site. However, the vertical extent of the contamination is unknown because all monitoring wells at the site are less than 50 feet deep. The closest proposed project well in the eastern well field (Exhibit 3.7-4) would be approximately 3,000 feet away from the Holt site, and no municipal or industrial production wells would be located downgradient of the site.

3.7.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

This analysis relies on information provided by various public agencies, as well as site-specific technical planning studies generated to support the proposed project. Hydrology and drainage-related studies reviewed in support of this analysis include the following documents:

1. *Sutter Pointe Specific Plan Groundwater Supply Assessment* (Luhdorff & Scalmanini Consulting Engineers 2008),
2. *Sutter Pointe Specific Plan Area Drainage Master Plan* (Wood Rodgers 2008),
3. *Sutter Pointe Specific Plan Water Supply Master Plan* (MacKay & Somps 2008),
4. *Natomas Levee Evaluation Report* (Sacramento Area Flood Control Agency 2006), and
5. *Draft Environmental Impact Report on the Natomas Levee Improvement Program Landside Improvements Project* (Sacramento Area Flood Control Agency 2007).



Source: Luhdorff & Scalmanini Consulting Engineers 2008

Proposed Project Well Locations

Exhibit 3.7-4

Copies of these three documents are available for review at the Sutter County Community Services Department. Impacts associated with drainage, hydrology, and water quality that could result from construction and operational activities related to buildout of the project site were evaluated based on expected construction practice, on the materials used, and on the locations and duration of the activities. The effects of the proposed project were compared to environmental baseline conditions (i.e., existing conditions) to determine the duration and magnitude of impacts, consistent with the State CEQA Guidelines.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines and SB 5. A drainage, hydrology, or water quality impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site;
- ▶ violate any water quality standards or waste discharge requirements, including NPDES waste discharge or stormwater runoff requirements, state or federal antidegradation policies, enforceable water quality standards contained in the Central Valley RWQCB Basin Plan or statewide water-quality control plans, or federal rulemakings to establish water quality standards in California;
- ▶ create or contribute runoff water that would exceed the capacity (peak flow) of existing or planned stormwater drainage systems;
- ▶ expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;
- ▶ place within a flood hazard area structures that would impede or redirect flood flows;
- ▶ substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table; or
- ▶ substantially degrade water quality.

The current SAFCA criteria for determining the significance of hydraulic impacts are:

- ▶ the 100-year base flood elevation is increased;
- ▶ flooding occurs in an area that was not previously flooded, or
- ▶ encroachment occurs on design freeboard.

For purposes of these thresholds, “flood hazard area” means an area that does not meet the minimum level of flood protection required by state or federal law, whichever is more stringent. Depending on when the Central Valley Flood Protection Plan takes effect, 100-year protection is considered to be the standard applicable until 2015. At that point, the applicable standard would be governed by SB 5, namely, either 200-year protection or “adequate progress” (as defined by the requirements of SB 5) toward meeting the 200-year protection standard by 2025.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.7-1	Potential Temporary Construction-Related Drainage and Water Quality Effects. <i>Construction activities during proposed project implementation would involve extensive grading and movement of earth, which would substantially alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas and degrade local water quality.</i>

On-Site and Off-Site Elements

Proposed project implementation would include substantial construction activity over approximately 7,528 acres, including soil removal, trenching, pipe installation, fabrication of concrete channels, grading, and revegetation. Construction activities associated with development of the proposed project would create the potential for soil erosion and sedimentation of storm water drainage systems in the Natomas Basin, both within and downstream of the project site. The construction process could also result in the accidental release of other pollutants to surface waters, including oil and gas, chemical substances used during construction, waste concrete, and wash water.

The substantial construction-related alteration of on-site drainages could result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project-related construction sites. This contaminated runoff could enter on-site drainage channels and ultimately off-site drainage channels. Many construction-related wastes have the potential to degrade existing water quality by altering the dissolved-oxygen content, temperature, pH, suspended-sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Therefore, project-related construction activities could violate water quality standards or cause direct harm to aquatic organisms.

Localized erosion hazards are regarded as relatively low because the project site is generally flat and the soil types on the site are known to have little erosion hazard (see Table 3.6-2 in Section 3.6, “Geology, Soils, and Paleontological Resources”). However, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase the potential for runoff and erosion. Non-stormwater discharges could result from activities such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials.

Because the proposed project would substantially alter on-site drainage patterns and could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels as a result of temporary construction activities, the project-related erosion and water quality impacts are both **direct** and **indirect** and are **significant**.

Mitigation Measure 3.7-1: Acquire Appropriate Regulatory Permits and Implement SWPPP and BMPs.

On-Site and Off-Site Elements

Prior to the approval of grading permits and improvement plans, the project applicant(s) of all project phases shall prepare a SWPPP consistent with the existing statewide NPDES stormwater permit for general construction activity. The project applicant(s) shall also prepare and submit the appropriate NOIs and any other necessary engineering plans and specifications for pollution prevention and control to the County and the Central Valley RWQCB. The SWPPP and other appropriate plans shall identify and specify:

- ▶ the use of erosion and sediment-control BMPs, including construction techniques, that shall reduce the potential for runoff as well as other measures to be implemented during construction. These may include but would not be limited to sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;
- ▶ the implementation of approved local plans, nonstormwater-management controls, permanent postconstruction BMPs, and inspection and maintenance responsibilities;
- ▶ the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- ▶ spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- ▶ personnel training requirements and procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and
- ▶ the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction/demolition activities and shall be used in all subsequent site development activities. BMPs may include such measures as the measures listed below.

- ▶ Implementing temporary erosion-control measures in disturbed areas to minimize discharge of sediment into nearby drainage conveyances. These measures may include silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.
- ▶ Establishing permanent vegetative cover to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.
- ▶ Using drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

All construction contractors shall retain a copy of the approved SWPPP on the construction site.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before the issuance of grading permits for all project phases and off-site elements throughout project construction.

Enforcement: Applicable county public works department(s).

Significance after Mitigation

Implementation of Mitigation Measure 3.7-1 would reduce the significant direct and indirect temporary, short-term construction-related drainage and water quality effects to a **less-than-significant** level by requiring preparation and implementation of a SWPPP with appropriate BMPs such as source control, detention basins, revegetation, and erosion control, in order to maintain surface water quality conditions in adjacent receiving waters.

Several technical studies have been conducted regarding the impacts of water quality control features on groundwater (e.g., City of Fresno Nationwide Urban Runoff Project [EPA 1983] and California Storm Water Best Management Practices Handbook prepared by the Stormwater Quality Task Force [California Stormwater Quality Association 2003]) and surface water (e.g., Preliminary Data Summary of Urban Storm Water Best Management Practices [EPA 1999] and Cumulative Water Quality Analysis Report for the Lahontan Development 1996–2002 [Huffman and Carpenter 2003]). As shown in Table 3.7-2, these studies have identified that water quality control features such as revegetation, erosion control measures, detention and infiltration basins have been successful in controlling water quality and avoiding water quality impacts (metals and organic compounds associated with stormwater are typically lost within the first few feet of the soil of the retention basins associated with groundwater). Technical studies associated with the Lahontan Development demonstrated that the use of a variety BMPs such as source control, detention basins, revegetation and erosion control, have been able to maintain surface water quality conditions in adjacent receiving waters.

Table 3.7-2 Expected Pollutant Removal Efficiency of BMPs					
BMP Type	Typical Pollutant Removal (%)				
	Suspended Solids	Nitrogen	Phosphorus	Pathogens	Metals
Structural BMPs					
Dry detention basins	30–65	15–45	15–45	<30	15–45
Wet Detention/Retention basins	50–80	30–65	30–65	<30	50–80
Constructed wetlands	50–80	<30	15–45	<30	50–80
Infiltration basins	50–80	50–80	50–80	65–100	50–80
Infiltration trenches, dry wells	50–80	50–80	15–45	65–100	50–80
Porous pavement	65–100	65–100	30–65	65–100	65–100
Grassed swales	30–65	15–45	15–45	<30	15–45
Vegetated filter strips	50–80	50–80	50–80	<30	50–80
Surface sand filters	50–80	<30	50–80	<30	50–80
Other media filters	65–100	15–45	<30	<30	50–80
Construction Site BMPs					
Silt fence	50–80				
Sediment basin	55–100				
Sediment trap	60				
Note: BMP = best management practice. Source: EPA 1999					

IMPACT 3.7-2 *Potential Increased Risk of Flooding from Increased Stormwater Runoff. Proposed project implementation would increase the amount of impervious surfaces on the project site, thereby increasing surface runoff. This increase in surface runoff would result in an increase in both the total volume and the peak discharge rate of stormwater runoff, and therefore could result in greater potential for on- and off-site flooding.*

On-Site and Off-Site Elements

Buildout of the proposed project would substantially increase the amount of impervious surfaces on the project site. The proposed project would permit a maximum of 17,500 residential units and up to 49,706,000 square feet of commercial/industrial space on approximately 7,528 acres, as well as supporting facilities and services, including parks, schools (six K–8 and one comprehensive high school), a library, a civic center, and other civic buildings and public services, including law enforcement and fire protection. The various types of proposed land uses would each contribute different relative amounts of stormwater runoff corresponding to the percentage of

impervious surface associated with each land use category, which ranges from 2% (wetlands/open space) to 95% (major roads, parking, and stormwater detention) (Sacramento County and City of Sacramento 1996, SSQP 2007a). This increase in impervious surface would increase the peak discharge rate of stormwater runoff generated on the project site.

In addition to increased stormwater runoff from development on the project site, the project site is impacted from stormwater flows from two other sources: (i) off-site overland stormwater runoff that backs up on the site from a floodplain within the Natomas Basin, and (ii) from stormwater that flows through the Sankey Gap. The Sankey Gap flooding occurs when stormwater, which cannot be drained by the Natomas Cross Canal, flows south into the plan area through a low point in the levee system along the east side of the plan area at Sankey Road.

A proposed Drainage Master Plan has been prepared that details the provision drainage and flood protection for the proposed project (Wood Rodgers 2008). It is intended to satisfy the design criteria of Sutter County, RD 1000, FEMA National Flood Insurance Program requirements, and the NPDES requirements to receive stormwater from the project site. As illustrated in Exhibit 2-5 (see Chapter 2, “Project Description”), the proposed project is designed to provide facilities that would maintain stormwater flows originating on the project site during and after buildout, at a level equal to or less than predevelopment flows. The project proposes three alternatives for handling stormwater flows from the Sankey Gap. Key components of the drainage system would include detention basins, pump stations, drainage pipes, channels, permanent and temporary inlets, and other flood control facilities. A detailed overview of the drainage plan is provided in Chapter 2, “Project Description.” Impacts from stormwater flooding from the Sankey Gap and other off-site sources are also addressed below in Impact statements 3.7-3 and 3.7-4.

Storm Drainage and Water Quality Design Criteria and Standards

All runoff from the proposed project would first be conveyed through Sutter County stormwater conveyance facilities under the jurisdiction of the County, but would be stored and pumped into the RD 1000 system, which in turn would be pumped into the Natomas Cross Canal and the Sacramento River. Project runoff would also be pumped into the Natomas East Main Drainage Canal (via RD 1000 Pumping Plant #6 [see Exhibit 2-6 in Chapter 2, “Project Description”]). Sacramento County, Sutter County, and Basin-specific standards were evaluated for sizing on-site storm drains within the project site. Because the Sacramento County precipitation data utilized slightly higher precipitation values than Sutter County for a 10-year storm event, this more conservative standard was used for sizing storm drains within the project site. Pipe and channel roughness coefficients and all other conveyance system design standards were based on Sutter County standards (Wood Rodgers 2008).

The Drainage Plan utilized StormCAD and EPA’s Storm Water Management Model (SWMM) for hydraulic calculations, and the SACCalc program developed through Sacramento County for hydrology. Preliminary storm water treatment configurations utilized treatment methodologies as described in SQDM (SSQP 2007b), which Sutter County has accepted as a guideline for urban runoff treatment. Soil infiltration rates of 0.003 inches per hour to represent rainfall losses were utilized pursuant to RD 1000 studies that show that infiltration losses to the soil are overestimated using Sacramento County standards. Sutter County has accepted the use of this infiltration rate. Each of the pumping systems for on-site facilities would be sized such that the outflow rate would be no greater than 0.067 cf per acre, based on information provided by RD 1000 that the existing unit runoff rate from existing agricultural land (0.16 cf per acre) for the 10-day duration 100-year storm event must be lowered to mitigate the impacts of the proposed project (Wood Rodgers 2008).

The proposed Drainage Master Plan contains three different alternatives, all of which were designed to add detention and pumping facilities to provide for both displaced floodplain storage and overland flow conveyance. The differences between the three alternatives primarily relate to the location of flood flow storage intended to control runoff from the Sankey Gap overflow, described in the “Local Surface Water Hydrology” section, above. Under all three proposed alternatives, the majority of the land within the project site would be subject to off-site runoff entering the site. All alternatives would be configured to prevent off-site flooding in the project vicinity

from project-related development by using excavated material from the proposed detention ponds to construct levees or raised ground areas at the perimeter of the project site to elevations that would be above the existing floodplain. These areas are shown in Exhibits 3.7-6, 3.7-10, and 3.7-11 as “Areas Requiring Fill to Provide Protection from Off-Site 100-Year Floodplain” in the legend.

The Sutter Pointe Specific Plan and proposed Drainage Master Plan (Wood Rodgers 2008) include specific drainage design features to reduce the potential adverse impacts from urban stormwater runoff in conformance with County development standards. Stormwater runoff generated within the project site would be collected in new drainage systems that would include water quality treatment measures. To detain peak flows as well as meet water quality objectives for long-term urban runoff, 12 detention basins are proposed.

The basins would consist of 346 acres and would have 4-foot horizontal to 1-foot vertical side slopes. Under the proposed project (i.e., Drainage Alternative One), the basins would have 1,342 acre-feet of available 100-year 10-day flood control storage and 1,125 acre-feet of available water quality volume (Table 3.7-3). (For Drainage Alternatives Two and Three, see Table 3.7-4) the basins would have 1,513 acre-feet of available 100-year 10-day flood control storage and 1,125 acre-feet of available water quality volume. The volume of runoff may also be reduced through infiltration and evaporation (SSQP 2007b). The detention basins have been designed to comply with Section 5 of the Sutter County Department of Public Works Design Standards “Storm Drainage Design” (Sutter County 2006), and the Stormwater Quality Design Manual for the Sacramento and South Placer Regions Water Quality Detention Basin Design Criteria (SSQP 2007b). The 100-year flood storage data for the three Sankey Gap detention alternatives are shown in Table 3.7-5.

Table 3.7-3 Detention Pond and Pump Station Data – Alternative 1												
Detention Basin Data	Subbasin Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Approximate Basin Footprint (acres)	31.9	10.2	13.6	33.6	44.5	50.9	28.6	22	42.4	21.1	24.5	22.6
Contributing Subwatershed Area (acres) ¹	461.7	152.5	225.8	447.5	644.5	917.4	1,800.5	314.6	707	236.6	400.4	754.6
Maximum Pump Station Discharge (cfs)	31	10	15	30	43	61	106	21	47	16	27	51
100-year 10-Day Flood Control Volume (acre-feet)	119	37	57	116	167	233	81	82	181	62	75	132
Water Quality Volume (acre-feet)	87.7	29	30.3	64.9	93.5	133	261.1	59.8	134.3	45	76.1	110.2
Note: cfs = cubic feet per second. ¹ As shown in Exhibit 3.7-8. Source: Wood Rodgers 2008												

RD 1000 concluded that after implementation of the proposed project, approximately 3 miles of channel improvements would be required to convey project-generated stormwater runoff through the Natomas Basin in order to maintain flood control requirements for the 100-year flood stage. The locations of the off-site channel improvement areas are shown in Exhibit 2-6 in Chapter 2, “Project Description.” The on-site channel improvement areas for Alternatives 1, 2, and 3 are shown in Exhibits 2-5, 3.7-10, and 3.7-11, respectively.

Table 3.7-4 Detention Pond and Pump Station Data – Alternatives 2 and 3												
Detention Basin Data	Subbasin Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Approximate Basin Footprint (acres)	31.9	10.2	22.4	33.6	59.3	50.9	28.6	22	42.4	21.1	24.5	22.6
Contributing Subwatershed Area (acres) ¹	461.7	152.5	372.4	447.5	987.95	917.4	1,800.5	314.6	707	236.6	400.4	760.3
Maximum Pump Station Discharge (cfs)	31	10	25	30	66	61	106	21	47	16	27	51
100-year 10-Day Flood Control Volume (acre-feet)	119	37	95	116	300	233	81	82	181	62	75	132
Water Quality Volume (acre-feet)	87.7	29	30.3	64.9	93.5	133	261.1	59.8	134.3	45	76.1	110.2
Note: cfs = cubic feet per second. ¹ As shown in Exhibit 3.7-8. Source: Wood Rodgers 2008												

Table 3.7-5 Sankey Detention Basin Flood Control Data								
	Alternative 1					Alternative 2		Alternative 3
	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Barosso Property	Lutz Property	Regional Detention Basin ¹
Approximate Basin Footprint (acres)	135	17	27	156	80	224	95	750
Maximum Dewatering Pump Station Discharge (cfs)	N/A	N/A	N/A	N/A	N/A	32	18	64
Approximate 100-year Flood Control Storage Volume (acre-feet)	1,265	211	220	1,394	719	3,767	1,447	3,855
Notes: cfs= cubic feet per second. N/A = not applicable. ¹ Shown in Exhibit 3.7-7. Source: Wood Rodgers 2008								

Drainage Alternative One

Alternative One is shown in Exhibit 2-4, “Proposed On-Site Drainage Plan” (see Chapter 2, “Project Description”). This alternative would provide on-site detention and storage for flows from the proposed project and the Sankey Gap flood overflow entirely within the boundaries of the project site. Exhibit 3.7-5 shows the proposed project subbasin boundaries used in the conveyance and storage calculations and Exhibit 3.7-6 shows a more detailed schematic representation of on-site conveyance and detention of the Sankey Gap overflow into storage basins designated as “cells.” The southern storage area would receive flow first through two pipes under Sankey Road. Once this area approaches peak storage capacity, the northern basin would receive flow over a weir structure. Once the storm system recedes and there is room in the RD 1000 facilities to receive the flow, the two basins would drain by gravity to the extent possible, with the remaining water removed with dewatering pumps. Any roads crossing the Sankey Gap overflow storage detention area would be constructed high enough to prevent road flooding during a 100-year event.

The phasing of Alternative One would occur incrementally with proposed project development in each phase initiating the conveyance improvements within each subbasin. The detention basins storing the on-site runoff would be phased in with development. A cross-section of a typical on-site flood conveyance channel is shown in Exhibit 3.7-7. A cross-section of a typical on-site flood detention facility is shown in Exhibit 3.7-8.

On-site runoff storage and conveyance facilities were determined in close coordination with RD 1000, and it appears that the proposed Drainage Master Plan for Sutter Pointe Specific Plan Area (Wood Rodgers 2008) would appropriately convey upstream off-site runoff and would appropriately detain project-related on-site runoff, final designs and specifications have not been submitted or approved by the County. However, additional modeling conducted by SAFCA after submittal of the Notice of Preparation for the proposed project to predict the volume of flows that might come through the Sankey Gap indicated that more storage capacity could be required. Under a 100-year storm event scenario, the spill volume could be as much as 5,800 acre-feet (Sutter County 2008), which is greater than the current Drainage Master Plan volume of 3,740 acre-feet.

The current FEMA 100-year flood elevation is calculated based on the worst-case assumption of no levee failures upstream of the NLIP, and existing federal levee certification is for the 100-year design flood elevation plus 3 feet of freeboard (i.e., the distance between the design flood elevation and the top of the levee), to prevent overtopping by wind and wave action (FEMA 2007a). Because of the likelihood of levee failures upstream in the event of a 200-year flood, and the existing 100-year flood elevations based on the conservative scenario of no levee failures, 100-year flood elevations were used for sizing the Sankey Gap overflow storage. The use of 1,200 cfs peak flow and 3,740 acre-feet of storage for the 100-year storm have been accepted by the County for planning level analysis. The SRFCP hydrology is being refined (Twitchell, pers. comm., 2008), and the final drainage design for the proposed project would be based on the best available information at the time project development occurs (Wood Rodgers 2008).

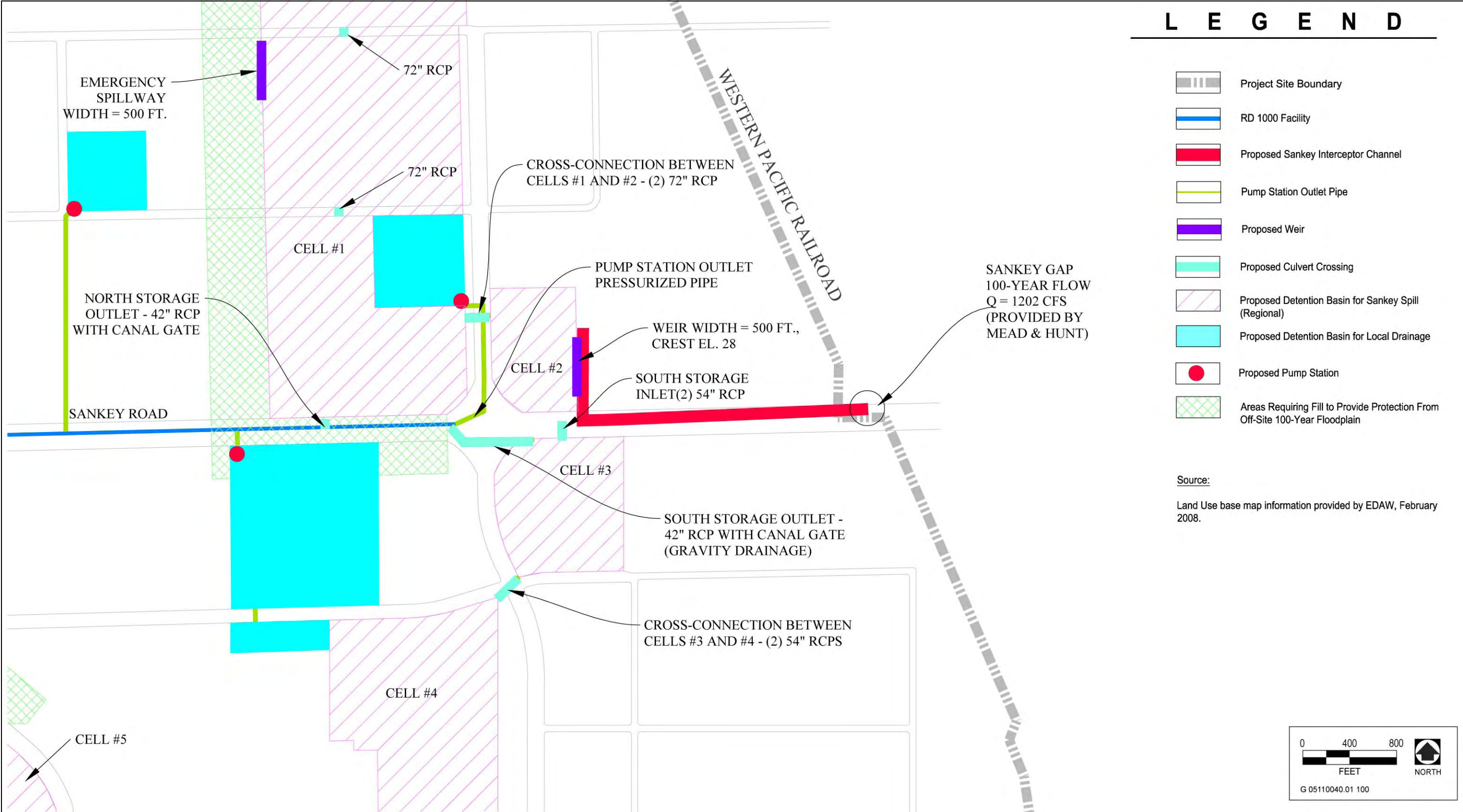
Drainage Alternative Two

This alternative was designed to store Sankey Gap flood flows in facilities outside of the Natomas Basin and outside of the project site. Two properties located immediately northeast of the project site have been identified as being potentially available to capture the Sankey Gap overflow: the Barosso and Lutz properties (Exhibit 3.7-9a). This alternative would involve constructing a levee around the Barosso property and directing flows onto the property via a weir constructed at the elevation of the Sankey Road spill crest along Pleasant Grove Creek. Because the Barosso property currently provides floodplain storage, the Lutz property would be configured to replace the storage displaced from the Barosso property. The Lutz property would be excavated below the existing grade, and storm flow that overtops the banks of Curry Creek would be allowed to spill onto the property. Together, these properties would provide storage sufficient for the Sankey Gap flood flows, estimated to be approximately 3,740 acre-feet, while retaining the existing storage. Exhibit 3.7-9b shows the 100-year flood water surface elevations (WSEL) for the Barosso property (Section A) and the Lutz property (Section B).

Alternative Two also includes 12 on-site conveyance facilities (pipes and channels) and 12 on-site detention basins to capture and store the on-site stormwater runoff, similar to those for Drainage Alternative One. The conveyance and storage facilities are shown in Exhibit 3.7-10 and summarized in Table 3.7-4.

Drainage Alternative Three

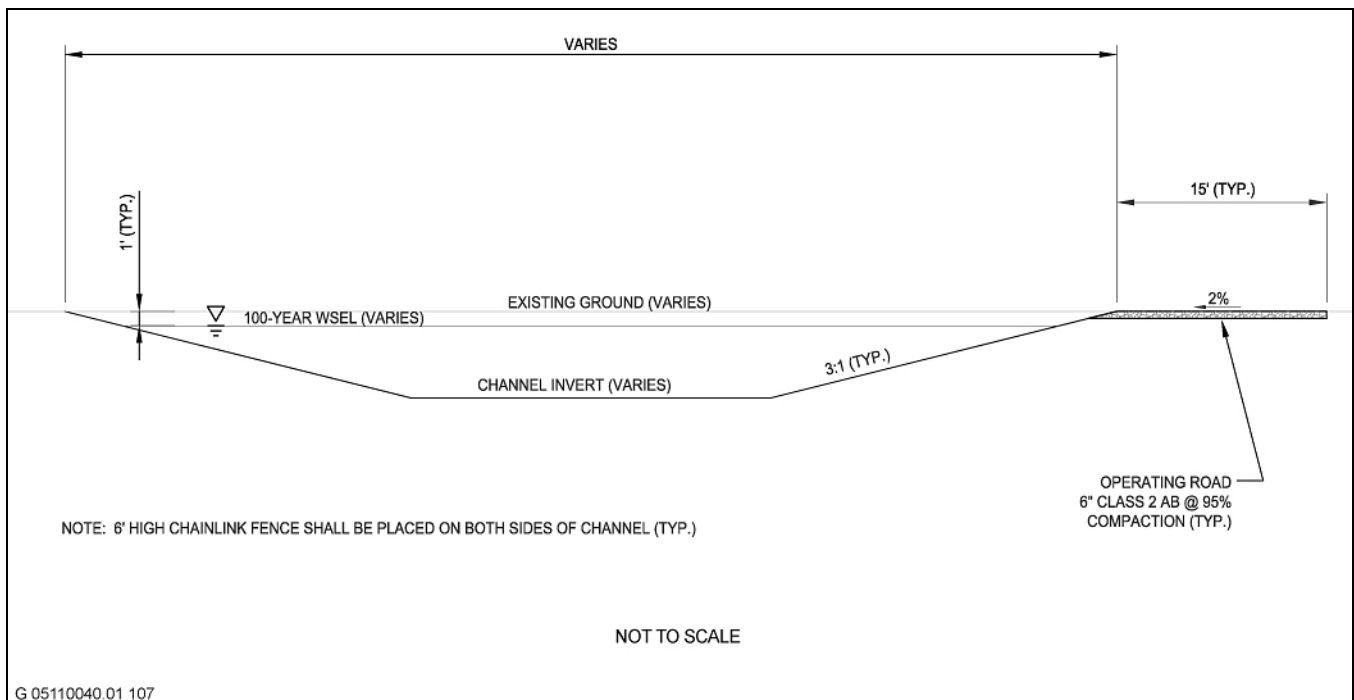
The third alternative would involve directing the Sankey Gap overflow into a channel flowing westward along the Sankey Road corridor, crossing under Sankey Road and SR 99/70, and stored at a location west of the project site, but still within the Natomas Basin (Exhibit 3.7-11). This alternative would require channels with raised grading (possibly levees depending on site constraints) on the east side of SR 99/70 to maintain enough pressure to move the flow under SR 99/70. The Sankey Gap overflow volume would have to commingle with pumped on-site flows until reaching SR 99/70, where a splitting structure would maintain on-site flows



Source: Wood Rodgers 2008

Proposed Local and Sankey Gap Flood Flow Conveyance and Storage

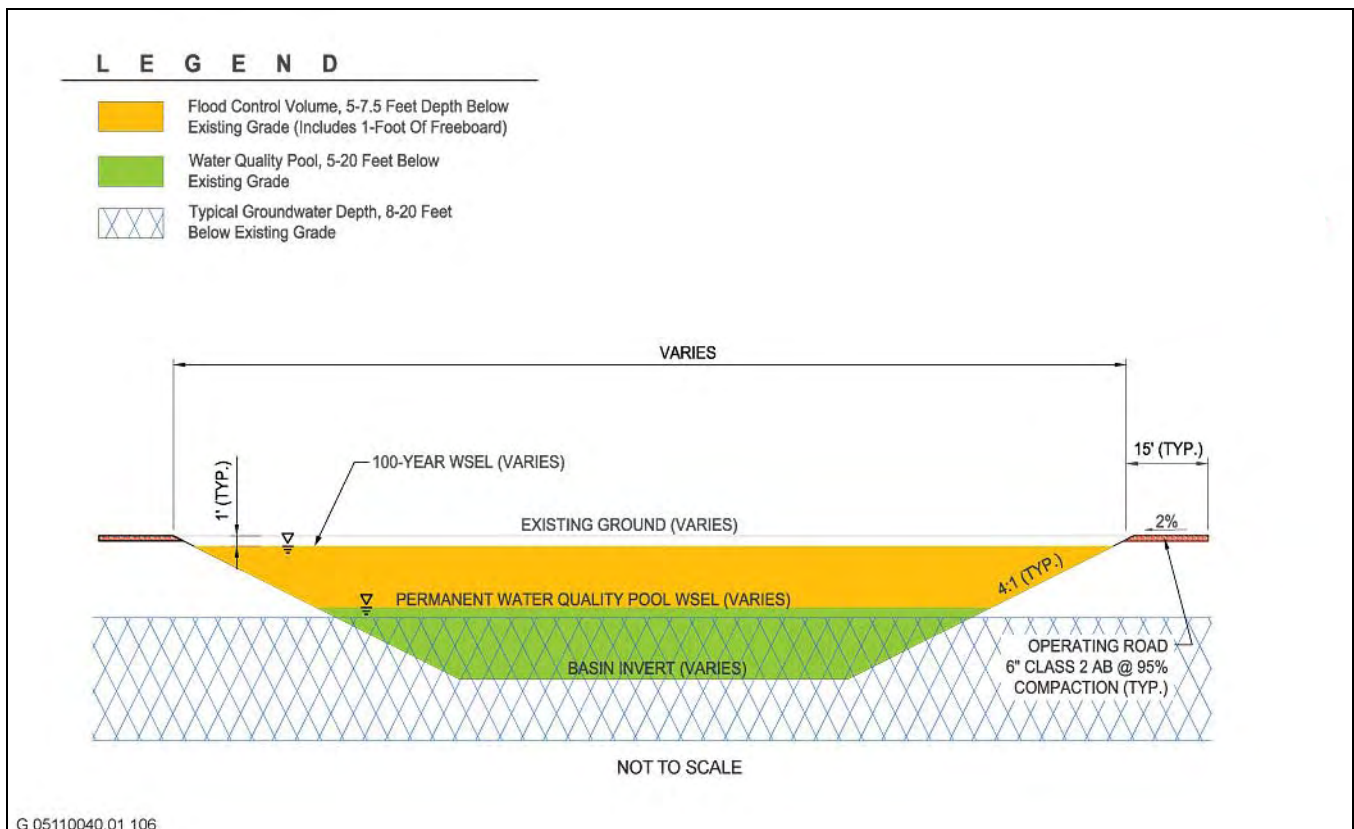
Exhibit 3.7-6



Note: WSEL = water surface elevation.
Source: Wood Rodgers 2008

Typical Proposed On-Site Open Channel Flood Conveyance Facility

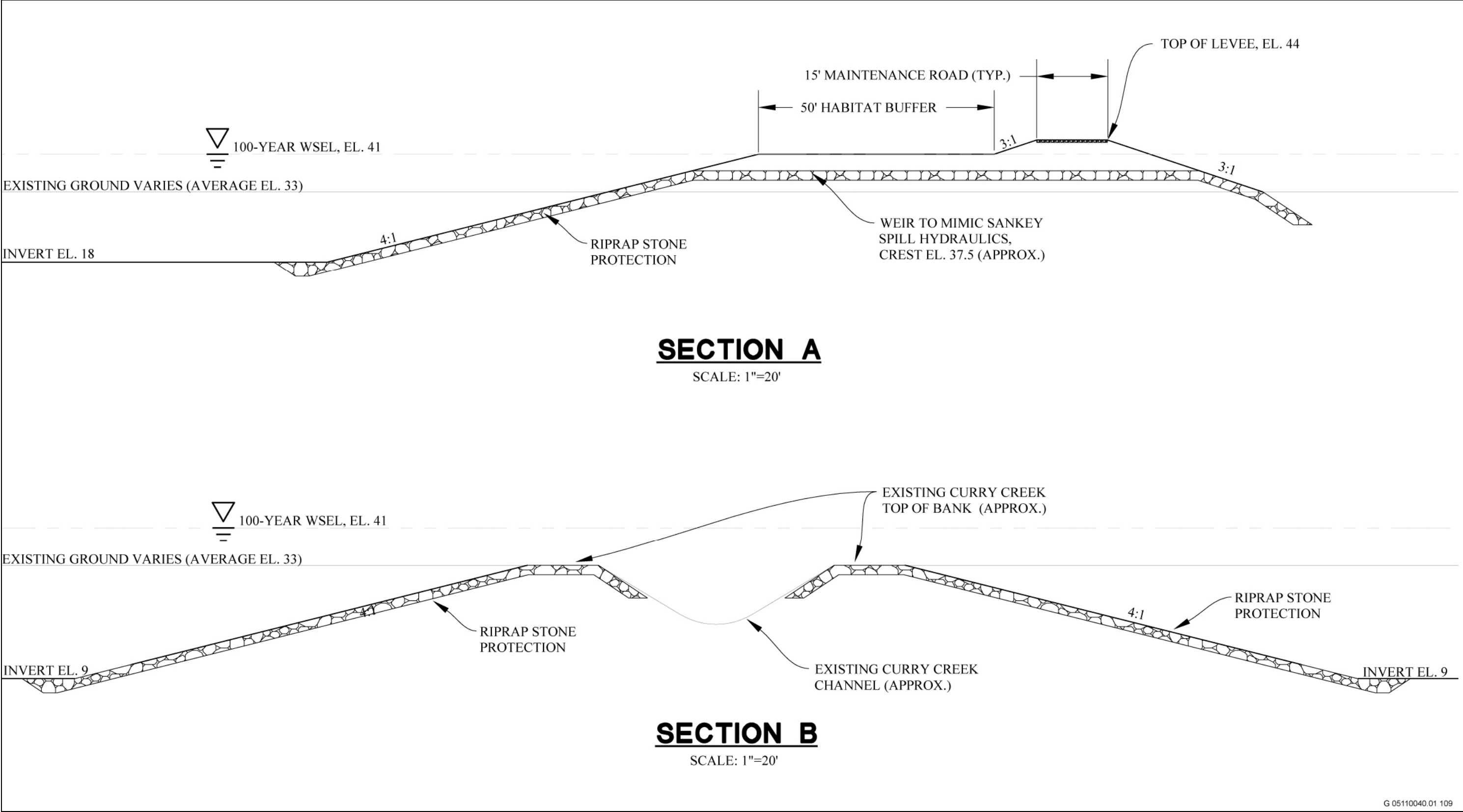
Exhibit 3.7-7



Note: WSEL = water surface elevation.
Source: Wood Rodgers 2008

Typical Proposed On-Site Flood Detention Facility

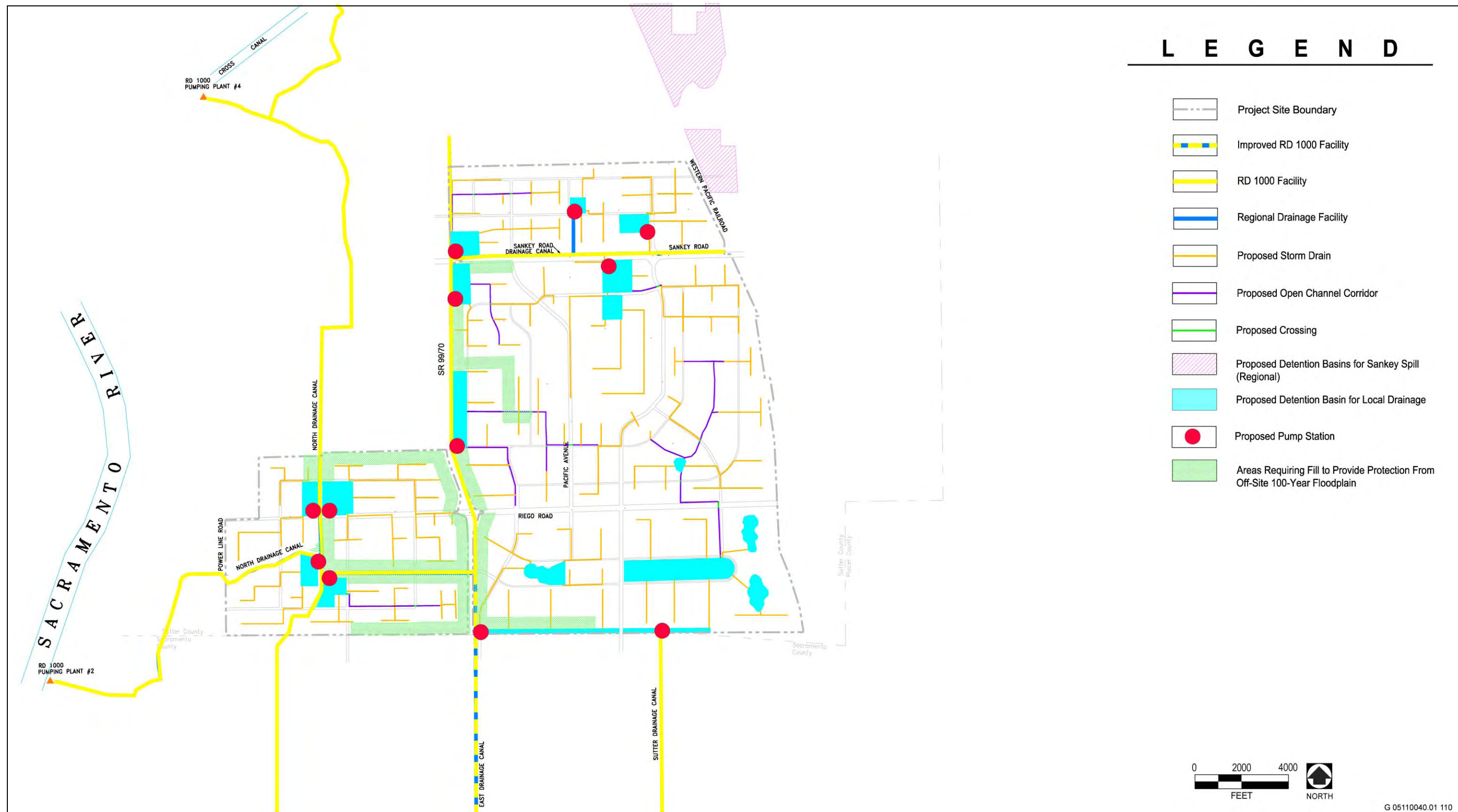
Exhibit 3.7-8



Source: Wood Rodgers 2008

Alternative Two – Off-Site Barosso Overflow Weir and Lutz Low-Flow Siphon

Exhibit 3.7-9b



Source: Wood Rodgers 2008

Alternative Two – Conceptual Drainage Plan

Exhibit 3.7-10

southward, while spilling the higher Sankey Gap overflow to a storage area located west of SR 99/70. This is designed to limit flow to the RD 1000 system to the south. Exhibit 3.7-12 focuses on a portion of the project site enlarged to show details of the Sankey Gap flood conveyance and storage facilities.

Drainage Alternative Three also includes on-site conveyance facilities (pipes and channels) and 12 on-site detention basins to capture and store the on-site stormwater runoff, similar to those for Alternatives One and Two. The conveyance and storage facilities are shown in Exhibit 3.7-11 and summarized in Table 3.7-4.

Sutter County and RD 1000 have entered into a Drainage Improvement Agreement that provides for, among other things, preparation of a Drainage Plan that provides for the orderly construction and installation of drainage improvement with each phase of project development according to RD 1000 standards. In the agreement, RD 1000 and Sutter County have agreed to use the 100-year standard in sizing stormwater detention facilities. This would change if ongoing refinements in the hydrologic and hydraulic modeling for the 200-year flood level pursuant to SB 5 show that it is not sufficient protection for the 200-year flood. Therefore, implementation of the proposed project could result in a **significant direct** and **indirect** impact related to stormwater runoff and the subsequent risk of flooding if 100-year flood protection is not provided, or if it is provided but does not improve to 200-year flood protection by 2015 to 2025.

Mitigation Measure 3.7-2a: Prepare and Submit Final Drainage Plans to the County and Implement Requirements Contained in Those Plans.

On-Site and Off-Site Elements

The project applicant(s) for all project phases shall implement the measures described below.

- a. For each increment of new development on the project site requiring a discretionary approval, the County shall confirm that the area to be developed either already has or shall have prior to issuance of building permits the minimum level of flood protection required at the time of the development approval by state or federal law, whichever is more stringent. The requirement for such a showing shall be made a condition of any small lot tentative map approval (i.e., prior to final approval) associated with the new development and satisfaction of the condition shall be verified by the County prior to recordation any final map associated with the new development. Where no small lot tentative map and final map is required for a non-residential discretionary development approval, the requirement for such confirmation, to be demonstrated no later than the time of occupancy, shall be made a condition of approval of project-level discretionary approvals analogous to issuance of small-lot tentative maps.

After the County general plan amendments and zoning changes made in response to the Central Valley Flood Protection Plan as mandated by Government Code Sections 65302.9 and 65860.1 have become effective (expected in 2015), the County shall not approve a development agreement, tentative map, parcel map, or any other discretionary permit or other discretionary entitlement, or any ministerial permit that would result in the construction of a new residence, for a project located within a flood hazard zone unless the County finds, based on substantial evidence, one of the following:

- ▶ flood management facilities shall provide the area to be developed with a level of protection necessary to withstand a 200-year flood event;
- ▶ the County has imposed conditions on the development agreement or other entitlement that shall provide the area to be developed with a level of protection necessary to withstand 200-year flood event; or
- ▶ local flood management agencies have made adequate progress towards construction of a flood protection system intended to provide the area to be developed with a level of protection necessary to

withstand a 200-year flood event to justify the expectation that the area to be developed shall have that level of protection by 2025.

- b. Before the approval of grading plans and building permits, the project applicant(s) of all project phases shall submit final drainage plans to the County demonstrating that off-site upstream runoff would be appropriately conveyed through the project site, and that project-related on-site runoff would be appropriately contained in detention basins to reduce flooding impacts, such that the flood control requirements in (a) are met. At the time of the Sankey Gap storage detailed design, capacity shall be based on 100-year flood protection unless the requirements of SB 5 dictate 200-year protection. If it is determined that more capacity is needed than the 3,740 acre-feet of storage calculations based on Wood Rodgers (2008), then a combination of the above three drainage alternatives shall be implemented, giving up to three times the 3,740 acre-feet amount and appropriately conveying the 5,800 acre-feet volume as estimated by Sutter County (2008).
- c. The 408 acres on the project site designated “E1 Interim Flood Zone” shall remain available for on-site detention, and thus shall not be developed with uses inconsistent with detention, until such time as the entire project site has a level of protection necessary to withstand a 200-year flood event.

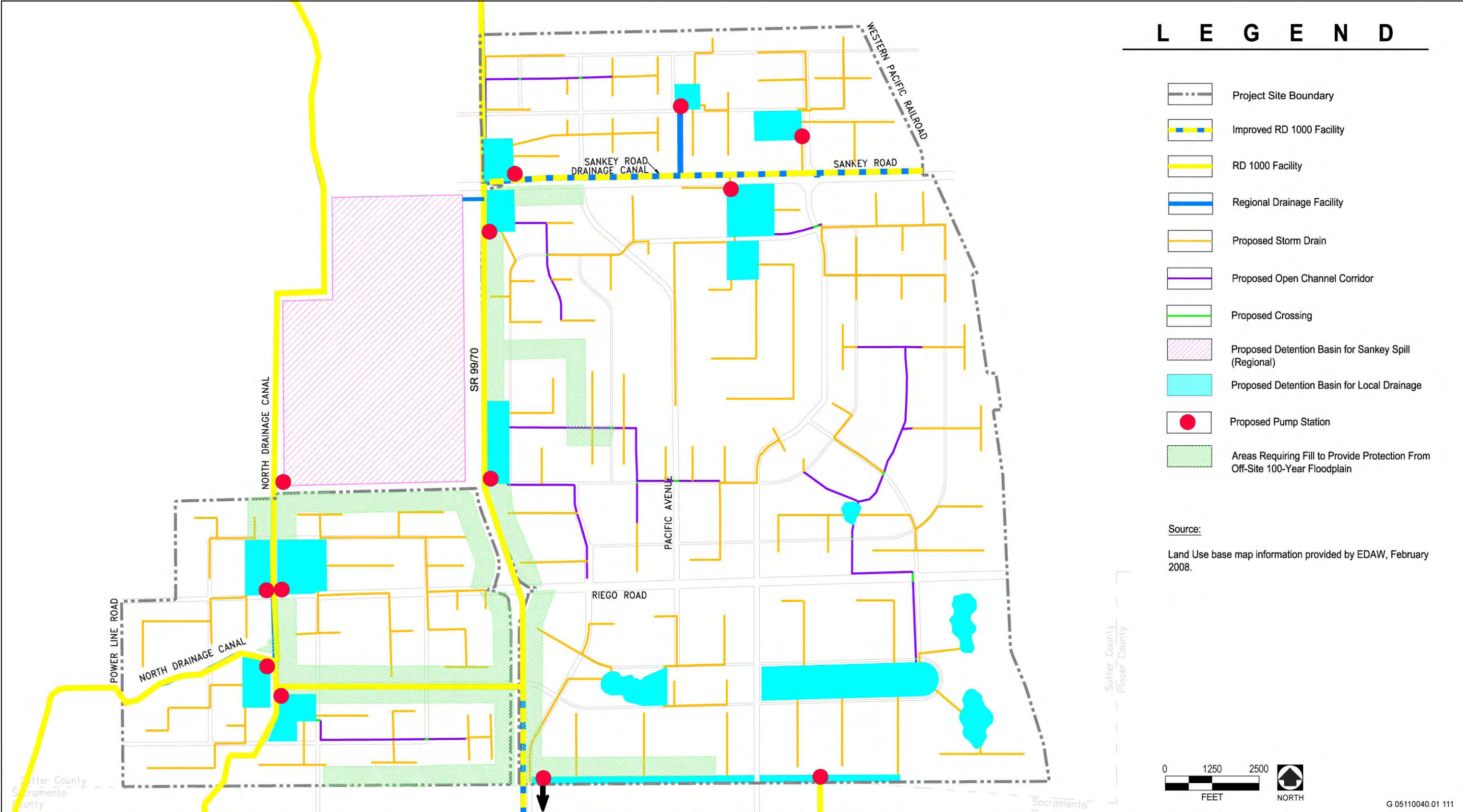
Mitigation Measure 3.7-2b: Perform a Detailed Geotechnical Analysis of Proposed Levees or Raised Ground Areas.

On-Site and Off-Site Elements

A detailed geotechnical analysis of the proposed on-site levees or raised ground areas required for prevention of flooding from the adjacent off-site floodplain shall be performed. This analysis shall also be required for the berm systems in the event that the off-site flood storage elements are utilized. This detailed geotechnical analysis shall be completed to evaluate by the project applicant(s) of all project phases the potential for underseepage, and shall include the following:

- ▶ Thickness and permeability characterizations of the top stratum, both waterside and landside of the berms, shall be taken by borings or other appropriate methods, to a depth sufficient to provide data for stability analyses and underseepage conditions of the berms.
- ▶ If the potential for seepage exists, detailed materials and construction performance standards sufficient to comply with FEMA flood protection standards (44 Code of Federal Regulations Section 65.10) shall be utilized to ensure that underseepage does not occur.
- ▶ Before the start of construction activities, the project applicant(s) shall retain a licensed hazardous materials specialist to collect and evaluate representative soil samples from potential borrow sites for contaminant residues (e.g., trace metals, pesticides, PCBs) that may be encountered in excavation and grading activities. This evaluation shall address any requirements pursuant to the Central Valley RWQCB permitting and approval process for the proposed project (e.g., waste discharge permitting and/or Section 401 certification).

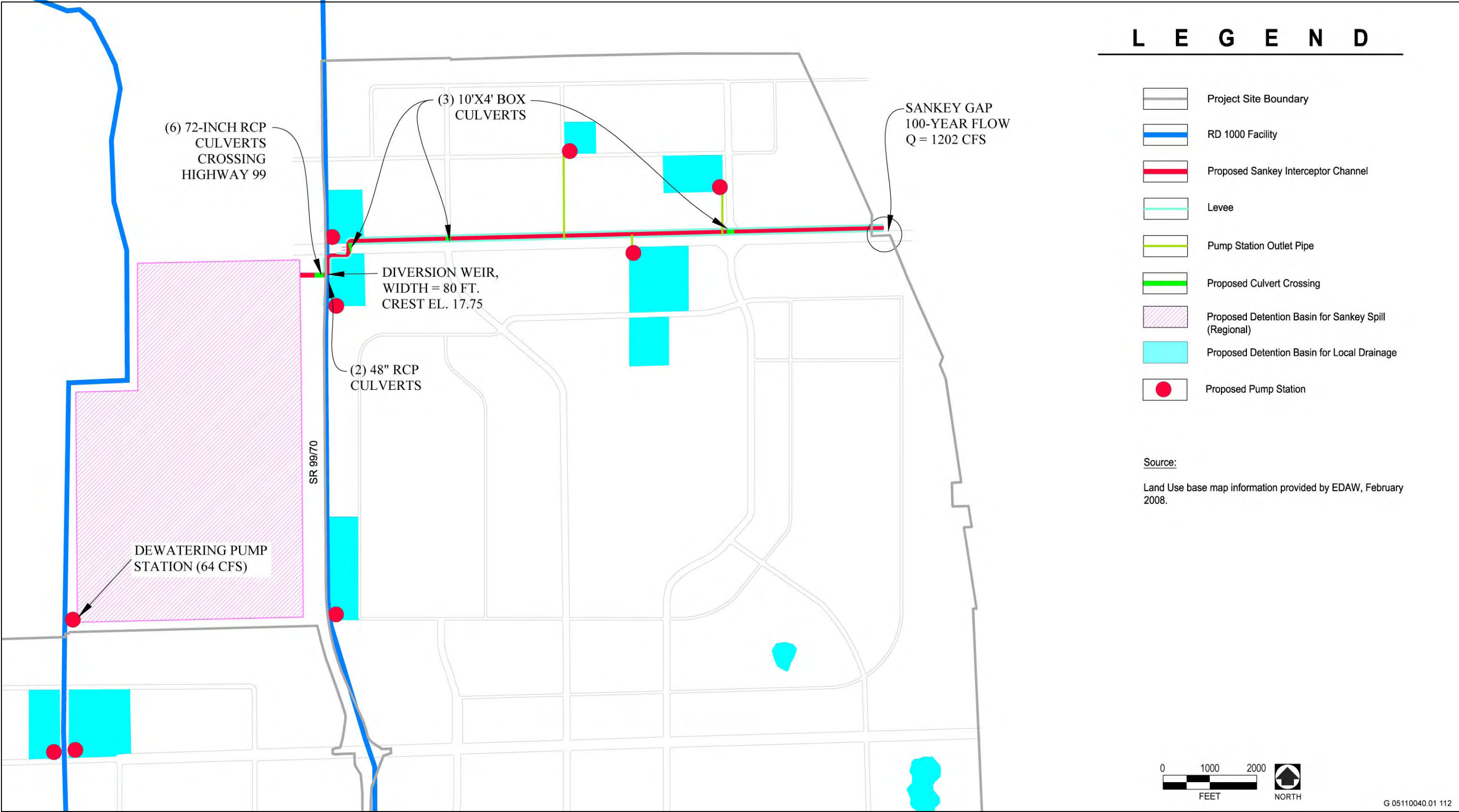
If contaminant residues are encountered at hazardous levels, a site remediation plan shall be prepared pursuant to Section 25401.05(a)(1) that identifies any necessary remediation activities identified by the hazardous materials specialist, including excavation and removal of on-site contaminated soils and redistribution of clean fill material on the project site. The plan shall include measures that provide for the safe transport, use, and disposal of contaminated soil and debris removed from the site (e.g., compliance with Caltrans transport regulations, and disposal at facilities permitted by EPA and/or the California Department of Toxic Substances Control (DTSC) to accept hazardous wastes). If the evaluation of soil samples detects the presence of contaminants that are not present at hazardous levels, the results of the evaluation shall be reported to the RWQCB for classification in its designated waste classification program. The RWQCB will determine the acceptability of the material for levee construction based on the potential of the borrow material to impair water quality.



Source: Wood Rodgers 2008

Alternative Three – Conceptual Drainage Plan

Exhibit 3.7-11



RCP = reinforced concrete pipe.
Source: Wood Rodgers 2008

Alternative Three – Sankey Gap and Local Flood Conveyance and Storage

Exhibit 3.7-12

Mitigation Measure 3.7-2c: Negotiate an Agreement with RD 1000.

On-Site Elements

The project applicant(s) of all project phases shall comply with the Drainage Improvement Agreement between RD 1000 and Sutter County. The agreement specifies the standards for design and construction of the improvements within the RD 1000 system that are required to accommodate the runoff from the channel improvements that would be required to convey storm water runoff through the Natomas Basin in order to maintain flood control requirements for the 100-year flood stage. This agreement includes the following provisions:

- ▶ Stormwater from the project site discharged into the RD 1000 drainage system shall not exceed 0.16 cfs/acre.
- ▶ Hydrologic modeling for stormwater drainage impacts shall use RD 1000’s Natomas Basin Modeling Plans.
- ▶ The proposed project shall provide additional pumping and carrying capacity to the extent that demands on RD 1000 pumping plants and canals are increased as a result of the proposed project.
- ▶ The agreement defines the roles and responsibilities of the project applicant(s), Sutter County, and RD 1000.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before the issuance of grading permits for all project phases and off-site elements throughout project construction.

Enforcement: RD 1000; applicable county public works department(s); and other regulatory agencies, such as DTSC or Central Valley RWQCB, if warranted.

Significance after Mitigation

Implementation of Mitigation Measures 3.7-2a, 3.7-2b, and 3.7-2c would reduce the potentially significant increase in the risk of flooding from increased stormwater runoff to a **less-than-significant** level for the following reasons. Mitigation Measure 3.7-2a provides that prior to any development approvals, the proposed project must provide 100-year or 200-year protection levels (as applicable), and it requires preparation and implementation of a final drainage plan demonstrating that flood flows are appropriately contained. Mitigation Measure 3.7-2b requires a geotechnical analysis of proposed levees and berms and incorporation of appropriate design criteria to prevent underseepage, along with hazardous materials testing and appropriate remediation. Mitigation Measure 3.7-2c requires compliance with the agreement between RD 1000 and Sutter County to ensure that RD 1000 facilities would accommodate runoff from the project site.

IMPACT 3.7-3	Flooding Risk from Potential for Levee or Dam Failure, or Inundation from Slow-rise Flooding during a 100-Year Flood Event. <i>The project site is located within a designated 100-year floodplain as currently delineated by FEMA.</i>

On-Site and Off-Site Elements

The Natomas Basin, where the proposed project is located, is protected by a series of reservoirs including Shasta, Oroville, Black Butte, New Bullards Bar, and Folsom Dam, which were designed to reduce flood flows in the Sacramento and American Rivers to a rate that could be safely carried by the downstream levees. Over the years, coordinated reservoir operations and Folsom Dam outlet enlargement projects have been pursued and authorization of funds for a planned “mini-raise” of the dam has been secured to ensure that Folsom Dam can continue to safely manage runoff from the Sierra Nevada during winter storms.

The levees protecting the Natomas Basin were found to meet FEMA criteria for 100-year flood protection under a levee evaluation conducted by USACE in 1998. SAFCA recently completed a draft report (SAFCA 2006) that updates previous studies and evaluates the flood protection level of the Natomas levee system. Although previous studies of these levees concluded that they provided sufficient protection against 100-year storm events, the new SAFCA draft report concludes that some portions of the levee system would be subject to underseepage and erosion hazards during a 100-year storm event. A USACE screening level certification analysis in 2008 further determined that the weakest portions of the Natomas levee system do not provide 3% annual chance flood event protection (USACE 2008). The 3% annual chance flood event is a 33-year storm event, as opposed to the 100-year event. While awaiting USACE and DWR review of its draft report, SAFCA has initiated the preparation of engineering studies and environmental compliance for levee improvements that would address specific threats to levee integrity to regain 100-year flood protection designations, as described in Section 3.7.2, “Environmental Setting,” above. These levee improvements include the following:

- ▶ Underseepage remediation and a levee raise along the entire 5.3-mile length of the Natomas Cross Canal south levee;
- ▶ Levee expansion (widening, raising as needed) as well as underseepage remediation along the Sacramento River east levee;
- ▶ Seepage remediation and levee widening, flattening, and raising where needed along the west levees of the Pleasant Grove Creek Canal and the Natomas East Main Drainage Canal; and
- ▶ Seepage remediation as needed along the north levee of the American River.

With implementation of these improvements proposed by SAFCA it is expected that protection from the 100-year storm event would be provided at the project site by November 2011, with the exception of the Sankey Gap 100-year overflow area, with FEMA 100-year remapping in mid 2012. With respect to the Sankey Gap, each of the three alternatives described in Impact 3.7-2 above have been designed to remove the Sankey Gap overflow area from the 100-year floodplain.

However, as of December 8, 2008, the Natomas Basin was designated by FEMA as an AE zone, which requires that all new construction must be elevated above mapped flood levels and all homeowners must carry flood insurance. Until completion of SAFCA levee improvements, completion of the improvements designed to handle the Sankey Gap flows, and other project-related drainage improvements (such as the raised ground areas), all of which have been designed to provide 100-year flood protection, the project site would be subject to inundation by the 1-percent-annual chance flood event. Therefore, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measure 3.7-2a.

Significance after Mitigation

Implementation of Mitigation Measure 3.7-2a would reduce the potential for increased risk of flooding from the 100-year flood event to a **less-than-significant** level because prior to any development approvals, the proposed project must provide 100-year or 200-year protection levels (as applicable), and a final drainage plan demonstrating that flood flows are appropriately contained must be prepared and implemented.

IMPACT 3.7-4	Potential Damage From 200-Year Flood Event. <i>The project site is located within an area that does not have 200-year flood protection, which will be required by SB 5.</i>

On-Site and Off-Site Elements

The project site and off-site elements, except for Sankey Gap overflow area (Exhibit 3.7-1), would be protected from the 200-year flood event pursuant to SB 5 after 2015. The Sankey Gap overflow area would be protected by 2025. However, these improvements are not yet in place, and with Phase 1 and Phase A of the proposed project scheduled for construction in 2010 to 2017, the potential exists for exposure of the proposed project to hazards from a 200-year flood. Therefore this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

As explained above in Section 3.7.1, “Regulatory Background,” SB 5 provides that, as of 2015, city and county legislative bodies will be prohibited from approving discretionary development projects and ministerial residential projects unless they can make one of three findings with respect to the levels of flood protection at a project site. One such finding is that “[t]he local flood management agency has made adequate progress on the construction of a flood protection system which shall result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas or the national FEMA standard of flood protection in nonurbanized areas for property located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the urban level of flood protection shall be achieved by 2025.” (SB 5, Section 65865.5[a][3].)

The project site, except for Sankey Gap overflow area, would be protected from the 200-year flood event after 2015 as required by SB 5. The Sankey Gap overflow area, with 100-year flood protection from the NLIP phases described for Impact 3.7-3, above, must be improved to the 200-year flood protection standard by 2025, as required by SB 5. The NLIP, as discussed above in Section 3.7.2, “Environmental Setting,” and for Impact 3.9-3, include the evaluation of a new secondary setback levee approximately 1,000 feet from the existing levee located along the upper 5 miles of the east levee of the Sacramento River, part of which is approximately one mile east of the proposed project site (SAFCA 2006). The new levee would eliminate the uncertainties associated with refurbishing the existing levee, reduce erosion concerns, and ensure safe containment of the 200-year flood if the existing levee were to fail. However, because these improvements are not yet in place, project development would introduce the potential for exposure of people or structures to hazards from a 200-year flood. Therefore this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measure 3.7-2a.

Mitigation Measure 3.7-4: Incorporate Flood Control Measures to Provide Protection from 200-Year Sankey Gap Flood Flows.

On-Site and Off-Site Elements

In the event that, as of 2015, the County concludes that it is not reasonably foreseeable that SAFCA will provide 200-year protection with respect to the Sankey Gap 200-year overflow by 2025, the County, in granting discretionary development approvals, shall require the applicant to develop and implement a program to engineer the project site to be protected by the 200-year storm event as required by SB 5 by no later than 2025. That program could include, but is not limited to, the following components:

- ▶ Enlarge/deepen the proposed on-site detention basins to accommodate flows between the 100-year and 200-year events.
- ▶ Develop off-site detention basins located east of the Sankey Gap (as noted in Alternative 2 described above and in detail in the Drainage Master Plan [Wood Rodgers 2008]).

- ▶ Develop off-site detention basins located west of the project site (as noted in Alternative 3 described above and in detail in the Drainage Master Plan [Wood Rodgers 2008]).
- ▶ Allow greater overland flows during the 100- to 200-year events onto adjoining agricultural fields located west and northwest of the site (as noted in Exhibit 3.7-13).
- ▶ Raise building pad elevations to higher elevations to protect against higher run-off events.
- ▶ Allow more residual flooding in non-structural areas during high-flood events (e.g., parking lots, parks, and streets).
- ▶ Improve flood flow conveyance capacity west of the site under State Route 99/70 by improving/increasing culvert capacity under the highway.
- ▶ Increase flood storage in the RD 1000 North Drainage Canal and other applicable drainage canals that could potentially accommodate increases in flood storage volumes.

As part of this program, the applicants shall conduct hydrologic engineering studies to support the above options that would include the following components:

- ▶ One-dimensional and two-dimensional unsteady state modeling (i.e., the ability to account for flows and flood stages that change quickly over time) shall be developed as needed to calculate flow paths and flood depths to the accuracy required by local, state, and federal requirements for protection of property.
- ▶ On-site (Alternative One) storage volume expansion and conveyance capacity shall be considered and evaluated via this modeling in order to ensure that basin freeboard and street culvert capacity have the hydraulic capacity to offset estimated 200-year flood increases through or around the project site.
- ▶ Modeling efforts for major off-site flood storage infrastructure (Alternatives Two and Three) shall identify the most efficient ways available to direct and detain flooding. This modeling shall include evaluations of potential groundwater basin effects, and rainfall/river elevation (hydrologic) coincidence between the Natomas Cross Canal and Sacramento River watersheds as they affect the magnitude of spilling and storage into the project site during 200-year storm conditions.

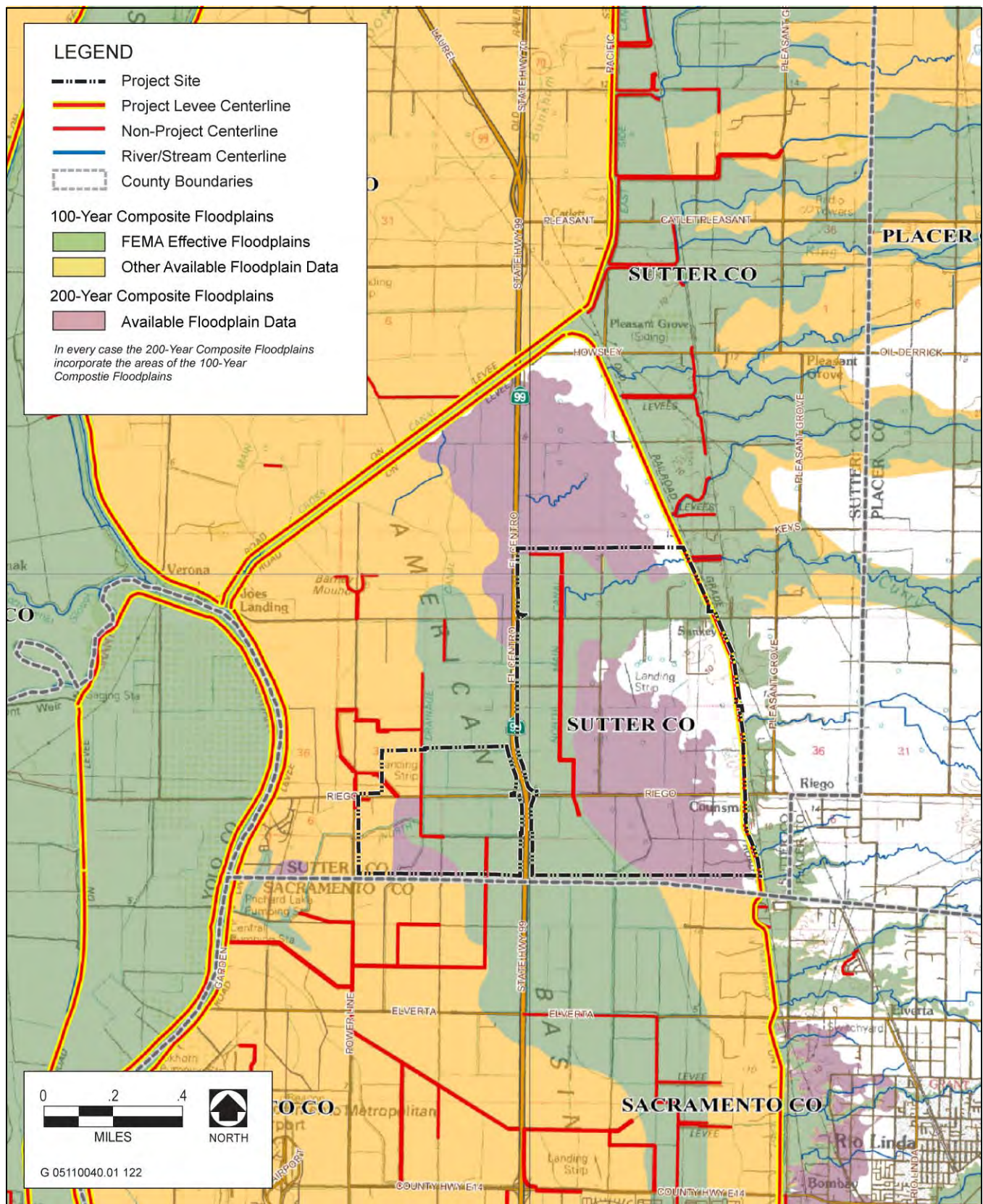
Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before the issuance of grading permits for all project phases and off-site elements throughout project construction.

Enforcement: RD 1000; applicable county public works department(s); and other regulatory agencies, such as Central Valley RWQCB, if warranted.

Significance after Mitigation

Implementation of Mitigation Measures 3.7-2a and 3.7-4 would reduce the potential for increased risk of flooding from the 200-year storm event to a **less-than-significant** level for the following reasons. Implementation of Mitigation Measure 3.7-2a would require that prior to any development approvals, the proposed project must provide 200-year protection levels when it is required under SB 5, and a final drainage plan demonstrating that flood flows are appropriately contained must be prepared and implemented. Implementation of Mitigation Measure 3.7-4 would ensure that no project development would occur in the 200-year flood zone created by the Sankey Gap, unless or until FEMA approved standards for 200-year flood protection are constructed by SAFCA; and in the event that SAFCA does not implement 200-year protection, the project applicant(s) implement FEMA-approved standards for 200-year flood control prior to development in the 200-year flood zone.



Source: Adapted by EDAW 2008

Best Available Floodplain Map

Exhibit 3.7-13

IMPACT 3.7-5 Long-Term Water Quality Effects from Urban Runoff. *The proposed project would convert a large area of undeveloped land to residential and commercial uses, thereby changing the amount and timing of potential long-term contaminants in stormwater runoff to the Natomas Basin Drainage System and other drainage courses on-site.*

On-Site Elements

The conversion of undeveloped land to urban land uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Overall, the potential for the proposed project to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash) into the stormwater drainage system and ultimate receiving waters would increase compared to existing conditions. Some contaminants associated with existing on-site agricultural activities (e.g., sediment, nutrients, agricultural chemicals) would decrease as these uses are phased out during project development. The potential discharges of contaminated urban runoff from paved and landscaped areas could increase or could cause or contribute to adverse effects on aquatic organisms in receiving waters. Urban contaminants typically accumulate during the dry season and may be washed off when adequate rainfall returns in the fall to produce a “first flush” of runoff. The amount of contaminants discharged in stormwater drainage from developed areas varies based on a variety of factors, including the intensity of urban uses such as vehicle traffic, types of activities occurring on-site (e.g., office, commercial, industrial), types of contaminants used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), contaminants deposited on paved surfaces, and the amount of rainfall.

The Sutter Pointe Specific Plan and Master Drainage Study include the following drainage-design features to reduce the potential adverse impacts from urban stormwater runoff from the proposed project.

Structural Controls

The proposed project’s storm drainage systems would be designed to direct runoff flows into on-site detention basins, incorporating integrated water quality treatment in the form of wet water quality treatment volume or extended dry detention. The stormwater quality treatment configurations would utilize treatment methodologies as described in SQDM (SSQP 2007b) and approved by Sutter County. To eliminate any flow increase caused by proposed project development, and any possible erosion related to this increase, stormwater detention facilities would be constructed to maintain peak storm flows at the level existing before development, as illustrated in Exhibit 2-5 and described in more detail in Chapter 2, “Project Description.”

Pollutants are removed from stormwater in detention basins through gravitational settling and biological processes depending on the type of basin. Permanent ponds (i.e., micropools) in dry weather may enhance pollutant removal through biological and chemical processes.

Water quality BMPs, including those to be used for the proposed project and shown in Table 3.7-2, such as revegetation, erosion control measures, detention and infiltration basins have been shown to be successful in controlling water quality and avoiding water quality impacts (metals and organic compounds associated with stormwater are typically lost within the first few feet of the soil of the retention basins associated with groundwater).

However, because final design plans and specifications have not been submitted to or approved by the County, implementation of the proposed project could result in contaminants entering receiving waters, thus resulting in adverse effects from long-term urban runoff. Because the proposed project could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels as a result of runoff from the project site, the project-related water quality impacts are both **direct** and **indirect**, and are **significant**.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site, and would not involve construction of new housing or commercial and industrial land uses. The amount of impervious surfaces introduced would be minimal. However, the berm systems that would be utilized for the two storage basins would displace flood flows, thereby introducing the potential for erosion and sedimentation. . Because the off-site elements could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels as a result of runoff, the water quality impacts are both **direct** and **indirect** and are **significant**.

Mitigation Measure 3.7-5: Develop and Implement a BMP and Water Quality Maintenance and Monitoring Plan.

Before approval of the final small-lot subdivision map for all project phases, detailed hydrology plans, and a water quality study, shall be prepared by a qualified engineer retained by the project applicant(s). Drafts of these plans shall be submitted to the County for review and approval concurrently with development of tentative subdivision maps for all project phases. These plans shall finalize the water quality improvements and further detail the structural and nonstructural BMPs proposed for the project. The plans shall include the following:

- ▶ a quantitative analysis of proposed conditions incorporating the proposed drainage design features.
- ▶ pre-development and post-development calculations demonstrating that the proposed water quality BMPs meet or exceed requirements established by the Central Valley RWQCB and including details regarding the size, geometry, and functional timing of storage and release.
- ▶ source control programs to control water quality pollutants on the project site, which may include but are limited to recycling, street sweeping, storm drain cleaning, household hazardous waste collection, waste minimization, prevention of spills and illegal dumping, and effective management of public trash collection areas.
- ▶ a lake management plan for the proposed basins that shall include management and maintenance requirements for the design features and BMPs, and responsible parties for maintenance and funding.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before the issuance of grading permits for all project phases and off-site elements throughout project construction.

Enforcement: Applicable county public works department(s).

Significance after Mitigation

Implementation of Mitigation Measure 3.7-5 would reduce the potentially significant impact associated with potential long-term water quality effects of urban runoff under the proposed project to a **less-than-significant** level because the project applicant(s) would develop and implement a BMP and water quality maintenance and monitoring plan that would demonstrate to the County that the proposed project would conform to applicable state and local regulations restricting surface water runoff. The design criteria described in the Master Drainage Plan (Wood Rodgers 2008) are designed to comply with Section 5 of the Sutter County Department of Public Works Design Standards “Storm Drainage Design” (Sutter County 2006), and the Stormwater Quality Design Manual for the Sacramento and South Placer Regions Water Quality Detention Basin Design Criteria (SSQP 2007b). The permanent BMPs to be used in the stormwater treatment system described in detail in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions (SSQP 2007b) have been shown to be effective in reducing contaminant levels in urban runoff (EPA 1999, CASQA 2003, SSQP 2007b).

IMPACT **Depletion of Groundwater Supplies or Substantial Interference with Groundwater Recharge.** *Shallow and deep percolation of rainwater and related runoff and consequent depth to groundwater could be affected locally by the development of additional impervious surface, which may limit infiltration and recharge. Furthermore, M&I groundwater use proposed as part of the project could affect groundwater supplies.*

3.7-6

On-Site Elements

Project-specific water utility, supply, and demand impacts are addressed in Section 3.10, “Water Supply.” This analysis focuses on the potential depletion of groundwater supplies. A groundwater supply assessment was performed for the proposed project by Luhdorff & Scalmanini Consulting Engineers (2008). A pair of existing numerical groundwater flow models was used to evaluate the impacts of the proposed project on groundwater conditions in the North American Subbasin. The models are Integrated Groundwater and Surface Water Models (IGSM) developed by Montgomery Watson Harza Global, Inc. (MWH) in the 1990s. The Sacramento County IGSM is referred to as the SACIGSM and has been updated several times, most recently by Water Resources & Information Management Engineering [WRIME] (2007). The NARIGSM and SACIGSM cover the North American Subbasin, including the project site, and these models are the only existing calibrated groundwater flow models that encompass a large enough area to simulate all potential project-related groundwater and surface water impacts. Although there are limitations to these models, they are well documented and generally accepted by local water purveyors and state agencies.

Groundwater to meet the projected demands of the proposed project would be withdrawn from the North American Subbasin, as described above in the “Groundwater Hydrology” section. The proposed land use and water supplies were evaluated for current (2004 as analyzed in the study) and future (2030) conditions in the Natomas Basin. Groundwater pumpage in the Natomas Basin in 2004 was 28,636 acre-feet per year (afy). Total cumulative future groundwater pumping to meet demands in the Basin, including the proposed project demand at full buildout, is estimated to be 31,963 afy. Total cumulative future groundwater pumping without the proposed project is estimated to be 27,258 afy. (Luhdorff & Scalmanini Consulting Engineers 2008, Tully and Young 2008).

Luhdorff & Scalmanini Consulting Engineers compared the estimated proposed project use against the Existing Conditions Baseline (ECB), which represents existing conditions in the groundwater basin. Scenario 1 simulates groundwater conditions at the end of development Phases 2 and B (approximately 11 years into the proposed project development). Phases 2 and B were used for this scenario because these phases represent the period of maximum groundwater pumping (used for both the proposed project and agricultural purposes) in the project site. Scenario 2A represents the proposed project at full buildout, which would occur at the end of Phases 4 and D (years 16 through 20). By this time, all agricultural land uses (and associated groundwater pumpage) would be replaced by M&I land uses. Proposed groundwater well locations under Project Scenario 2A are shown in Exhibit 3.7-4.

A reduction in deep percolation to the groundwater basin underlying the project site of about 6,600 afy would result from the conversion of irrigated agricultural land to urban land uses. Under Project Scenarios 1 and 2A, recharge from the Sacramento River to the aquifer is unaffected by the proposed groundwater pumping (Luhdorff & Scalmanini Consulting Engineers 2008). Local stream recharge is predicted to increase by 3,800 to a total of 3,900 afy, due to a combination of reduced deep percolation and a cone of depression caused by the proposed project wells, shown in Exhibit 3.7-4. This represents a corresponding reduction in Sacramento River streamflow. However, the magnitude of the reduction as a percentage of total streamflow is very small. In the 2004 water year, which is considered to be a normal water year, the average streamflow at the Verona Gage station of the Sacramento River was 15.1 million afy (CDEC 2008, as cited in Luhdorff & Scalmanini Consulting Engineers 2008), suggesting that the predicted simulated increases in stream recharge would be about one-tenth of a percent of the average streamflow of the river.

Scenarios 1 and 2A were compared to the ECB. The average annual water budget (i.e., the difference between net flow into the aquifer and net flow out of the aquifer) results for a 23-year future period (based on the 1982–2004 hydrologic condition data used to run the models) showed an increase in groundwater recharge of 61 afy

(Scenario 2A) and 65 afy (Scenario 1) in the underlying basin. Scenario 1, the most conservative, simulated proposed project groundwater pumpage along with existing agricultural pumpage (see Table 6-7 in Luhdorff & Scalmanini Consulting Engineers 2008). For Scenario 1, deep percolation decreased by 3,793 afy from the existing baseline condition of 37,414 afy of deep percolation, due to conversion of land in the project site from agricultural to urban uses, and an increase in groundwater pumping of 6,859 afy in the project site. Groundwater pumping for the proposed project would result in a cone of depression in the southwestern portion of the project site created by the project's proposed municipal wells (Exhibit 3.7-4). This cone of depression, in combination with the reduced deep percolation described above, would result in increased net recharge from streams (about 3,800 afy) and increased net inflow to the underlying basin (about 3,200 afy). Subsurface outflow to the east from the Natomas Basin would decrease to about 8,200 afy, a reduction of about 3,600 afy. The change in aquifer storage would be reduced by about 100 afy but is still positive (65 afy) for this scenario.

Deep percolation for Scenario 2A would decrease by about 6,600 afy due to conversion of land in the project area from agricultural to urban uses. Groundwater pumping would decrease by about 6,200 afy in the project area under this scenario. The cone of depression that would be created by the proposed municipal wells combined with the reduced deep percolation would result in increased net recharge from streams (about 3,900 afy) and increased net inflow from beneath the Sacramento River (about 2,800 afy). Subsurface outflow to the east from the Natomas Basin would decrease to about 5,800 afy, a reduction of about 5,900 afy. This change would represent a reduction in storage of 122 afy but would still result in a net positive amount of storage in the aquifer (61 afy) under this scenario (see Table 6-7 in Luhdorff & Scalmanini Consulting Engineers 2008).

Net groundwater recharge for the Natomas Basin is positive for the ECB and proposed project scenarios because all reaches of the Sacramento and American Rivers are shown to be recharging the aquifer under current conditions, and these conditions are predicted to continue under the proposed project. In other words, the inflow to the groundwater basin minus the outflow from the basin is a positive amount.

The groundwater supply assessment (Luhdorff & Scalmanini Consulting Engineers 2008) demonstrates that groundwater projected to be pumped from the Natomas Basin and the North American Subbasin over the 35-year horizon is sufficient to meet the demands of the proposed project as well as other pumpage in the Natomas Basin and the North American Subbasin under all proposed water supply programs (see Section 3.9, "Water Supply"). Based on this assessment, groundwater supplies are considered a reliable, sustainable source of potable water. Therefore, there is a reasonable likelihood that groundwater supplies needed to serve the proposed project would be available, and this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site, and would not involve groundwater use. The amount of impervious surfaces introduced would be minimal, and would not interfere with groundwater recharge. Therefore, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.7-7	Potential for Project-Related Water Supply to Exceed Groundwater or Surface Water Quality Objectives. <i>Proposed project municipal groundwater or surface water from the Sacramento River that exceeds water quality standards for arsenic, or from contaminants from the Holt Site, could affect M&I water supplies for the proposed project.</i>

On-Site Elements

Preliminary groundwater quality testing performed by MacKay & Soms (2008) on the project site confirms the existence of the presence of elevated levels of iron, manganese and arsenic, all in treatable concentrations. The Paulson monitoring wells on the project site (see the “Water Quality” section in Section 3.7.2, “Environmental Setting,” above), showed arsenic concentrations of 12 and 24 µg/L at the shallower (210–240 feet bgs) and deeper (360–390 feet bgs) wells, respectively. At the Paulson domestic production well, the arsenic concentration was 14 µg/L. Water from this well would require treatment because it is above the primary maximum contaminant level (MCL) of 10 µg/L for arsenic. Due to the prevalence of arsenic in groundwater in the Natomas Basin, treatment would likely also be required for the other proposed project M&I wells (Luhdorff & Scalmanini Consulting Engineers 2008).

Manganese is another trace element that showed elevated levels in groundwater from wells within and in the vicinity of the project site. Median manganese concentrations were similar in the upper and lower zones (97 and 103 µg/L, respectively), but higher (154 µg/L) for wells completed in multiple or unknown zones. For a description of upper and lower zones see the “Groundwater Hydrology” section in Section 3.7.2, “Environmental Setting,” above. Manganese concentrations at the Paulson monitoring wells were 56 and 65 µg/L at the shallower and deeper well depths respectively. At the Paulson production well, the manganese concentration was 47 µg/L. This concentration is slightly below the secondary MCL of 50 µg/L. Because the manganese concentration at the Paulson monitoring wells and other wells in the project vicinity exceeds the secondary MCL of 50 µg/L, treatment would likely be required at the proposed project M&I wells.

The Luhdorff & Scalmanini Consulting Engineers (2008) groundwater assessment found that the Holt of California (Holt) facility on Pacific Avenue, which is within the project site, had groundwater contamination resulting from leaking underground storage tanks. The tanks were all removed by 1992. Site characterization activities have included the installation of 19 monitoring wells. Contaminants in shallow groundwater at the site include petroleum hydrocarbons, fuel oxygenates such as (methyl tertiary butyl ether) MTBE, and VOCs. A pump-and-treat system with two extraction wells was installed for remediation in 2005; it was removed from service in February 2006 and has not been reinstalled as of April 2008. Available data from the 19 monitoring wells suggest that horizontal groundwater contamination is localized in the vicinity of the former underground storage tanks and has not spread off site. However, the vertical extent of the contamination is unknown because all monitoring wells at the site are less than 50 feet deep.

Under the proposed project, a water supply program would be implemented that incorporates groundwater and surface water treatment to insure that water quality objectives protective of Basin Plan beneficial uses are met. This program is described in Chapter 2, “Project Description.” The proposed project involves constructing two centralized on-site groundwater treatment plants and a surface water treatment plant to treat raw groundwater and surface water diverted from the Sacramento River. These treatment plants would operate continuously at various flow rates with ongoing operations and maintenance activities.

However, because the program has not been finalized, and because there is the potential for known contaminants to affect M&I water quality for the proposed project, this impact is **direct** and **potentially significant**. Because the water supply would be used specifically by the proposed project, there are **no indirect** impacts.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses requiring a water supply program. Implementing the off-site program elements would not increase the potential for water quality exceedances. Therefore, implementing these elements would have **no direct** or **indirect** impacts.

Mitigation Measure: Implement Mitigation Measure 3.12-2.

Mitigation Measure 3.7-7a: Implement a Surface Water and Groundwater Treatment Program.

On-Site Elements

The project applicant(s) of all project phases shall implement a surface water and groundwater treatment program that contains the following elements:

1. Groundwater and surface water shall be treated to meet the regulations of both DPH, and EPA, including the Title 22 drinking water quality standards that are in place at the time the treatment plants are constructed.
2. The treatment process shall provide removal of iron, manganese, and arsenic to levels that meet the water quality standards listed in Table 3.7-1. For arsenic and magnesium the lower, more conservative EPA MCL standards shall be met.
3. Solids from the treatment process shall be disposed of either:
 - ▶ By discharge to the public sewer system (if deemed appropriate by SRCSD);
 - ▶ By storage of the decanted sludge in the bottom of the on-site storage tank for periodic pumping and trucking to a Class III landfill as a low water content sludge (3% - 4% water content), or
 - ▶ By periodically transferring the low water content sludge to sludge drying beds and then harvesting the dried sludge and trucking it to an appropriately permitted landfill.
4. The treatment facilities shall comply with Sutter County Department of Public Works Design Standards for Domestic Water Supply Systems (Section 6).
5. The applicant(s) shall obtain all necessary regulatory agency approval and operational permits, including DPH Domestic Drinking Water Permit, sludge waste classification pursuant to federal Resource Conservation and Recovery Act regulations (Code of Federal Regulations Title 40), California Health and Safety Code (Division 20, Chapter 6.5, Hazardous Waste Control Law) regulations, and California Code of Regulations Title 22, Division 4.5 regulations, and shall abide by the permit conditions.

Mitigation Measure 3.7-7b: Maintain Sufficient Distance between On-Site Production Wells and the Holt Facility.

On-Site Elements

M&I wells installed to meet water demands for the proposed project shall maintain a distance from the Holt site sufficient to ensure that the water quality objectives described in 3.7.1, "Regulatory Background," and Table 3.7-1 are met. This distance shall be determined as follows:

- ▶ The vertical extent of the contamination shall be determined by installation of new monitoring wells at areas of suspect contamination, to depths determined by a professional hydrologist to be sufficient to determine the vertical extent. This information, in addition to the horizontal extent of contamination determined by existing Luhdorff & Scalmanini Consulting Engineers (2008) groundwater assessment monitoring wells, shall be used to define the extent contaminant plume.

No project-related wells shall be installed within or downgradient of the contaminated groundwater plume emanating from the Holt facility.

Proposed M&I well locations shall be approved by the Sutter County Environmental Health Division and/or Central Valley RWQCB.

All well installation activities shall be conducted under the supervision of a registered geologist or civil engineer licensed by the State of California.

Implementation: Project applicant(s) of off-site project elements.

Timing: Before excavation or construction activities begin on the off-site project components.

Monitoring: Sutter County Environmental Health Division and other regulatory agencies, such as California Department of Toxic Substances Control or Central Valley RWQCB, if warranted.

Off-Site Elements

Mitigation Measures

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measures 3.12-2, 3.7-7a, and 3.7-7b would reduce the potentially significant impacts related to exposure of project residents and workers to known on-site hazardous substances in drinking water to a **less-than-significant** level because the project applicant(s) would implement a surface water and groundwater treatment program to comply with applicable water quality standards as shown in Table 3.7-1, and no wells would be located in the immediate vicinity of or downgradient from the known contaminated groundwater plume emanating from the Holt facility.

Implementation of Mitigation Measure 3.12-2 would reduce the potentially significant impacts related to exposure of project residents and workers to known on-site hazardous substances in drinking water to a **less-than-significant** level because a site plan identifying remediation activities and setting forth procedures to appropriately handle hazardous materials would be prepared, and hazardous substances would be removed and properly disposed of by a licensed contractor in accordance with federal, state, and local regulations. Implementation of Mitigation Measure 3.7-7a would reduce the potentially significant impacts related to exposure of project residents and workers to known on-site hazardous substances in drinking water to a **less-than-significant** level because surface water and groundwater would be treated to meet all applicable water quality standards prior to use. Implementation of Mitigation Measure 3.7-7b would reduce the potentially significant impacts related to exposure of project residents and workers to known on-site hazardous substances in drinking water to a **less-than-significant** level because no groundwater production wells shall be installed within or downgradient of the Holt contaminant plume.

ADDITIONAL DETAILED ON-SITE ANALYSIS – IMPACTS AND MITIGATION MEASURES

No additional detail related to hydrology and water supply beyond the program level is available at this time; therefore, a more detailed analysis is not provided in this DEIR.

3.7.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures described above, project implementation would not result in any residual significant impacts related to hydrology and water quality.

3.8 PUBLIC SERVICES

This section provides an overview of existing public services for the project site and vicinity. It addresses fire protection; law enforcement; public schools; libraries; and judicial, public health, mental health, and social services. Impacts are evaluated in relation to increased demand for public services associated with the proposed project and the actions needed to provide the services that could potentially lead to physical environmental effects. Analysis provided in this section is based on review of agency documents and consultation with local public services providers. Issues such as wastewater treatment, water supply, and solid waste disposal are discussed in Section 3.10, “Public Utilities.” Parks are addressed in Section 3.14, “Parks and Open Space.”

3.8.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws related to the provision of public services are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Fire Code

The California Fire Code includes specialized regulations related to construction, maintenance, and the use of buildings in relation to fire and safety. The extent of the code coverage pertains to fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions to aid fire responders, industrial processes, and other fire safety requirements for new and existing buildings.

California Health and Safety Code

State fire regulations, set forth in Section 13000 et seq. of the California Health and Safety Code, include regulations for building standards, fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and child care facility standards, and fire suppression training.

State School Funding

California Education Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement against any development project for the construction or reconstruction of school facilities, provided that the district can show justification for levying of fees. California Government Code Section 65995 limits the fee to be collected to the statutory fee unless a school district conducts a Facility Needs Assessment (California Government Code Section 65995.6) and meets certain conditions.

Senate Bill 50 (Chapter 407, Statutes of 1998) instituted a new school facility program by which school districts can apply for state construction and modernization funds. This legislation imposed limitations on the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development. It also provided the authority for school districts to levy fees at three different levels:

- ▶ **Level I fees** are the current statutory fees allowed under Education Code Section 17620. As mentioned above, this code section authorizes school districts to levy a fee against residential and commercial construction to fund school construction or reconstruction. These fees are adjusted every 2 years in accordance with the statewide cost index for Class B construction as determined by the State Allocation Board. As of January 2008 (when the fees were last adjusted), the maximum Level I fees are \$2.97 per square foot for residential construction and \$0.47 per square foot for commercial/industrial construction.

- ▶ **Level II developer fees** are outlined in Government Code Section 65995.5. This code section allows a school district to impose a higher fee on residential construction if certain conditions are met. These conditions include having a substantial percentage of students on multitrack year-round scheduling, having an assumed debt equal to 15–30% of the district’s bonding capacity (the percentage is based on revenue sources for repayment), having at least 20% of the district’s teaching stations housed in relocatable classrooms, and having placed a local bond on the ballot in the past 4 years that received at least 50% plus one of the votes cast. A facility needs assessment must demonstrate that the need for new school facilities for unhoused pupils is attributable to projected enrollment growth from the construction of new residential units over the next 5 years.
- ▶ **Level III developer fees** are outlined in Government Code Section 65995.7. This code section authorizes a school district that has been approved to collect Level II fees to collect a higher fee on residential construction if state funding becomes unavailable. This fee is equal to twice the amount of Level II fees. However, if a district eventually receives state funding, this excess fee may be reimbursed to the developers or subtracted from the amount of state funding.

School Site Selection

The California Department of Education (CDE) School Facilities Planning Division (SFPD) has prepared the *Guide to School Site Analysis and Development* (CDE 2000), which provides criteria for locating appropriate school sites in California. CDE’s authority for approving proposed sites is contained in Education Code Section 17251 and in Title 5, Section 14010 of the California Code of Regulations (CCR). CDE’s approval is a condition for school districts to receive state funds for the acquisition of sites under the state’s School Facilities Program administered by the State Allocation Board. Districts using only local funds are still encouraged to seek CDE approval for the benefits that such outside review can provide.

School site and size recommendations were changed by CDE in 2000 to reflect various changes in educational conditions, such as lowering of class sizes and use of advanced technology. The expanded use of school buildings and grounds for community and agency joint use and concern for the safety of the students and staff members also influenced the modification of the CDE recommendations.

CDE provides specific recommendations for school size in the publication *Guide to School Site Analysis and Development* (CDE 2000). This document suggests a ratio of 1:2 between buildings and land. CDE is aware that in a number of cases, primarily in urban settings, smaller sites cannot accommodate this ratio. In such cases, CDE’s SFPD may approve an amount of acreage less than the recommended gross site size and building-to-grounds ratio.

Certain health and safety requirements for school site selection are governed by state regulations. The policies of the SFPD relating to the school siting criteria are discussed in detail below.

School Siting Criteria

The California Education Code contains various provisions governing the siting of new public schools (e.g., Education Code Sections 17211, 17212, and 17212.5). In addition, to help focus and manage the site selection process, CDE’s School Facilities and Planning Division has developed screening and ranking procedures based on criteria commonly affecting school selection (Education Code Section 17251[b], 5 CCR Section 14001[c]). The highest priority on the criteria list is safety. Other site selection criteria require an analysis of the specific environmental constraints and land use concerns.

The foremost consideration in the selection of school sites is safety. Certain health and safety requirements are governed by state statute and CDE regulations. In selecting a school site, a school district should consider the following factors: proximity to airports, proximity to high-voltage power transmission lines, presence of toxic and hazardous substances, hazardous air emissions and facilities within one-quarter mile, and proximity to railroads.

CEQA Section 21151.8, the State CEQA Guidelines (CCR Section 15186[c]), and Education Code Section 17213(b) identify environmental requirements for school projects in addition to the standard environmental analysis requirements of CEQA. These additional requirements are intended to ensure that, before a school district approves a school project at a given site, the site is evaluated to identify potential health effects that could result from exposure to hazardous materials, wastes, emissions, and substances. The school district as lead agency is required to consult with other agencies in this regard, before a school project is considered for approval.

CEQA Section 21151.2 also requires that a school district give notice, in writing, to the appropriate planning commission of its intent to acquire title to property for a new school site or an addition to an existing school site. The planning commission is requested to investigate the proposed site and submit its recommendations concerning acquisition of the site to the governing board of the school district within 30 days of receiving notice. Following the required consultation, the school district's governing board must make written findings when taking action on the proposed school project.

These requirements are set forth here because the project applicant(s) and the County, in identifying school sites on the project site, have tried to be cognizant of school siting requirements and criteria to streamline future CEQA requirements to the extent feasible.

CEQA allows school districts to construct schools in areas where they would have certain hazard exposure, with construction subject to certain designs, mitigation, and findings. Even in an instance where certain hazards cannot be avoided or fully mitigated, districts can still approve construction of a school that would be subject to certain hazard exposure if alternative sites are similarly constrained or not available.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

The project site is located in unincorporated Sutter County. Although infrastructure necessary to serve the site would extend into Placer and Sacramento Counties, the provision of public services is relevant only to the project site, where the population to be served would be located. For this reason, only Sutter County plans, policies, regulations, and ordinances are presented in this section.

Sutter County General Plan

The following policies from the Sutter County General Plan (Sutter County 1996) regarding the provision of public services are applicable to the proposed project:

- ▶ **GOAL 3.A:** To properly serve the residents and developments with efficient public facilities, utilities and services.
 - **Policy 3.A-2:** The County shall require that adequate public facilities and services be available to serve new development. The County shall not approve new development where existing facilities are inadequate unless both of the following conditions are met:
 - A. The applicant can demonstrate that all necessary public facilities will be installed prior to the issuance of a certificate of occupancy or adequately financed through fees or other means.
 - B. Proposed facility improvements are consistent with applicable facility plans approved by the County or have been reviewed and approved by the County.
 - **Policy 3.A-3:** Public facilities and services for new urban and suburban residential development shall be provided by an entity other than Sutter County.
- ▶ **GOAL 3.F:** To protect the citizens of Sutter County from criminal activity and deter the incidence of crime.

- ▶ **GOAL 3.G:** To minimize the risk of personal injury and property damage resulting from fire and provide for emergency medical response when, and to the extent, determined appropriate by the governing body.
 - **Policy 3.G-2:** The County will strive to ensure that all proposed development applications are reviewed for compliance with adopted fire safety standards.
- ▶ **GOAL 3.H:** To provide for the educational needs of Sutter County residents.
 - **Policy 3.H-4:** The County shall encourage the construction of residential subdivisions in logical phases that are coordinated with school facility expansion and/or construction.
 - **Policy 3.H-6:** The County and the School District should work cooperatively to plan for the location of school sites in tandem with park sites for shared school and park use.

3.8.2 ENVIRONMENTAL SETTING

The off-site elements of the proposed project are related to the provision of utilities to the project site. Because they are unrelated to the provision of public services to the site, they are not discussed further in this section.

Setting information regarding school services, fire protection services, law enforcement services, and judicial services was obtained from the *Sutter County General Plan Update Technical Background Report* (Sutter County 2008). Information regarding public health services, mental health services, and social services was provided by Sutter County Human Services (Smith, pers. comm., 2007). The Sutter Pointe Urban Services Plan and Sutter Pointe Public Facilities Financing Plan, both appendices to the *Sutter Pointe Specific Plan* and both in draft stage, provided background and detail.

FIRE PROTECTION SERVICES

In Sutter County, fire protection and emergency services are provided by four county service areas (CSAs) and two independent fire protection districts. The four CSAs, which are governed by the Sutter County Board of Supervisors and directed by the fire chief, are CSA-C, CSA-D, CSA-F, and CSA-G. The other two districts serving Sutter County are the Meridian Fire Protection District and Sutter Basin Fire Protection District. Both districts have their own independent governing boards.

In addition to fire suppression operations, the fire districts in Sutter County provide medical aid at the basic life support level with the ability to perform emergency cardiac shock (defibrillation). CSA-F has a Hazardous Materials Response Team with equipment and personnel trained to mitigate hazardous materials releases. Other services provided include technical rescue capabilities and public education programs promoting fire safety at all local elementary schools (Sutter County Fire Services 2008).

The Sutter County Fire Chief and two captains oversee operations and service to approximately 360 square miles in CSAs-C, -D, and -F. CSA-G is operated by the Yuba City Fire Department. The Sutter County Fire Chief is also responsible for all budgetary allocations and future funding mechanisms for all service areas except for CSA-G, which is funded through the Yuba City Fire Department. The Meridian and the Sutter Basin districts are independent fire protection districts with separate funding not overseen by the Sutter County Fire Chief.

Mutual aid agreements are established between all the CSDs and fire protection districts to address any major fire incident in both the incorporated and unincorporated areas of Sutter County. The internal mutual aid agreement provides for automatic sharing of emergency resources between adjacent agencies. Sutter County and its fire departments depend heavily on volunteer firefighters and mutual aid. In addition, the Sutter County Fire Department has established mutual aid agreements with neighboring Yuba and Yolo Counties to assist as needed during major fire incidents. These agreements allow them to draw personnel and equipment from either County,

as necessary. Sutter County also participates in a statewide master mutual aid agreement. When possible, the County will provide emergency services anywhere in the state for events such as forest fires.

Sutter County CSA-D, the service area in which the project site is located, was formed by the County in 1963 to provide fire protection services to the rural area north of the Sacramento County line between Placer County and the Feather River (Sutter County 2006). CSA-D offers fire protection to its residents with two fire stations staffed by volunteers: Pleasant Grove Fire Stations 9 and 9-2. Pleasant Grove Fire Station 9 is located at 3100 Howsley Road in the community of Pleasant Grove, approximately 2½ miles north of the project site. It is a volunteer station staffed by 18 volunteers and one seasonal firefighter used by CSAs-C and -D during the 1-month harvest season. Pleasant Grove Fire Station 9-2, located at 3479 Sankey Road in the northern portion of the project site, shares volunteer staff members with the Pleasant Grove Fire Station 9. The Pleasant Grove Firefighter's Association owns both stations, which are rented by the County. CSA-D's equipment includes three type 1 engines, one type 3 engine, one water tender, one squad (1-ton pickup), and one utility vehicle. Type 1 engines have a 1,000-gallon-per-minute pump or greater, type 3 engines have 120- to 500-gallon-per-minute pumps, and a water tender is designed to carry water to a site with a tank capacity of at least 1,000 gallons. CSA-D has a collective apparatus (rolling stock) replacement schedule that tracks the age and the replacement date of each piece of equipment (Sutter County 2006). The day-to-day operations at both stations are overseen by the volunteer fire chiefs. Because the firefighting staff is predominantly volunteer, average response times are not regularly calculated for the service area.

According to the draft financing plan, average response times and service ratios are not available for CSA-D; however, for the county as a whole, the County strives to provide a 6-minute response time 90% of the time and provide an average service level of 1.02 sworn firefighters and 0.9 support personnel per 1,000 population. However, since the financing plan has not been finalized and the County has not adopted such standards, these remain guidelines rather than goals.

In 2006, CSA-D received a total of 237 calls for service (Sutter County 2008). Fire suppression and medical aid were the most often required services. The relatively small number of calls is attributable to the small population of the district. Because it is sparsely populated, there are no fire hydrant systems in the area. All water for fire suppression comes from the use of wells (Sutter County 2006).

The Insurance Services Office (ISO) assigns a numerical rating to all fire stations in the United States based on various factors. Factors include response times, training, condition of equipment, and condition of facilities. In each community, the ISO analyzes relevant data and assigns a Public Protection Classification, a number from 1 to 10. Class 1 represents exemplary fire protection, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria. The lower the ISO rating number, the less a property owner pays for fire insurance, and the higher the rating number, the more costly the insurance (Sutter County 2006). The ISO rating for both stations in CSA-D is 8 for structures within 5 miles of a station and 10 for structures farther than 5 miles from a station.

Funding for CSA-D is provided primarily through property tax, with small contributions from apportioned interest, state revenues, and other services (Sutter County 2006).

An important requirement for fire suppression is adequate fire flow, which is the amount of water, expressed in gallons per minute (gpm), available to control a given fire and the length of time that this flow is available. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the California Fire Code.

LAW ENFORCEMENT SERVICES

The Sutter County Sheriff's Department (Sheriff's Department) is responsible for providing law enforcement services to the unincorporated county area. It is also contracted to provide service to the city of Live Oak. The California Highway Patrol (CHP) provides traffic enforcement on all highways and roadways in the unincorporated area. Additional law enforcement services are provided to the county through the District Attorney's office. The Yuba City Police Department provides all law enforcement services in the incorporated city of Yuba City.

One Sheriff's Department dispatch center and one substation located in Sutter County provide service to the unincorporated county area and to the city of Live Oak. The dispatch center is located at 1077 Civic Center Boulevard at the Sutter County offices in Yuba City. This location houses the Sheriff's Department headquarters and dispatch office that serves as the hub of all dispatch activity for both law enforcement and fire protection services for Sutter County. The Sheriff's Department also has a substation located at 9867 O Street in the city of Live Oak. The Live Oak substation does not have its own dispatch center; all calls are routed through the dispatch center in Yuba City. The nearest CHP office is located at 1619 Poole Road, Yuba City, approximately 25 miles north of the project site.

The Sutter County Sheriff's Department is authorized to staff 58 sworn deputies, 54 correctional officers, and 34 civilian staff members. Correctional officers do not have peace officer powers (they cannot make arrests) and work exclusively in the jail or as court bailiffs. As of January 1, 2008, the Sheriff's Department had 51 sworn deputies, 47 sworn correctional officers, and 33 civilian staff members. The Sheriff's Department's adopted officer-to-citizen ratio is 1.1 sworn officers per 1,000 persons and 0.06 support personnel per 1,000 persons (ratio based on population, including the incorporated areas of Sutter County). When officer-to-citizen ratios are determined, only fully sworn deputies are accounted for in the determination. As of 2008, the current officer-to-citizen ratio is approximately 1.6 sworn officers per 1,000 persons for the Sheriff's Department service area, which includes unincorporated county area and the city of Live Oak.

The Sheriff's Department has four main divisions: Patrol, Detective, Support Services, and Jail. The Patrol Division is led by the patrol captain, who is responsible for the budget, personnel, and special units. These units consist of the Boat Patrol, Live Oak Contract, Search and Rescue, Dive Team, Swift Water Rescue Team, Canine, Special Enforcement Detail Team (SED), Reserves, Cadets, Posse, and the Citizen Volunteers. The Patrol Division has a total staff of 44 composed of 35 deputies, six sergeants, two lieutenants and one captain. The Detective Division is responsible primarily for felony investigations, coroner investigations, internal investigations, and any public administration cases. The division commander oversees a staff of two detective sergeants, four detectives, one evidence officer, and two narcotic enforcement team detectives. The 25 sworn and nonsworn personnel in the Support Services Division service the Dispatch Center, Records Division, Civil Division, and Training. The Jail Division is charged to ensure public safety through the secure detention of those persons committed to custody. The main jail is located at 1077 Civic Center Boulevard in Yuba City. The Sutter County Jail personnel consist of five correctional sergeants, 47 correctional officers, six kitchen staff members, six jail nurses, one outside work release coordinator, and the jail secretary, who works under the direction of the jail commander and a lieutenant (Sutter County Sheriff's Department 2008).

Sheriff's Department deputies patrol the county's 10 beats in solo units (one deputy per unit). The project site is located in the south end of Sheriff's Beat 10 (Pleasant Grove/Nicolaus/Rio Oso area). Usually, a deputy is assigned to cover this beat and sometimes the adjoining beat (Beat 9), which covers the Robbins basin area. The deputies patrol during 12-hour shifts, and the Beat 10 deputy is responsible for the south county area (Denney, pers. comm., 2007).

Responses to emergency calls are prioritized according to urgency, with priority I and II calls being the most urgent calls in need of response. The Sheriff's Department response time for 2006 priority I calls averaged 8 minutes, 11 seconds, and priority II calls averaged 9 minutes, 54 seconds. Although no response time standard is

codified, the Sheriff's Department has a response time goal of 7 minutes or less on priority I calls. Current response time to the project site, depending on workload fluctuations, is 5–20 minutes. Response from the main office is at least 25 minutes (Denney, pers. comm., 2007).

SCHOOL SERVICES

The project site is located in Pleasant Grove Joint Union School District and East Nicolaus Joint Union High School District. Pleasant Grove Joint Union School District provides education services for kindergarten through eighth-grade students, and East Nicolaus Joint Union High School District provides education services for high school students.

Pleasant Grove Elementary School, located at 3075 Howsley Road in Pleasant Grove, is the elementary school nearest to the project site, located approximately 2 miles north of the site. Enrollment for the 2006–2007 school year was 155 students, with an estimated capacity of 200 students. The school's teacher-to-student ratio is 1:20.6.

East Nicolaus Joint Union High School District contains one high school (East Nicolaus Joint Union High School, which serves grades 9–12) and one continuation school (Three Rivers Continuation High School, which serves grades 10–12). East Nicolaus Joint Union High School, located at 2454 Nicolaus Avenue in East Nicolaus, is located approximately 8 miles north of the project site. Enrollment for the 2006–2007 school year was 317 students, with an estimated capacity for 450 students. Three Rivers Continuation High School, located at 2378 Nicolaus Avenue in Nicolaus, is also located approximately 8 miles north of the project site. Enrollment for the 2006–2007 school year was 15 students, with an estimated capacity for 50 students. The average teacher-to-student ratio for the two high schools is 1:19.5.

None of the school districts have plans for new school facilities. Future expansions for areas such as East Nicolaus Joint Union High School District will be examined as development occurs and enrollments increase. Development fees will account for some of the school facilities funding that will be used in high-growth areas.

LIBRARY SERVICES

Sutter County Library has five branches to provide library service to the rural areas of the county and to provide reciprocal access by residents of both Yuba City and Live Oak. The main branch is located in Yuba City. Other branch offices are located in the city of Live Oak and in the communities of Pleasant Grove, Rio Oso, and Sutter (Sutter County 2007). The branch closest to the project site is the Pleasant Grove Branch, located at 3093 Howsley Road in Pleasant Grove, approximately 2 miles north of the project site.

Sutter County Library provides information assistance; a children's library; children's reading programs; and access to books, periodicals, audiovisual materials, and on-line resources. Its systems are integrated with the Sacramento Public Library system for online catalog searches and account management (Sutter County 2007).

As of 2007, Sutter County libraries do not have per capita standards to define adequate levels of library space or holdings. In addition, it is important to note that "adequate" square footage varies for each branch depending on the services it offers. No new library facilities are planned in Sutter County (Sutter County 2008).

JUDICIAL SERVICES

Criminal Justice includes the Sutter County Probation Department, Sutter County Courts, and the District Attorney's office. The District Attorney's office prosecutes all individuals, both adult and juvenile, accused of felonies, misdemeanors, and infractions occurring in the county. The office is located on Second Street in Yuba City. The County courthouse offices are split into two locations, with Courthouse West housing the administrative and criminal trial and jury processing and Courthouse East housing civil suits, small claims, and human resources. Both sections of the courthouse are located on Second Street.

The Incarceration Department is part of the Sutter County Probation Department and is divided into four basic units: Adult Services, Juvenile Services, Prevention Services, and Administrative Services. The Adult and Juvenile Services include supervision and investigation. Prevention Services include probation officers assigned to Andros Karperos and Gray Avenue Middle Schools, Feather River Academy, and Positive Attendance with Yuba City Unified School District.

The Sutter County jail commander and a lieutenant oversee personnel consisting of five correctional sergeants, 47 correctional officers, six jail nurses, and one outside work release coordinator. The jail personnel perform specialty assignments in addition to maintaining the care and custody of the inmates, including assignments related to transportation, the jail reserve program, and hostage negotiations.

The Sutter County Main Jail is located at 1077 Civic Center Boulevard in Yuba City. The main portion of the jail was built in 1977 and has had several construction modifications since then. The Sheriff's Department has indicated that it is requesting a building expansion. The request does not appear to be tied to capacity issues; the current county jail has a capacity of 352 inmates. The average inmate population is 286 inmates.

The Yuba-Sutter Juvenile Hall is a bicounty facility serving both Yuba and Sutter Counties. The facility is located on 14th Street in Marysville. The Juvenile Courts, Juvenile Justice Commissions, and Juvenile Probation Departments of both counties govern this facility. The Yuba-Sutter Juvenile Hall is a 45-bed detention facility for offenders under 18 years of age. Comprehensive correctional service programs, educational, and mental health services are provided to residents.

PUBLIC HEALTH SERVICES

Public health services in Sutter County are provided by the Public Health & Clinical Services Division of the Sutter County Human Services Department in Yuba City. The division consists of Administration, Public Health Nursing, Public Health Laboratory Services, and Special Health Programs/Health Education. These services are generally directed toward the identification, removal, and control of the causes of disease that affect the community as a whole. The Public Health & Clinical Services Division provides an out-patient medical clinic, immunizations for children and adults, general support to families with children with handicaps, nutritional support for expectant mothers, and control and monitoring for infectious disease. Current staffing for these services is 65 for the current county population of approximately 90,000. Most services are provided at the Public Health & Clinical Services Division facility, located at 1445 Veterans Memorial Circle in Yuba City. The County also provides a small amount of in-home nursing service.

Approximately 50% of the funding for public health services is provided through the county general fund. Funds also are provided through vehicle license fees, state sales tax, and revenues from patient fees.

MENTAL HEALTH SERVICES

Mental health services in Sutter and Yuba Counties are provided by Sutter-Yuba Mental Health Services, a branch of the Sutter County Human Services Department, in Yuba City. Sutter-Yuba Mental Health Services provides in-patient and out-patient psychiatric care for children and adults and substance abuse treatment services. The programs offer direct services to patients and families, and they maintain contracts with various community organizations that provide services to the bicounty population. Current staffing for these services is 200 for Yuba and Sutter Counties plus approximately 50 contract employees. Most services are provided at the Sutter-Yuba Mental Health Services facility, located at 1965 Live Oak Boulevard in Yuba City.

Mental health services receive funding from a number of sources, including patient fees, which are covered primarily by Medi-Cal, Medicare, and insurance. Additional funding sources include state sales tax and other federal sources, including the Early Periodic Screening, Diagnosis, and Treatment Program, which is the child health component of Medicaid.

SOCIAL SERVICES

Social services in Sutter County are provided by the Welfare & Social Division of the Sutter County Human Services Department. Most of the services are provided at several locations in Yuba City (190 Garden Highway, 1965 Live Oak Boulevard, and 539 Garden Highway). Outreach services are provided throughout the county. Services include protection of fragile adults and abused/neglected children; support of foster and adoptive parents; determination of eligibility for food stamps; temporary assistance to needy families; Medi-Cal, County Medical Service Program, and employment services; and conservatorship/guardianship services. Current staffing for these services is 160 for the current county population of approximately 90,000.

Approximately 50% of funding for social services is provided through federal funding, 30% through state funding, and 20% through the general fund.

3.8.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Impacts on public services that would result from implementing the proposed project were identified by comparing existing service capacity and facilities against future demand associated with project implementation. Evaluation of potential public service impacts was based on a review of documents pertaining to the project site and vicinity, including the *Sutter County General Plan* and *Sutter County General Plan Update Technical Background Report*. Additional background information on current services, staffing, and equipment was obtained through consultation with appropriate agencies, including Sutter County. As described in Chapter 2, “Project Description,” new public services proposed for the project site would be provided by a CSA. The boundaries of existing dependent special districts would be adjusted to be consistent with the project site and the proposed CSA. The project site ultimately would be incorporated, and responsibility for public services that would be administered by the CSA on the project site would be transferred to the new city upon incorporation.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on questions in Appendix G of the State CEQA Guidelines and as requested by the County. A public services impact is considered significant if implementation of the proposed project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

- ▶ fire protection services,
- ▶ law enforcement services,
- ▶ school services,
- ▶ library services,
- ▶ judicial services,
- ▶ public health services,
- ▶ mental health services, and
- ▶ social services.

The provision of all new or physically altered governmental facilities intended to meet the increased demand for public services would occur on-site. Many of the facilities are proposed to be located in the on-site government center; others, such as those facilities associated with fire protection and school services, are proposed for several locations on the project site. Because all these facilities would be confined to the project site and this EIR already

anticipates and addresses the physical environmental impacts of construction and operation of these facilities (along with development of the project in general) in other sections of the EIR (e.g., Section 3.4, “Air Quality”; Section 3.13, “Biological Resources”), these physical impacts are not addressed further in this section.

Although CEQA is concerned only with physical environmental impacts resulting from construction related to the provision of public services, the County, in preparing this DEIR, has nevertheless included, for purposes of full disclosure, discussion of how well the proposed project would meet service ratios, response times, or other performance objectives.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.8-1 **Temporary Obstruction of Roadways during Construction.** *Project implementation could obstruct roadways in the project vicinity during construction, potentially blocking or slowing emergency vehicles attempting to access the area.*

On-Site and Off-Site Elements

Project implementation would involve construction activities of varying levels over a 20- to 30-year period, depending on market conditions and absorption. Although most of the project construction activities would occur on-site, the proposed project involves a variety of roadway improvement and infrastructure elements that would occur off-site. Nearby roadways such as Powerline Road, State Route (SR) 99/70, and Natomas Levee Road would be affected by roadway improvements (see Section 3.3, “Transportation and Circulation”). Among the off-site elements, construction of the sewer force mains would affect a variety of roadways east and southeast of the project site, including Pleasant Grove Road, Rio Linda Boulevard, and Second Street. Ongoing construction activities could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing service. Potential obstruction of roadways during construction is a **direct, significant** impact. **No indirect** impacts would occur.

Mitigation Measure 3.8-1: Prepare and Implement Construction Traffic Control Plans.

On-Site and Off-Site Elements

The project applicant(s) and/or project contractor(s) of all project phases shall prepare and implement construction traffic control plans for construction activities that may affect road rights-of-way. The traffic control plans must follow any applicable standards of the agency responsible for the affected roadway and must be signed by a professional engineer. Measures typically identified in traffic control plans include advertising planned lane closures, posting warning signage, using a flagperson to direct traffic flows when needed, and implementing methods to ensure continued access by emergency vehicles. During project construction, access to existing land uses shall be maintained at all times, with detours used as necessary during road closures. The traffic control plans shall be submitted to the applicable county public works department or Caltrans (for SR 99/70), depending on jurisdiction, for review and approval before the approval of all project plans or permits for all project phases, including off-site elements, where implementation may cause impacts on existing traffic flow.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: Before the approval of all relevant plans and/or permits and during construction for all project phases, including off-site elements.

Enforcement: Applicable county public works department and Caltrans (for SR 99/70).

Significance after Mitigation

Implementation of Mitigation Measure 3.8-1 would reduce the significant impact associated with roadways/highways being temporarily obstructed during construction to a **less-than-significant** level by requiring preparation and implementation of a construction traffic control plan that would provide for adequate emergency access during construction activities.

IMPACT 3.8-2 Increased Demand for Fire Protection Facilities, Systems, Equipment, and Services. *Project development would result in increased demand for fire protection facilities and services, potentially resulting in the need for additional staff members, facilities, and equipment to maintain an adequate level of service.*

On-Site Elements

Project implementation would result in a need for additional fire protection facilities and personnel to serve the project site. During initial project development, Pleasant Grove Fire Stations 9 and 9-2 would continue to provide first-response service to the project site. Fire Station 9 is located approximately 2½ miles from the project site, on Howsley Road, and Fire Station 9-2 is located less than 1 mile from the site, on Sankey Road.

Three fire stations are proposed for the project site: one west of SR 99/70 in the South Employment Village, one south of Sankey Road in the North Employment Village, and one south of Riego Road in the Mid-Riego Neighborhood Center. Together, these fire stations would have approximately 32,050 square feet of fire protection facilities, including space to support at least 61 uniformed personnel, 15 support staff members, and 23 vehicles. As stated previously, the County strives to provide an average service level of 1.02 sworn firefighters and 0.9 support personnel per 1,000 population and to provide a 6-minute response time 90% of the time. Timing of construction and staffing of each fire station would be completed in a manner that maintains Sutter County Fire Services response standards.

As contemplated by Measure M, the full cost to provide fire protection facilities and equipment to the project site would be paid for by project development, without reducing current service levels. For information regarding the provision of public services and facilities to the project site, including details on funding, see the draft urban services plan and the draft public facilities financing plan, which are included as appendices to the Specific Plan. The urban services plan and financing plan describe phasing of service provision to the project, including phasing of fire facilities, to ensure that adequate response time is maintained at all stages of project development.

As described previously, the impacts of constructing these facilities are addressed throughout this EIR in connection with discussions of the impacts of overall site development.

Because Sutter County Fire Services response standards would be maintained and full funding would be paid for by project development, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Although no mitigation measures are required to address this less-than-significant impact, the County has chosen to include a mitigation measure in response to a recommendation included in the preliminary draft of Sutter Pointe Specific Plan Fire Protection Recommendations (Diekman 2008) to address the risk of fire on the project site at the interface between developed and undeveloped lands.

Off-Site Elements

Development of the off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for fire protection facilities, systems, equipment, and services. **No indirect** impacts would occur.

Mitigation Measure 3.8-2: Prepare and Implement a Wildfire Management Plan.

On-Site Elements

The project applicant(s) and/or project contractor(s) of all project phases shall prepare and implement a wildfire management plan. The plan would be aimed at providing fire protection for those developing properties that are adjacent to lands that are not developed. Measures typically identified in wildfire management plans include construction requirements for buildings adjacent to open space or undeveloped land and standards for vegetative establishment and maintenance.

Implementation: Project applicant(s) of all project phases.

Timing: Before the approval of all relevant plans and/or permits.

Enforcement: Sutter County Fire Services.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Although no mitigation measures are required to address this less-than-significant impact, Mitigation Measure 3.8-2 was identified by the County in response to a recommendation included in the preliminary draft of Sutter Pointe Specific Plan Fire Protection Recommendations (Diekman 2008) to address the risk of fire on the project site at the interface between developed and undeveloped lands. This impact remains **less than significant** after implementation of mitigation.

IMPACT 3.8-3	<i>Increased Demand for Fire Flow. Project implementation would include the development of residential, commercial, school, and other uses that would require adequate available water flow for fire suppression. Lack of adequate fire flow would impede the ability of Sutter County Fire Services to provide effective fire suppression at the project site.</i>

On-Site Elements

Project implementation would include the development of a diverse mix of land uses, including employment centers, different housing types, retail shopping, schools, and other uses that would require adequate available water flow for fire suppression. Sutter County Public Works Design Standards identify the domestic water supply standards for meeting emergency fire flow demand. Fire flow requirements for the type of development associated with the proposed project are 1,500 gallons per minute (gpm) for low- and medium-density residential (2-hour duration), 2,500 gpm for high-density residential (3-hour duration), 3,000 gpm for commercial/office and light industrial (3-hour duration), and 4,000 gpm for schools (4-hour duration). Lack of adequate fire flow would impede the ability of Sutter County Fire Services to provide effective fire suppression service at the project site. Increased demands for fire flow are a **direct, significant** impact. **No indirect** impacts would occur.

Off-Site Elements

Development of the off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for fire flow. **No indirect** impacts would occur.

Mitigation Measure 3.8-3: Incorporate Fire Flow Requirements into Project Design.

On-Site Elements

The project applicant(s) of all project phases shall incorporate into their project designs fire flow requirements based on the California Fire Code and other applicable requirements based on Sutter County fire prevention standards. A letter from Sutter County shall be obtained verifying that adequate water is available for fire flow for the project site.

- Implementation:** Project applicant(s) of all project phases.
- Timing:** Before the approval of all relevant plans and/or permits.
- Enforcement:** Sutter County Public Works Department for the project site.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.8-3 would reduce the significant impact associated with inadequate fire flow requirements to a **less-than-significant** level by requiring that fire flow requirements be incorporated into the project design.

IMPACT 3.8-4 Increased Demand for Law Enforcement Protection Facilities, Services, and Equipment. *Project development would increase the demand for law enforcement protection facilities and services, resulting in the need for additional staff members and equipment to maintain an adequate level of service.*

On-Site Elements

Project implementation would result in a need for additional law enforcement protection facilities and personnel to serve the project site. As described previously, the impacts of constructing these facilities are addressed throughout this EIR in connection with discussions of the impacts of overall site development.

The Sutter County Sheriff’s Department provides first-response service to the site. One Sheriff’s Department dispatch center and one substation located in Sutter County provide service to the unincorporated county area. Current response time to the project site, depending on workload fluctuations, is 5–20 minutes. Response from the main office is at least 25 minutes (Denney, pers. comm., 2007).

The County would continue to provide law enforcement services to the project site through a dependent or independent special district (a CSA or some other county agency). Law enforcement services may be provided by the new city government upon incorporation. Approximately 24,000 square feet of law enforcement facilities are proposed in the government center, including space to support at least 52 uniformed personnel, 29 support staff members, and 45 vehicles. However, other details regarding whether the provision of law enforcement services is adequate, including the phasing of service provision, are uncertain at this time. As the project site and vicinity turn from rural to urban over time, it can be reasonably expected that crime and safety issues would become more prevalent, especially if portions of the site remain partially developed over extended periods of time. A mechanism for the timing of provision of adequate services to match the timing of demand has not been identified by the project or the County.

As contemplated by Measure M, the full cost to provide police protection facilities and equipment to the project site would be paid for by project development, without reducing current service levels. For information regarding the provision of public services and facilities to the project site, including details on funding, see the draft urban services plan and the draft public facilities financing plan, which are included as appendices to the Specific Plan.

Full funding of these services would be paid for by project development; however, because of uncertainty regarding specifically how Sutter County Police Department response standards would be maintained, this **direct** impact is **significant**. **No indirect** impacts would occur.

Off-Site Elements

Development of the off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for law enforcement facilities, services, and equipment. **No indirect** impacts would occur.

Mitigation Measure 3.8-4: Incorporate Recommendations of Applicable Law Enforcement Agencies into Project Design.

On-Site Elements

The project applicant(s) of all project phases shall consult with the Sheriff's Department and other law enforcement agencies with jurisdiction over the site. The applicant(s) shall incorporate into the project design, to the extent feasible, the recommendations of these agencies. Consultation shall occur as part of each subdivision map review, and each subdivision shall be modified to include the requirements from the consultation.

Implementation: Project applicant(s) of all project phases.

Timing: During review of subdivision maps.

Enforcement: Sutter County Sheriff's Department and other applicable law enforcement agencies.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.8-4 would reduce the significant impact associated with inadequate law enforcement protection facilities, services, and equipment to a **less-than-significant** level by requiring that all applicable law enforcement agencies be consulted and their recommendations included into the project design.

IMPACT Increased Demand for School Facilities and Services. *Project implementation would increase demand for*
3.8-5 *elementary and high schools to serve the project site.*

On-Site Elements

The project site is located in Pleasant Grove Joint Union School District and East Nicolaus Joint Union High School District. Pleasant Grove Joint Union School District provides education services for kindergarten through eighth-grade students, and East Nicolaus Joint Union High School District provides education services for high school students. Pleasant Grove Elementary School is the elementary school nearest to the project site, located approximately 2 miles north of the site. Enrollment for the 2006–2007 school year was 155 students, with an estimated capacity of 200 students. East Nicolaus Joint Union High School District contains one high school (East

Nicolaus Joint Union High School, which serves grades 9–12) and one continuation school (Three Rivers Continuation High School, which serves grades 10–12), both located approximately 8 miles from the project site. Combined enrollment for these two high schools for the 2006–2007 school year was 332 students, with an estimated capacity of 500 students.

Six K–8 school sites are planned for the proposed project and would be part of the Pleasant Grove Joint Union School District. The school sites are approximately 20 acres each, and each school would have the capacity to serve 1,050, for a total capacity to serve 6,300 grade school students.

One 53-acre high school campus site is planned on-site and would serve approximately 2,000 students. This high school would be part of the East Nicolaus Joint Union High School District.

Based on student-yield generation rates shown in Table 3.8-1, implementation of the proposed project would generate an estimated 6,228 new elementary school students (grades K–8) and an estimated 1,887 new high school students (grades 9–12) at project buildout. The yield rates presented in Table 3.8-1 are estimates; actual yield rates would need to be reviewed as housing comes online.

Table 3.8-1 Student Generation Statistics for Pleasant Grove Joint Union School District and East Nicolaus Joint Union High School District								
Dwelling Type	Dwelling Units	Grade K–5 Yield (Students per Dwelling Unit)	Grade K–5 Students	Grade 6–8 Yield (Students per Dwelling Unit)	Grade 6–8 Students	Grade K–8 Students	Grade 9–12 Yield (Students per Dwelling Unit)	Grade 9–12 Students
Single family	10,475	0.34	3,562	0.15	1,571	5,133	0.161	1,686
Multifamily	4,025	0.184	741	0.088	354	1,095	0.05	201
Senior	3,000	--	--	--	--	--	--	--
Total	17,500					6,228		1,887
Source: Reynard, pers. comm., 2007								

As identified above, the elementary schools proposed on-site would accommodate approximately 6,300 students, and the proposed high school would accommodate approximately 2,000 students.. The proposed elementary and high schools would have capacity sufficient to meet the demands generated by the project, and no long-term shortfall of elementary or high school services and facilities would result.

As described previously, the impacts of constructing these facilities are addressed throughout this EIR in connection with discussions of the impacts of overall site development. As required by state law, the project applicant(s) would have to pay school impact fees, which would be allocated to Pleasant Grove Joint Union School District and East Nicolaus Joint Union High School District. These school districts would be responsible for constructing the facilities needed to serve this project. Although the school impact fees are often insufficient to fund 100% of new school facility construction and operation, the California State Legislature has declared the school impact fee to be full and adequate mitigation under CEQA. Under California Government Code Section 65996, the County is limited to charging the statutorily created fee to offset impacts on local school districts generated by proposed projects. Section 65996 does not provide for remediation of existing deficiencies in school services. Construction of the proposed elementary schools and high school and payment of school impact fees would result in a **direct, less-than-significant** impact on school services and facilities as defined by CEQA. **No indirect** impacts would occur.

Off-Site Elements

Development of the proposed off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for school facilities and services. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.8-6 Increased Demand for Library Services. *Project implementation would increase demand for library services at the project site.*

On-Site Elements

Sutter County Library provides library services to the project site at the Pleasant Grove Branch, located approximately 2 miles north of the site. In addition to this library, a new central library is proposed for the project site that would have approximately 24000 square feet, space sufficient for approximately 200,000 volumes and 14 full-time equivalent employees. It would be a joint-use library located in the proposed high school. This new library would be intended to meet the library needs of the proposed project; additional off-site library facilities are not proposed. If a joint-use community library is not acceptable, a separate 12,000-square-foot community library would be constructed, and the new high school would have a 12,000-square-foot library.

As of 2007, Sutter County libraries do not have per capita standards to define adequate levels of library space or holdings. In addition, the amount of square footage identified as adequate varies for each branch depending on the services it offers.

As described previously, the impacts of constructing these facilities are addressed throughout this EIR in connection with discussions of the impacts of overall site development.

As contemplated by Measure M, the full cost to provide library services to the project site would be paid for by project development, without reducing current service levels. Because the proposed project includes new library facilities to serve the new residential development, and because full library funding would be provided by project development, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Development of the off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for library services. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.8-7 Increased Demand for Judicial, Public Health, Mental Health, and Social Services. *Project implementation would increase demand for judicial, public health, mental health, and social services in Sutter County.*

On-Site Elements

Judicial, public health, mental health, and social services in Sutter County are provided by a variety of departments, offices, and facilities. Implementation of the proposed project, which would bring an estimated 46,900 new residents to the county at buildout, would increase the demand for these services.

Funding for these services is provided by a variety of federal, state, and county resources, including fees and property and other taxes generated in the county. A portion of the funding is also provided by the individuals receiving the services. Implementing the proposed project would have no impact on the percentage of service funding provided by federal and state resources, so this discussion assumes that those percentages would be unchanged as demand for these services increases with implementation of the proposed project. Revenue generated in the County to fund these services would increase substantially as revenue from fees, property and other taxes, and other sources increased with the growing population on the project site. These increased revenues may be sufficient to fund the cost of expanding these services to meet the demand generated by the proposed project. If the additional county revenue would not fully cover the additional costs required to maintain the level of these services, any additional costs would be paid for by project development without reducing current service levels, as contemplated by Measure M. The location of facilities would be at the ultimate discretion of the County during the tentative map approval stage, and any off-site locations would be subject to environmental review, also at the discretion of the County. As described previously, the impacts of constructing these facilities are addressed throughout this EIR in connection with discussions of the impacts of overall site development.

Because the level of these services provided by Sutter County would be maintained and the cost of funding these services is included in Measure M, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Development of the off-site elements would not affect population on the project site and therefore would have **no direct** impact on the demand for judicial, public health, mental health, and social services. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

Additional Detailed On-Site Analysis – Impacts and Mitigation Measures

No additional detail related to public services beyond the program level is available at this time; therefore, a more detailed analysis is not provided in this DEIR.

3.8.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures described above, project implementation would not result in any residual significant impacts related to fire protection; law enforcement; public schools; libraries; or judicial, public health, mental health, and social services.

3.9 WATER SUPPLY

This section describes the potable water supply and conveyance systems that would be required to support the proposed project in accordance with the policies of the Sutter County General Plan and Measure M. Impacts are evaluated in relation to the increased demand for potable water associated with the proposed project and actions needed to provide the service that could potentially lead to physical environmental effects.

Potential environmental impacts associated with increased demand for sewer; solid waste; and dry utilities, including gas, electricity, communications, and cable television service are addressed in Section 3.10, “Public Utilities,” and impacts associated with water quality and construction of new stormwater drainage facilities are addressed in Section 3.7, “Hydrology and Water Quality.”

3.9.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws related to public utilities are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bills 610 and 221

The State of California has enacted legislation that is applicable to the consideration of larger projects under CEQA. Senate Bill (SB) 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of “water supply assessments” (WSAs) for large developments (i.e., more than 500 dwelling units or nonresidential equivalent), such as the Sutter Pointe Specific Plan. These assessments, prepared by “public water systems” responsible for serving project areas (in this case, Sutter County), address whether existing and projected water supplies are adequate to serve the project while also meeting existing urban and agricultural demands and the needs of other anticipated development in the service area in which the project is located. If the most recently adopted Urban Water Management Plan (UWMP) accounted for the projected water demand associated with the project, the public water system may incorporate the requested information from the UWMP. If the UWMP did not account for the project’s water demand, or if the public water system has no UWMP, the project’s WSA shall discuss whether the system’s total projected water supplies (available during normal, single-dry, and multiple-dry water years during a 20-year projection) would meet the project’s water demand in addition to the system’s existing and planned future uses, including agricultural and manufacturing uses.

A WSA has been prepared for the proposed project (Tully & Young 2008, on behalf of the County) and is included as Appendix C to this DEIR. The conclusions of the WSA are summarized in Section 3.9.3, “Impacts and Mitigation Measures.”

Where a WSA concludes that insufficient supplies are available, the public water system must provide to the city or county considering the development project (Sutter County) its plans for acquiring and developing additional water supplies. Based on all the information in the record relating to the project, including all applicable WSAs and all other information provided by the relevant public water systems, the city or county must determine whether sufficient water supplies are available to meet the demands of the project, in addition to existing and planned future uses. Where a WSA concludes that insufficient supplies are available, the WSA must lay out the steps that would be required to obtain the necessary supply. The WSA is required to include (but is not limited to) identification of the existing and future water supplies over a 20-year projection period. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but it does require a lead agency to address a water supply shortfall in its project findings.

If the proposed project is approved, additional complementary statutory requirements, created by 2001 legislation known as SB 221 (Government Code Section 66473.7), would apply to the approval of tentative subdivision maps for more than 500 residential dwelling units. This statute requires cities and counties to include, as a condition of approval of such tentative maps, the preparation of a “water supply verification.” The verification, which must be completed by no later than the time of approval of final maps, is intended to demonstrate that there is a sufficient water supply for the newly created residential lots. The statute defines sufficient water supply as follows:

... the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection period that would meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.

A number of factors must be considered in determining the sufficiency of projected supplies:

- ▶ the availability of water supplies over a historical record of at least 20 years;
- ▶ the applicability of an urban-water-shortage contingency analysis that includes action to be undertaken by the public water system in response to water supply shortages;
- ▶ the reduction in water supply allocated to a specific water-use sector under a resolution or ordinance adopted or a contract entered into by the public water system, as long as that resolution, ordinance, or contract does not conflict with statutory provisions giving priority to water needed for domestic use, sanitation, and fire protection; and
- ▶ the amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento counties and are related to the provision of utilities to the project site. They would not involve construction of new housing in Placer or Sacramento counties and therefore would not lead to an increase in population and a resulting increase in demand for potable water supply and infrastructure in those counties. For this reason, only Sutter County plans, policies, regulations, and ordinances are presented in this section.

Sutter County General Plan

The following goals and policies from the Sutter County General Plan (1996) regarding public utilities are applicable to the proposed project.

Housing Element

- ▶ **GOAL 1:** Encourage the provision of safe and sanitary housing with adequate public services for all existing and future residents of Sutter County.
 - **Policy 1.3:** New housing in the County’s urban areas shall have full public services and improvements consistent with the Board of Supervisors’ adopted sewer and water policies.

Public Facilities and Services Element

- ▶ **GOAL 3.A:** To properly serve the residents and developments with efficient public facilities, utilities and services.

- **Policy 3.A-1:** The County shall require easements and/or dedication of land within newly developing areas to accommodate the necessary public facilities to support that development. Where new development requires the construction of upgraded or new public facilities, new development shall provide said facilities and shall fund the construction of its proportional share of said facilities. Where the cost of said facilities exceeds the development's proportional share, the developer will be reimbursed as determined by the County.
- **Policy 3.A-2:** The County shall require that adequate public facilities and services be available to serve new development. The County shall not approve new development where existing facilities are inadequate unless both of the following conditions are met:
 - A. The applicant can demonstrate that all necessary public facilities will be installed prior to the issuance of a certificate of occupancy or adequately financed through fees or other means.
 - B. Proposed facility improvements are consistent with applicable facility plans approved by the County or have been reviewed and approved by the County.
- **Policy 3.A-3:** Public facilities and services for new urban and suburban residential development shall be provided by an entity other than Sutter County.
- ▶ **GOAL 3.B:** To ensure the availability of an adequate and safe water supply for County residents and other end users of water in the County.
- **Policy 3.B-1:** The County shall require proponents of new development to demonstrate the availability of a long term reliable water supply. The County shall require written certification from the service provider that either existing services are available or needed improvements will be made prior to occupancy.
- **Policy 3.B-2:** The County shall approve new development based on the following guidelines for water supply:
 - A. Urban and suburban development should rely on public water systems. In cases of existing lots where a public water system does not exist, or is not within 200 feet of the property, individual wells may be permitted.
- **Policy 3.B-6:** The County supports and encourages the creation of new water projects in appropriate locations that increase water supplies for urban, suburban and agricultural water users in Sutter County.
- **Policy 3.B-7:** The County encourages the expansion of surface water distribution facilities to meet the needs of agricultural users.

3.9.2 ENVIRONMENTAL SETTING

WATER SUPPLY AND CONVEYANCE

Presently, there are no public water supply facilities on the project site. Existing development on the project site is supported by private wells with limited capacity, and agricultural irrigation is provided primarily by surface water diverted from the Sacramento River by the Natomas Central Mutual Water Company (NCMWC), a private water purveyor. To a lesser extent, irrigation water is provided from private irrigation wells.

It is the intent of Sutter County to provide retail water service for the proposed project through a dependent or independent special district (e.g., a Community Services District, a County Service Area [CSA], or some other County agency). Sutter County would initially provide groundwater to the early phases of development and a

combination of groundwater and surface water to meet the project's water supply demands at buildout. Groundwater for the proposed project would be supplied by wells pumping from the North American groundwater subbasin (North American Subbasin) and surface water would be obtained from NCMWC. Sutter County plans to enter into an agreement with NCMWC to act as the urban wholesale distributor of surface water.

Golden State Water Company (GSWC), through its parent company (American States Water Company), entered into an agreement with NCMWC on July 1, 2004 to provide municipal and industrial (M&I) water service within the NCMWC service area. GSWC is an investor owned, California Public Utilities Commission (PUC) regulated, private water company. GSWC has expressed the intent to be the water service purveyor for the project site and initiated a Master Infrastructure Advance Planning Study (MIAPS) to be prepared (Wood Rodgers April 24, 2006) setting forth its plan to provide ground and surface water to the proposed project. The service plan outlined in the MIAPS is similar to the plan set forth in the water supply master plan (MacKay & Somps 2008), although it is a higher-level planning study compared to the detailed study set forth in the water supply master plan for the proposed project. GSWC has applied to the PUC for permission to serve the proposed project. Sutter County, however, opposes that application. GSWC asserts that its contract with NCMWC authorizes it to be the exclusive M&I purveyor within the Natomas Basin utilizing NCMWC water rights and contractual entitlements under the Settlement Contract with the U.S. Bureau of Reclamation (Bureau of Reclamation); the County asserts that the GSWC/NCMWC contract is not sufficient to assure GSWC's ability to control water supplies because the delivery of water by a mutual water company is appurtenant to the shares, and the shareholders have not pledged their shares to NCMWC or GSWC.

At this time it is uncertain that GSWC will gain the necessary PUC approvals to serve the development. Regardless of the entity that provides the service, though, the same sources of water supply would be used, therefore the analysis of the physical water availability would not change depending on which entity prevails.

Natomas Central Mutual Water Company

NCMWC is a private Mutual Water Company as defined in the California Public Utilities Code, Section 2705, formed for the delivery of water at cost to its shareholders. NCMWC is subject to local land use controls, including those of Sacramento and Sutter Counties and the City of Sacramento. The service area of NCMWC is defined by its contract with the Bureau of Reclamation for diversion of water from Sacramento River sources and for water service from the Central Valley Project (CVP). The NCMWC service area encompasses approximately 53,537 acres in the interior portion of the Natomas Basin in northern Sacramento County and southern Sutter County. Within this defined service area, NCMWC controls surface water rights for approximately 280 landowners who are its shareholders. These shareholder lands comprise approximately 31,652 acres. NCMWC diverts water from the Sacramento River and the Natomas Cross Canal (NCC). This water is used to provide irrigation water for agricultural use and habitat preservation, and untreated water is also used for golf course and landscape irrigation.

NCMWC currently distributes water through five primary irrigation systems. These irrigation systems are linked and used to support each other, and each system is served by a pumping facility located either along the Sacramento River or the NCC. The five pumping plants maintain a total maximum water diversion capacity of 630 cubic feet per second (cfs). Drainage and flood control for the Natomas Basin is provided by Reclamation District 1000 (RD 1000), which has a coinciding service area with NCMWC and shares several joint use facilities.

Existing and Projected Water Demands

The NCMWC water distribution system currently provides access to surface water for approximately 31,652 acres of shareholder lands. However, NCMWC typically only irrigates between 15,000 and 23,000 acres of this land each irrigation season. Cropping patterns vary based largely on economics, but due to the soil conditions in the region, much of the land is typically planted in rice. In normal water years, peak monthly diversions within NCMWC's available water rights have recently ranged between 20,800 to 23,900 acre-feet. Based upon current

cropping patterns, this equates to approximately 23,000 to 24,000 acres of irrigated cropland that can be maintained within NCMWC's existing surface water rights, out of approximately 31,652 acres served by NCMWC's existing irrigation system.

NCMWC's diversions for irrigation service typically begin after April 1. Total diversion pumping capacity is based on irrigation demand. Demands gradually increase as crops are planted within the service area, with peak diversions occurring between April 15 and June 15, depending on weather conditions. The diversions are operated at total capacity (approximately 630 cfs) continuously for a minimum of a 10-day to 2-week period at some point during this timeframe.

Once crops are established, the diversion rate is nearly constant throughout the remainder of the irrigation season, at approximately two-thirds the initial demand, with minor variations based on individual crop demands and weather conditions. Average monthly diversions range between 15,900 and 21,500 acre-feet for the months of May, June, July, and August. Demand typically drops off at the end of August and declines at a more significant rate in September. During September, the average monthly diversion is approximately 6,100 acre-feet. The winter re-flooding of rice fields typically occurs in October and November, with between 5,500 and 7,800 acres re-flooded each year.

It is recognized that crop planting and associated water demands may change in the future and differ from historical usages. With regards to changing irrigation practices over time, NCMWC evaluated historical crop patterns and the potential for future changes that might increase the overall agricultural irrigation demands within its service area. The evaluation found that the most recent years of record represented a reasonable approximation of the maximum irrigation demands that may occur in the future given all the various land use and development trends within the Natomas Basin. (Wagner & Bonsignore Consulting Civil Engineers, Inc 2007.)

Surface-Water Entitlements

NCMWC holds six water right licenses and one permit to divert water from the Sacramento River, NCC, and interior drainage system within its service area. The license/permit; place of use; purpose of use; and diversion periods, amounts, and limits are shown in Table 3.9-1 and described below. NCMWC's total estimated long-term average annual supply of surface water is 120,200 afy.

Licenses 1050, 2814, 3109, 3110, and 9794 were originally authorized to divert water from the Sacramento River and NCC for irrigation purposes only. In July 1990, the State Water Resources Control Board (SWRCB) modified these licenses by approving the use of water for irrigation, domestic, and M&I purposes. The use of water for domestic and M&I uses requires approval from the SWRCB. License 9989 allows the diversion of water from drainage canals only for irrigation purposes.

Permit 19400 provides for diversion of water from the Sacramento River, NCC, and drainage canals for irrigation, domestic, and M&I purposes during the winter period (October 1 to April 1). The point of diversion for these uses is limited to the existing Elkhorn Diversion and restricted to a place of use that includes only the Sacramento International Airport and the Metro AirPark.

NCMWC entered into Contract No. 14-06-200-885A (Settlement Contract) with Reclamation in 1964. The Settlement Contract is based on NCMWC's pre-existing licenses and permit to divert water. The purpose of the Settlement Contract is to change the timing and pattern of those diversions to accommodate the Bureau of Reclamation's operation of the Central Valley Project. However, NCMWC's water rights exist independently of the Settlement Contract.

The Settlement Contract provides for delivery of water to NCMWC during the months of April through October. Effective on May 10, 2005, the Settlement Contract was renewed for a 40-year term (Renewal Contract). Under the Renewal Contract, NCMWC is entitled to divert up to 120,200 afy from the Sacramento River in a normal water year. This amount includes 98,200 afy of "Base Supply" which can be diverted from April through October

and used only for irrigation purposes. The Base Supply is defined as surface water diverted from the Sacramento River as a result of appropriative water rights acquired under State law. An additional 22,000 afy of “Project Water” is available during July and August and is currently limited to agricultural uses. Project Water is defined as surface water from the Sacramento River as a result of the contract rights pursuant to the Settlement Agreement with Reclamation for water rights from the CVP. The Base Supply is also affected by the Settlement Contract, as it defines and limits the monthly and annual maximum diversion amounts. Distribution of NCMWC’s monthly diversion entitlements is shown in Table 3.9-2.

Table 3.9-1 NCMWC Surface-Water Entitlements					
License/Permit	Place of Use	Purpose of Use	Diversion Period	Diversion Amount (cfs)	Diversion Limit (afy)
1050	Reclamation Settlement Contract Service Area (“Project Water”) and NCMWC Place of Use Boundary (“Base Supply” and SWRCB Licenses/ Permits Place of Use)	Agricultural Irrigation and M&I ¹	April 1 – October 1	42	Limited to 120,200 by the Reclamation Settlement Contract
2814			April 15 – October 15	38	
3109			May 1 – October 31	160	
3110			May 1 – October 1	120	
9794			April 1 – June 30	131	
9989			April 1 – June 30; September 1 – October 31	14	
19400 ²	Sacramento International Airport and Metro AirPark	Domestic M&I and Industrial	October 1 – April 1	168	10,000
Notes: Reclamation = U.S. Bureau of Reclamation; cfs = cubic feet per second; afy = acre-feet per year; NCMWC = Natomas Central Mutual Water Company; M&I = municipal and industrial use.					
¹ Licenses 1050, 2814, 3109, 3110, and 9794 may be used for M&I purposes with approval from the SWRCB.					
Source: Tully & Young 2008					

Table 3.9-2 NCMWC Monthly Water Deliveries Under the Renewal Contract			
Month	Base Supply (afy)	Project Water (afy)	Total Supply (afy)
April	14,000	0	14,000
May	27,700	0	27,700
June	23,000	0	23,000
July	11,500	7,200	18,700
August	3,900	14,800	18,700
September	16,100	0	16,100
October	2,000	0	2,000
Total	98,200	22,000	120,200
Notes: afy = acre-feet per year; NCMWC = Natomas Central Mutual Water Company			
Source: Tully & Young 2008			

Water diversions under the Settlement Contract provide an enhanced entitlement to divert during dry years. The maximum reduction in NCMWC’s diversions during any critically dry year is 25% of both Base Supplies and

Project Water. Annual water deliveries from Reclamation are determined on the basis of natural inflow to Shasta Lake (the Shasta Index). In a normal year when there is ample water in the CVP system, NCMWC receives 100% of its Settlement Contract entitlement (120,200 afy). During a critically dry year, NCMWC receives no less than 75% of its normal year entitlement, or 90,150 afy.

In a memorandum decision issued in late November 2008, the United States Court for the Eastern District of California found that the Bureau of Reclamation had failed to complete adequate Endangered Species Act (ESA) consultations before entering into the Settlement Contracts, including the NCMWC Settlement Contract. However, the court did not invalidate the Settlement Contracts. The court has ordered the parties to submit additional evidence on the question of whether the Settlement Contracts involved discretionary action sufficient to trigger the Bureau of Reclamation's duty to consult under the ESA. Notably, though, if the Settlement Contracts were to be invalidated by the court in some future legal proceeding, NCMWC and the other Settlement Contractors could continue to divert water under their water rights permits and licenses. If the Settlement Contracts are invalidated, the water that is generated by the CVP (Project Water), may not be available to the Settlement Contractors until after the Bureau of Reclamation completes a new ESA consultation. However, it is likely that if the long-term Settlement Contracts were invalidated, the parties would enter into interim contracts while the ESA consultation is pending, as the Bureau of Reclamation requires such agreements to properly manage operations of the Central Valley Project.

City of Folsom Agreement

NCMWC entered into an agreement on December 13, 2007 with the City of Folsom to sell up to 10,000 afy of its CVP Project Water during July and August to the City (Folsom Agreement), with implementation contingent on the planned expansion of the Folsom City Limits to the south of Interstate 50. Currently, 7,200 afy of Project Water is available in July and 14,800 afy of Project Water is available in August during normal years. The Folsom Agreement allows for the sale of 3,723 afy in July and 6,727 afy in August during normal years resulting in 3,477 afy available in July and 8,073 afy available in August to NCMWC's shareholders during normal years.

Before entering into this agreement, NCMWC evaluated the potential impacts of transferring up to 10,000 afy of CVP Project Water from its shareholders and the ability of NCMWC to meet existing and future irrigation demands of its shareholders during the peak irrigation season in the *Water Supply Evaluation of the Potential Transfer of 10,000 Acre-Feet of Project Water from USBR Contract* (Wagner & Bonsignore Consulting Civil Engineers, Inc 2007). This evaluation determined that NCMWC has surplus Project Water during July and August, even during critically-dry years. The evaluation concluded that, "the transfer of 10,000 afy of project water should not impair NCMWC's ability to continue to provide sufficient surface water for irrigation" of shareholders' lands.

Existing Surface-Water Supplies Available to the Project Site

Owners of approximately 5,009.3 acres, or 67%, of the 7,527.6-acre project site own shares in the NCMWC. This area is irrigated with surface water from NCMWC's existing water rights and entitlements. The remaining 2,518.3 acres are within NCMWC's service area boundary; however, these lands are not owned by NCMWC shareholders nor have they been historically served by NCMWC. The nonshareholder lands are located along the eastern site boundary of the project site and are served by existing groundwater wells.

The shareholder and nonshareholder lands on the project site (7,527.6 acres) represent approximately 25% of NCMWC's irrigation demand. However, shareholder acres on the project site represent approximately 15.83% of the 31,652 shareholder acres within NCMWC's service area. Under the terms of NCMWC's Bylaws, then, the project area is entitled to receive up to 15.83% of NCMWC's total diversion. Nonshareholder lands within the planning area (2,518.3 acres) are served by groundwater pumping, currently estimated to be in the magnitude of 8,367 afy.

NCMWC does not divert surface water from the Sacramento River for use by its shareholders for agricultural irrigation on an acre-foot-by-acre-foot basis. Reclamation records indicate the actual quantity of surface water diverted by NCMWC to all shareholder lands is in the magnitude of 88,000 afy. NCMWC historically has delivered approximately 30,000 afy of surface water in normal years to the project site, or an equivalent of approximately 34.09% of the historic diversions ($30,000/88,000 \times 100$). The difference between the shareholder lands within the project site representing 25% of the NCMWC's irrigation demand and comprising only 15.83% of the shareholder acreage on the project site can be explained by the fact that, among others, some shareholders use more water than others and NCMWC delivers varying quantities of surface water to different shareholder areas. Thus, while the shareholders in the project area have been entitled to receive about 13,926 afy of NCMWC's 88,000 afy in diversions, they have historically been receiving an additional 16,074 afy that were not needed for delivery to other NCMWC shareholders. However, if other NCMWC shareholder increase their demands in the future beyond that supported by existing diversions (88,000 afy) but still within the amounts allowed under the Bureau of Reclamation contract and underlying water rights (120,000 afy), some, if not all, of that increase could be met by increasing diversions under the Bureau of Reclamation contract or the NCMWC water rights without impacting the amount of water that is currently being received by the shareholders in the project area. Thus, since this analysis is based on the project area receiving only 15.83% of 88,000 afy from NCMWC, it is a conservative approach that likely understates the water that will be available.

During normal years, NCMWC has a right to divert up to 120,200 afy under its existing water rights and its recently renewed Settlement Contract with Reclamation. In critically dry years NCMWC's Settlement Contract is cut back by 25% from 120,200 afy to a maximum of 90,150 afy. Assuming the proposed project is able to continue to obtain water deliveries that exceed the amount it could demand to receive by virtue of its shares, the planning area would have access to approximately 30,050 afy of surface water during normal years, and approximately 22,538 afy of surface water during critically dry years. If those years had been critical years wherein Reclamation would have instituted the 25% cutback provision of the Settlement Contract, and the proposed project is still able to obtain water deliveries in addition to the 15.83% its shares would entitle it to, sufficient surface water would remain available to meet 100% of the shareholder's water supply demands. (25% cutback is equal to 90,150 afy; annual use by NCMWC has been 88,000 afy; see above).

- ▶ **Historical Use.** As stated earlier, the shareholder lands within the project site have historically used approximately 30,000 afy of surface water during a 100% delivery year. Under this approach, the proposed project's entitlement would be estimated at approximately 34.09% of the diversion rights under the Settlement Contract ($30,000 \text{ afy} / 88,000 \text{ afy} \times 100\%$).
- ▶ **Historical Diversions.** Assuming the shareholder lands within the project site represent 25% of NCMWC's irrigation demand, shareholders could potentially divert a similar share of the actual amount of water that has been historically diverted under the Settlement Contract. The shareholder lands within the project site have unrestricted access to approximately 25% of the 88,000 afy of surface water historically diverted to all shareholder land within the NCMWC's service area, or approximately 22,000 afy during a 100% delivery year and 16,500 afy during a 25% cutback year under the Settlement Contract. The proposed project's entitlement would be approximately 25.0% of the historical diversions under the Settlement Contract ($22,000 \text{ afy} / 88,000 \text{ afy} \times 100\%$).
- ▶ **NCMWC Shares.** Focusing on only shares of stock in the NCMWC, the shareholders within the project site, who control 15.83% of the company's shares, should have access to NCMWC's water rights pro-rata to their share portion of the Settlement Contract. Under this approach, the shareholder lands within the project site would have access to approximately 13,930 afy of surface water during a 100% delivery year ($88,000 \text{ afy} \times 0.1583$) and 10,448 afy during a 25% cutback year ($66,000 \text{ afy} \times 0.1583$) under the Settlement Contract.

Table 3.9-3 summarizes NCMWC's available water supplies based on the percent of the Settlement Contract calculated using each of these three approaches.

Table 3.9-3 Surface Water Supplies under the Reclamation Settlement Contract during Normal Years and Critically-Dry Years					
Approach	Use (%)	Normal Year Supplies		Critically-Dry Year Supplies	
		Settlement Contract (afy)	Supplies (afy) ¹	Settlement Contract (afy)	Supplies (afy) ³
Historical Use	34.09	88,000	30,000	66,000 ^{2, 3}	22,500
Historical Diversions	25.00	88,000	22,000	90,150 ^{4, 5}	16,500
NCMWC Shares	15.83	88,000	13,930	66,000 ^{2, 3}	10,448
Notes: Reclamation = U.S. Bureau of Reclamation; afy = acre-feet per year. ¹ Supplies = % Use x 88,000 afy. ² The 25% Settlement Contract cutback based on NCMWC shares in critically dry years is equal to 66,000 afy. ³ Critically Dry Year Supplies = % Use x 66,000 afy ⁴ In critically dry years, the 25% Settlement Contract cutback reduces Natomas' total from 120,200 to 90,150 afy. ⁵ Entitlement = % Entitlement x 90,150 afy. Source: Tully and Young 2008					

Regardless of whether NCMWC supplies available to the project are based on historical use (30,000 afy), potential diversions (22,000 afy), or the shareholder's percent ownership of NCMWC's shares (13,930 afy), the shareholder lands within the project site would have a minimum entitlement of 13,930 afy of surface water during normal years and 10,448 afy during critically dry years. Note that if the Settlement Contracts are invalidated, there would be no requirement to reduce the diversions in critically dry years, and at least 13,930 afy would be available to the project in *all* years.

Water Diversion and Distribution Facilities

NCMWC uses two different types of canal systems to distribute irrigation water throughout its service area, including those dependent on gravity flow for delivery, and those dependent on pumping for delivery. The system of highline canals utilizes gravity flow to deliver water by maintaining water levels above the surrounding ground levels. This enables NCMWC to deliver water from the highline canals directly to fields in many of the areas served by NCMWC without additional pumping.

RD 1000 depends on pumping for delivery of water into its canal system, which consists of drainage canals that NCMWC uses during the irrigation season to distribute water to areas not served directly by highline canals. Because the drainage canals are set at elevations below that of the adjoining fields, the water must be relifted by pumping into a highline canal or directly onto fields. Because all fields within the NCMWC service area drain to these drainage canals, NCMWC is able to recapture and recycle tailwater from agricultural fields for irrigation purposes. Recycled irrigation water reduces the quantity of "new" water that is diverted from the Sacramento River to meet the irrigation demands of NCMWC shareholder lands. In addition, runoff from urban areas in the developed portions of the Natomas Basin in Sacramento County augments the volume of water available within RD 1000 drainage ditches during the irrigation season, principally a result of summer time nuisance flows from lawn irrigation and other similar sources. Because these drainage ditches are inter-connected throughout the entirety of the Natomas Basin, these urban runoff waters are available for recycling by NCMWC shareholders for agricultural irrigation. This recaptured urban runoff is not used to meet M&I demands within NCMWC's service area.

The amount of tailwater from agricultural fields for irrigation entering RD 1000 drainage ditches would be reduced as lands are converted from agricultural production to urban land uses. This would cause a net decrease in the quantity of recycled irrigation water available for agricultural irrigation of NCMWC shareholder lands. While data is not available on the quantity or the volume of tailwater used or generated by the irrigation of lands within the project site, it is not known if the conversion of these lands to urban uses will actually create a net reduction in the availability of tailwater within the NCMWC system.

NCMWC currently distributes water through five primary irrigation systems: the Northern System, the Bennett System, the Central System, the Elkhorn System, and the Riverside System. These irrigation systems are linked and used to support each other, and each system is served by a pumping facility located either along the Sacramento River or the NCC. The five pumping plants maintain a total maximum water diversion capacity of 630 cfs, or approximately 1247.4 acre-feet per day. The project site would be served by the Bennett Pumping Plant, which is described below.

Bennett Pumping Plant

The Bennett Pumping Plant serves the Bennett System, which provides service to nearly 5,700 acres in the northwest portion of the NCMWC service area. The Bennett Pumping Plant is situated along the south bank of the NCC approximately 1.2 miles upstream of its confluence with the Sacramento River. The Bennett Main Canal connects to the Bennett Pumping Plant to provide irrigation service to the area.

The Bennett Pumping Plant consists of three vertical lift pumps with a total capacity of over 125 cfs, and an average monthly diversion between 3,500 and 4,700 acre-feet. When the level of the Sacramento River falls below the flowline of the NCC, it requires installation of a temporary dam at the mouth of the NCC and pumping of water from the Sacramento River into the canal to supply the Bennett Pumping Plant with sufficient water. This occurs, on average, 3 out of every 10 years for a period of 2 to 4 months. Some of the water diverted from the Sacramento River by the Bennett Pumping Plant would be conveyed to the project site.

American Basin Fish Screen and Habitat Improvement Project

The *American Basin Fish Screen and Habitat Improvement Project* (American Basin Project) involves the improvement of the NCMWC's water diversion and distribution system. Proposed improvements include the consolidation of the five existing water pumping plants on the Sacramento River and NCC into two diversion facilities (the Sankey Diversion facility and the Elkhorn Diversion facility), the removal of one privately owned pump adjacent to the proposed Sankey Diversion, the addition of state-of-the-art fish screens to the new diversion facilities, and the modification of the existing system of distribution canals to maintain the current level of irrigation service. The American Basin Project would provide an overall benefit to fisheries inhabiting or making use of segments of the lower Sacramento River adjacent to the Natomas Basin and the NCC by improving passage conditions for migratory fish species, preventing entrainment of resident and migratory fish species in unscreened water diversions, and improving aquatic and riparian conditions by elimination of diversions through consolidation.

As part of the American Basin Project, the proposed Sankey Diversion facility would be constructed near Sankey Road, approximately 0.25 mile downstream of the confluence of the Sacramento River with the NCC. The Sankey Diversion facility would provide a total maximum water diversion capacity of 434 cfs (420 cfs for NCMWC and 14 cfs for a private diverter) and include a state-of-the-art fish screen. After completion, the Northern Pumping Plant and Bennett Pumping Plant would be abandoned.

Reclamation (the federal lead agency under NEPA) and California Department of Fish and Game (the State lead agency under CEQA) prepared a DEIS/DEIR (SCH # 2003092006) for the American Basin Project. The public review period was completed on April 28, 2008, and the DEIR/DEIS was certified in July 2008. If NCMWC is successful in gaining the necessary entitlements, permits, and funding, construction of the new diversion facility could begin as early as spring 2009. If construction begins in spring 2009, the facility could be completed and

ready for operation in the fall of 2010 (MacKay & Somps, 2008). This timeline suggests that the Sankey Diversion facility would potentially be operational in time for delivery of surface water to the project site.

North American Groundwater Subbasin

Groundwater for the proposed project would be supplied from wells pumping from the North American Subbasin. The North American Subbasin corresponds to the Sacramento Valley groundwater basin (California Department of Water Resources [DWR] Basin Number 5-21.64). The subbasin is bound by the Bear River on the north, the Feather River on the west, the Sacramento River on the south, and the edge of the alluvial aquifer in the Sierra Nevada foothills on the east. The proposed project is located near the western edge of this subbasin.

The thickness of the freshwater-bearing deposits beneath NCMWC's service area increases from about 1,100 feet in the northeast to about 1,400 feet in the southwest portion of the project area. These deposits can be divided into upper and lower aquifer systems. Within the project area, the upper 400 feet is defined as the upper aquifer zone, and the lower aquifer zone extends from 400 feet to the base of freshwater. Both of these systems are semiconfined.

Wells drilled in Sutter County since 1980 range in depth from less than 100 feet to over 500 feet, with an average depth of 183 feet. In the NCMWC service area, reported average well depths ranged from 149 feet for domestic wells, 308 feet for municipal wells, 313 feet for irrigation wells, and 378 feet for industrial wells. Therefore, the majority of the wells in NCMWC extract groundwater from the upper aquifer system.

Groundwater Supplies and Storage Capacity

Well yields generally ranged from 1,000 gpm to 2,500 gpm, with an average of about 1,900 gpm within the Natomas Basin. In 2003, NCMWC collected yield data for 13 irrigation wells, including five wells located on the project site. The yields of these wells ranged from 800 gpm to 3,500 gpm, with an average of about 2,100 gpm. An industrial well on the project site, the Sysco Well, has a smaller capacity than most irrigation wells at approximately 650 gpm.

The Paulson production well was constructed in 2007 in the southeastern portion of the project site as part of a groundwater monitoring system. This well was tested at capacities ranging from 1,233 gpm to 2,630 gpm. The test results suggest that the well would yield about 2,000 gpm on a long-term basis.

DWR does not identify the North American Subbasin as overdrafted (2006). There are no actual available estimates of groundwater in storage in the North American Subbasin; however, the estimated groundwater storage capacity of the subbasin is 4.9 million acre-feet. This volume does not indicate what portion of the storage can safely be extracted (the safe yield) to meet water demands in the subbasin. The volume of groundwater extraction cannot exceed the rate of groundwater recharge over a period of years without causing a depletion of aquifer storage. As discussed below, the change in groundwater storage is positive under existing and future conditions. This indicates that groundwater levels in the Natomas Basin are predicted to rise and future groundwater inflows to the Natomas Basin are expected to exceed outflows from the basin.

Existing Groundwater Conditions

Groundwater conditions vary considerably across the North American Subbasin. Groundwater levels have been high and relatively stable in the northern and western portions of the subbasin. This is in contrast to groundwater level declines that have occurred in much of the central, eastern, and southern portions of the subbasin. Overdraft has historically occurred in the latter areas and appears to still be occurring in the central portion of the subbasin east of the project site and east of the Natomas Basin. In recent years, groundwater levels have stabilized in other areas where historical overdraft has been reported. This suggests that overdraft conditions have abated in most of the subbasin. Groundwater levels are generally higher in the upper zone, creating a downward gradient for vertical flow.

In the Natomas Basin, groundwater levels have generally been high and relatively stable in the northern and western portion but have declined in recent years in several wells in the southern portion of the subbasin. Groundwater levels along the eastern edge of the Natomas Basin (and the eastern edge of the project site) show historical declines followed by stabilization. Groundwater levels in this area are affected by a cone of depression centered approximately 3 miles east of the project site. The direction of groundwater flow is easterly toward these pumping depressions, and the gradient for flow is relatively steep in this area.

Water level data are limited for the project site, but groundwater levels appear to have been consistently high (generally within 10 feet of the ground surface in spring) and relatively stable in recent years.

Groundwater Pumping in Sutter County

Projected groundwater pumping by Sutter County from the North American Subbasin is based on projected water demands of existing urban and rural residential areas served with groundwater by Sutter County service areas, projected water demands of other projects located in unincorporated areas of Sutter County that would be served with groundwater pumped by the County, and projected water demands for the proposed project.

Sutter County does not operate any service areas located within the North American Subbasin. Other than the proposed project, there are currently no other projects being planned within the North American Subbasin that would be served by groundwater pumped by Sutter County. Future projected groundwater pumping by Sutter County in 2030 from the North American Subbasin includes only the groundwater demands associated with the proposed project. Table 3.9-4 represents the maximum groundwater demand within Sutter County through 2030.

Table 3.9-4 Projected Groundwater Demand within Sutter County¹					
	Projected Demand (afy)				
	2010	2015	2020	2025	2030
Normal Years	0	6,030	9,928	11,486	13,071
Single and Multiple-Dry Years	0	5,276	8,709	10,089	12,948
Notes: afy = acre-feet per year ¹ The maximum groundwater demand would result from implementation of the Proposed Water Supply Program. Groundwater demands would be less if the Alternate "A" Revised Water Supply Program or Alternate "B" Winter Diversion Water Supply Program is implemented (discussed below). Sources: Tully & Young 2008					

Groundwater Modeling

The analysis of the groundwater supplies available to meet the needs of groundwater users throughout the North American Subbasin was conducted using two Integrated Groundwater Surface Water Models (IGSMs) (WRIME 2003). The IGSM was originally developed in the early 1990s to analyze the impacts of different water supply planning scenarios on the groundwater resources for Sacramento County. The North American River IGSM model for the Sutter County and Placer County portion of the North American Subbasin, which includes the project site, was developed in 1995 and is linked to an IGSM model for Sacramento County. The Sacramento County IGSM and North American River IGSM cover the North American Subbasin, and these models are the only existing calibrated groundwater flow models that encompass a large enough area to simulate all potential future surface water and groundwater impacts. Although there are limitations to these models, they are well documented and generally accepted by local water purveyors and state agencies.

The linked Sacramento County IGSM and North American River IGSM models have been used to simulate the effect of variations in the rate, timing, and location of groundwater pumping as identified for the North American Subbasin, with emphasis on the Natomas Basin, for a 35-year horizon and under normal, dry, and critically-dry years. The models evaluated two basic scenarios: the Existing Conditions Baseline and 2030 Future Conditions Baseline. The Existing Conditions Baseline scenario generally represents existing conditions in the groundwater basin based on 1994 to 2004 historic data.

For the 2030 Future Condition, future water supply conditions for northern Sacramento County were primarily based on Urban Water Management Plans (UWMPs) for each water district in the north area. As reported by WRIME, all of the plans identified future demand projections and water supply sources to meet the demands. Most of the plans also indicate a transition from groundwater to surface water to meet municipal water demands. The 2030 Future Condition also includes estimated groundwater use in Natomas Basin and consideration of new developments planned in Placer and Sacramento Counties, including Placer Vineyards, Placer Ranch, West Roseville, Rio Linda/Elverta area, Greenbriar, Metro AirPark, and others. The specific plans for projects such as Placer Vineyards, Greenbriar, and Metro AirPark indicate surface water is planned to be the primary source of water supply, while the Rio Linda/Elverta area will be supplied primarily with groundwater supplemented by surface water and also some recycled water.

Groundwater Modeling Results

The simulated water demand for the Existing Conditions Baseline is approximately 87,800 afy in the Sutter County portion of the Natomas Basin (including 33,100 afy for the project site). The simulated water demand is about 100,700 afy in the Sacramento County portion of the Natomas Basin, for a total of about 188,500 afy. Over the entire simulation period, this demand was supplied by about 33,400 afy of groundwater pumping and 155,200 afy of surface and recycled water. The average annual water supplies for the Existing Conditions Baseline in the North American Subbasin are 384,300 afy for surface water that is used only for water supply and 389,800 afy for groundwater, which includes some remediation pumping along with water supply pumping. Current groundwater pumping in the Natomas Basin is somewhat less than the average annual rate of groundwater recharge. The Existing Conditions Baseline showed a small positive change in groundwater storage during the simulation period, which indicates that groundwater levels were stable to slightly rising.

The simulated 2030 Future Condition water demand in the Sutter County portion of the Natomas Basin (about 87,800 afy) is the same as the Existing Conditions Baseline. The simulated water demand increases to about 116,800 afy in the Sacramento County portion of the Natomas Basin, for a total of about 204,600 afy. In this portion of Sacramento County, the agricultural demand decreased by about 6,300 afy and the urban demand increased by about 22,300 afy as compared to the Existing Conditions Baseline. In the Natomas Basin, these demands are supplied by about 25,300 afy of groundwater pumping and 179,300 afy of surface and recycled water. For both the Existing Conditions Baseline and 2030 Future Condition, the simulated surface water diversions are highest in normal years and lowest in wet years, and simulated groundwater pumping is lowest during wet years and highest during dry years. The average annual water supplies for the 2030 Future Condition in the North American Subbasin are 535,800 afy for surface water that would be used for water supply and 328,000 afy for groundwater, which includes some remediation pumping along with water supply pumping. On a subbasin scale, this represents a transition from groundwater to surface water to meet future water demands. Future groundwater pumping in the Natomas Basin, without the proposed project, is less than the current average annual pumping rate and also less than the average annual rate of groundwater recharge. The 2030 Future Condition showed a larger positive change in storage during the simulation period.

3.9.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Impacts of project implementation on potable water supplies and conveyance facilities were identified by comparing existing service capacity and facilities with future demand associated with project implementation. Where possible, a quantitative comparison was used to determine impacts of the project on future demands. Potential demands for water and impacts on infrastructure were evaluated based on a review of the following documents pertaining to the project site and surrounding area. In accordance with Section 15150 of the State CEQA Guidelines, the following documents are incorporated by reference in this DEIR, and relevant portions of these documents are summarized herein where their analysis has been relied on:

- ▶ *Sutter County General Plan* (Sutter County 1996),
- ▶ *Sutter County General Plan Background Report* (Sutter County 2008),
- ▶ *Sutter Pointe Specific Plan SB 610 Water Supply Assessment* (Tully & Young 2008),
- ▶ *Sutter Pointe Specific Plan Groundwater Supply Assessment* (Luhdorff & Scalmanini Consulting Engineers 2008) and
- ▶ *Sutter Pointe Specific Plan Water Supply Master Plan* (MacKay & Somps Civil Engineers Inc. 2008),

These documents are available for review through the Sutter County Community Services Department. It should be noted that the off-site elements would not add any residents to the area and thus would not increase the demand for potable water and conveyance facilities. Specific indirect impacts associated with construction of these off-site elements, such as air quality degradation and noise generation, are addressed in Sections 3.1 through 3.17 of this DEIR.

THRESHOLDS OF SIGNIFICANCE

The water supply analysis in a CEQA document is governed by California case law that requires the lead agency to consider both the relative certainty of new water supplies that a project would require and the impacts that could result from the use of those new water supplies. The following discussion introduces the principles governing water supply analyses in CEQA documents and distinguishes between the analysis of the certainty of supplies and the impact of providing those supplies. These principles are as follows:

1. An environmental impact report (EIR) may not assume a solution to problems of water supply, but must instead present sufficient facts to evaluate the pros and cons of supplying the required water. (*Santiago County Water District v. Orange* [1981] 118 Cal.App.3d 818, 829.)
2. The water supply analysis for large, multiphase projects may not be limited to the first few years or phases. Furthermore, the first or programmatic document for such a project may not defer analysis to future phases, but must analyze reasonably foreseeable impacts of supplying required water. The tiering principle does not allow deferral to future studies or documents. (*Santa Clarita Organization for Planning the Environment v. County of Los Angeles* [2003] 106 Cal. App. 4th 715, 723.)
3. An EIR evaluating a planned land use project must assume that all phases of the project will eventually be built and will need water. The EIR for such a project must analyze the impacts of supplying water to the entire project. (*Stanislaus Natural Heritage Project v. County of Stanislaus* [1996] 48 Cal.App.4th 182, 206.)
4. Future water supplies for a project must bear a reasonable likelihood of proving to be available. While absolute certainty is not required, water supplies must be identified with more specificity as projects progress

from general to specific phases (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal. 4th, 412, 434). “Where, despite a full discussion, it is impossible to confidently determine that anticipated water sources will be available, CEQA requires some discussion of possible replacement sources or alternative to use of the anticipated water, and of the environmental consequences of those contingencies.” (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal. 4th 412, 432.)

5. Although much of the case law focuses on the issue of certainty, the ultimate issue under CEQA is not whether an EIR establishes a likely source of water, but whether the document adequately analyzes the reasonably foreseeable impacts of supplying water to the project. (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal. 4th, 412, 434.)

The discussion of water supply in this section follows these principles. Accordingly, this analysis looks at both the certainty of selected water supplies and the impacts that would result from those supplies. An impact is considered significant if the project or a phase of the project would result in a water shortage or another significant adverse physical impact on the environment. Alternate sources of water and the impacts associated with those sources are also discussed in this analysis because, in some limited instances, there is not complete certainty that selected water supplies would be available.

The significance thresholds for this analysis are also based on Appendix G of the State CEQA Guidelines. The following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. A water supply impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
- ▶ have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements.

Section 15126.4(a)(1)(D), of the State CEQA Guidelines states that if a mitigation measure would cause one or more significant environmental effects in addition to those that would be caused by the project, the effects of the mitigation measure must be discussed, but in less detail than the significant effects of the project.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.9-1 Increased Demand for Water Supplies. *Project implementation would increase groundwater pumpage in the North American Subbasin and would shift the timing for surface water use as compared to current use, with more water used during winter months and less water used during summer months.*

On-Site Elements

Presently, there are no public water supply facilities on the project site. Development currently on the project site is supported by private wells with limited capacity, and agricultural irrigation is provided primarily by surface water diverted from the Sacramento River by the NCMWC, a private water purveyor, and to a lesser extent by private irrigation wells.

It is the intent of Sutter County to provide retail water service for the proposed project through a dependent or independent special district (i.e., a Community Services District, a CSA, or some other County agency). Sutter County would initially provide groundwater pumped from the North American Subbasin to the early phases of

development and a combination of groundwater and surface water to meet the proposed project's water supply demands at buildout. Sutter County plans to enter into an agreement with NCMWC to act as the urban wholesale distributor of surface water. The County would then deliver the water at cost (plus processing and delivery costs) to the end users.

Proposed Project's Water Demand

In compliance with SB 610, a WSA has been prepared to determine whether the projected available water supplies would meet the proposed project's water demand, in addition to the existing and planned future uses. For purposes of calculating water supply and demand for the proposed project, the WSA assumed that Phases 1 and A (1/A) would be built out simultaneously. The same is also assumed for Phases 2 and B (2/B), Phases 3 and C (3/C), and Phases 4 and D (4/D), respectively. The proposed project's water demands at full buildout were estimated by applying a water demand factor to each proposed land use. The land uses and water demands for the proposed project at full buildout were identified in the WSA and are summarized in Table 3.9-5 below. The projected water demands at buildout of each phase are shown in Table 3.9-6.

Water demands are assumed to be reduced by 12.5% from normal-year levels during single-dry and multiple-dry year periods in response to typical drought restrictions; this reflects a conservative reduction assumption (typically, higher rates of reduction are experienced during publicly-declared conservation episodes in dry-year conditions). Reductions in dry-year demands of 12.5% are reasonable compared to what other water purveyors in California have achieved through either requests for voluntary reductions or enforced demand management measures.

Table 3.9-5 Summary of Land Use and Water Demands for the Sutter Pointe Specific Plan Project (Full Buildout)			
Land Use	Area (acres)	Unit Water-Demand Factor (af/ac/yr)	Water Demand (afy)
Low Density	512.8	3.67	1,882
Medium Density	1,950.3	4.17	8,133
High Density	187.7	4.67	877
Residential Roads	244.3	0.20	49
Residential Uses Subtotal	2,895.0		10,941
Employment 1	580.4	3.00	1,742
Employment 2	1,990.5	3.00	5,972
Employment Roads	303.8	0.20	61
Commercial Retail	178.2	3.00	535
Mixed Use	164.1	3.00	492
Industrial Drainage Basins	414.3	0.60	248
Employment Uses Subtotal	3,631.3		9,050
Community Parks	431.9	4.08	1,762
Open Space – High	166.4	4.08	679
Open Space – Medium	132.3	2.34	310
Open Space – Low	96.1	0.60	58
K-8 Schools	121.7	3.67	447
High School	52.9	3.67	194

Table 3.9-5 Summary of Land Use and Water Demands for the Sutter Pointe Specific Plan Project (Full Buildout)			
Land Use	Area (acres)	Unit Water-Demand Factor (af/ac/yr)	Water Demand (afy)
Public Services Subtotal	1,001.3		3,450
Grand Total	7,527.6		23,441
System Losses (7.5%)			1,758
Total Demand			25,199
Notes: af/ac/yr = acre-feet per acre per year; afy = acre-feet per year			
Sources: MacKay & Soms 2008; Tully & Young 2008			

Table 3.9-6 Projected Normal-Year Water Demands by Phase			
Phase	Annual Water Demand (afy)	System Loss (7.5%)	Total Water Demand (afy)
1/A	7,853	589	8,442
2/B	6,831	512	7,343
3/C	4,356	327	4,683
4/D	4,401	330	4,731
Buildout	23,441	1,758	25,199
Notes: afy = acre-feet per year			
Sources: MacKay & Soms 2008; Tully & Young 2008			

Although a 12.5% reduction in normal-year demands is reasonably attainable, Sutter County currently has no ordinance giving it authority to implement either a water shortage contingency plan or temporary demand management measures within Sutter Pointe. This is largely due to the fact that Sutter County supplies only small amounts of water to service areas and therefore has not been required to prepare an Urban Water Management Plan.

Because this authority will be necessary, the County plans to adopt a water shortage contingency plan applicable to the proposed project prior to issuance of a written verification of sufficient water supply pursuant to Government Code Section 66473, et seq. (SB 221 Written Verification). This water shortage contingency plan will include mandated reductions during dry years through staged measures that may include the following:

- ▶ Prohibition on water waste,
- ▶ Limitations on outdoor use, and
- ▶ Prohibitions on some types of water uses.

In addition to conservation measures, water rates are likely to be structured to promote conservation during normal years as well as penalize excess water use during periods of drought. These water rate structures would conform to the 2007 requirements of Best Management Practice 11 from the California Urban Water Conservation Memorandum of Understanding (or later edition if applicable).

Table 3.9-7 shows projected water demands for the proposed project during normal, single-dry, and multiple-dry years in 5-year increments. The total projected water demands for the proposed project at buildout are 25,199 afy during normal years and 22,048 afy during single-dry and multiple-dry years.

**Table 3.9-7
Projected Normal, Single-Dry, and Multiple-Dry Year Water Demands**

	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Normal Years	0	6,030	12,848	20,468	25,199
Single-Dry and Multiple-Dry Years	0	5,276	11,241	17,907	22,048
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

Water Supply Programs

The project proposes a conjunctive use water supply program that would use both groundwater and surface water to meet the water supply demands at buildout. Groundwater would be supplied by pumping from the North American Subbasin, and surface water would be supplied by NCMWC. Three water supply programs have been identified as options for providing water to the project site:

- ▶ Proposed Water Supply Program
- ▶ Alternate “A” Revised Water Supply Program
- ▶ Alternate “B” Winter Diversion Water Supply Program

Development of these three water supply programs was guided by the following considerations:

- ▶ The need to conserve water during single and multiple dry years.
- ▶ The need to balance groundwater and surface water supplies in an effort to conserve both resources.
- ▶ The existing availability of surface water only from April through October .
- ▶ The need to limit the monthly and annual deliveries of Settlement Contract surface water to comply with dry-year provisions during critically-dry years, assuming the Settlement Contract remains in effect.
- ▶ The need to limit total deliveries from July through September to the sum of the contract quantities prescribed for these months under the Settlement Contract, assuming the Settlement Contract remains in effect.
- ▶ The need to adjust the final mix of surface and groundwater to optimize the overall operation of the system and conserve resources.
- ▶ The need to create adequate reserves of groundwater and surface water to provide appropriate levels of operational flexibility and system redundancy to react to unforeseen events.

The water supply program that is ultimately implemented would be based on addressing these considerations to optimize the water supply system and to maximize the benefits for the future residents of the community.

Under all three water supply programs, groundwater would provide water supplies to initial phases of development until surface water entitlements have been approved and off-site water facilities have been constructed and are online. The development of the surface water element is anticipated to take approximately 5 to 10 years and it is estimated that surface water would be available to serve the project by 2018. Each of the three water supply programs are discussed in detail below and Table 3.9-8 summarizes the amount of groundwater and surface water that would be required under each of these programs.

Table 3.9-8 Comparison of Conjunctive Water Supply Under the Three Proposed Water Supply Alternative Programs		
Water Supply Program	Groundwater	Surface Water
Proposed Water Supply Program	51.9% (13,071 afy)	48.1% (12,128 afy)
Alternate “A” Revised Water Supply Program	37.9% (9,561 afy)	62.1% (15,638 afy)
Alternate “B” Winter Diversion Water Supply Program	26.1% (6,577 afy)	73.9% (18,622 afy) ¹
Notes: afy = acre-feet per year		
¹ The total surface water demand under Alternate B is approximately 18,622 afy in normal years, of which 13,126 afy would be provided under the Reclamation Settlement Contract and 5,496 afy would be provided by a new winter diversion water right from the SWRCB.		
Source: Tully & Young 2008		

Proposed Water Supply Program

Under the Proposed Water Supply Program, groundwater would be the only source of water supply to the proposed project until surface water entitlements have been approved and off-site water facilities have been constructed and are online (approximately 2018). A combination of groundwater and surface water would then serve the proposed project. Groundwater would be used from November through March, and a combination of groundwater and surface water would be used from April through October. The 2,518.3 acres of nonshareholder lands would continue to be served by existing groundwater wells. Water demand for these users is currently estimated to be 8,367 afy.

Tables 3.9-9 and 3.9-10 show projected groundwater and surface water supplies under the Proposed Water Supply Program for normal year and single and multiple-dry years from 2010 through 2030 in 5-year increments.

Table 3.9-9 Normal-Year Water Supplies – Proposed Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	6,030	9,928	11,486	13,071
Surface Water	0	0	2,920	8,982	12,128
Total	0	6,030	12,847	20,468	25,199
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

Table 3.9-10 Single and Multiple Dry-Year Water Supplies – Proposed Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	5,276	8,710	10,089	12,949
Surface Water	0	0	2,531	7,818	9,099
Total	0	5,276	11,241	17,907	22,048
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

A groundwater well field system would be developed to yield up to 13,071 afy of groundwater in normal years and 12,949 afy of groundwater in critically-dry years at full project buildout. This well field system would consist of approximately 14 production groundwater wells, raw water transmission pipelines, and two standby wells. Each of these wells would pump approximately 1,800 gpm of groundwater. Two well fields would be developed, one west of SR 99 and one east of SR 99. The western well field would include eight production wells and one standby well. The eastern well field would contain six production wells and one standby well. The well fields would be constructed in phases and incrementally expanded to meet the demands of the proposed project. Each well site would be spaced approximately 3,000 feet apart on an approximately 0.25-acre site. All proposed wells would be designed and constructed in accordance with the requirements of DWR Bulletin 74-81 "Water Well Standards: State of California." A series of raw groundwater transmission pipelines would convey groundwater to one of two groundwater treatment plants (see Exhibit 2-7 in Chapter 2, "Project Description") (see Impact 3.9-3).

The proposed well fields would serve an estimated 51.9% of the total water needs of the proposed project at buildout. These groundwater supplies would serve Phases 1/A development and a portion of Phases 2/B development (approximately the first 11 years of development), at which time the surface water element would be required to provide water supplies to the remaining phases of development.

The surface water supply would be developed to serve the remaining 48.1% of the water demands of the proposed project. The surface water needed to serve the proposed project is estimated to be 12,128 afy in normal years and 9,099 afy in critically-dry years.

As development on the project site occurs, and as the surface water element is phased in, the groundwater element would transition from a year-round supply to principally a wintertime supply to meet the demands of the proposed project, matching the current diversion patterns wherein the NCMWC surface water diversions occur only during the irrigation season. The surface water supply would be capable of meeting the project demands under the Proposed Water Supply Program; however, the Base Supply can only be diverted from the Sacramento River for irrigation purposes. The SWRCB water right licenses allow the use of water for domestic and M&I purposes with approval from the SWRCB. Accordingly, for NCMWC to supply water for M&I purposes in the proposed project site, NCMWC would need to obtain approval from the SWRCB to modify the purpose of use to allow M&I service under NCMWC's water right licenses. The process of obtaining this approval from the SWRCB includes submittal of a petition to change the purpose of use. This application would be reviewed by the staff of the SWRCB and by the general public via a public review period, before proceeding to a public hearing before the SWRCB for final consideration.

The CVP Project Water, by contract, is currently limited to use for irrigation during the growing season (April through October). However, the water rights permits issued to the Bureau of Reclamation by the SWRCB include M&I as a permitted use. Assuming the Settlement Contract remains in effect so that Project Water is available to NCMWC, for CVP Project Water to be used for M&I purposes within the proposed project area, discretionary approval by the Bureau of Reclamation would be required (Tully & Young, 2008).

Alternate "A" Revised Water Supply Program

Under the Alternate "A" Revised Water Supply Program, groundwater would provide water supply to the proposed project until surface water entitlements have been approved and off-site water facilities have been constructed and are online (approximately 2018). A combination of groundwater and surface water would then be used to serve the proposed project. Groundwater would be used from November through March, surface water would be used from April through June, and a combination of groundwater and surface water would be used from July through October. This program also would provide NCMWC surface water supplies to the 2,518.3 acres of nonshareholder lands on the project site, assuming that appropriate approvals from NCMWC can be obtained.

Tables 3.9-11 and 3.9-12 show projected groundwater and surface water supplies under the Alternate “A” Revised Water Supply Program for normal year and single and multiple-dry years from 2010 through 2030 in 5-year increments.

Table 3.9-11					
Normal-Year Water Supplies – Alternate “A” Revised Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	6,030	6,363	6,544	9,561
Surface Water	0	0	6,485	13,924	15,638
Total	0	6,030	12,847	20,468	25,199
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

Table 3.9-12					
Single and Multiple Dry-Year Water Supplies – Alternate “A” Revised Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	5,276	7,103	9,605	12,432
Surface Water	0	0	4,138	8,302	9,616
Total	0	5,276	11,241	17,907	22,048
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

A groundwater well field system would be developed to yield up to 9,561 afy in normal years, and 12,432 afy in critically-dry years at full project buildout. This well field system would consist of approximately 14 production groundwater wells, raw water transmission pipelines, and two standby wells. Each of these wells would pump approximately 1,800 gpm of groundwater. Two well fields would be developed, one west of SR 99 and one east of SR 99. The western well field would include eight production wells and one standby well. The eastern well field would contain six production wells and one standby well. The well fields would be constructed in phases and incrementally expanded to meet the demands of the proposed project. Each well site would be spaced approximately 3,000 feet apart on an approximately 0.25-acre site. All proposed wells would be designed and constructed in accordance with the requirements of DWR Bulletin 74-81 “Water Well Standards: State of California.” A series of raw groundwater transmission pipelines would convey groundwater to one of two groundwater treatment plants (see Exhibit 2-7 in Chapter 2, “Project Description”) (see Impact 3.9-3).

The proposed well fields would serve an estimated 37.9% of the total water needs of the proposed project at buildout. These groundwater supplies would serve Phases 1/A development and a portion of Phases 2/B development (approximately the first 11 years of development), at which time the surface water element would be needed to provide water supplies to the remaining phases of development.

The surface water supply would be developed to serve the remaining 62.1% of the water demands of the proposed project. Available surface water needed to serve the proposed project is estimated to be 15,638 afy in normal years and 9,616 afy in critically-dry years (25% reduction).

As development on the project site occurs, and as the surface water element is phased in, the groundwater element would transition from a year-round supply to principally a wintertime supply to meet the demands of the proposed project, matching the current diversion patterns wherein the NCMWC surface water diversions occur only during the irrigation season. The surface water supply would be capable of meeting the project demands under the Alternate “A” Revised Water Supply Program; however, the Base Supply can only be diverted from the Sacramento River for irrigation purposes. The SWRCB water right licenses allow the use of water for domestic and M&I purposes with approval from the SWRCB. Accordingly, for NCMWC to supply water for M&I purposes in the proposed project site, NCMWC would need to obtain approval from the SWRCB to modify the purpose of use to allow M&I service under NCMWC’s water right licenses. The process of obtaining approval from the SWRCB includes submittal of a petition to change the place and the purpose of use. This application will be reviewed by the staff of the SWRCB, and by the general public via a public review period, before proceeding to a public hearing before the SWRCB for final consideration. Approval of the Bureau of Reclamation may also be necessary under the Settlement Contract, and will be obtained if needed.

The CVP Project Water, by contract, is currently limited to use for irrigation during the growing season (April through October) in the project area. However, the water rights permits issued to the Bureau of Reclamation by the SWRCB include M&I as a permitted use. Assuming the Settlement Contract remains in effect so that Project Water is available to NCMWC, CVP Project Water can be used for M&I purposes within the proposed project area with discretionary approval from the Bureau of Reclamation.

The groundwater supply would not be capable of meeting the equivalent annual water demands of the nonshareholder lands on the project site; therefore, the Alternate “A” Revised Water Supply Program would provide surface water to nonshareholder lands on the project site. These lands are not within the place of use under NCMWC’s contract with the Bureau of Reclamation, and the NCMWC Bylaws prohibit the service of water to nonshareholder lands. Therefore, NCMWC would need discretionary approval by the Bureau of Reclamation to modify the place of use of these water rights, and from the Bureau of Reclamation and the SWRCB to change the purpose of use. NCMWC would also have to issue NCMWC shares to the owners of the nonshareholder lands, which would require approval by the California Department of Corporations..

Alternative B Winter Diversion Water Supply Program

Under the Alternate “B” Winter Diversion Water Supply Program, groundwater would provide water supply to the proposed project until surface water entitlements have been approved and off-site water facilities have been constructed and are online (approximately 2018). A combination of groundwater and surface water would then serve the proposed project. The Alternate “B” Winter Diversion Water Supply Program would use the highest annual quantity of surface water. This program also would provide NCMWC surface water supplies to the 2,518.3 acres of nonshareholder lands on the project site, assuming that appropriate approvals from NCMWC can be obtained.

Tables 3.9-13 and 3.9-14 shows projected groundwater and surface water supplies under the Alternate “B” Winter Diversion Water Supply Program for normal year and single and multiple-dry years from 2010 through 2030 in 5-year increments.

Table 3.9-13					
Normal-Year Water Supplies – Alternate “B” Winter Diversion Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	6,030	7,299	6,270	6,577
Surface Water	0	0	5,549	14,198	18,622
Total	0	6,030	12,847	20,468	25,199
Notes: afy = acre-feet per year					
Sources: Tully & Young 2008					

Table 3.9-14 Single and Multiple Dry-Year Water Supplies – Alternate “B” Winter Diversion Water Supply Program					
	Projected Demands (afy)				
	2010	2015	2020	2025	2030
Groundwater	0	5,276	8,498	9,007	9,276
Surface Water	0	0	2,743	8,900	12,772
Total	0	5,276	11,241	17,907	22,048
Notes: afy = acre-feet per year Sources: Tully & Young 2008					

A groundwater well field system would be developed to yield up to 6,577 afy in normal years and 9,276 afy of in critically-dry years at full project buildout. One well field system would consist of approximately eight production groundwater wells and one standby well. Depending on the ongoing groundwater modeling efforts, this well field would be located either west or east of SR 99. This well field would be constructed in phases and incrementally expanded to meet the demands of the proposed project. Each well site would be spaced approximately 3,000 feet apart on an approximately 0.25-acre site. All proposed wells would be designed and constructed in accordance with the requirements of DWR Bulletin 74-81 “Water Well Standards: State of California.” A series of raw groundwater transmission pipelines would convey groundwater to a centralized groundwater treatment plant (see Exhibit 2-7 in Chapter 2, “Project Description”) (see Impact 3.9-3).

The proposed well field would serve an estimated 26.1% of the total water needs of the proposed project at buildout. These groundwater supplies would serve Phases 1/A development and a portion of Phases 2/B development (approximately the first 11 years of development), at which time the surface water element would be needed to provide water supplies to the remaining phases of development.

The surface water supply would be developed to serve the remaining 73.9% of the water demands of the proposed project. The Settlement Contract surface water required to serve the proposed project is estimated to be 13,126 afy in normal years and 8,590 afy in critically-dry years. Additionally, a new winter diversion would be required to provide 5,496 afy in normal years and 4,182 afy in critically-dry years. The total surface water needed to serve the proposed project is estimated to be 18,622 afy in normal years and 12,772 afy in critically-dry years.

As development on the project site occurs, and as the surface water element is phased in, the groundwater element would transition from a year-round supply to principally a peak flow augmentation of water supply to meet the demands of the proposed project during summer peak demand periods. The surface water supply would be capable of meeting the project demands under the Alternate “B” Winter Diversion Water Supply Program; however, the Base Supply can only be diverted from the Sacramento River for irrigation purposes. The SWRCB water right licenses allow the use of water for domestic and M&I purposes with approval from the SWRCB. Accordingly, for NCMWC to supply water for M&I purposes in the proposed project site, NCMWC would need to obtain approval from the SWRCB to modify the purpose of use to allow M&I service under NCMWC’s water right licenses. The process of obtaining approval from the SWRCB includes submittal of a petition to change the place and the purpose of use. This application will be reviewed by the staff of the SWRCB, and by the general public via a public review period, before proceeding to a public hearing before the SWRCB for final consideration. Approval of the Bureau of Reclamation may also be necessary under the Settlement Contract, and will be obtained if needed.

The CVP Project Water, by contract, is currently limited to use for irrigation during the growing season (April through October). However, the Settlement Contract does not currently allow water diverted to be used for M&I purposes within the proposed project area. Assuming the Settlement Contract remains in effect so that Project

Water is available to NCMWC, discretionary approval by the Bureau of Reclamation would be required before CVP Project Water could be used for M&I purposes within the project site.

The groundwater supply would not be capable of meeting the equivalent annual water demands of the nonshareholder lands on the project site; therefore, the Alternate “B” Winter Diversion Water Supply Program would provide surface water to nonshareholder lands on the project site. These lands are not within the place of use under NCMWC’s contract with the Bureau of Reclamation and the NCMWC Bylaws prohibit the service of water to nonshareholder lands. Therefore, NCMWC would need discretionary approval by the Bureau of Reclamation and to modify the place of use of these water rights and from the Bureau of Reclamation and the SWRCB to change the purpose of use. NCMWC would also have to issue NCMWC shares to the owners of the nonshareholder lands, which would require approval by the California Department of Corporations.

The substantive difference between the Proposed Water Supply Program and the Alternate “B” Winter Diversion Water Supply Program is the acquisition of a new water right for diversion of up to 6,000 afy from the SWRCB for approximately 5,496 afy of surface water during normal years and 4,182 afy of surface water during dry years from the Sacramento River during winter (October 1–March 31). This water supply has not yet been obtained and would require a new license/permit from SWRCB. If this option were selected by the project applicant, additional CEQA analysis would be required to determine the potential environmental impacts related to a new license/permit for diversion from SWRCB.

One important consideration will require more evaluation if this alternative is to go forward. Fry and juvenile salmonids, and other endangered and threatened fish species, are present in the Sacramento River during winter. Diversions that would occur at this time of year could have the potential to entrain individuals at this critical life juncture. As previously described, the American Basin Project is being proposed, and is expected to be soon constructed (prior to the time when diversion for the proposed project would be needed) to improve the NCMWC’s water diversion and distribution system. One of the proposed improvements is construction of the Sankey Diversion facility, which would include state-of-the-art fish screens. On balance, it is likely that significant impacts to fish habitat would not be expected; rather, a slight benefit from changing the diversion patterns so they are more favorable to fish would be more likely, and effects from diversion during winter would likely be avoided with the new fish screens. Regardless, this would require substantial additional analysis in a CEQA document, should this alternative be selected.

Reasonable Likelihood of Water Supplies to Meet Project Demands

Groundwater Supplies

The Existing Conditions Baseline and 2030 Future Conditions Baseline scenarios described above in the “Environmental Setting,” and five project scenarios were developed and simulated with the Sacramento County IGSM and North American River IGSM models. For each scenario, the model was run for a 35-year simulation period based on 1970–2004 hydrologic conditions. The project scenarios simulate both the Proposed Water Supply Program (Scenarios 1, 2A, and 2B), Alternate “A” Revised Water Supply Program (Scenario 3), and Alternate “B” Winter Diversion Water Supply Program (Scenarios 4 and 5) as described below. Water demand and supply for the five project scenarios in normal and critically-dry years served as the basis for the analysis of potential groundwater pumping impacts and groundwater supply sufficiency.

- ▶ Project Scenario 1 simulates groundwater conditions at the end of Phase 2/B (approximately 12 years) with only the western well field. This scenario would represent maximum groundwater pumping on the project site since Phases 1/A development and Phases 2/B development would be located in areas historically irrigated by surface water from NCMWC rather than groundwater.
- ▶ Project Scenario 2A simulates the Proposed Water Supply Program at full buildout of the proposed project with the western and eastern well fields compared to the Existing Conditions Baseline. It is anticipated that all agricultural land uses on the project site would be replaced by project land uses.

- ▶ Project Scenario 2B is similar to Scenario 2A except this scenario represents the Proposed Water Supply Program at full buildout of the proposed project with the eastern and western wellfield compared to the 2030 Future Conditions Baseline.
- ▶ Project Scenario 3 represents full buildout of the proposed project under the Alternate “A” Revised Water Supply Program compared to the 2030 Future Condition.
- ▶ Project Scenarios 4 and 5 represent full buildout of the proposed project under the Alternate “B” Winter Diversion Water Supply Program compared to the 2030 Future Condition. Both scenarios assume the one well field would be constructed because the wintertime diversion would eliminate the need for a second well field at full buildout. Scenario 4 assumes that the well field would be located in the southwestern portion of the project site while Scenario 5 assumes that the well field would be located in the eastern portion of the project site.

The average annual water supplies for the Existing Conditions Baseline in the North American Subbasin are 384,300 afy for surface water that is used only for water supply and 389,800 afy for groundwater, which includes some remediation pumping along with water supply pumping. Current groundwater pumping in the Natomas Basin is somewhat less than the average annual rate of groundwater recharge. The Existing Conditions Baseline showed a small positive change in groundwater storage during the simulation period, which indicates that groundwater levels were stable to slightly rising.

The average annual water supplies for the 2030 Future Condition in the North American Subbasin are 535,800 afy for surface water that would be used for water supply and 328,000 afy for groundwater, which includes some remediation pumping along with water supply pumping. On a subbasin scale, this indicates a transition from groundwater to surface water to meet future water demands. Future groundwater pumping in the Natomas Basin, without the proposed project, is less than the current average annual pumping rate and also less than the average annual rate of groundwater recharge. The 2030 Future Condition showed a larger positive change in storage during the simulation period.

Scenarios 1 and 2A represent groundwater conditions at the end of Phases 2/B (approximately 12 years into development of the proposed project) and the end of Phases 4/D (approximately 20 years into development of the proposed project), respectively. These two scenarios were compared to the Existing Conditions Baseline. Although the changes in storage are lower for these project scenarios compared to the Existing Conditions Baseline, the change is still positive and groundwater levels are predicted to be stable to increasing in the Natomas Basin.

Beyond Phases 1/A development and 2/B development, areas of the project site that have historically been irrigated with groundwater would be developed resulting in a decrease in the amount of groundwater pumping to meet on-going agricultural irrigation demands on the project site.

Scenarios 2B, 3, 4, and 5 simulate buildout of the proposed project. These scenarios all showed generally rising water levels in the Natomas Basin and a much larger increase in groundwater storage compared to Scenarios 1 and 2A. The predicted increase in storage is slightly smaller than for the 2030 Future Conditions Baseline.

Overall, the change in groundwater storage is positive under existing and future conditions and for all scenarios. This indicates that groundwater levels in the Natomas Basin are predicted to rise even with the proposed project, although the rate of increase in the project area would be slightly less due to increased pumping by the project. The groundwater supply anticipated for the proposed project appears to be sustainable on a permanent basis, and the amount of groundwater withdrawn by the proposed project and other foreseeable groundwater users in the future would be less than the amounts of natural replenishment. Therefore, groundwater would be a viable long-term source of potable water.

Surface Water Supplies

It is the intent of Sutter County to obtain surface water from NCMWC. As previously described, owners of approximately 5,009.3 acres of the 7,527.6-acre project site own shares in the NCMWC and this total represents 15.83% of the 31,652 shareholder acres within NCMWC's service area. The remaining 2,518.3 acres are within the NCMWC's service area boundary; however, these landowners are not NCMWC shareholders. The shareholder and nonshareholder lands on the project site (7,527.6 acres) represent approximately 23.8% of the acreage within NCMWC's service area.

The following information was described above but is summarized here to add context to the analysis. During normal years, NCMWC can divert 120,200 afy under its existing water rights and its recently renewed Settlement Contract with the Bureau of Reclamation. This amount includes 98,200 afy of Base Supply, which can be diverted from April through October, and 22,000 afy of CVP Project Water, which is available during July and August, assuming the Settlement Contract remains in effect. In critically dry years, NCMWC's Settlement Contract is cut back by 25% from 120,200 afy to a maximum of 90,150 afy, but this is not a requirement of its underlying water rights.

Bureau of Reclamation records indicate the actual quantity of surface water diverted by NCMWC to all shareholder lands is in the magnitude of 88,000 afy. Based on the shares of stock in NCMWC associated with lands within the project site, NCMWC's Bylaws provide that the shareholders within the project site would be entitled to obtain 15.83% of NCMWC's surface water diversions. Consequently, if all of the shares associated with the land within the project were dedicated to provide water service to the project area, the shareholder lands within the project site would have access to approximately 13,390 afy of surface water during both a normal and critically dry years.

The proposed project's water demands under normal and critically dry year conditions were compared to available water supplies to determine whether a reliable water supply is available to serve the proposed project and existing water demands during normal and dry years. Surface water supplies available to the proposed project based on the three methods previously described are shown in Table 3.9-3. As shown in Table 3.9-15, adequate water supplies are available to meet projected water demands under the Proposed Water Supply Program, Alternate "A" Revised Water Supply Program, and Alternate "B" Winter Diversion Water Supply Program, even in critically-dry years.

Table 3.9-15 Normal-Year and Dry-Year Comparison of Water Supply and Demand							
Water Supply Program	Surface Water Demand (afy)	Historic Use		Potential Diversions		NCMWC Shares	
		Supply (afy)	Surplus (afy)	Supply (afy)	Surplus (afy)	Supply (afy)	Surplus/Deficit (afy)
Proposed Water Supply Program							
Normal Year	12,128	30,000	17,872	22,000	9,872	13,930	1,802
Dry Year	9,099	22,500	13,401	16,500	7,401	10,448	1,349
Alternate “A” Revised Water Supply Program							
Normal Year	15,639	30,000	14,362	22,000	6,362	13,930	-1,709 ¹
Dry Year	9,616	22,500	12,884	16,500	6,884	10,448	832
Alternate “B” Winter Diversion Water Supply Program ²							
Normal Year	13,126	30,000	16,874	22,000	8,874	13,930	804
Dry Year	8,591	22,500	13,909	16,500	7,909	10,448	1,857

Table 3.9-15
Normal-Year and Dry-Year Comparison of Water Supply and Demand

Water Supply Program	Surface Water Demand (afy)	Historic Use		Potential Diversions		NCMWC Shares	
		Supply (afy)	Surplus (afy)	Supply (afy)	Surplus (afy)	Supply (afy)	Surplus/Deficit (afy)
Notes: afy = acre-feet per year							
1 If surface water supplies are based on the percent ownership of NCMWC shares, the Alternate "A" Revised Water Supply Program would result in a surface water deficit of 1,709 afy of surface water during normal years. This surface water deficit could potentially be eliminated with additional groundwater pumping (discussed below).							
2 The Settlement Contract surface water required to serve the proposed project is estimated to be 13,126 afy in normal years and 8,590 afy in critically dry years. Since this table analyzes water supplies and demands under the Settlement Contract, for sake of simplicity the new winter diversion right for 5,496 afy in normal years and 4,182 afy in critically dry years is not included in the total water supply demand.							
Source: MacKay & Soms 2008							

Regardless of whether NCMWC supplies available to the proposed project are based on historical use (30,000 afy), potential diversions (22,000 afy), or the shareholder's percent ownership of NCMWC's shares (13,930 afy), the shareholder lands within the project site would have a minimum entitlement of 13,930 afy of surface water during normal years and 10,448 afy during critically dry years. (Table 3.9-15.)

City of Folsom Agreement

NCMWC entered into an agreement with the City of Folsom to sell up to 10,000 afy of its Project Water during July and August to the City. The Folsom Agreement would reduce the surface water available under the Settlement Contract with the Bureau of Reclamation from 120,200 afy to 110,200 afy. The shareholders within the project site would have access to NCMWC's water rights pro-rata to their share portion (15.83%) of this reduced surface water supply resulting in a minimum entitlement of 17,400 afy of surface water during normal years and 13,100 afy during critically dry years. Based on the proposed monthly diversion schedule, the project's reduced pro-rata share of NCMWC's remaining diversion rights under the Settlement Contract would be below the level of surface water demands required to serve the proposed project in July and August during both normal and critically dry years. However, the magnitude of the monthly shortfall is relatively small on an annual basis and surplus surface water would still exist.

The potential monthly surface water shortfalls in July and August could be reconciled by increasing groundwater pumping in July and August when shortfalls in surface water supplies occur. The net result would be that overall annual groundwater and surface water quantities would increase and decrease, respectively, by an identical amount. To make up the shortfall in surface water under these conditions, increase in total annual pumping would not exceed the requirement of the Proposed Water Supply Program (13,071 afy) – an amount that has been determined to be sustainable on a long-term basis.

Alternatives to Long-Term Water Supply

The WSA concluded that NCMWC has surface water supplies available to meet projected water demands in normal and critically dry years under all three water supply programs, and it is reasonably certain as a physical matter that the surface water supplies could be delivered to the project site in the amounts needed to serve the proposed project at buildout. However, there is no similar reasonable certainty from a legal and regulatory standpoint, since additional actions by the Bureau of Reclamation, SWRCB, and NCMWC would be necessary. Therefore, in case the surface water supplies do not become available because of the required regulatory and legal approvals, an analysis of alternative sources of water other than what has been identified previously is provided below as required by the court in the case of *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412 (2007).

Alternative 1 – Additional Groundwater Pumping

Groundwater pumped from the North American Subbasin could potentially meet the proposed project's water demands at buildout. The total groundwater demand under any of the water supply programs would be approximately 25,199 afy. Surface water would be replaced with groundwater and the demand for groundwater would be equal to that currently proposed for surface water. At buildout, the demand for groundwater would increase by 12,128 afy, 15,638 afy, and 18,622 afy under the Proposed Water Supply Program, Alternate "A" Revised Water Supply Program, and Alternate "B" Winter Diversion Water Supply Program, respectively (see Tables 3.9-9, 3.9-11, and 3.9-13). Of the three water supply programs, the greatest increase in groundwater pumping would be 18,622 afy, which would be required under Alternate "B" Winter Diversion Water Supply Program.

Increased groundwater demands could result in the need for additional groundwater pumping wells. These additional wells would likely be located in the western or eastern groundwater well fields where groundwater wells are currently proposed. Thus, environmental impacts associated with increased groundwater pumping would be the same as those already identified in Sections 3.1 through 3.17 of this DEIR, plus the following additional potentially significant impacts:

- ▶ Hydrology and Water Quality—Additional increases in groundwater pumping in an aquifer potentially recharged by the Sacramento River resulting in drawdown of water elevations in the river.
- ▶ Biological Resources—A potential decrease in surface water elevations that could adversely impact riparian or aquatic habitat, fisheries, and other sensitive species.

Modeling for the Existing Baseline Condition and 2030 Future Condition, which includes the proposed project's groundwater demand as currently proposed, demonstrates that the change in groundwater storage is positive under existing and future conditions. This indicates that groundwater levels in the Natomas Basin are predicted to rise and future groundwater inflows to the Natomas Basin are expected to exceed outflows from the basin.

Groundwater modeling conducted for the proposed project assumed the greatest quantity of groundwater would be 13,071 afy. It cannot be determined without additional groundwater modeling if the increase in groundwater pumping under this alternative would be adequate to serve the needs of the proposed project at buildout without adversely affecting the North American Subbasin in the future. Therefore, there is not a reasonable certainty that groundwater would be available to serve the demands of the proposed project at buildout under this alternative.

Alternative 2 - Placer County Water Agency Water

The Placer County Water Agency (PCWA) Water Division provides both irrigation and treated drinking water. Approximately 80% of the water supplied annually by PCWA is used for irrigation on the farms, ranches, landscapes, parks, and golf courses of Placer County. The irrigation season normally runs from April 15 through October 15. The remaining 20% of PCWA water supplies provide treated drinking water to 150,000 consumers through residential service connections.

The total available water supply available to the PCWA is 255,400 afy. The PCWA diverts surface water from the Yuba-Bear River system, the American River, and CVP water under existing surface water entitlements from the Bureau of Reclamation, which is allocated as follows:

- ▶ 100,400 afy from the Yuba-Bear River system that is purchased from PG&E.
- ▶ 120,000 afy from the Middle Fork Project on the American River. PCWA's Middle Fork Project water right permits provide that this water supply may be diverted from the American River at either Auburn or at Folsom Reservoir.
- ▶ 35,000 afy from the CVP water supply contract with the Bureau of Reclamation.

It cannot be determined without additional study if these water supplies would be adequate to serve the needs of the proposed project. It is possible that additional water supplies may be developed through acquisition of new water rights or modifications to existing water rights. For the purposes of this analysis, it can be assumed that water could be provided by annexation into Zone 5, which provides irrigation water for commercial agricultural use in far western Placer County and would be in closest proximity to the project site. PCWA does not have large amounts of groundwater for use in Zone 5 and relies almost exclusively on the surface water supplies identified above the meet the water supply demand of this zone. Because water in Zone 5 is used only for irrigation, the provision of water for M&I uses for the proposed project would likely require changes to water right entitlements, similar to the water rights entitlement process that would be initiated by NCMWC.

Water supplies would be treated by PCWA's water treatment facilities. It is not known if existing water treatment facilities would have the capacity to treat any additional water supplies developed for the proposed project, and existing facilities may require expansion. If expansion of existing facilities is not feasible, new water treatment facilities may need to be constructed to serve the proposed project. Under this alternative, additional off-site distribution facilities, which could include conveyance infrastructure, pump stations, or storage tanks, may be required to convey water from PCWA's treatment and distribution systems to the project site.

Potentially significant impacts related to implementation of this alternative could include, but are not limited to:

- ▶ Land Use—Approval from the Placer County Local Agency Formation Commission for annexation of the proposed project to PCWA's service area.
- ▶ Population, Employment, and Housing—Indirect inducement of population and housing growth by potentially adding capacity to existing water treatment facilities or through potential development of new water conveyance infrastructure and water treatment facilities.
- ▶ Transportation and Circulation—Temporary lane closures, increased truck traffic, and other roadway impacts during construction.
- ▶ Air Quality—Temporary, short-term generation of criteria air pollutants such as PM₁₀ (e.g., respirable particulate matter with a diameter smaller than 10 microns) and emissions of ozone precursors (e.g., reactive organic gases and oxides of nitrogen) during construction, and long-term emissions of criteria air pollutants or local mobile source carbon monoxide resulting from potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Noise—Exposure of sensitive receptors to noise levels above noise ordinances during construction, and exposure of sensitive noise receptors to new stationary-source noise from potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Geology, Soils, and Paleontological Resources—Temporary, short-term construction-related erosion, damage to structures and infrastructure from construction on expansive/unstable soils, and loss of or damage to known and to as-yet-discovered paleontological resources during construction.
- ▶ Hydrology and Water Quality—Increased stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project construction sites.
- ▶ Public Services—Temporary obstruction of roadways during construction. Increased demand for fire protection facilities, services, and equipment; police protection facilities, services, and equipment; and school facilities and services resulting from indirect inducement of population and housing growth.
- ▶ Water Supply—Increased demand for water supplies and related facilities resulting from indirect inducement of population and housing growth.

- ▶ Public Utilities—Increased demand electricity, natural gas, and communications services resulting from potential development of pump stations or new water treatment plants. Increased demand for wastewater service; solid-waste disposal, or electricity, natural gas, and communications services and systems resulting from indirect inducement of population and housing growth.
- ▶ Agricultural Resources—Conversion of Important Farmland to nonagricultural urban uses, conflicts with existing agricultural operations, and the disruption of existing agricultural operations during construction and/or potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Public Health and Hazards—Exposure of construction crews and the public to hazardous materials used in construction or present in excavated soils or from the routine transport, use, and disposal of hazardous materials.
- ▶ Biological Resources—Loss and degradation of habitat for special-status wildlife and plants, potential loss and degradation of jurisdictional wetlands and other waters of the United States or waters of the State, and impacts on fisheries resulting from any increased diversion of surface water from affected rivers.
- ▶ Any changes to surface water rights and entitlements could trigger consultation Section 7 of the Endangered Species Act (ESA) with the United States Fish and Wildlife Service (USFWS) with respect to nonanadromous, freshwater fish species and with the National Oceanic and Atmospheric Administration (NOAA) and National Marine Fisheries Service (NMFS) with respect to anadromous (ocean-going) fish species.
- ▶ Parks and Open Space—Increased demand for parks and open space from indirect inducement of population and housing growth.
- ▶ Cultural Resources—Loss of or damage to known and as-yet-discovered cultural resources during construction.
- ▶ Visual Resources—Temporary degradation of visual character for developed land uses during construction, and degradation of visual character for developed land use and creation of new light and glare and skyglow from potential development of new pump stations or water treatment facilities.
- ▶ Climate Change—Emissions of greenhouse gases from construction vehicles or from operation of new water treatment facilities.

Additional CEQA analysis would be required to analyze specific impacts and identify any required mitigation measures if this alternative water supply were implemented. Because it is unknown if water supplies would be available from PCWA and because additional distribution and treatment facilities may be required, there is not a reasonable certainty that these water supplies would be available to serve the demands of the proposed project at buildout.

Alternative 3 - City of Sacramento Water

The City of Sacramento currently provides domestic water service from a combination of surface and groundwater sources including the American River, Sacramento River, and groundwater wells to nearly 132,000 customers within its service area. Water from the American River and Sacramento River is diverted by the Sacramento River Water Treatment Plant (SRWTP) located approximately 11 miles south of the project site and the Fairbairn Water Treatment Plant (FWTP) located approximately 16 miles south of the project site.

The SRWTP and the FWTP divert water from the American River and Sacramento River, respectively. The City holds five water rights permits: one for diversion of surface water from the Sacramento River and four for diversion of surface water from the American River. The City also holds a permanent water right settlement

contract with the Bureau of Reclamation. Under this agreement, the Bureau of Reclamation agreed to operate its Folsom and Shasta facilities to provide a reliable water supply to the City's downstream diversion intakes and the City agreed to limit total diversions under its Sacramento and American River water right permits to 326,000 afy (City of Sacramento 2005a). During extremely dry years, the Water Forum Agreement limits annual withdrawal from the American River to 50,000 afy; however, there are presently no diversion limitations on the Sacramento River. Therefore, entitled American River surface water may be diverted at the SRWTP below the confluence of the American and Sacramento Rivers and normal-year and dry-year water supplies are identical.

The City maintains 34 wells for potable and non-potable uses. Of these wells, 32 potable wells are north of the American River, and two are south of the American River. Although the City focuses on developing surface water as its primary source of water supply, the groundwater well system provides flexibility in providing additional water supplies when there are low river flows.

It cannot be determined without additional study if these water supplies would be adequate to serve the needs of the project. It is possible that additional water supplies may be developed through acquisition of new water rights or modifications to existing water rights. Provision of water for M&I uses for the proposed project would likely require changes to water right entitlements, similar to the water rights entitlement process that would be initiated by NCMWC.

Water supplies would be treated by City of Sacramento's water treatment facilities. It is not known if existing water treatment facilities would have the capacity to treat any additional water supplies developed for the proposed project, and existing facilities may require expansion. If expansion of existing facilities is not feasible, new water treatment facilities may need to be constructed to serve the proposed project. Under this alternative, additional off-site distribution facilities, which could include conveyance infrastructure, pump stations, or storage tanks, may be required to convey water from the City of Sacramento's treatment and distribution systems to the project site.

Potentially significant impacts related to implementation of this alternative could include, but are not limited to:

- ▶ Land Use—Approval from the Sacramento County Local Agency Formation Commission for annexation of the proposed project to the City of Sacramento's water service area.
- ▶ Population, Employment, and Housing—Indirect inducement of population and housing growth by potentially adding capacity to existing water treatment facilities or through potential development of new water conveyance infrastructure and water treatment facilities.
- ▶ Transportation and Circulation—Temporary lane closures, increased truck traffic, and other roadway impacts during construction.
- ▶ Air Quality—Temporary, short-term generation of criteria air pollutants, such as PM10 (e.g., respirable particulate matter with a diameter smaller than 10 microns) and emissions of ozone precursors (e.g., reactive organic gases and oxides of nitrogen) during construction, and long-term emissions of criteria air pollutants or local mobile source carbon monoxide resulting from potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Noise—Exposure of sensitive receptors to noise levels above noise ordinances during construction, and exposure of sensitive noise receptors to new stationary-source noise from potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Geology, Soils, and Paleontological Resources—Temporary, short-term construction-related erosion, damage to structures and infrastructure from construction on expansive/unstable soils, and loss of or damage to known and to as-yet-discovered paleontological resources during construction.

- ▶ Hydrology and Water Quality—Increased stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project construction sites.
- ▶ Public Services—Temporary obstruction of roadways during construction. Increased demand for fire protection facilities, services, and equipment; police protection facilities, services, and equipment; and school facilities and services resulting from indirect inducement of population and housing growth.
- ▶ Water Supply—Increased demand for water supplies and related facilities resulting from indirect inducement of population and housing growth.
- ▶ Public Utilities—Increased demand electricity, natural gas, and communications services resulting from potential development of pump stations or new water treatment plants. Increased demand for wastewater service; solid-waste disposal, or electricity, natural gas, and communications services and systems resulting from indirect inducement of population and housing growth.
- ▶ Agricultural Resources—Conversion of Important Farmland to nonagricultural urban uses, conflicts with existing agricultural operations, and the disruption existing agricultural operations during construction and/or potential development of new water conveyance infrastructure or water treatment facilities.
- ▶ Public Health and Hazards—Exposure of construction crews and the public to hazardous materials used in construction or present in excavated soils or from the routine transport, use, and disposal of hazardous materials.
- ▶ Biological Resources—Loss and degradation of habitat for special-status wildlife and plants, potential loss and degradation of jurisdictional wetlands and other waters of the United States or waters of the State, and impacts on fisheries resulting from any increased diversion of surface water from affected rivers.

Any changes to surface water rights and entitlements could trigger consultation Section 7 of the ESA with the USFWS with respect to nonanadromous, freshwater fish species and with the NOAA and NMFS with respect to anadromous (ocean-going) fish species.

- ▶ Parks and Open Space—Increased demand for parks and open space from indirect inducement of population and housing growth.
- ▶ Cultural Resources—Loss of or damage to known and as-yet-discovered cultural resources during construction.
- ▶ Visual Resources—Temporary degradation of visual character for developed land uses during construction, and degradation of visual character for developed land use and creation of new light and glare and skyglow from potential development of new pump stations or water treatment facilities.
- ▶ Climate Change—Emissions of greenhouse gases from construction vehicles or from operation of new water treatment facilities.

Additional CEQA analysis would be required to analyze specific impacts and identify any required mitigation measures. Because it is unknown if water supplies would be available from the City of Sacramento and because additional distribution and treatment facilities may be required, there is not a reasonable certainty that these water supplies would be available to serve the demands of the proposed project at buildout.

Impact Conclusion

The groundwater analysis results demonstrate that groundwater pumped from the Natomas Basin and the North American Subbasin over the 35-year simulation period is sufficient to meet the demands of the proposed project

under any of the identified water supply programs as well as other existing and future planned groundwater uses throughout the Natomas Basin and the North American Subbasin. Groundwater supplies for the proposed project under any of the identified water supply programs are expected to be sufficient, as demonstrated by the positive change in storage within the Natomas Basin and simulated groundwater levels for the North American Subbasin that are either generally stable or increase following the initial years of the 35-year simulation period. Based on this analysis, groundwater supplies are considered a reliable, sustainable source of potable water. Therefore, there is a reasonable likelihood that groundwater supplies needed to serve the proposed project would be available, and this **direct** impact is considered **less than significant**. No **indirect** impacts would occur.

Regardless of whether NCMWC supplies available to the project are based on historical use (30,000 afy), historical diversions (22,000 afy), or the shareholder's percent ownership of NCMWC's shares (13,930 afy), the shareholder lands within the project site would have a minimum entitlement of 13,930 afy of surface water during normal years and 10,449 afy during critically dry years. Based on the above analysis and as shown in Table 3.9-15, NCMWC has surface water supplies available to meet projected water demands in normal and critically dry years under the Proposed Water Supply Program and Alternate "B" Winter Diversion Water Supply Program. NCMWC water supplies are considered reliable, and, as a physical matter, there is reasonable certainty that surface water supplies needed to serve the proposed project at buildout would be available.

As shown in Table 3.9-15, if surface water supplies are based on the percent ownership of NCMWC shares, the Alternate "A" Revised Water Supply Program would result in a surface water deficit of 1,708 afy during a normal year. This surface water deficit could potentially be eliminated with additional groundwater pumping. The maximum groundwater use under this program would be 9,561 afy. The additional groundwater pumping of 1,708 afy would increase this total to 11,269 afy of groundwater. Of the three water supply programs, the greatest quantity of groundwater would be 13,071 afy, which would be required under the Proposed Water Supply Program. The total groundwater demand under Alternate "A" Revised Water Supply Program (11,269 afy) would be less than the groundwater demand under the Proposed Water Supply Program (13,071 afy). In addition, groundwater supplies would be sufficient to meet the demands of the proposed project under any of the identified water supply programs. Therefore, it would be reasonable to conclude that sufficient groundwater supplies would be available to accommodate the potential increase in groundwater pumping from 9,563 afy to 11,269 afy under Alternate "A" Revised Water Supply Program.

The available water supply would be capable of meeting the project demands under the Proposed Water Supply Program, the Alternate "A" Revised Water Supply Program, and the Alternate "B" Winter Diversion Water Supply Program, however the Base Supply can only be diverted from the Sacramento River for irrigation purposes. Approval by the SWRCB would be necessary before the Base Supply could be used for M&I purposes. Accordingly, for NCMWC to supply water for M&I purposes in the proposed project site, NCMWC would need to obtain approval from the SWRCB to modify the purpose of use to allow M&I service under NCMWC's water right licenses. NCMWC would also have to issue shares for the nonshareholder lands.

The CVP Project Water, by contract, is currently limited to use for irrigation during the growing season (April through October). However, the Settlement Contract does not currently allow water diverted to be used for M&I purposes within the proposed project area. Assuming the Settlement Contract remains in effect so that Project Water is available to NCMWC, discretionary approval by the Bureau of Reclamation would be required before CVP Project Water could be used for M&I purposes within the project site.

Thus, although it is reasonably certain as a physical matter that the surface water supplies in question could be delivered to the project site in the amounts needed to serve the proposed project at buildout. There is no similar reasonable certainty from a legal and regulatory standpoint, as additional actions by the Bureau of Reclamation, SWRCB and NCMWC would be necessary. Notably, moreover, the Alternate "B" Winter Diversion Water Supply Program would require action by the Bureau of Reclamation that would likely trigger additional obligations to consult under Section 7 of the ESA with the USFWS with respect to nonanadromous, freshwater fish species and with the NOAA and NMFS with respect to anadromous (ocean-going) fish species.

The groundwater supply would not be capable of meeting the equivalent annual water demands of the nonshareholder lands on the project site; therefore, the Alternate “A” Revised Water Supply Program and the Alternate “B” Winter Diversion Water Supply Program would provide surface water to nonshareholder lands on the project site. These lands are not within the place of use under NCMWC’s contract with the Bureau of Reclamation. Therefore, NCMWC would need discretionary approval by the Bureau of Reclamation to modify the place of use of these water rights, and from the Bureau of Reclamation and the SWRCB to change the purpose of use. NCMWC would also have to issue shares for the nonshareholder lands. Thus, although it is reasonably certain as a physical matter that the water supplies in question could be delivered to the project site in the amounts needed to serve the proposed project at buildout, there is no similar certainty from a legal and regulatory standpoint.

The Alternate “B” Winter Diversion Water Supply Program would require acquisition of a new water right for diversion from the SWRCB of approximately 5,496 afy during normal years and 4,182 afy during dry years from the Sacramento River during winter (October 1–March 31). This need for action by SWRCB inserts a regulatory element that precludes a finding that this supply, at present, is reasonably certain to come to fruition. This water supply has not yet been obtained and would require a new license/permit from SWRCB. If this option were selected by the project applicant, additional CEQA analysis would be required to determine the potential environmental impacts related to a new license for diversion from SWRCB.

Because approvals from the Bureau of Reclamation, SWRCB, NCMWC, and possibly USFWS, NOAA, and NMFS to modify the purpose of use and place of use under the Settlement Contract, and/or a new license/permit from SWRCB have not been obtained, there is some amount of uncertainty that surface water supplies would be available to meet proposed project demands arising during later phases of the project. Therefore, other sources of water would be required to provide water supplies for the proposed project. These alternative sources of water have been identified and discussed above. This impact is considered **direct** and **significant** with respect to later phases of the project. **No indirect** impacts would occur. It is assumed that once these entitlements are approved, the surface water supplies would continue to flow to NCMWC's shareholders without interruption, barring a major shift in climate or policy, or unless current California water law principles are applied in a substantially more restrictive manner.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses, and these elements would not lead to an increase in residents or employees in the area. Implementing the off-site program elements would not increase the demand for water supplies in Placer and Sacramento Counties. Therefore, implementing these elements would have **no direct** or **indirect impacts**.

Mitigation Measure 3.9-1: Submit Proof of Surface Water Supply Availability.

On-Site Elements

- a. Prior to approval of any small-lot tentative subdivision map subject to Government Code Section 66473.7 (SB 221), the County shall comply with that statute. Prior to approval of any small-lot tentative subdivision map for a proposed residential project not subject to that statute, the County need not comply with Section 66473.7, or formally consult with any public water system that would provide water to the affected area; nevertheless, the County shall make a factual showing or impose conditions similar to those required by Section 66473.7 to ensure an adequate water supply for development authorized by the map.
- b. In approving a small-lot tentative subdivision map pursuant to paragraph (a), the County shall impose conditions accomplishing the following: (i) requiring, prior to final map recordation, either the conveyance to the County, or to any other public entity responsible for providing wholesale or retail surface water to the affected property (e.g., a County Service Area), all shares the affected landowner(s)

may hold in the Natomas Central Mutual Water Company that are associated with the land subject to the tentative subdivision map or, in lieu thereof, requiring, in exchange for voluntary retirement of all shares held by the affected landowner(s), execution of a contract between Natomas Central Mutual Water Company and the County, or any other public entity responsible for providing wholesale or retail surface water to the affected property, providing a water supply equivalent to that available through such shares; and (ii) disallowing non-agricultural development in the area subject to the map absent such conveyance or agreement or, alternatively, absent the conveyance or agreement, proof of a right to use an alternate surface water source that is of sufficient quantity to serve the area and is as reliable as the surface water the Natomas Central Mutual Water Company uses pursuant to its water rights and/or its Settlement Contract with the United States Bureau of Reclamation.

- c. Prior to recordation of each final subdivision map, or prior to County approval of any similar project-specific discretionary approval or entitlement required for nonresidential uses, the project applicant(s) of that project phase or activity shall demonstrate the availability of a reliable and sufficient water supply from a public water system for the amount of development that would be authorized by the final subdivision map or project-specific discretionary nonresidential approval or entitlement. Such a demonstration shall consist of information showing that both existing sources are available or needed supplies and improvements will be in place prior to occupancy. Where a landowner seeking a project-specific non-residential discretionary approval or entitlement has shares in the Natomas Mutual Water Company but has not conveyed them, or has not been required to convey them, pursuant to paragraph (b), the County shall condition the non-residential approval or entitlement so as to disallow non-agricultural development in the area subject to the map absent such conveyance or agreement or, alternatively, absent the conveyance to the County, or to any other public entity responsible for providing wholesale or retail surface water to the affected property, of the right to use an alternate surface water source that is of sufficient quantity to serve the area and is as reliable as the surface water the Natomas Mutual Water Company uses pursuant to its water rights and/or its Settlement Contract with the United States Bureau of Reclamation.
- d. In approving a small-lot tentative subdivision map pursuant to paragraph (a), the County shall impose conditions accomplishing the following: requiring, prior to final map recordation, that the landowner seeking the project-specific small-lot subdivision map provide the to the County, or to any other public entity responsible for providing wholesale or retail groundwater to the affected property, a permanent agreement, in recordable form (i) authorizing the County or the other public entity to act as the exclusive agent for exercising the overlying groundwater rights appurtenant to the land subject to the tentative subdivision map, and (ii) prohibiting the landowner or its successor or assigns from extracting groundwater or otherwise exercising such rights on their own behalf.
- e. Prior to recordation of each final subdivision map, or prior to County approval of any similar project-specific discretionary approval or entitlement required for nonresidential uses, the project applicant(s) of that project phase or activity shall provide to the County, or to any other public entity responsible for providing wholesale or retail groundwater to the affected property, a permanent agreement, in recordable form, (i) authorizing the County or the other public entity to act as the exclusive agent for exercising the overlying groundwater rights appurtenant to the land subject to the tentative subdivision map, and (ii) prohibiting the landowner or its successor or assigns from extracting groundwater or otherwise exercising such rights on their own behalf.
- f. In approving a small-lot tentative subdivision map pursuant to paragraph (a) or prior to County approval of any similar project-specific discretionary approval or entitlement required for nonresidential uses, the County shall impose feasible water conservation measures which may include, but are not limited to, the following:

- ▶ With the exception of ornamental shade trees, use water-efficient landscapes with native, drought-resistant species in all public area and commercial landscaping. Use water-efficient turf in parks and other turf-dependent spaces.
- ▶ Install the infrastructure to use reclaimed water for landscape irrigation and/or washing cars.
- ▶ Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
- ▶ Design buildings and lots to be water-efficient. Only install water-efficient fixtures and appliances.
- ▶ Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff. Prohibit businesses from using pressure washers for cleaning driveways, parking lots, sidewalks, and street surfaces. These restrictions should be included in the Covenants, Conditions, and Restrictions of the community.
- ▶ Provide education about water conservation and available programs and incentives.

Implementation: The project applicant(s) of each project phase

Timing: Prior to approval of final maps and building permits for each project phase

Enforcement: Sutter County Community Services and Sutter County Public Works Departments

Off-Site Elements

Mitigation Measures

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-1 would reduce significant impacts related to the need for surface water supplies to **less-than-significant** level because the County would require written certification verifying the availability of a long-term, reliable surface water supply for the proposed project or would require that needed improvements be in place prior to occupancy.

If the surface water supplies for remaining development phases are not available due to unknown or unforeseeable events following approval of the remaining development phases, implementation of Mitigation Measure 3.9-1 would result in the curtailment of development, resulting in a partially built-out project. Impacts associated with the curtailment of development are evaluated below in Impact 3.9-5.

IMPACT 3.9-2 **Need for Off-Site Water Conveyance Facilities.** *Project implementation would require construction of off-site water conveyance facilities to implement the surface water element of the project.*

Off-Site Elements

The off-site water conveyance facilities required to implement the surface water element of the proposed project consist of a raw water turnout, a raw water booster pump station, and a raw water transmission pipeline.

A raw water turnout and booster pump station would be located at the NCMWC's existing Bennett Pumping Plant, which is situated along the south bank of the NCC approximately 1.2 miles upstream of its confluence with the Sacramento River. The Bennett Pumping Plant consists of three vertical lift pumps with a total capacity of over 125 cfs, with average monthly diversions between 3,500 and 4,700 acre-feet. The Bennett Pumping Plant

currently supplies irrigation water and may not have sufficient redundancy of pumps, adequate backup of electrical power, proper intake screens, and appropriate controls to provide service to the project site. In addition, it is estimated that the level of the Sacramento River falls below the flowline of the NCC on average 3 out of every 10 years for a period of 2 to 4 months; thereby requiring installation of a temporary dam at the mouth of the NCC to pump water from the Sacramento River into the canal to supply the Bennett Pumping Plant with sufficient water. The Bennett Pumping Plant may not have the reliability to provide municipal water service to the project site and could require updating to accommodate demands of the proposed project. The potential improvements to the Bennett Pumping Plant are discussed below. It is possible that the proposed project could be served in the future by the Sankey Diversion facility, which is proposed as a component of the American Basin Project discussed previously and below.

Some of the water diverted from the Sacramento River by the Bennett Pumping Plant would be delivered to the proposed raw water booster pump station through a new raw water turnout located on the landside of the levee at the head works of the NCMWC's existing highline ditch system. The capacity of the booster pump station would vary depending on which of the water supply programs is implemented. The booster pump station would have a capacity of approximately 29.3 mgd under the Proposed Water Supply Program, 35.1 mgd under the Alternate "A" Revised Water Supply Program, or 33.1 mgd under the Alternate "B" Winter Diversion Water Supply Program.

The booster pump station would pressurize the flows prior to discharge into the raw water transmission pipeline. The raw water transmission pipeline would be approximately 42 inches in diameter and would extend from the Bennett Pumping Plant south along a local farm road to Sankey Road. The pipeline would turn east along Sankey Road to Powerline Road, and then turn south along Powerline Road to Riego Road. The pipeline would then continue east along Riego Road and then south to the proposed surface water treatment plant (SWTP) that would be on a joint treatment plant site with the Western Groundwater Treatment Plant (see Exhibit 2-8 in Chapter 2, "Project Description") (see also Impact 3.9-3).

It is expected that the Western Groundwater Treatment Plant would be constructed first and the SWTP would be co-located with this facility; however, there is a potential that the Eastern Groundwater Treatment Plant would be constructed prior to the western facility. If this was the case, and assuming the Alternate "B" Winter Diversion Water Supply Program was implemented, it would be preferable to locate the SWTP in a common site adjacent to the Eastern Groundwater Treatment Plant. Accordingly, the route of the raw surface water transmission pipeline would differ from the route described above. Instead of turning south on Powerline Road from Sankey Road, the pipeline would continue east along Sankey Road, crossing under SR 99/70, to the realigned Pacific Avenue, where it would head south to the alternate location of the SWTP (see Exhibit 2-8 in Chapter 2, "Project Description").

Potential Improvements to the Bennett Pumping Plant

The Bennett Pumping Plant may require improvements to provide reliable municipal water service to the project site and to accommodate surface water demands of the proposed project. The Bennett Pumping Plant, in addition to being an aged and unscreened agricultural diversion facility, draws surface water from the relatively shallow NCC. As discussed above, it is estimated that the level of the Sacramento River falls below the flowline of the NCC; thereby requiring installation of a temporary dam at the mouth of the NCC to pump water from the Sacramento River into the canal to supply the Bennett Pumping Plant with sufficient water. This scenario would likely continue after improvements to the Bennett Pumping Plant.

In addition to the lack of fish screens, there are concerns that predation is occurring in the deep scour holes below the existing pump intakes where larger fish forage on smaller fish (especially juvenile anadromous salmonids). Because the NCC is shallow, concerns have been raised about the practicality of installing fish screens and keeping adequate submergence over the pump bowls.

Improvements to the existing Bennett Pumping Plant would address these design challenges. A sunken and screened intake structure could be constructed to provide the required submergence for proper operation of the pump intakes. This intake structure would likely include a self-cleaning trash rack designed to allow sufficient flow to the screened pumps while keeping trash, debris, and predatory fish out of the pump forebay. The intake structure, along with redundant pumps, backup electrical power, and appropriate controls, would provide a modern and reliable diversion facility that would replace the existing Bennett Pumping Plant.

Moreover, these actions would likely trigger consultation under Section 7 of the Endangered Species Act with the USFWS with respect to nonanadromous, freshwater fish species and with the NOAA, NMFS with respect to anadromous (ocean-going) fish species. Additional regulatory approvals would be required from various local, state and federal agencies, including but not limited to RD 1000, the Sacramento Area Flood Control Authority, the U.S. Army Corps of Engineers, and the California Department of Fish and Game. Regardless, these improvements would require substantial additional analysis in a CEQA document.

Sankey Diversion Facility

It is possible that the proposed project could be served in the future by the Sankey Diversion facility proposed as a component of the American Basin Project. As part of the American Basin Project, the proposed Sankey Diversion facility would be constructed near Sankey Road, approximately 0.25 mile downstream of the confluence of the Sacramento River with the NCC. The Sankey Diversion facility would provide a total maximum water diversion capacity of 434 cfs (420 cfs for NCMWC and 14 cfs for a private diverter) and include a state-of-the-art fish screen. After completion, the Bennett Pumping Plant would be abandoned.

If NCMWC is successful in gaining the necessary entitlements, permits, and funding, construction of the new diversion facility could begin as early as spring 2009. If construction begins in spring 2009, the facility could be completed and ready for operation in the fall of 2010. This timeline suggests that the Sankey Diversion facility would potentially be operational in time for delivery of surface water to the project site by 2018. However, construction of the Sankey Diversion facility is not required to serve the proposed project. Although the Bennett Pumping Plant may require improvements, an improved Bennett Pumping Plant would be capable of serving the proposed project if the Sankey Diversion facility is delayed or not constructed.

If the Sankey Diversion facility is constructed in the future, the raw water turnout and raw water booster pump station described above would be located at the site of the proposed Sankey Diversion facility. The route of the raw water transmission pipeline would vary slightly from that described above. The pipeline route would extend from the proposed Sankey Diversion facility east along Sankey Road to the point where the pipeline would have been extended from the local farm road south to Sankey Road from the Bennett Pumping Plant. The remainder of the raw water transmission pipeline route would be identical to that described above (see Exhibit 2-8 in Chapter 2, "Project Description").

Impact Conclusion

The surface water supply cannot be delivered to the project site until off-site water facilities have been constructed and are online. The Bennett Pumping Plant may not have the reliability to provide municipal water service to the project site and could require improvements to accommodate demands of the proposed project; however, it is not known at this time what improvements would be required. In addition, the infrastructure required for off-site water conveyance facilities necessary to serve the proposed project has not been constructed, nor have final design plans and specifications been submitted. Therefore, this impact is considered **direct** and **potentially significant**. No **indirect** impacts would occur.

Mitigation Measure 3.9-2: Submit Proof of Adequate Water Conveyance Facilities and Implement Off-site Infrastructure Service Systems or Assure that Adequate Financing is Secured.

Off-Site Elements

Prior to approval of building permits for all project phases, the project applicant(s) of all project phases shall submit proof to the County that an adequate off-site delivery system either has been constructed or is assured through the use of bonds or other sureties to the County’s satisfaction. Off-site water facilities sufficient to provide adequate water to the proposed project’s residential or nonresidential uses shall be in place prior to the approval of the final map, or their financing shall be assured to the satisfaction of the County.

- Implementation:** The project applicant(s) of all project phases.
- Timing:** Prior to approval of final maps and building permits for all project phases.
- Enforcement:** Sutter County Community Services and Sutter County Public Works Departments.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-2 would reduce direct potentially significant impacts related to off-site water conveyance facilities to a **less-than-significant** level by ensuring that sufficient off-site water conveyance infrastructure and facilities would be available to serve all proposed project phases. If off-site water conveyance infrastructure and facilities are delayed or not constructed due to unknown or unforeseeable events, implementation of Mitigation Measure 3.9-2 would result in the curtailment of development, resulting in a partially built-out project. Impacts associated with the curtailment of development are evaluated below in Impact 3.9-5.

IMPACT Need for On-Site Water Conveyance and Storage Facilities. *Project implementation would result in*
3.9-3 *increased demand for water supply. On-site water conveyance and storage facilities would be required to*
 deliver water to customers on the project site.

On-Site Elements

There are no public water supply facilities on the project site. NCMWC operates and maintains an existing irrigation system for conveying irrigation waters to and throughout the project site. These facilities consist of canals, laterals, underground pipes, turnouts, check gates, and pump stations. It is the intent of the County to maintain the operation of this irrigation system during the development of the proposed project. Over time, as the project site develops, irrigation ditches on the site would be removed and the urban water system developed to deliver groundwater and surface water to the proposed project. Existing development on the project site would be given the opportunity to connect to the system in lieu of continuing to use their private groundwater wells.

It is the intent of Sutter County to own, operate, and maintain the public water system through a dependant or independent special district (i.e., CSA, County Service District, or some other County agency). The County would develop the organizational structure, management, and technical staff, rates, fees, and equipment to manage the water system. Following incorporation of the project site, the water system would be transferred to the new city government. An alternative would be for the County to contract with a public or private water purveyor to operate and maintain the system.

A new water system would be constructed and would include transmission and distribution pipelines, aboveground water storage reservoirs, and booster pumps that would deliver treated water to customers on the project site (see Exhibit 2-7 in Chapter 2, “Project Description”). A preliminary on-site water system has been designed as a looping system following the major street alignments. The on-site distribution system would consist

of 12- to 42-inch diameter pipes. The internal water transmission system would be developed in phases, and the on-site distribution system would be adequately sized to accommodate project-related water demands and fire-flow demands.

In addition, the distribution system would deliver treated water to six storage reservoir sites strategically located throughout the project site. These water storage reservoirs would provide for fire, peak hour equalization, and emergency storage. At each reservoir site, dual water tanks would be constructed, each having a capacity of approximately 2.5 to 3 million gallons and combined storage totaling 5 to 6 million gallons. The six water storage reservoir sites would provide a total of approximately 34 million gallons of storage. The use of dual tanks would provide redundancy in design, provide flexibility during routine maintenance activities to rotate each tank out of service, and allow rotation of the tanks during low demand periods (i.e., winter time) to decrease the chances of the stored water supply becoming stagnant. Booster pump stations would provide the required operational pressures of the water distribution system at each reservoir site.

A recycled-water program is not proposed as part of the project. Wastewater generated by the proposed project would be treated by the SRCSD, which currently does not implement a recycled-water program in the project area. While there are no immediate plans to implement a recycled-water supply program, the proposed project includes installation of a “purple pipe” system in all open space, parks, and detention basins on the project site. The purple pipe system would follow the same alignment as, and would be installed at the same time as, the potable-water conveyance facilities. The system would be connected to the potable-water conveyance facilities and would be designed so that it could be easily converted from a potable-water supply to a recycled-water supply at some future date.

Because the infrastructure required for water conveyance and storage facilities necessary to serve the proposed project has not been constructed, nor have final design plans and specifications been submitted, this impact is considered **direct** and **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure 3.9-3. Submit Proof of Adequate Water Conveyance Facilities and Implement On-site Infrastructure Service Systems or Assure That Adequate Financing Is Secured.

On-Site Elements

Prior to approval of building permits for all project phases, the project applicant(s) of all project phases shall submit proof to the County that an adequate on-site delivery system either has been constructed or is assured through the use of bonds or other sureties to the County’s satisfaction. On-site facilities sufficient to provide adequate water to the proposed project’s residential or nonresidential uses shall be in place prior to the approval of the final map, or their financing shall be assured to the satisfaction of the County.

Implementation: The project applicant(s) of all project phases.

Timing: Prior to approval of final maps and building permits for all project phases.

Enforcement: Sutter County Community Services and Sutter County Public Works Departments.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-3 would reduce direct potentially significant impacts related to water conveyance facilities under the proposed project to a **less-than-significant** level by ensuring that sufficient on-site water infrastructure and storage facilities would be adequate to serve all project phases.

IMPACT Increased Demand for Groundwater and Surface Water Treatment Plant Facilities. *Project*
3.9-4 *implementation would require construction of on-site groundwater and surface water treatment plant facilities.*

On-Site Elements

The project proposes a conjunctive use water supply program that uses both groundwater and surface water to meet the water supply demands of the proposed project at buildout. The proposed project would construct two centralized on-site groundwater treatment plants and a surface water treatment plant to treat raw groundwater and surface water diverted from the Sacramento River (see Exhibit 2-7 in Chapter 2, “Project Description”). The groundwater treatment plants and SWTP would produce potable drinking water meeting the requirements of the California Department of Public Health and the U.S. Environmental Protection Agency. These treatment plants, depending on their scale, would include an administration/operations building, maintenance buildings, chemical buildings, electrical buildings, and a treated water pump station. Emergency backup power would also be provided from an on-site diesel generator. These treatment plants would operate continuously at various flow rates with ongoing operations and maintenance activities. A detailed analysis of the groundwater and surface water treatment process as associated water quality impacts is provided in Section 3.7, “Hydrology and Water Quality,” of this DEIR.

The groundwater element of the Proposed Water Supply Program and Alternate “A” Revised Water Supply Program would include a western and eastern well field (see Impact 3.9-1). The western well field would connect to a proposed Western Groundwater Treatment Plant located in the southwest portion of the project site west of SR 99. The eastern well field would connect to the proposed Eastern Groundwater Treatment Plant located in the central portion of the project site east of SR 99. Each treatment plant would be located on approximately 5 acres. Groundwater would be conveyed from the western and eastern production wells to their respective treatment plants through a series of raw groundwater transmission pipelines. The groundwater element of the Alternate “B” Winter Diversion Water Supply Program would include one well field that would be located either west or east of SR 99. Under this program, groundwater would be treated at one centralized groundwater treatment plant and the location of the treatment plant would depend on the placement of the well field. Each groundwater treatment plant would be constructed in Phases 1/A to provide the initial treatment capacity required for the proposed project. The treatment plant capacity would be incrementally expanded in four phases as needed to meet the demands of the proposed project.

The surface water element of the proposed project would include conveyance of raw water from the Sacramento River through a raw water transmission pipeline to the SWTP (see Impact 3.9-2). The proposed SWTP could be located in a joint treatment plant site that would also contain one of the proposed groundwater treatment plants. This combined facility would require approximately 10 to 15 acres. It is expected that the Western Groundwater Treatment Plant would be constructed first and the SWTP would be co-located with this facility; however, the Eastern Groundwater Treatment Plant may potentially be constructed prior to the western facility. If this was the case, and assuming the Alternate “B” Winter Diversion Water Supply Program were implemented, it would be preferable to locate the SWTP in a common site adjacent to the Eastern Groundwater Treatment Plant. The SWTP would be constructed in Phases 2/B to provide the initial treatment capacity required for the proposed project. The treatment plant capacity would be incrementally expanded in four phases as needed to meet the demands of the proposed project.

The capacity of the groundwater treatment plants and SWTP would vary depending on which of the water supply programs is implemented. Table 3.9-16 shows the initial and buildout capacity required for these treatment facilities under each water supply program.

Table 3.9-16 Initial Capacity and Buildout Capacity of the Groundwater Treatment Plants and Surface Water Treatment Plant				
Water Supply Program	Groundwater Treatment Plants		Surface Water Treatment Plant	
	Initial Capacity (mgd)	Buildout Capacity (mgd)	Initial Capacity (mgd)	Buildout Capacity (mgd)
Proposed Water Supply Program ^a	6.2	25.0	7.3	29.3
Alternate "A" Water Supply Program ^a	6.2	25.0	7.9	35.1
Alternate "B" Winter Diversion Water Supply Program ^b	3.8	15.1	8.3	33.1
Notes: mgd = million gallons per day ^a The initial and buildout capacity is the combined total of the Western Groundwater Treatment Plant and Eastern Groundwater Treatment Plant. Each plant would have an initial capacity of 3.1 mgd and a buildout capacity of 12.5 mgd. ^b The Alternate "B" water supply program would include one well field, and groundwater would be treated at one centralized groundwater treatment plant. Source: MacKay & Somps 2008a				

Because the groundwater treatment plants and SWTP required to serve the proposed project have not been constructed, nor have final design plans and specifications been submitted, it can not be assured that treatment capacity would be brought into service concurrently with demand generated by the proposed project. Therefore, this impact is considered **direct** and **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses, and these elements would not lead to an increase in residents or employees in the area. Implementing the off-site program elements would not increase the demand for water treatment facilities in Placer and Sacramento Counties. Therefore, implementing these elements would have **no direct** or **indirect impacts**.

Mitigation Measure 3.9-4: Demonstrate Adequate Water Treatment Capacity.

On-Site Elements

The project applicant(s) of all project phases shall demonstrate adequate capacity at the groundwater treatment plants and SWTP for treatment of raw groundwater and surface water. This shall involve preparing a tentative map-level study and paying connection and capacity fees as determined by the County. Approval of the final project map shall not be granted until the County verifies adequate water treatment capacity either is available or is certain to be available when needed at the groundwater treatment plants and SWTP for the amount of development identified in the tentative map.

Implementation: The project applicant(s) of each project phase

Timing: Prior to approval of final maps and building permits for each of the project phases

Enforcement: Sutter County Community Services and Sutter County Public Works Departments

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-4 would ensure that sufficient water treatment capacity would be available to all project phases, because capacity would be documented prior to approval of improvement plans. This mitigation measure would reduce significant impacts associated with the increased demand for water treatment plant facilities to a **less-than-significant** level.

IMPACT 3.9-5 Temporary Curtailment of Project Development. *Implementation of Mitigation Measure 3.9-1 (for surface water supplies) and Mitigation Measure 3.9-2 (for off-site water conveyance facilities) could result in the temporary curtailment of development during the period of time when the project would be dependent on off-site water conveyance facilities and surface water supplies, resulting in a partially built-out project.*

On-Site and Off-Site Elements

As discussed in Impact 3.9-1 above, groundwater supplies would serve Phases 1/A development and a portion of Phases 2/B development (approximately the first 11 years of development), at which time the surface water element is proposed to provide water supplies to the remaining phases of development. According to the WSA prepared for the proposed project, groundwater supplies are considered a reliable source of potable water, and there is a reasonable likelihood that groundwater supplies needed to serve the proposed project under all three water supply programs would be available.

Further, the WSA concluded that NCMWC has surface water supplies available to meet projected water demands in normal and critically dry years. Although it is reasonably certain as a physical matter that the surface water supplies in question could be delivered to the project site in the amounts needed to serve the proposed project at buildout, there is no assurance from a legal and regulatory standpoint, as additional actions by the Bureau of Reclamation, NCMWC and SWRCB would be necessary. If the surface water supplies for remaining development phases are not available due to unknown or unforeseeable events following approval of the remaining development phases, surface water supplies would not be available to meet the demands of the proposed project resulting in curtailment of development. It is assumed that once these entitlements are approved, the surface water supplies would continue to flow to NCMWC's shareholders without interruption, barring a major shift in climate or policy, or unless current California water law principles are applied differently than today (which is a speculative consideration).

Project implementation would require construction of off-site water conveyance facilities to implement the surface water element of the project (see Impact 3.9-2). These off-site facilities consist of a raw water turnout and booster pump station would be located at the NCMWC's existing Bennett Pumping Plant, and a raw water transmission pipeline to convey water to the project site. The surface water supply cannot be delivered to the project site until off-site water facilities have been constructed and are online. In addition, the Bennett Pumping Plant may not have the reliability to provide municipal water service to the project site and could require improvements to accommodate demands of the project; however, it is not known at this time what improvements would be required. If these facilities are delayed or not constructed, surface water supplies would not be available to meet the demands of the proposed project resulting in curtailment of development.

Implementation of Mitigation Measures 3.9-1 and 3.9-2 would require the County to make a factual showing that demonstrates the availability of surface water supplies and adequate off-site water conveyance infrastructure and facilities for the amount of development that would be authorized by the approval or entitlement at issue. If surface water supplies and/or off-site water conveyance infrastructure and facilities for remaining development phases are not available due to unknown or unforeseeable events, no further development could be approved and implementation of these mitigation measures would cause project development to be curtailed, resulting in a project that is only partially constructed. The following analysis discusses the potential environmental effects of curtailing project development. Such curtailment also could result from climatic or other environmental conditions that are unforeseen and cannot be predicted, or from unexpected regulatory or legal developments.

It is important to note that any effects of the curtailment are likely to be temporary and would be ameliorated upon receipt of the long-term water supply. In many respects, this is not dissimilar to what commonly occurs in the land development and construction business as a result of the cyclical nature of housing demand. Projects are often partially built and awaiting additional market-driven housing and commercial land use demand before they can be completed. Further, given the potential availability of groundwater to serve the site, it is unlikely that construction would be curtailed at all by restrictions on water supply. Nevertheless, an analysis of potential curtailment is provided because there is a remote possibility that long-term supplies may not be sufficient.

Land Use

The proposed project would require approval of a general plan amendment and rezoning by the County that would ensure that development of the proposed land uses on the project site would be consistent with the Sutter County General Plan and zoning ordinance. The proposed project would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter and Sacramento County Local Agency Formation Commission (LAFCO) Guidelines for reorganization of the Community Service Area (CSA) boundaries and Sacramento Regional County Sanitation District (SRCS) sphere of influence boundaries associated with the project site. The proposed project would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport Comprehensive Airport Land Use Plan (CALUP). The proposed project would not result in conflict with the SACOG Preferred Blueprint Scenario. The proposed project would include construction of housing and job-generating uses consistent with the advisory Measure M. Therefore, the proposed project would result in less-than-significant land use impacts. If development is curtailed at some point, the impacts on land use would not be changed and no new impacts would result. Therefore, impacts related to curtailment of development would be the same as those described in Section 3.1, "Land Use," and no new impacts would result from curtailment of development. No mitigation measures are required.

Population, Employment, and Housing

Project implementation would result in the development of new residential units, which would cause a direct increase in population. Increases in population and housing would be proportional to the amount of development occurring on the project site. Specific indirect impacts (e.g., traffic congestion, air quality degradation, and noise generation) and direct impacts (e.g., land conversions, commitment of resources, and other mechanisms associated with the development needed to accommodate increased population) would be expected to be temporarily less than the full project with curtailment of development. Population growth by itself is not considered a significant environmental impact. Development of housing, infrastructure, and facilities and services to serve this growth can have significant environmental impacts through land conversions, commitment of resources, and other mechanisms. Direct impacts associated with the development needed to accommodate increased population are evaluated in appropriate sections of this DEIR. In this context, impacts related to population growth from curtailment of development would be less than significant, and no new impacts would result from curtailment of development. No mitigation measures are required.

Transportation and Circulation

The proposed project would contribute to unacceptable roadway operations on regional, state (California Department of Transportation), and local (Sutter County, Sacramento County, and Placer County) roadway networks and intersections. Transportation mitigation measures associated with the proposed project would have indirect impacts related to traffic conditions in other jurisdictions and to the physical environment. The proposed project would increase demand for public transit and non-motorized travel. Although the increased demand would be met by increased transit service and non-motorized travel choices provided by the proposed project, this would still be a significant and unavoidable impact.

Increases in traffic are proportional to the amount of development occurring on the project site. There are a number of off-site roadway improvements for which the project applicant(s) would pay a fee. If project

development were curtailed, the fees commensurate with the development that would be curtailed would not be paid until a water supply became available and development resumed. On the other hand, the project also would not generate traffic warranting the payment of the fee and, presumably, the improvement. It is recognized that a perfect match will not always exist between fees collected and the timing of roadway improvements, and that market conditions often similarly curtail projects and the payment of fees that might otherwise be expected. Thus, in some instances there may be insufficient fees (from the project and other projects competing for limited water supplies) to pay for needed improvements; in other instances, there may not be sufficient need for improvements for which some fees have been collected but not spent. It would be too speculative to draw any other conclusions, given that the mix of land uses, fees collected, and impacts on roadways could be any number of combinations if curtailment of development was necessitated by unavailable water.

The traffic projections assume that development of employment and retail centers would attract internal trips that would otherwise leave the project area, thus decreasing external congestion; however, such attractants are a more significant consideration under buildout of the project, when roadways are fully loaded and employment and retail attractants actually exist. Thus, it is possible that curtailment of development would cause project residents to have to leave the project area in their vehicles for jobs and retail opportunities that would otherwise be available on-site under a scenario without curtailment. However, because there would be less development, fewer total trips would be generated; therefore, curtailment is unlikely to result in more traffic congestion than under buildout, based on the number of dwelling units expected before the long-term water supply and conveyance facilities are completed, and no new impacts would result from curtailment of development. No new mitigation is required.

Air Quality

The impact associated with long-term mobile source emissions of carbon monoxide (CO) from the proposed project would be less than significant. Project implementation would result in significant and unavoidable impacts related to emissions of criteria air pollutants and ozone precursors during construction and long-term operation of the proposed project and exposure of sensitive receptors to toxic air contaminants (TACs) and odors.

Emissions are proportional to the amount of development occurring and trips generated during and after construction. Therefore, curtailing development would temporarily limit the proposed project's contribution of emissions. Depending on market conditions and absorption, retail and employment uses could follow later in the buildout process. Thus, it is possible that curtailing development would cause project residents to commute to out-of-area jobs and to those commercial areas that would be available on-site under a scenario without curtailment. Longer vehicle trips would result in greater emissions (than the same number of trips without curtailment), contributing to air quality impacts. However, an attempt to project at what point development might stop, and therefore how many residents there might be and where they would choose to drive, would be too speculative to arrive at a meaningful conclusion. Any air pollution increases from such external effects, however, are expected to be less than impacts from buildout of the proposed project, which are significant and unavoidable. If curtailment were to occur in a manner that limited the ability to complete "smart growth" elements of the proposed project, there is the potential that the relative amount of emissions would be higher (per capita) than if the project were to be built out. However, on a cumulative (global) basis, the change would be unnoticeable and still significant. No new mitigation is required.

Noise

Project implementation would result in potentially significant and significant increases in noise related to exposure of noise-sensitive land uses to noise from Sacramento International Airport, exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations, construction related noise, exposure of residences to noise from existing agricultural and industrial activities, exposure of sensitive receptors to new noise generators, and increased project-generated traffic noise. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily decrease the extent of some of the impacts associated with noise, the same impacts would still occur. Implementation of mitigation measures

identified in Section 3.5, “Noise,” would reduce noise impacts to a less-than-significant level with the exception of increases in noise levels from project-generated traffic, which are significant and unavoidable. Curtailment of development would still produce significant off-site traffic and related noise, although at a rate slightly lesser than buildout. Thus, curtailing development is unlikely to substantially reduce the proposed project’s already significant noise impacts, and no new impacts would result from curtailment of development. No new mitigation is required.

Geology, Soils, and Paleontological Resources

The proposed project would have less-than-significant impacts related to risks to people and structures caused by surface fault rupture, and strong seismic ground shaking. Project implementation would result in potentially significant impacts associated with construction-related erosion, damage to structures and infrastructure from construction on expansive/unstable soils, seismically-induced liquefaction, and damage of unknown, potentially unique paleontological resources during construction. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily reduce (compared to buildout) some of the impacts associated with geology, soils, and paleontological resources, the same impacts would still occur. Implementation of mitigation measures identified in Section 3.6, “Geology, Soils, and Paleontological Resources,” would reduce these impacts to a less-than-significant level. Because each phase of development would implement these mitigation measures, impacts of curtailing development on geology, soils, and paleontological resources would be the same as those described in Section 3.6, and no new impacts would result from curtailment of development. No new mitigation is required.

Hydrology and Water Quality

The proposed project would have less-than-significant impacts related to groundwater pumpage rate and interference with groundwater recharge through construction of impervious surfaces. Project implementation would result in significant impacts related to construction-related and long-term water quality effects, increased risk of flooding from increased stormwater runoff or from potential levee failure, potential exposure to 100- and 200-year floods, and degradation of water quality from urban runoff. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit the extent of some of the impacts associated with hydrology and water quality, the same impacts would still occur to the extent that development of the site is exposed to flooding. Implementation of mitigation measures identified in Section 3.7, “Hydrology and Water Quality,” would reduce impacts to a less-than-significant level. Because each phase of development would implement these mitigation measures, impacts related to curtailment of development on hydrology and water quality would be the same as those described in Section 3.7, and no new impacts would result from curtailment of development. No new mitigation measures are required.

Public Services

The proposed project would result in significant impacts on public services related to temporary obstruction of roadways during construction, and the provision of adequate water pressure for fire flow. Implementation of mitigation measures identified in Section 3.8, “Public Services,” would reduce these impacts to a less-than-significant level.

The proposed project would result in the need for new fire protection facilities and services, police protection facilities and services, library facilities, judicial services, public health services, mental health services, and social services. Curtailing the project could lead to delays in the construction of these facilities within the project site and lead to the decline of levels of service at existing facilities. As described in Section 3.8, the timing of construction and staffing of each fire station would be completed in a manner that maintains Sutter County Fire Services response standards. Details regarding whether the provision of law enforcement services is adequate, including the phasing of service provision, are uncertain at this time. However, implementation of mitigation measures identified in Section 3.8 would reduce this impact to a less-than-significant level. As contemplated by

Measure M, the full cost to provide fire protection facilities and services, police protection facilities and services, library facilities, judicial services, public health services, mental health services, and social services to the project site would be paid for by project development, without reducing current service levels. Therefore, impacts related to curtailment of development would be the same as those described in Section 3.8 and no new impacts would result from curtailment of development. No mitigation measures are required.

The project would increase the demand for school facilities and services. Project implementation would result in construction of six K–8 schools and one high school. Curtailing the project could lead to delays in the construction of schools within the project site and could cause additional busing and use of facilities by school districts until development reached the necessary trigger for school construction. As allowed by state law, the project applicant(s) have agreed to pay school impact fees, which would be allocated to Pleasant Grove Union School District and East Nicolaus Joint Union High School District. The California Legislature has declared that the school impact fee is deemed to be full and adequate mitigation under CEQA. Therefore, impacts of curtailing development on demands for school services and facilities would be the same as those described in Section 3.8, “Public Services,” and no new impacts would result from curtailment of development. No mitigation measures are required.

Public Utilities

The proposed project would have less-than-significant impacts related to increased generation of solid waste; increased demand for electricity, natural gas, communications, and cable television services and infrastructure; and increased demand for energy. Project implementation would result in potentially significant impacts related to the increased demand for wastewater treatment and conveyance facilities. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit the extent of need for additional wastewater treatment and conveyance facilities to serve the proposed project, the same impacts would still occur. Implementation of mitigation measures identified in Section 3.10, “Public Utilities,” would reduce direct impacts associated with the increased demand for wastewater treatment and conveyance facilities to a less-than-significant level. Because each phase of development would implement these mitigation measures, impacts of curtailing development on wastewater treatment and conveyance facilities would be the same as those described in Section 3.6, and no new direct impacts would result from curtailment of development. However the project would contribute to indirect, significant and unavoidable impacts related to construction of the Sacramento Regional County Sanitation District’s Upper Northwest Interceptor 3 and expansion of the Sacramento Regional Wastewater Treatment Plant. Thus, curtailing development would result in the same significant and unavoidable indirect impacts, and no new impacts would result from curtailment of development. No new mitigation is required.

Agricultural Resources

Project implementation would result in significant impacts related to the conversion of Important Farmland to nonagricultural urban uses, conflicts with existing on-site and off-site agricultural operations, and the disruption existing agricultural operations during construction. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit some of the impacts associated with agricultural resources, the same impacts would still occur. Implementation of mitigation measures identified in Section 3.11, “Agricultural Resources,” would reduce impacts associated with disruption of existing agricultural operations during construction to a less-than-significant level. Impacts related to conversion of Important Farmland to nonagricultural urban uses and conflicts with existing off-site agricultural operations are significant and unavoidable. Thus, curtailing development is unlikely to alter the project’s already significant impacts on agricultural resources, and no new impacts would result from curtailment of development. No new mitigation is required.

Public Health and Hazards

The proposed project would have less-than-significant impacts related to proximity to transportation routes and routine transport, use, and disposal of hazardous materials. Project implementation would result in potentially significant and significant impacts related to exposure to on-site hazardous materials during construction, development on a known hazardous materials site, public health hazards from mosquitoes attracted by water features, safety hazards related to increased aircraft birdstrikes from project water features, exposure to unsafe levels of electrical and magnetic fields, and interference with emergency or evacuation plans. Implementation of mitigation measures identified in Section 3.12, “Public Health and Hazards,” would reduce these impacts to a less-than-significant level. Because each phase of development would implement these mitigation measures, impacts of curtailing development on public health and hazards would be the same as those described in Section 3.12, and no new impacts would result from curtailment of development. No new mitigation is required.

Biological Resources

Project implementation would result in potentially significant and significant impacts related to and consistency with the NBHCP, effects on the endangered giant garter snake and Swainson’s hawk, and potential loss and degradation of habitat for special-status wildlife and plants. The proposed project could also have a potentially significant and unavoidable direct and impact related to the potential loss and degradation of jurisdictional wetlands and other waters of the United States or waters of the State. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit some of the impacts associated with biological resources, the same impacts would still occur. Implementation of mitigation measures identified in Section 3.13, “Biological Resources,” would reduce most, but not all, of the impacts to a less-than-significant level. Because each phase of development would implement these mitigation measures, impacts of curtailing development on biological resources would generally be the same as those described in Section 3.13. In the short term, curtailment of development could lessen the potentially significant and unavoidable impact and significant impacts identified above; however, once construction resumed and the project continued to be developed, these impacts would be the same as those identified for the proposed project with no curtailment. No new impacts would result from curtailment of development. No new mitigation is required.

Parks and Open Space

Project implementation would result in potentially significant impacts related to increased demand for parks and recreation facilities for development Phase 1 and Phase A, and result in less-than-significant impacts related to increased use and potential deterioration of off-site recreational facilities. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily reduce some of the impacts associated with parks and open space, the same impacts would still occur. Implementation of the mitigation measure identified in Section 3.14, “Parks and Open Space,” would reduce impacts associated with increase demand for parks and recreation facilities to a less-than-significant level. Although curtailing development could temporarily cause an imbalance in the numbers of parks, the same impacts would still occur. Thus, curtailing development is unlikely to substantially increase the project’s already significant impacts on parks and open space, and no new impacts would result from curtailment of development. No new mitigation is required.

Cultural Resources

Project implementation would result in a potentially significant and unavoidable impact related to the loss of or damage to historic resources identified on the project site, and potentially significant impacts to as-yet-discovered prehistoric cultural resources or human remains during construction or within unsurveyed areas of the project site. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit some of the impacts associated with cultural resources, the same

impacts would still occur. Implementation of mitigation measures identified in Section 3.15, “Cultural Resources,” would reduce most impacts to a less-than-significant level, although impacts to historic-era resources may remain significant and unavoidable. Because each phase of development would implement these mitigation measures, impacts related to curtailment of development on cultural resources would be the same as those described in Section 3.15, and no new impacts would result from curtailment of development. No new mitigation measures are required.

Visual Resources

The proposed project would result in less-than-significant impacts from damage to scenic resources within a State scenic highway and new light and glare. Project implementation would result in significant and unavoidable impacts related to permanent alteration of scenic vistas from project operation, degradation of visual character from project operation and during construction, and skyglow effects. These impacts would generally be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily limit some of the impacts associated with visual resources, the same impacts would still occur. Thus, curtailing development is unlikely to substantially reduce the project’s already significant impacts on visual resources, and no new impacts would result from curtailment of development. No new mitigation is required.

Climate Change

Project implementation would result in increased greenhouse gas (GHG) emissions. These impacts would be proportional to the amount of development occurring on the project site. Although curtailing development would temporarily reduce with the amount of GHG emissions, the same impacts would still occur. Furthermore, impacts associated with climate change are cumulative in nature, rather than project-specific. A variety of strategies would be implemented to reduce GHG emissions, including mixed-use areas, higher density residential areas, transit options, and bicycle and pedestrian infrastructure throughout the proposed project. However, impacts related to increased GHG emissions would still be significant and unavoidable for the proposed project. Curtailing development would temporarily limit the project’s contribution of GHG emissions, but the emissions would still be substantial, and no new impacts would result from curtailment of development. If curtailment were to occur in a manner that limited the ability to complete “smart growth” elements of the project, there is the potential that the relative amount of GHGs would be higher (per capita) than if the project were to be built out. However, on a cumulative (global) basis, the change would be unnoticeable and still significant. No new mitigation is required.

Impact Conclusion

Based on the analysis of the resources discussed above, impacts associated with curtailment of project development would be the same as those identified in Table ES-1 in the Executive Summary. The curtailment of development would not result in one or more significant environment effects in addition to or more severe than those that would be caused by the development of the project as proposed, which have already been analyzed in Sections 3.1 through 3.17 of this DEIR. **Direct** and **indirect** impacts related to land use and population, housing, and employment would be **less than significant**. **Direct** and **indirect** impacts related to transportation and circulation; air quality; noise; geology, soils, and paleontological resources; hydrology and water quality; public services; utilities; agricultural resources; public health and hazards; biological resources; parks and open space; cultural resources; visual resources, and climate change would be **potentially significant** and **significant**.

Mitigation Measure: Implement the same mitigation measures called for in this DEIR, as specifically set forth in Table ES-1.

On-Site Elements and Off-Site Elements

The project applicant(s) of all project phases shall implement the same mitigation measures called for in this DEIR, as specifically set forth in Table ES-1.

Significance after Mitigation

After implementation of mitigation measures already identified in this DEIR, impacts on geology, soils, and paleontological resources; hydrology and water quality; and public health and hazards; would be **less than significant**; however, **direct and indirect** impacts on transportation and circulation, air quality, noise, agricultural resources, parks and open space, biological resources, cultural resources, and visual resources would be **significant and unavoidable**. **Indirect significant** impacts on public utilities (i.e., wastewater treatment and conveyance infrastructure) would occur.

Additional Detailed On-Site Analysis—Impacts and Mitigation Measures

No additional detail related to water supply beyond the program level is available at this time; therefore, a more detailed analysis is not provided in this DEIR.

3.9.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures listed above, the proposed project would not result in any residual significant impacts related to potable water supply and conveyance facilities.

3.10 PUBLIC UTILITIES

This section describes the public utilities and infrastructure systems that would be required to support the proposed project in accordance with the policies of the Sutter County General Plan and Measure M. It sets forth demands and infrastructure plans for sewer; solid waste; and dry utilities, including gas, electricity, communications, and cable television service. Impacts are evaluated in relation to increased demand on utilities associated with the proposed project and actions needed to provide the services that could potentially lead to physical environmental effects.

Potential environmental impacts associated with water quality and construction of new stormwater drainage facilities are addressed in Section 3.7, “Hydrology and Water Quality.”

3.10.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws related to public utilities are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the California Legislature passed the California Integrated Waste Management Act (CIWMA) of 1989 (Assembly Bill [AB] 939), effective January 1990. According to the CIWMA, all cities and counties were required to divert 25% of all solid waste from landfill facilities by January 1, 1995, and 50% by January 1, 2000. Each city is required to develop solid waste plans demonstrating integration of the CIWMA plan with the county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal.

California Public Utilities Commission Decision 95-08-038

The California Public Utilities Commission (CPUC) Decision 95-08-038 contains the rules for the planning and construction of new transmission facilities, distribution facilities, and substations. The decision requires permits for the construction of certain power line facilities or substations if the voltages would exceed 50 kilovolts (kV) or if the substation would require the acquisition of land or an increase in voltage rating above 50 kV. Distribution lines and substations with voltages less than 50 kV do not need to comply with this decision; however, the utility must obtain any nondiscretionary local permits required for the construction and operation of these projects. CEQA compliance is required for construction of facilities constructed in accordance with the decision. These facilities are included in the proposed project, and therefore, are being analyzed in this DEIR. Refer to Chapter 2, “Project Description.”

California Building Energy Efficiency Standards

The proposed project would be required to comply with changes to Title 24 of the California Code of Regulations regarding energy efficiency that became effective on October 1, 2005. These new energy efficiency standards were developed in response to the state’s energy crisis as well as AB 970 (Chapter 329, Statutes of 2000), the California Energy and Reliability Act of 2000. The goals of the recent changes to Title 24 are to improve the energy efficiency of residential and nonresidential buildings, minimize impacts during peak energy-usage periods, and reduce impacts on overall state energy needs.

Implementation of these standards is expected to reduce the growth in electricity use by 478 gigawatt-hours per year (GWh/y) and reduce the growth in natural gas use by 8.8 million therms per year. The savings attributable to new nonresidential buildings are 163.2 GWh/y of electricity savings and are expected to reduce the growth in electricity use by 478 GWh/y and reduce the growth in natural gas use by 8.8 million therms per year. The savings attributable to new nonresidential buildings are 163.2 GWh/y of electricity savings and 0.5 million therms. Additional savings result from the application of the standards on building alterations. In particular, requirements for cool roofs, lighting, and air distribution ducts are expected to save about 175 GWh/y of electricity.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento Counties and are related to the provision of utilities to the project site. They would not involve construction of new housing in Placer or Sacramento Counties and therefore would not lead to an increase in population and a resulting increase in demand for public utilities and infrastructure in those counties. A portion of the off-site sewer force mains would extend into Sacramento County, and policies related to wastewater conveyance facilities identified in the Sacramento County General Plan would be applicable to the proposed project. Construction of the off-site program elements would generate short-term construction-related debris and solid waste. No Placer or Sacramento County plans, policies, regulations, and ordinances regarding solid waste are applicable to the proposed project. Therefore, the Sutter County and Sacramento County plans, policies, regulations, and ordinances are presented in this section.

Sutter County General Plan

The following goals and policies from the Sutter County General Plan (Sutter County 1996) regarding public utilities are applicable to the proposed project.

Housing Element

- ▶ **GOAL 1:** Encourage the provision of safe and sanitary housing with adequate public services for all existing and future residents of Sutter County.
 - **Policy 1.2:** The County shall encourage the use of energy-efficient materials and technology in new construction and rehabilitation of existing residential dwellings.
 - **Policy 1.3:** New housing in the County's urban areas shall have full public services and improvements consistent with the Board of Supervisors' adopted sewer and water policies.
 - **Policy 1.4:** New housing shall be constructed to meet all current building, fire, health, public works, and zoning codes.

Public Facilities and Services Element

- ▶ **GOAL 3.A:** To properly serve the residents and developments with efficient public facilities, utilities and services.
 - **Policy 3.A-1:** The County shall require easements and/or dedication of land within newly developing areas to accommodate the necessary public facilities to support that development. Where new development requires the construction of upgraded or new public facilities, new development shall provide said facilities and shall fund the construction of its proportional share of said facilities. Where the cost of said facilities exceeds the development's proportional share, the developer will be reimbursed as determined by the County.

- **Policy 3.A-2:** The County shall require that adequate public facilities and services be available to serve new development. The County shall not approve new development where existing facilities are inadequate unless both of the following conditions are met:
 - A. The applicant can demonstrate that all necessary public facilities will be installed prior to the issuance of a certificate of occupancy or adequately financed through fees or other means.
 - B. Proposed facility improvements are consistent with applicable facility plans approved by the County or have been reviewed and approved by the County.
- **Policy 3.A-3:** Public facilities and services for new urban and suburban residential development shall be provided by an entity other than Sutter County.
- ▶ **GOAL 3.E:** To ensure the safe and efficient disposal or recycling of solid waste generated in Sutter County
 - **Policy 3.E-2:** The County encourages the establishment of businesses in the County that will use recycled waste products.

Conservation/Open Space – Natural Resources Element

- ▶ **GOAL 4.G:** To conserve energy resources in Sutter County.
 - **Policy 4.G-1:** The County shall encourage energy conserving land use forms and practices--such as compact, high density development projects; the provision of bikeways and pedestrian paths; proper solar orientation; and the incorporation of transit routes and facilities.

Sutter County Integrated Waste Management Plan

The CIWMA of 1989, also commonly known as AB 939, requires local agencies to implement source reduction, recycling, and composting. In 1992 a joint Yuba-Sutter Source Reduction and Recycling Element (SRRE) was prepared outlining steps to achieve the waste stream reduction requirements. The existing (1992) SRRE is still being used by the Regional Waste Management Authority, however, this plan was not required to have a diversion rate reduction plan past the 50% mandated mark for 2000. According the 2006 Regional Waste Management Authority Annual Report, 65% of the solid waste generated in Sutter County was diverted from landfills through recycling, composting, and other waste diversion methods (CIWMB 2007a). The Regional Waste Management Authority continues to implement programs to reduce waste streams and have maintained a diversion rate higher than the mandated 50% since 2000.

Sacramento County General Plan

Public Facilities Element

The following goal and policy from the Sacramento County General Plan (Sacramento County 1993) regarding wastewater conveyance facilities are applicable to the proposed project.

- ▶ **GOAL:** Safe, efficient, and environmentally sound public sewer system and treatment facility serving all urban development.
 - **PF-6:** Interceptor, trunk lines and flow attenuation facilities shall operate within their capacity limits without overflowing.

3.10.2 ENVIRONMENTAL SETTING

Off-site program elements and the sewer force mains would not add any residents to the area and thus would not increase the demand for public utilities and infrastructure. Therefore, the environmental setting discussion does not address the proposed off-site areas.

WASTEWATER COLLECTION AND TREATMENT

Wastewater Collection

The project site is presently not served by any municipal wastewater collection and treatment systems. Existing residential, industrial, and commercial uses within the project site and are served by individual on-site wastewater disposal (septic tank) systems. The proposed project would require construction of on-site and off-site wastewater collection and conveyance facilities.

A county service area (CSA), or other county or public agency such as a community services district (CSD), would be created to enable Sutter County to own, operate, and maintain the local and trunk sanitary sewer collection service. Currently, privately owned septic systems provide for the treatment and disposal of wastewater throughout much of Sutter County, and the County does not provide public sanitary sewer collection services. The County would be required to develop the necessary regulatory framework to provide sewer service and the appropriate rate and fee structure to cover the costs of operation and maintenance of the system. After incorporation of the project site, the sewer collection and conveyance system would be transferred to the new city government.

The applicant is proposing that the Sacramento Regional County Sanitation District (SRCSD) would provide off-site interceptor conveyance and sanitary sewer treatment and disposal for the project site. SRCSD is responsible for collection by interceptors (sanitary sewers that are designed to carry flows in excess of 10 million gallons per day [mgd]) and for wastewater treatment in Sacramento County. This district owns, operates, and is responsible for the public collection, trunk, and interceptor sewer systems throughout Sacramento County as well as the Sacramento Regional Wastewater Treatment Plant (SRWTP) located south of the community of Freeport. Exhibit 3.10-1 illustrates the location of SRCSD facilities and connection to the project site.

No SRCSD interceptors are located in the immediate vicinity of the project site, and the project site is not currently located in SRCSD's service area. Before SRCSD could provide wastewater service to the project, Sacramento County Local Agency Formation Commission (LAFCO) would need to amend the sphere of influence of SRCSD to include the project site in anticipation of a later "change of organization" as defined by statute. (See Section 3.1, "Land Use.") For SRCSD to provide service, Sutter County and SRCSD would need to enter into a formal agreement for service and operations to describe the interceptor conveyance, treatment obligations of SRCSD, and the fees to be paid for new residences and businesses to connect to the SRCSD system. Sutter County is currently negotiating an agreement with SRCSD to provide sewer service to the project site, should the project be approved. A "Principles of Agreement," which is a preliminary outline of the terms of the agreement for service by SRCSD, is expected in early 2009. Annexation of the project site into the service area of SRCSD may be required. Such an annexation would require approval by the Sutter County Local Agency Formation Commission (LAFCO) and Sacramento County LAFCO before SRCSD could provide wastewater service to the project (see Section 3.1, "Land Use").

The County proposes construction of off-site sewer force mains to connect with SRCSD's Upper Northwest Interceptor (UNWI) 3. Sacramento County evaluated the environmental impacts of constructing trunk and interceptor sewers that would serve most of the Sacramento region at a programmatic level in the *Sacramento Regional County Sanitation District Interceptor Master Plan 2000, Final Program Environmental Impact Report* (State Clearinghouse [SCH] # 2001112085) (SRCSD 2003a). This EIR was certified and the master plan approved in March 2003. Project-related facilities were not included in SRCSD master plan.

The purpose of the *SRCS D Interceptor System Master Plan 2000* (SRCS D 2003b) is to identify near- and long-term improvements needed for the regional wastewater conveyance system. The master plan describes the regional interceptor projects, along with their timing and costs, so that existing and future deficiencies in the regional system can be more accurately identified and predicted and strategic approaches to remedying these deficiencies can be developed. The plan uses new information regarding population growth, wastewater flow generation, and actual system responses to wet weather. The SRCS D's Master Plan 2000 includes the Upper Northwest Interceptor and the Lower Northwest Interceptor (LNWI), both of which would be used to carry wastewater flow from the project site. The LNWI (shown in Exhibit 3.10-1) was completed in late 2006 and placed in service.

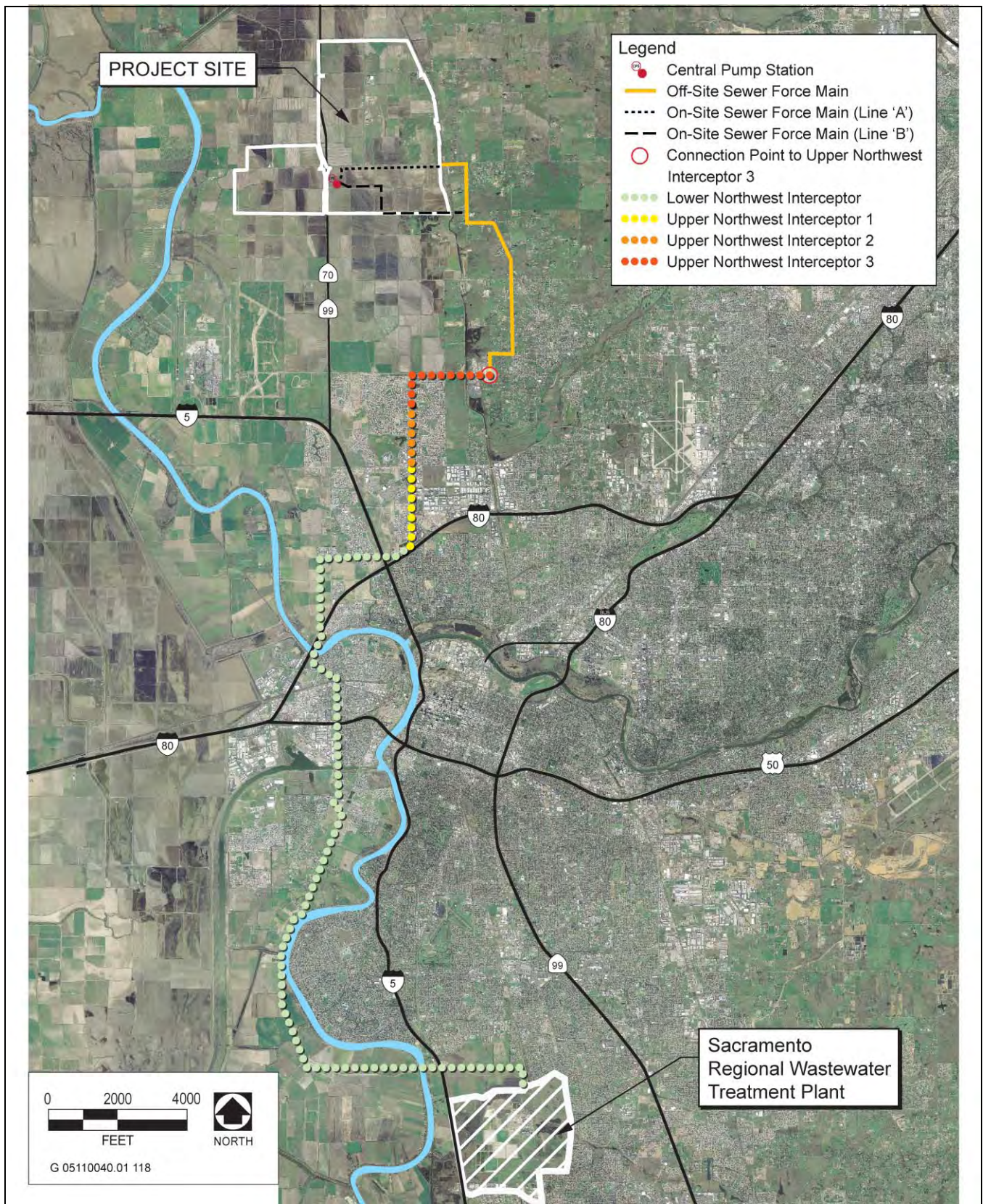
UNWI Reaches 1-4 are currently under construction and are necessary to convey wastewater generated by the proposed project to the SRWTP. The environmental impacts of the construction and operation of UNWI Reaches 1-4 were analyzed in a Subsequent EIR (SCH #2004062102), which was certified by Sacramento County in December 2005. The lower reaches of UNWI (Reaches 1 and 2) will be complete and operational by winter 2010, and Reaches 3 and 4 of the UNWI are scheduled for completion in early 2009 (SRCS D 2008). Project-related facilities were not evaluated in the environmental documents prepared for the UNWI (Reaches 1-4). Reaches 1 and 2 of the UNWI will extend the interceptor to the intersection of Natomas Boulevard and Bridgecross Drive across from the New Natomas Pump Station. Reaches 3 and 4 of the UNWI will then extend the interceptor north along Natomas Boulevard to Elkhorn Boulevard, and then east along Elkhorn Boulevard into Rio Linda. Exhibit 3.10-1 shows the location of UNWI Reaches 1-4.

Wastewater Treatment

Wastewater flows collected from the SRCS D interceptors are ultimately transported into the SRWTP. The SRWTP receives and treats an average of 131 mgd (as of 2006) and has a permitted dry-weather flow design capacity of 181 mgd (Seyfried, pers. comm., 2008). Flows to the SRWTP have consistently decreased between 2000 and 2006 from 155 mgd to 131 mgd. The reason for reduced flow has not been determined but may be connected, in part, to a combination of water conservation in general and replacement of older appliances with newer, more water efficient devices. Based on these data, the SRWTP could potentially treat more future development within its existing permitted capacity than what was originally anticipated.

Wastewater conveyed to the SRWTP is treated to a secondary level and is ultimately discharged into the Sacramento River. The SRWTP has a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board (RWQCB) for discharge of up to 181 mgd of treated effluent into the Sacramento River. SRCS D certified the *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan Final Environmental Impact Report* (SRCS D 2004) (SCH # 2002052004) in June 2004. The adequacy of the EIR has been challenged, and the case is pending review in the 3rd District Court of Appeal. A decision by the court is not expected before mid-2009. Significant impacts were identified in the EIR, and a summary of the environmental impacts have been incorporated by reference and are summarized in this section as they relate to the contributions to the potential need for expansion of the SRWTP by the proposed project.

The *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* provides for the expansion of the SRWTP to 218 mgd, and provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements through the year 2020. The master plan addresses both public health and environmental protection issues while ensuring reliable service at affordable rates for SRCS D customers. The key goals of the master plan are to provide sufficient capacity to meet growth projections and an orderly expansion of SRWTP facilities, comply with applicable water quality standards, and provide for the most cost-effective facilities and programs from a watershed perspective. As part of the expansion, the SRWTP has applied to the Central Valley RWQCB for a NPDES permit to accommodate these additional discharges into the Sacramento River.



Source: Adapted by EDAW in 2008

Proposed Off-Site Sewer Conveyance and Treatment

Exhibit 3.10-1

Solid Waste

The off-site elements of the proposed project would extend into Placer and Sacramento Counties. Construction of the off-site program elements would generate temporary, short-term construction-related debris and solid waste. In Placer County, solid waste would be disposed of at the Western Regional Landfill, which is permitted to accept 1,900 tpd of solid waste. In Sacramento County, solid waste would be disposed of at Kiefer Landfill, which is permitted to accept a maximum of 10,815 tpd of solid waste. Because construction-related solid waste would be short-term, these landfills are not discussed in further detail in this section.

Solid waste management for Sutter County is conducted under a joint powers agreement with Yuba County; the cities of Live Oak, Marysville, Wheatland, Yuba City; and the City of Gridley in Butte County. The agreement was entered into in 1990 to jointly address the provision of waste management services, including planning for the future provision of waste management services, and to form the Regional Waste Management Authority (previously the Bi-County Authority). Solid waste management in the bi-county region is conducted under federal and state regulatory policies as implemented and enforced by the California Integrated Waste Management Board (CIWMB) and the Central Valley RWQCB. The Yuba County Environmental Health Program serves as the Local Enforcement Agency for Sutter County, which monitors solid waste facility compliance in cooperation with the CIWMB (Sutter County 2008).

The CIWMA of 1989, also commonly known as AB 939, requires local agencies to implement source reduction, recycling, and composting (see discussion under “Regulatory Background” above). The countywide Integrated Waste Management Plan requires recycling programs that are expected to result in a 50% diversion away from landfills, thereby extending the life of landfills. According to the 2006 Regional Waste Management Authority Annual Report, 65% of the solid waste generated in Sutter County was diverted from landfills through recycling, composting, and other waste diversion methods (CIWMB 2007a).

The CIWMB provides an average per-capita solid-waste disposal rate for Sutter County of 0.36 ton per resident per year (CIWMB 2007b). Business waste disposal rates calculated by CIWMB range from 0.3 ton per year for general-merchandise stores to 3.1 tons per year for restaurants (CIWMB 2007c).

Yuba-Sutter Disposal, Inc.

No solid waste management facilities or transfer stations are located within Sutter County. The Regional Waste Management Authority works in conjunction with Yuba-Sutter Disposal, Inc. (YSDI) to provide for the collection, recycling, and disposal of municipal solid waste in Sutter County. YSDI provides residential and commercial garbage collection, debris box service, green waste collection, and recycling services to the residents of Beale Air Force Base, Live Oak, Marysville, Yuba City, Wheatland, and the unincorporated areas of Yuba and Sutter Counties (YSDI 2006). The company serves more than 30,000 residential customers and 5,000 commercial customers and collects more than 100,000 tons of materials annually. YSDI operates two transfer stations, a materials recovery facility that extracts recyclables from the waste stream, one household hazardous waste collection facility, one buy-back center, and a composting facility.

The 2005 CIWMB data shows that the YSDI collected approximately 146,772 tons of waste within the Yuba-Sutter Regional Waste Management Authority service area. Of the waste collected, approximately 31,000 tons (21%) of refuse was from residential sources, and 116,000 tons (79%) of refuse was from commercial sources. After collection, solid waste is transported to the YSDI’s Integrated Waste Recovery Facility. Unrecyclable solid waste is disposed of at the Ostrom Road Sanitary Landfill (CIWMB 2008).

In response to the CIWMA, the Regional Waste Management Authority and YSDI initiated recycling programs that include residential and business curbside pickup of paper, plastic, and green waste. In 2005, the Regional Waste Management Authority and YSDI established the Recycling Rewards Program for residences, businesses, and organizations participating in the curbside recycling program. The Recycling Rewards Program is designed to encourage residents, businesses, and organizations to improve their recycling efforts by offering cash rewards to

randomly selected participants that recycle properly. The Regional Waste Management Authority also developed the Yuba-Sutter Environmental Initiative Awards to acknowledge businesses and organizations for exceptional waste reduction and recycling efforts (Yuba-Sutter Recycles 2008).

Ostrom Road Landfill

Ostrom Road Sanitary Landfill is located at 5900 Ostrom Road near Wheatland and approximately 5 miles east of State Route (SR) 65 adjacent to the southern boundary of Beale Air Force Base. The facility currently encompasses an area approximately 261 acres in size with 225 acres available for disposal. Currently, approximately 35 acres of the 225-acre total disposal area has been developed. The landfill facility provides disposal services for both municipal and commercial customers. In addition to accepting municipal solid waste, Ostrom Road Sanitary Landfill accepts a variety of commercial and industrial waste streams, including asbestos, construction and demolition waste, contaminated soil, wastewater treatment sludge, and tires (NorCal Waste Systems, Inc. 2006).

In March 2002, the Yuba County Board of Supervisors granted YSDI an amendment to its existing permit to allow more tonnage to be accepted at the Ostrom Road Landfill. At present, the Ostrom Road Sanitary Landfill is permitted to accept 3,000 maximum tpd of solid waste. The landfill has a total capacity of 42 million cubic yards, and a remaining capacity of 41 million cubic yards. Currently, the landfill has a closure date of 2066 (NorCal Waste Systems, Inc. 2006, CIWMB 2007d).

Electrical Service

Pacific Gas and Electric Company (PG&E) is the local electric service provider to Sutter County. PG&E serves approximately 15 million customers through 158,000 circuit miles of electric transmission and distribution lines within its 70,000-square-mile service area in northern and central California. Electrical energy is generated through a combination of fossil fuel power plants; renewable energy sources, such as wind, solar, geothermal, and hydroelectric facilities; nuclear power plants; and additional energy purchased from other energy suppliers.

Most of the electrical service in the county is carried through aboveground lines. However, new development is generally served by underground service lines. In addition, PG&E operates a program to replace existing overhead service lines with underground service lines. PG&E currently has sufficient energy supplies and distribution facilities to meet anticipated demands and growth in the county (Sutter County 2008). In 2005, Sutter County consumed 568 million kilowatts of energy (Sutter County 2008).

PG&E has a major 115-kV overhead transmission line (tower line) abutting the eastern boundary of the project site. On the project site, PG&E serves the few existing scattered homes and businesses, as well as the various existing agricultural customers. For the most part, the facilities currently on the project site are not suitable to support the proposed development.

Natural Gas Service

Natural gas service in Sutter County is provided by PG&E through portions of PG&E's 46,000 miles of natural gas distribution pipelines. In 2006, PG&E delivered approximately 828,000 million cubic feet (mcf) of natural gas throughout its service area. In 2006, the county produced roughly 25 mcf of natural gas. This represents nearly 3% of the total natural gas production in the state (Sutter County 2008).

PG&E does not currently have gas service capability on the project site. The nearest gas service is approximately 2 miles southeast of the project site, in the northern portions of the community of Rio Linda. PG&E's facility in this location, however, does not have the capacity to serve the project site.

PG&E Line 406/407 Project

According to PG&E, the existing transmission system in the Sacramento Valley region would require additional transmission facilities to provide reliable natural gas service to existing customers or to extend service to future planned development in the area. PG&E anticipates that customer reliability could be at risk as early as 2009. As a result, PG&E is planning to construct the Line 406 and Line 407 Pipeline Project in Yolo, Sutter, Sacramento, and Placer Counties. PG&E anticipates that the Line 406/407 project would provide greater capacity and service reliability to the existing natural gas transmission and distribution pipeline system and would extend natural gas service to planned residential and commercial developments in Placer, Sutter, and Sacramento Counties. This natural gas pipeline project involves a new 30-inch transmission pipeline that would be approximately 40 miles long (identified as Line 406 and Line 407 East and Line 407 West) and a new distribution feeder main at Powerline Road. Line 406 would be constructed in 2009 (PG&E 2007).

Current projections are that Line 407 East and the Powerline Road distribution feeder main would be required in 2010. However, the pipelines may be installed prior to road improvements associated with developments along Riego and Baseline Roads. Line 407 West is projected to be required in 2012, but may be required earlier depending upon load growth in the area (PG&E 2007).

If timing allows, the proposed project would be served by the Line 407 East Pipeline. Line 407 East would consist of approximately 12 miles of 30-inch-diameter pipeline. The pipeline route would extend east from the junction the new Powerline Road distribution feeder main and follow Riego and Baseline Roads. The route would connect with an existing pipeline at the intersection of Baseline and Fiddymment Roads in Placer County.

A notice of preparation (NOP) (SCH # 2007062091) for the proposed Line 406/407 project was prepared and circulated for public review in June 2007. The California State Lands Commission will be the lead agency under CEQA and will prepare the EIR. It is anticipated that the DEIR for the Line 406/407 project could be circulated for public review in late 2008 (Spurr, pers. comm., 2008). The project is anticipated to be constructed in 2009 and 2010.

Potential impacts of the PG&E Line 406/407 project identified in the project description of the NOP include greenhouse gas emissions from construction vehicles; potential risks from release of natural gas; disturbance of habitat and special status plant and animal species, specifically the Swainson's hawk, giant garter snake, and valley elderberry longhorn beetle; disturbance of possible archaeological sites; disturbance of unknown paleontological resources; possible exposure of construction crews and the public to hazardous materials used in construction or present in excavated soils; short term effects on agriculture; possible frac-out of water bodies crossed by the pipeline; temporary noise and or ground vibration that would exceed ambient noise levels; and traffic congestion where the pipeline crosses roads through trenching (PG&E 2007).

Communications

American Telephone and Telecommunications, Inc. (AT&T) (formerly SBC Communications) is the local telephone service purveyor in the vicinity of the project site. Currently, most of the AT&T service lines within the county are aboveground. Underground service has become more common for new development and adjacent developed areas of the county. AT&T participates in a joint undergrounding program with PG&E and has been incrementally undergrounding service in the urban areas of the county (Sutter County 2008).

AT&T does not currently have service capability on the project site to support urban development. An existing exchange building is located in Pleasant Grove near the intersection of Howsley and Pleasant Grove Roads, approximately 5 miles northeast of the project site.

Cable Television

Comcast is the local cable television provider under an existing franchise agreement with Sutter County. Comcast serves the county with a combination of underground and overhead fiber optic cable and copper coaxial cable. Additional improvements or relocations of hub sites are generally made as the need arises to meet customer demand (Sutter County 2008).

Comcast does not have any facilities on the project site. The nearest facilities are located approximately 8 miles away, in the southern portion of Placer County, at the intersection of North Antelope and PFE Roads.

3.10.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Impacts on utilities and service systems that would result from project implementation were identified by comparing existing service capacity and facilities against future demand associated with project implementation. Where possible, a quantitative comparison was used to determine impacts of the proposed project on future demands. Land use demand factors and generation rates used to calculate wastewater generation, solid waste generation, and electrical and natural gas service demands are described under each impact. Evaluation of potential utility and service systems impacts was based on a review of the following documents pertaining to the project site and surrounding area:

- ▶ *Sutter County General Plan Policy Document* (Sutter County 1996),
- ▶ *Sutter County General Plan Update Technical Background Report* (Sutter County 2008),
- ▶ *Sutter Pointe Specific Plan Sewer Master Plan* (MacKay & Somps 2008a),
- ▶ *Sutter Pointe Specific Plan Dry Utilities Master Plan* (MacKay & Somps 2008b),
- ▶ *Sacramento Regional County Sanitation District Interceptor Master Plan 2000, Final Program Environmental Impact Report* (SCH # 2001112085) (SRCSD 2003a),
- ▶ *Sacramento Regional County Sanitation District Interceptor System Master Plan 2000* (SRCSD 2003b),
- ▶ *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan Final Environmental Impact Report* (SCH # 2002052004) (SRCSD 2004),
- ▶ *Sacramento Regional County Sanitation District Upper Northwest Interceptor Phase 2 and 3 Subsequent Environmental Impact Report* (SCH # 2004062102) (SRCSD 2005), and
- ▶ *Notice of Preparation for the PG&E Line 406 and Line 407 Natural Gas Pipeline* (SCH # 2007062091) (PG&E 2007).

Additional information was obtained through consultation with appropriate agencies, including SRCSD and PG&E, and field review of the project site and surroundings.

Various off-site utilities and other infrastructure improvements would be needed to support the proposed project both in the interim (Phase 1 and Phase A) and at buildout, as described in Chapter 2, "Project Description." The following off-site improvements have received CEQA clearance (certified environmental documents) or are currently being evaluated under CEQA review:

- ▶ SRCSD Upper Northwest Interceptor Reaches 1-4
- ▶ PG&E Line 406 and Line 407 Pipeline Project

Although these facilities are not evaluated further in this DEIR, a summary of their environmental impacts have been incorporated by reference and are summarized in this section as they relate to the proposed project. These documents are available for review through the Internet; website addresses are provided in Chapter 7, “References.”

Implementation of the proposed project would rely on construction of the proposed off-site elements and sewer force mains to provide utility service to the project site. Therefore, the impacts of these elements are generally the same as those identified for the on-site elements and are discussed together in the impact analysis. It should be noted that the off-site elements and sewer force mains would not add any residents to the area and thus would not increase the demand for public utilities and infrastructure. Specific impacts associated with construction of these elements, such as air quality degradation and noise generation, are addressed in each technical section of this DEIR as appropriate.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based Appendix G of the State CEQA Guidelines (except where noted below). A public utilities impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ create demand for electrical or natural gas service that is substantial in relation to the existing demands;
- ▶ exceed wastewater treatment requirements of the applicable RWQCB;
- ▶ require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▶ result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments;
- ▶ generate solid waste beyond the capacity of existing landfills;
- ▶ violate federal, state, or local statutes and regulations related to solid waste; or
- ▶ result in inefficient, wasteful, and unnecessary consumption of energy (based on Appendix F of the State CEQA Guidelines).

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT Increased Demand for Wastewater Conveyance Facilities. *Project implementation would result in*
3.10-1 *increased generation of wastewater.*

On-Site Elements

The project site is presently not served by municipal wastewater collection and treatment systems, and therefore the proposed project would require construction of wastewater collection and conveyance facilities. A CSA or other county or public agency such as a CSD, would be created to enable Sutter County to own, operate, and maintain the local and trunk sanitary sewer collection service. The County would be required to develop the necessary regulatory framework to provide sewer service and the appropriate rate and fee structure to cover the

costs of operation and maintenance of the system. Measure M recommends the project applicant(s) fund capital costs of all infrastructure improvements necessary to serve the proposed project. Additionally, it is proposed that the County develop the organizational structure, management and technical staff, and equipment necessary to operate and maintain the wastewater conveyance system. After incorporation of the project site, the sewer collection and conveyance system would be transferred to the new city government.

The sewer master plan prepared for the proposed project (MacKay & Soms 2008a) addressed the viability of providing sewer service to the project site, identified on- and off-site facility needs and design, and evaluated designs for consistency with existing interceptor sewer master plans. The sewer master plan presents options for the ultimate sewer conveyance facilities. However, detailed sewer master plans have not been completed. It is anticipated that additional work would be performed to define force mains, trunk, and major collectors; identify phased construction of facilities; and design tentative maps, including collector and lateral systems, to serve each lot. The following discussion provides an overview of the future facilities identified by the conceptual sewer master plan.

The sizing and design of the on-site sewer pipelines, pump stations, and storage facilities are based on Sutter County, Sacramento County, and SRCSD standards. The proposed on-site sewer system would be sized to accommodate planned sewer flows. A sanitary sewer system consisting of gravity sewer lines ranging in size from 8 inches to 48 inches in diameter with maximum depths of approximately 30 feet, and lift stations, would be constructed to collect the sewer flows generated on the project site and convey them to a proposed central pump station near the intersection of SR 99/70 and Riego Road (see Exhibit 2-9 in Chapter 2, “Project Description”). Peak wet-weather sewer flows generated by the proposed project would be stored for subsequent discharge during nonpeak periods. Storage would be provided within the project site in either an aboveground or an underground 3.9-million-gallon storage tank located at the central pump station.

Initially, wastewater flows would be pumped from the central pump station through two parallel sewer force mains (12 inches and 18 inches in diameter, respectively). These force mains would be installed underground and would convey sewer system flows from the project site east along Riego Road, south along Pleasant Grove Road, east along Rio Linda Boulevard, east along U Street a short distance to West Second Street, south along West Second Street to M Street, west along M Street to West Sixth Street, and then south along West Sixth Street to a point of connection with SRCSD’s UNWI 3, which is currently under construction (discussed in detail below). Exhibit 3.10-1 illustrates the project’s proposed connection to regional sewer facilities. These two force mains would provide sufficient capacity for the development of Phase 1 and Phase A of the proposed project. To serve development for the remaining phases of the project, a wastewater storage tank and a third force main would be constructed. This 24-inch-diameter force main would generally follow the same route of the dual force mains from the central pump station to the UNWI 3.

The impacts of constructing these facilities, both on-site and off-site, are addressed throughout this DEIR.

Alternate Sewer Systems

Proposals for alternate force main alignments have been developed for the proposed project’s sewer system and are described in detail in Chapter 2, “Project Description.” Either of the following two alternatives may be implemented as a means of providing sewer service to the proposed project.

On-Site Alignment

From the central pumping plant, the flows would be conveyed through parallel force mains north to Riego Road, then east along Riego Road to the eastern limit of the project site. An alternate alignment for the on-site portion of the force mains would follow the street system east and south from the central pump station to the southern boundary of the project site and then continue east along the southern boundary to the southeastern corner of the project site (see Exhibit 2-9 in Chapter 2, “Project Description”).

Off-Site Alignment

The alternate alignment for the off-site portion of the sewer force mains would connect to the on-site alternate force main alignment at the southeastern corner of the project site, then continue east in a boring under the Natomas Levee and Natomas East Main Drainage Canal and across the southern edge of an agricultural field to a point of intersection with Pleasant Grove Road (see Exhibit 2-9 in Chapter 2, “Project Description”). At this point, the sewer force main alignment would turn south along Pleasant Grove Road, which becomes Sorento Road as it enters Sacramento County, and continue to the point of connection with UNWI 3.

Off-Site Interceptor Conveyance Facilities

Flows from the central pump station on the project site would be pumped through a set of force mains to a point of connection with SRCSD’s UNWI 3 at Elkhorn Boulevard and West Sixth Street in Rio Linda. Currently, the project site is not within the SRCSD’s service area. Before wastewater flows could be discharged into the UNWI, Sacramento County LAFCO would need to amend the sphere of influence of SRCSD to include the project site in anticipation of a later “change of organization” as defined by statute. Sutter County is currently negotiating an agreement with SRCSD to provide sewer service to the project site, which is expected in early 2009. This agreement would define the general terms through which wastewater service would be provided to the proposed project by SRCSD, summarize the maximum wastewater flow rates generated by the proposed project, identify wastewater conveyance and storage facilities to be constructed by the project applicant(s), and establish fees to be paid to SRCSD for wastewater service. The agreement would not commit the County to approve the proposed project, but would provide for a means for wastewater disposal in the event the proposed project is approved. Approval of this agreement would be required before wastewater flows generated by the proposed project could be conveyed and treated at the SRWTP. In addition, the proposed project would require a wastewater services agreement, which would act as a binding contract between Sutter County and SRCSD, and an operations agreement, which would identify the specific wastewater facilities required and would define the operation of these facilities, before SRCSD would provide sewer service to the project site.

During dry weather, unused capacity in the UNWI reaches would be available to accommodate flows from the proposed project. During periods of wet weather, the UNWI may not have adequate capacity to accept peak wastewater flows generated by the proposed project. As such, peak wet weather flows would be conveyed and stored at an on-site 3.9-million-gallon storage tank located at the central pump station. The storage tank would temporarily store the incoming peak wet weather wastewater when flows are higher than the UNWI conveyance capacity, and the stored wastewater would later be pumped back through the interceptors when capacity becomes available.

Reaches 1 and 2 of the UNWI will be complete and operational by winter 2010, and Reaches 3 and 4 of the UNWI are scheduled for completion in early 2009. Reaches 1 and 2 of the UNWI will extend the interceptor to the intersection of Natomas Boulevard and Bridgecross Drive. Reaches 3 and 4 of the UNWI will then extend the interceptor north along Natomas Boulevard to Elkhorn Boulevard, and then east along Elkhorn Boulevard into Rio Linda. Flows would then be conveyed through the existing UNWI to the SRWTP. Treated flows ultimately would be discharged to the Sacramento River just downstream of Freeport (see Exhibit 2-9 in Chapter 2, “Project Description”).

Given the normal timing to gain land use and environmental entitlement and permits, the first phases of construction and, therefore, the need for sewer service on the project site, would occur in 2010. The UNWI would be online in time to serve the sewer flows generated by Phase 1 of the proposed project. (See Appendix D, “Sewer Service Plan,” of the proposed Specific Plan.)

Because the UNWI Reaches 1-4 identified above must be constructed to serve the proposed project at complete buildout along with other proposed development in the region, development of the proposed project would contribute to the environmental impacts of the construction of the UNWI Reaches 1-4, as identified in the

Subsequent EIR for that project. However, these impacts would also occur without development of the proposed project because these wastewater conveyance facilities are required to serve regional development and would be needed whether or not the proposed project is developed. The UNWI facility design would not be altered to serve the proposed project, so the UNWI project is the same without or without the proposed project.

Because there is a relationship between the proposed project and the need for the UNWI conveyance facilities, implementation of the proposed project contributes indirectly to the related impacts. The environmental impacts associated with the construction of facilities identified in the UNWI Subsequent EIR are discussed below.

UNWI Subsequent EIR

The environmental impacts of construction and operation of the UNWI Reaches 1-4 were analyzed in the *Upper Northwest Interceptor Phases 2 and 3 Subsequent Environmental Impact Report* (SCH # 2004062102), described above under “Environmental Setting.” This DEIR incorporates by reference the discussion of environmental impacts of construction of the UNWI Reaches 1-4 from the Subsequent EIR.

Because there is a relationship between the proposed project and the need for these wastewater conveyance facilities, implementation of the proposed project contributes indirectly to the related impacts. As described in the Subsequent EIR, construction of these conveyance facilities would result in several environmental impacts, most of which would be reduced to a less-than-significant level through implementation of mitigation by SCRSD. Impacts that would remain significant or potentially significant after implementation of mitigation (i.e., significant and unavoidable), or for which no feasible mitigation is available to reduce impacts to a less-than-significant level, were identified as follows:

- ▶ air quality: emissions of oxides of nitrogen (NO_x) during construction and
- ▶ noise: exposure of sensitive receptors to noise levels above the City of Sacramento and Sacramento County noise ordinances during construction.

Impact Conclusion

Sufficient wastewater collection and conveyance infrastructure necessary to serve the proposed project has not been constructed, nor have final design plans and specifications been submitted; therefore, this impact is **direct** and **potentially significant**. In addition, the project would contribute to impacts associated with the future construction of wastewater conveyance facilities identified in the UNWI Subsequent EIR that would be needed to serve the proposed project and other regional development. Therefore, the proposed project would contribute indirectly to **direct, significant and unavoidable** impacts related to air quality emissions of NO_x during construction and exposure of sensitive receptors to construction noise from the UNWI project.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses, and these elements would not lead to an increase in residents or employees in the area. Implementation of the proposed sewer force main line, would, however, provide the necessary infrastructure needed to provide wastewater service. Implementing the off-site program elements would not increase demand for wastewater collection and conveyance facilities in Placer and Sacramento Counties. Therefore, implementing these elements is a **direct, less-than-significant** impact. **No indirect** impacts would occur.

Mitigation Measure 3.10-1a: Submit Proof of Adequate Wastewater Conveyance Facilities and Implement On- and Off-Site Infrastructure Service Systems or Ensure That Adequate Financing Is Secured.

On-Site Elements

Before the approval of a final map and issuance of building permits for all project phases, the project applicant(s) shall submit proof to Sutter County that an adequate wastewater conveyance system either has been constructed or is ensured through the use of bonds or other sureties to the County's satisfaction. Both on- and off-site wastewater conveyance infrastructure sufficient to provide adequate service to proposed project shall be in place for the amount of development identified in the tentative map before approval of the final map and issuance of building permits for all project phases, or their financing shall be ensured to the satisfaction of the County.

Implementation: The project applicant(s) and/or construction contractor(s) of all project phases.

Timing: Before approval of final maps and building permits for any project phases.

Enforcement: Sutter County Community Services Department, Sutter County Public Works Department, and Sacramento Regional County Sanitation District.

Mitigation Measure 3.10-1b: Develop a Principles of Agreement, Wastewater Services Agreement, and an Operations Agreement with SRCSD and Operate On-Site and Off-Site Wastewater Facilities per These Agreements.

The project applicant(s) of all project phases shall demonstrate that wastewater conveyance and treatment from SRCSD is provided to the project site. This shall involve developing and executing a principles of agreement, a wastewater services agreement, and an operations agreement with SRCSD, and paying connection and capacity fees as identified by SRCSD through these agreements. The CSA or CSD shall operate the on-site wastewater facilities and off-site force mains per the requirements of these agreements. Approval of the final map and issuance of building permits for all project phases shall not be granted until the County verifies that a principles of agreement, wastewater services agreement, and an operations agreement have been developed and executed by the project applicant(s) and SRCSD.

Implementation: The project applicant(s) and/or construction contractor(s) of all project phases.

Timing: Before approval of final maps and building permits for all project phases and during operation of the project.

Enforcement: Sutter County Community Services Department, Sutter County Public Works Department, and Sacramento Regional County Sanitation District.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.10-1a would require that sufficient wastewater collection and conveyance infrastructure would be provided for all project phases, because an adequate wastewater conveyance system would be documented before approval of improvement plans. Further, Mitigation Measure 3.10-1b would require execution of a principles of agreement, wastewater services agreement, and an operations agreement thereby providing for wastewater conveyance and treatment by SRCSD for the proposed project. Thus, implementation of Mitigation Measures 3.10-1a and -1b would reduce the significant impacts associated with the increased demand for wastewater conveyance facilities to a **less-than-significant** level.

Regarding expansion of SRCSD wastewater conveyance facilities, implementation of mitigation measures to reduce impacts is the responsibility of SRCSD. Such measures would be implemented in accordance with the certified *Upper Northwest Interceptor Phases 2 and 3 Subsequent Environmental Impact Report*. As described above, indirect impacts on two issue areas would be **significant and unavoidable** even with implementation of all feasible mitigation measures.

IMPACT Increased Demand for Wastewater Treatment Plant Facilities. *Project implementation would result in*
3.10-2 *increased generation of wastewater, thereby increasing the demand for wastewater treatment facilities to*
 support the proposed project. Wastewater treatment would be provided by the SRWTP.

On-Site Elements

For purposes of calculating wastewater generated by the proposed project, it was assumed that Phases 1 and A (1/A) would be built out simultaneously. The same is also assumed for Phases 2 and B (2/B), Phases 3 and C (3/C), and Phases 4 and D (4/D), respectively. Implementation of the proposed project would generate 11.22 mgd of average dry-weather flow, and the peak wet-weather flow for the proposed project is estimated to be 27.03 mgd (MacKay & Soms 2008a). To provide wastewater treatment for the proposed project, the sewer master plan evaluated three wastewater treatment options: off-site conveyance and treatment at the SRWTP, construction of an on-site tertiary wastewater treatment plant with discharge to the Sacramento River, and off-site conveyance and treatment at the City of Roseville Dry Creek or Pleasant Grove wastewater treatment plant. Based on a review of available information, and consideration of issues including but not limited to permitting requirements and interceptor and wastewater treatment capacity, the sewer master plan concludes that connection to SRCSD interceptor facilities and treatment at the SRWTP is the only feasible option.

Currently, the project site is not within the SRCSD's service area. Before SRCSD could provide wastewater service to the project, Sacramento County LAFCO would need to amend the sphere of influence of SRCSD to include the project site in anticipation of a later "change of organization" as defined by statute (see Section 3.1, "Land Use.") Sutter County is currently negotiating an agreement with SRCSD to provide sewer service to the project site. A principles of agreement between the Sutter County and SRCSD is expected in early 2009. This agreement would define the general terms through which wastewater service would be provided to the proposed project by SRCSD, summarize the maximum wastewater flow rates generated by the proposed project, identify wastewater conveyance and storage facilities to be constructed by the project applicant(s), and establish fees to be paid to SRCSD for wastewater service. The agreement would not commit the County to approve the proposed project, but it would provide for a means for wastewater disposal in the event the proposed project is approved. Approval of this agreement is required before wastewater flows generated by the proposed project could be conveyed and treated at the SRWTP. In addition, the proposed project would require a wastewater services agreement, which would act as a binding contract between Sutter County and SRCSD, and an operations agreement, which would identify the specific wastewater facilities required for the proposed project and would define the operation of these facilities, before SRCSD would provide sewer service to the project site. Annexation of the project site into the service area of SRCSD may be required. Such action would require approval by the Sutter County LAFCO and Sacramento LAFCO before SRCSD could provide wastewater service to the proposed project (see Section 3.1, "Land Use").

After approval, collected wastewater flows from the project site would ultimately be transported to the SRWTP for treatment and disposal. The SRWTP receives and treats an average of 131 mgd (as of 2006) and has a permitted dry-weather flow design capacity of 181 mgd.

As described above in the "Environmental Setting" section, SRCSD prepared the *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan Final Environmental Impact Report* (SRCSD 2004), which was determined to be legally deficient by the Sacramento Superior Court. The judgment has been appealed, and a decision by the 3rd District Court of Appeals on the adequacy of the EIR is not expected until mid-2009. The Court of Appeal could overturn or uphold the Superior Court's determination in whole or in part. The legal effect

of the pending appeal is to stay the Superior Court's determination of legal deficiency. Thus, this DEIR summarizes below and incorporates by reference the significant impacts that were identified in the 2020 Master Plan EIR as they relate to the proposed project.

Flows to the SRWTP would increase over time as the population in the SRCSD service area increases. According to the 2020 Master Plan EIR, the permitted capacity (181 mgd) of the SRWTP was expected to be reached before 2010. However, flows to the SRWTP have consistently decreased between 2000 and 2006 from 155 mgd to 131 mgd. Based on these data, the SRWTP could potentially provide capacity to future development beyond what was originally anticipated.

The 2020 Master Plan, which was approved in 2004, provides for the expansion of the SRWTP to 218 mgd based on growth rates expected to be achieved in the Sacramento County region. This projected capacity does not specifically include buildout of the proposed project. Note that this total does not represent a buildout population total for SRCSD; rather, it represents the amount of growth expected within SRCSD based on projections. Thus, if new development is approved before 2020, it is assumed that it would not change the rate of growth in the district; rather, it would change the potential location within SRCSD where the growth would occur. Expansion is planned to be phased to provide for sufficient long-term capacity.

Because there is a relationship between the proposed project and the need for expansion the SRWTP, implementation of the proposed project would contribute indirectly and incrementally to the related impacts. As described in the 2020 Master Plan EIR, construction and operation of the expanded SRWTP would result in several environmental impacts, most of which would be reduced to a less-than-significant level through implementation of mitigation measures (including impacts on water quality, hydrology, fisheries, traffic, and noise). The only significant and unavoidable impact related to the treatment plant that was identified would be from short-term increases in NO_x during construction of SRWTP facilities.

In addition to these impacts, there is a potential that new significant impacts to water quality could be identified if the EIR for the SRWTP is found inadequate and impacts are re-analyzed. It is speculative to draw any such conclusion at this point since additional studies would be required to substantiate any new significant impacts.

Because the SRWTP is planned to accommodate growth in Sacramento regional area, development on the project site would be accommodated by planned SRWTP capacity. Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added. The SRWTP site has sufficient land area to accommodate a substantially higher flow than 218 mgd; however, future plans beyond the next 12 years are speculative.

There is expected to be sufficient SRWTP capacity to accommodate project flows within its 218 mgd capacity through 2020. There would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for project development occurring after 2020. Therefore, this impact is **direct** and **potentially significant**. However, the proposed project would contribute to the need to expand the facility and therefore would contribute **indirectly** to the **direct, significant** and **unavoidable** short-term impact related to air quality from expansion of the SRWTP identified in the 2020 Master Plan EIR.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses, and these elements would not lead to an increase in residents or employees in the area. Implementing the off-site program elements would not increase demand for wastewater treatment facilities in Placer and Sacramento Counties. Implementation of the proposed sewer force main line would, however, provide the necessary infrastructure needed to provide wastewater service. Therefore, implementing these elements would have a **direct, less-than-significant** impact during project operation. **No indirect** impacts would occur.

Mitigation Measure 3.10-2: Demonstrate Adequate Wastewater Treatment Capacity.

On-Site Elements

The project applicant(s) of all project phases shall demonstrate adequate capacity at the SRWTP for new wastewater flows generated by the proposed project. This shall involve preparing a tentative map–level study and paying connection and capacity fees as identified by SRCSD. Approval of the final map and issuance of building permits for all project phases shall not be granted until the County verifies adequate SRWTP capacity is available for the amount of development identified in the tentative map.

- Implementation:** The project applicant(s) and/or construction contractor of all project phases.
- Timing:** Before approval of final maps and building permits for all project phases.
- Enforcement:** Sutter County Community Services Department and Sutter County Public Works Department, in consultation with Sacramento Regional County Sanitation District.

Mitigation Measure: Implement Mitigation Measure 3.10-1b.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.10-2 would ensure that sufficient wastewater treatment capacity would be available to Phase 1 and Phase A, because capacity would be documented before approval of improvement plans. Further, implementation of Mitigation Measure 3.10-1b would require execution of a principles of agreement, wastewater services agreement, and an operations agreement thereby providing for wastewater conveyance and treatment by SRCSD for the proposed project. Thus, implementation of Mitigation Measures 3.10-2 and 3.10-1b would reduce the direct, significant impacts associated with the increased demand for wastewater treatment plant facilities to a **less-than-significant** level.

Regarding expansion of the SRWTP, implementation of mitigation measures to reduce air quality impacts is the responsibility of SRCSD. Such measures would be implemented in accordance with the certified SRWTP 2020 Master Plan EIR. The proposed project would indirectly contribute to impacts on air quality that would be **significant and unavoidable** after implementation of all feasible mitigation measures.

- IMPACT 3.10-3 Short-Term Generation of Solid Waste during Project Construction. *Construction of the proposed project would generate short-term construction-related debris and waste.*

On-Site Elements

Project construction activities would occur at intervals over the 20- to 30-year buildout period. CIWMB calculates solid waste business generation rates based on federal standard industrial classifications and averages of samples from individual businesses throughout California. CIWMB estimates that construction activities typically generate an average of approximately 3,258 tons per year of solid waste; therefore, construction activities would range from approximately 65,160 tons per year (20 × 3,258) or 178.4 tpd, to 97,740 tons per year (30 × 3,258) or 267.6 tpd over the 20- to 30- year buildout period, respectively (CIWMB 2008).

Solid waste generated by construction activities would be hauled to the YSDI Integrated Waste Recovery Facility. The YSDI, in conjunction with the Ostrom Road Sanitary Landfill, offers designated construction and demolition

debris bins that separate materials from the general landfill waste stream for further processing and recycling. Unrecyclable solid waste is disposed of at the Ostrom Road Sanitary Landfill.

The Ostrom Road Sanitary Landfill is permitted to accept 3,000 maximum tpd of solid waste. The estimated range of solid waste generated by construction activities (178.4 to 267.6 tpd) during the 20- to 30- year buildout period would be approximately 6% to 9% of the 3,000 maximum tpd that could be received at the landfill. The landfill has a total capacity of 42 million cubic yards, and a remaining capacity of 41 million cubic yards. Currently, the landfill has a closure date of 2066. Because this landfill has sufficient permitted capacity to accommodate short-term construction-related disposal needs for the proposed project and because the construction-related solid waste would be short term, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site elements and force mains would extend into Placer and Sacramento Counties. Construction of the off-site program elements would generate short-term construction-related debris and solid waste. Solid waste generated by construction activities in Placer County would be disposed of at the Western Regional Landfill, which is permitted to accept 1,900 tpd of solid waste and has a remaining capacity of 29 million cubic yards. In Sacramento County, solid waste would be disposed of at Kiefer Landfill, which is permitted to accept a maximum of 10,815 tpd of solid waste and has a remaining capacity of 117 million cubic yards. Because these landfills have sufficient permitted capacity to accommodate short-term construction-related disposal needs for the proposed project and because the construction-related solid waste would be short term, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT Increased Generation of Solid Waste. *Project implementation would increase long-term solid-waste*
3.10-4 *generation.*

On-Site Elements

Based on CIWMB’s generation rates for Sutter County (0.36 ton per resident per year), the estimated total population for the proposed project (46,900 persons) would generate approximately 16,884 tons of solid waste per year ($0.36 \times 46,900$), or 46.2 tpd.

The proposed project would generate a maximum of approximately 57,651 jobs over the 20- to 30-year buildout period. The employees at the project site would be working in jobs within designated waste categories such as commercial/retail stores (0.3 ton of waste per employee per year), other professional services (1.2 tons of waste per employee per year), business services (1.7 tons of waste per employee per year), and restaurants (3.1 tons of waste per employee per year). To estimate a single business waste–disposal rate for project development, the two anticipated extremes among the categories (0.3 ton and 3.1 tons per employee per year) were averaged, resulting in a generation rate of 1.8 tons per employee per year. An average business waste disposal rate of 1.8 tons per employee per year results in generation of 103,772 tons of waste per year ($1.8 \times 57,651$) or 284.3 tpd at the project site.

Combining residential and business solid-waste generation, total solid-waste generation for the proposed project would be approximately 120,656 tons per year (330.6 tpd). Much lower generation rates would occur at project initiation, with gradual increases in the rate as development progressed. As described above, solid waste collected from the project site would be hauled to the YSDI Integrated Waste Recovery Facility.

Unrecyclable solid waste would be disposed of at the Ostrom Road Sanitary Landfill, which is permitted to accept 3,000 maximum tpd of solid waste. The estimated 330.6 tpd of solid waste generated by the proposed project would be approximately 11% of the 3,000 maximum tpd that could be received at the landfill. Therefore, this landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the proposed project.

The proposed project would be subject to a mandatory collection ordinance requiring the use of Sutter County's exclusive franchised collection company. Development of the proposed project would also be required to comply with all federal, state, and local statutes and regulations related to solid-waste reduction and recycling. Therefore, this **direct** impact is considered **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. They would not involve construction of new housing or commercial and industrial land uses, and these elements would not lead to an increase in residents or employees in the area. Operation of the off-site elements would not increase long-term solid-waste generation in Placer and Sacramento Counties. Therefore, operation of these elements would have **no direct** or **indirect impacts**.

Mitigation Measures

No mitigation measures are required.

IMPACT Increased Demand for Electricity and Infrastructure. *Project implementation would increase the demand*
3.10-5 *for electricity and electrical infrastructure.*

On-Site Elements

Implementation of the proposed project would increase electrical demand in the project site. The proposed project would construct up to 17,500 dwelling units and 49,706,000 square feet of commercial and industrial uses. In 2004, electrical consumption averaged approximately 6,983 kilowatt-hour (kWh) per household per year in the PG&E service area (California Energy Commission [CEC] 2007). Commercial and industrial energy consumption can vary substantially by the specific types of uses, building materials, and space configurations. Generally, however, commercial and industrial uses in the PG&E service area consume approximately 12.96 kWh per square foot per year (CEC 2006). Based on this demand factor, the proposed dwelling units would require 122.2 million kWh per year (17,500 dwelling unit × 6,983 kWh per year), and commercial and industrial uses would require 644.2 million kWh per year (49,706,000 square feet × 12.96 kWh per year). Based on these rates, implementation of the proposed project would increase electrical demands by a total of 766.4 million kWh per year in Sutter County.

PG&E serves approximately 15 million customers through 158,000 circuit miles of electric transmission and distribution lines within its 70,000-square-mile service area in northern and central California. The energy demands created by the proposed project are not considered substantial in relation to the total amount of energy supplied by PG&E in its service area, and PG&E currently has sufficient energy supplies and distribution facilities to meet anticipated demands and growth in the county (Sutter County 2008).

PG&E has a major 115-kV overhead transmission line (tower line) abutting the eastern boundary of the project site. On the project site, PG&E serves the few existing scattered homes and businesses, as well as the various existing agricultural customers. For the most part, the existing facilities on the project site are not suitable to support the proposed project.

PG&E proposes to construct a primary community substation along the eastern border of the project site, just north of Riego Road as part of Phase 1 development (see Exhibit 2-10 in Chapter 2, "Project Description"). The

substation would connect to the existing 115-kV transmission line abutting the eastern boundary of the site. A drop from the existing overhead line to the new substation would be constructed. The substation site would require an area approximately 400 feet by 450 feet in size.

From the substation site, underground electrical service would then be extended into the new community through a series of underground trunk feeder lines. Generally, the feeder lines would follow the proposed roadway alignments out into the community to strategically positioned underground vaults, from which underground primary lines would extend throughout the community to transformer sites that would then provide secondary power to the various residential, commercial, and industrial users (see Exhibit 2-10 in Chapter 2, “Project Description”).

The on-site service lines would be sized to meet the demands of the proposed project, and public utility easements would be dedicated for all underground facilities. PG&E would extend lines and construct facilities to serve the project site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant(s) of all project phases would coordinate with and meet the requirements of PG&E regarding the extension and locations of on-site infrastructure.

The proposed electrical-utility improvements would be required to comply with all existing County and PG&E requirements, Building Energy Efficiency Standards (Title 24 of the California Code of Regulations), and applicable requirements of the California Building Standards Code. Because PG&E has indicated that it has available capacity to provide electrical service and associated infrastructure to the project site, and because the increase in demand for electricity and associated infrastructure would not be substantial in relation to the existing electricity consumption in PG&E’s service area, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

No off-site infrastructure elements related to electrical infrastructure are proposed in Sutter, Placer, or Sacramento Counties. Operation of the off-site infrastructure elements would require minimal amounts of electricity. The off-site infrastructure elements would not involve construction of new housing or commercial and industrial land uses that would lead to an increase in residents or employees in the area. Because PG&E has indicated that it has available capacity to provide electrical service, and because the increase in demand for electricity would not be substantial in relation to the existing electricity consumption in PG&E’s service area, this impact is **direct** and **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.10-6	Increased Demand for Natural Gas and Infrastructure. <i>Project implementation would increase the demand for natural gas and infrastructure and would include the extension of existing natural gas pipelines.</i>

On-Site Elements

Implementation of the proposed project would increase natural gas demand on the project site. Natural gas consumption for housing units averages 221 cubic feet of natural gas per day per dwelling unit (South Coast Air Quality Management District 1993). Commercial and office energy consumption varies depending on specific uses, building materials, and space configurations. In general, commercial and office uses average approximately 0.097 cubic feet of natural gas per square foot per day (South Coast Air Quality Management District 1993). The proposed dwelling units would require 3.9 mcf per day (17,500 dwelling unit × 221 cubic feet per day), and

commercial and industrial uses would require 4.8 mcf per day (49,706,000 square feet × 0.097 cubic feet per day). Based on these rates, the proposed project would increase natural gas demands by 8.7 mcf per day.

Natural gas service in Sutter County is provided by PG&E through portions of PG&E's 46,000 miles of natural gas distribution pipelines. In 2006, PG&E delivered approximately 828,000 mcf of natural gas throughout its service area. In 2006, the county produced roughly 25 mcf of natural gas. This represents nearly 3% of the total natural gas production in the state.

PG&E does not currently have gas service infrastructure on the project site. The nearest gas service is approximately 2 miles southeast of the project site, in the northern portions of the community of Rio Linda. PG&E's facility in this location, however, does not have the capacity to serve the project site. Instead, PG&E proposes to extend natural gas service west along Riego Road (Baseline Road in Placer County) from Roseville to an existing pipeline at the intersection of Baseline and Fiddymment Roads in Roseville. This extension would consist of an 8-inch-diameter distribution line. The proposed alignment of this new distribution line is along the north side of Riego Road through the entire project site (see Exhibits 2-10 and 2-11 in Chapter 2, "Project Description"). PG&E intends to extend natural gas service onto the project site through an underground distribution system.

The on-site service lines would be sized to meet the demands of the proposed project, and public utility easements would be dedicated for all underground facilities. PG&E would extend lines and construct facilities to serve the project site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant would coordinate with and meet the requirements of PG&E regarding the extension and locations of on-site infrastructure.

Alternatively, if timing allows, PG&E may serve the proposed project from the new Line 407 East pipeline, which is proposed as part of PG&E's Line 406/407 project. The pipeline would consist of approximately 12 miles of 30-inch-diameter pipeline and would extend east from the junction the new Powerline Road distribution feeder main and follow Riego and Baseline Roads. The route would connect with an existing pipeline at the intersection of Baseline and Fiddymment Roads in Roseville. An NOP (SCH # 2007062091) for the Line 406/407 project was prepared and circulated for public review in June 2007, and potential impacts for construction of the proposed PG&E Pipeline 406/407 project are identified in the NOP are summarized above in the "Environmental Setting." An EIR is currently being prepared to identify analyze specific impacts of the proposed pipeline project and identify any required mitigation measures. According to PG&E, a DEIR for the Line 406/407 project may be released in late 2008. The pipeline project is anticipated to be constructed in 2009 and 2010. However, PG&E has indicated that it has adequate natural gas supplies and infrastructure to support the proposed project at buildout and is not reliant on the Line 407 East Pipeline to provide reliable natural gas service to the project. Therefore, the proposed project would not contribute to impacts associated with the construction of the proposed PG&E Line 406/407 project. Because PG&E is able to provide natural gas and associated infrastructure to the project site, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Off-site natural gas infrastructure necessary to serve the proposed project would extend into Placer County. The off-site elements are related to the provision of utilities to the project site and would not involve construction of new urban uses (e.g., residential or commercial land uses) and thus would not increase the demand for natural gas and infrastructure. Therefore, implementing these elements is a **direct, less-than-significant** impact. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.10-7 Increased Demand for Communications Service and Infrastructure. *Implementation of the proposed project would increase the demand for communications service and infrastructure and would include the extension of existing communication lines.*

On-Site Elements

AT&T would provide communications service and associated infrastructure to the project site. AT&T is the local telephone service purveyor in the vicinity of the project site. It does not currently have service capability on the project site to support urban development.

To provide service to the proposed project, AT&T intends to upgrade an existing exchange building in Pleasant Grove near the intersection of Howsley and Pleasant Grove Roads, approximately 5 miles northeast of the project site, and to extend fiber optics, wire telephone, and other digital services to the proposed project. AT&T would extend service to the project site via existing overhead pole lines west along PFE Road, north along Watt Avenue, and west along Baseline and Riego Roads to the eastern boundary of the project site (see Exhibit 2-11 in Chapter 2, "Project Description").

On the project site, AT&T facilities would be underground, although temporary overhead facilities may be used on an interim basis. New infrastructure would generally be placed within the rights-of-way of on-site streets (see Exhibit 2-10 in Chapter 2, "Project Description"). Extension of lines to serve the project site would occur concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant(s) of all project phases would coordinate with AT&T regarding the extension and locations of on-site infrastructure. Because AT&T would be able to provide the necessary telecommunications services and infrastructure, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Communications infrastructure necessary to serve the project site would extend into Placer County. No off-site elements related to communications infrastructure are proposed in Sacramento County. Off-site communications infrastructure is related to the provision of utilities to the project site and would not involve construction of new urban uses (e.g., residential or commercial land uses) and thus would not increase the demand for communications service and infrastructure. Therefore, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.10-8 Increased Demand for Cable Television Service and Infrastructure. *Implementation of the proposed project would increase the demand for cable television service and infrastructure and would include the extension of existing cable television lines.*

On-Site Elements

Comcast would provide cable television service and related infrastructure to the project site. Comcast does not have any facilities on the project site. The nearest facilities are located approximately 8 miles away, in the southern portion of Placer County, at the intersection of North Antelope and PFE Roads.

Comcast would extend service to the project site via existing overhead pole lines west along PFE Road, north along Watt Avenue, and west along Baseline and Riego Roads to the eastern boundary of the project site (see Exhibit 2-11 in Chapter 2, "Project Description"). Comcast would construct a small hub station on the north side of Riego Road just inside the eastern boundary of the project site. This facility would be located as a permitted

use within an area designated for E1 land use. The cable signal would be split at this point and distributed through the joint trench system to be constructed in the new development. Additionally, Comcast would need to boost capacity in its existing plant facilities in northern Sacramento County and western Placer County to serve development on the project site. These improvements are anticipated to be equipment modifications in existing facilities, not physical enlargement of existing or development of new facility sites.

On the project site, Comcast facilities would be underground, although temporary overhead facilities may be used on an interim basis. New infrastructure would generally be placed within the rights-of-way of on-site streets (see Exhibit 2-10 in Chapter 2, “Project Description”). Extension of lines to serve the project site would occur concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant(s) of all project phases would coordinate with Comcast regarding the extension and locations of on-site infrastructure.

Under an existing franchise agreement with Sutter County, Comcast is responsible for paying all the costs associated with the extension of facilities to provide cable service in areas of Sutter County. Accordingly, the Measure M Group would not be required to cover costs associated with the extension of cable facilities to serve the proposed project.

Because Comcast would be able to provide the necessary services and infrastructure, this is a **less-than-significant** impact. **No indirect** impacts would occur.

Off-Site Elements

Cable television infrastructure necessary to serve the project site would extend into Placer County. No off-site infrastructure elements related to cable television infrastructure are proposed in Sacramento County. Off-site cable television infrastructure is related to the provision of utilities to the project site and would not involve construction of new urban uses (e.g., residential or commercial land uses) and thus would not increase the demand for cable television service and infrastructure. Therefore, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.10-9	Increased Energy Demand. <i>Project implementation would increase energy consumption during construction and operation of the proposed project.</i>

On-Site Elements

Project implementation would increase the consumption of energy for the duration of the proposed project’s construction and operation in the form of electricity, natural gas, and petroleum products. The primary energy demands during construction would be associated with construction vehicle fueling over the 20- to 30-year construction period. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on the site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the Sacramento region. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Energy would also be used for project operation related to heating and cooling systems, lighting, appliances, and other miscellaneous energy requirements. Design guidelines incorporated into the Specific Plan identify energy

conservation measures that would minimize inefficient energy usage and promote conservation of energy resources. These measures include:

- ▶ Establishment of a system of multimodal transportation facilities that connects to the regional transportation system, including pedestrian and bicycle trails and future bus rapid transit.
- ▶ Integration of livability and walkability in planning and design by developing safe, pedestrian-friendly streets and boulevards and promoting public transit and bicycling as alternate forms of transportation to reduce dependency on cars.
- ▶ Designing industrial and commercial buildings using flexible plans to reduce future waste.
- ▶ Using locally available and manufactured materials to conserve energy and limit costs associated with transportation.
- ▶ Incorporating cost-effective, energy-efficient site and building design measures, materials, and devices to optimize energy utilization such as orienting buildings to maximize southern exposure; installing passive and active solar devices such as solar collectors, solar cells, and solar heating systems to generate power and reduce power consumption; installing energy efficient light fixtures; and using flat-roof surfaces and light materials where possible.
- ▶ Increasing the use of vegetation to shade and minimize impervious surfaces reducing temperatures and creating comfortable public spaces.

The proposed project would comply with Building Energy Efficiency Standards included in Title 24 of the California Code of Regulations. Title 24 identifies specific energy efficiency requirements for building construction and systems operations that are intended to provide for efficient energy usage over the long-term.

Energy consumption would also be associated with vehicle trips resulting from residents and workers commuting on and off the project site to jobs and commercial services. The proposed project would provide residential land uses and a wide range of commercial services and employment opportunities for future residents on the project site, reducing the need to travel outside the project site. The design and placement of commercial and industrial land uses would result in the ability of employees to walk to convenience services (i.e., restaurants, health clubs, banks, dry cleaners, post office etc.) and would provide nearby access to a system of walking trails and public transportation. Mitigation Measure 3.4-2 in Section 3.4, “Air Quality,” identifies measures that are intended to minimize air quality impacts associated with the proposed project’s vehicle trip generation. In addition to reducing the proposed project’s air quality impacts, these measures would also reduce the proposed project’s overall energy consumption.

Because the proposed project would incorporate the design measures described above, comply with Building Energy Efficiency Standards (Title 24 of the California Code of Regulations), and implement Mitigation Measure 3.4-2, the proposed project would not be expected to cause the inefficient, wasteful or unnecessary consumption of energy, and this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Implementation of the off-site infrastructure elements would increase the consumption of energy during project-related construction activities. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment, trucks delivering equipment and supplies, and construction worker commute trips. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the Sacramento region. Therefore, it is expected that construction fuel consumption associated with the project-related off-site elements would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Once in place, the operation and maintenance of the off-site infrastructure elements would require minimal amounts of fuel and electricity. Fuel consumption would be associated with vehicle trips required for periodic maintenance of these elements. Minimal amounts of electricity would be used to power some of the off-site elements. The off-site infrastructure elements would not involve construction of new housing or commercial and industrial land uses that would lead to an increase in residents or employees in the area and thus result in an increase in energy consumption. Because these elements would require minimal amounts of energy, they would not be expected to cause inefficient, wasteful or unnecessary consumption of energy in Placer and Sacramento Counties after construction is complete. This **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

Additional Detailed Analysis of On-Site Elements—Impacts and Mitigation Measures

No additional detailed analysis related to public utilities beyond the program level is provided in this DEIR.

3.10.4 RESIDUAL SIGNIFICANT IMPACTS

All impacts related to increased generation of solid waste or increased demands for electricity, natural gas, communications, and cable television are less than significant; therefore, implementing the proposed project would not result in any direct or indirect residual impacts related to these public utilities.

Implementing the proposed project would increase demand for wastewater treatment facilities and would contribute to the need to expand the SRWTP facility; therefore, the project would contribute indirectly to the two significant and unavoidable impacts identified in the 2020 Master Plan EIR.

3.11 AGRICULTURAL RESOURCES

This section describes previous and existing agricultural uses of the project site, evaluates the significance and quality of agricultural land on the project site, summarizes policies pertaining to these resources, and analyzes the potential impacts the proposed project would have on agricultural resources.

Additional information on land uses on and adjacent to the project site and off-site improvement areas, and the consistency between the proposed project and existing federal, state, regional, and local planning goals and policies related to agricultural resources, is provided in Section 3.1, “Land Use.”

3.11.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Farmland Protection Policy Act

The U.S. Natural Resources Conservation Service (NRCS), formerly the U.S. Soil Conservation Service (SCS), a federal agency in the U.S. Department of Agriculture (USDA), is the agency primarily responsible for implementing the federal Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize federal contributions to the conversion of farmland to nonagricultural uses by ensuring that federal programs are administered in a manner compatible with state government, local government, and private programs designed to protect farmland.

NRCS administers the FPPA, which is a voluntary program that provides funds to help purchase development rights to keep productive farmland in agricultural uses. The program provides matching funds to state, local, or tribal government entities and nongovernmental organizations with existing farmland protection programs to purchase conservation easements. Participating landowners agree not to convert the land to nonagricultural uses and retain all rights to the property for future agriculture. A minimum 30-year term is required for conservation easements, and priority is given to applications with perpetual easements. NRCS provides up to 50% of the fair market value of the easement (NRCS 2001a).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Natural Resources Conservation Service

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (California Government Code Section 56000 et seq.) defines Prime Agricultural Land according to several criteria, which include the NRCS’s Land Capability Class System and the Storie Index. These systems are described in more detail below.

Land Capability Class System

The Land Capability Classes reflect the soil’s ability to support common crops and pasture plants without compromising the soil’s quality over the long term. The Land Capability Classification system uses eight Land Capability Classes (I through VIII) to rank soils. Generally, yields and profits from agricultural uses are more difficult to obtain as the ratings of the capability classification system increases. Prime farmlands generally correspond to Land Capability ratings of Class I or Class II. Class III soils are considered “good,” and Class IV soils are considered “fairly good” for agricultural use. Soils in Classes V through VIII are generally unsuited for agriculture, although these soils may be used for range, watershed, wildlife, and other non-intensive agricultural uses. A description of soil classification, as defined by the NRCS, is provided in Table 3.11-1.

Table 3.11-1 Land Capability Classification of Soils on the Project Site	
Class	Definition
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove that limits their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitation that preclude their use for commercial plant production and restrict their use to recreation, wildlife habitat, or water supply, or to aesthetic purposes.
Sources: NRCS 2001b, National Cooperative Soil Survey 1983	

The soil Survey of Sutter County (National Cooperative Soil Survey 1983) includes the Land Capability Classification system. Table 3.11-1 above identifies the soils on the project site and provides the Land Capability Class ratings associated with these soils when irrigated and nonirrigated.

Storie Index Rating System

The NRCS also assigns Storie Index Ratings, which rank soil characteristics according to their suitability for agriculture from Grade 1 soils, which have few or no limitations for agricultural production, to Grade 6 soils, which are not suitable for agriculture. Under this system, soils identified as less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or completely removed. The six grades and definition of the grades, as defined by the NRCS and Storie Index Ratings for the project site soils, provided in the Soil Survey of Sutter County (National Cooperative Soil Survey 1983), are described in Table 3.11-2.

Table 3.11-2 Storie Index Rating System	
Grade	Definition
1 – Excellent	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2 – Good	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3 – Fair	Soils are only fairly well suited to general agricultural use and are limited in their use because of moderate slopes; moderate soil depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.
4 – Poor	Soils are poorly suited. They are severely limited in their agricultural potential because of shallow soil depths; less permeable subsoil; steeper slope; or more clayey or gravelly surface soil textures than Grade 3 soils, as well as poor drainage; greater flood hazards; hummocky micro-relief; salinity; or fair to poor fertility levels, all acting alone or in combination.
5 – Very poor	Soils are very poorly suited for agriculture, are seldom cultivated and are more commonly used for range, pasture, or woodland.
6 – Nonagricultural	Soils are not suited for agriculture at all due to very severe to extreme physical limitations, or because of urbanization.
Source: National Cooperative Soil Survey 1983	

California Important Farmland Inventory System and Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the SCS (now called the NRCS of the USDA). The intent of the SCS was to produce agricultural-resource maps based on soil quality and land use across the nation. The California Department of Conservation (CDC) sponsors the FMMP and is also responsible for establishing agricultural easements in accordance with Public Resources Code Sections 10250–10255.

As part of the nationwide effort to map agricultural land uses, the SCS/NRCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classify the land's suitability for agricultural production. Suitability includes both the physical and chemical characteristics of soils as well as the actual land use. Maps of Important Farmland are derived from the NRCS (formerly SCS) soil survey maps using the LIM criteria and are available by county. Important Farmland maps classify land into one of the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, Other Land, and Water. CDC classifications in the Important Farmland Inventory System are as follows (CDC 2004a):

- ▶ **Prime Farmland**—Land that has the best combination of features for the production of agricultural crops
- ▶ **Farmland of Statewide Importance**—Land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops
- ▶ **Unique Farmland**—Land of lesser quality soils used for the production of the State's leading agricultural cash crops
- ▶ **Farmland of Local Importance**—Land that is of importance to the local agricultural economy
- ▶ **Grazing Land**—Land with existing vegetation that is suitable for grazing
- ▶ **Urban and Built-up Lands**—Land occupied by structures with a density of at least one dwelling unit per 1.5 acres
- ▶ **Land Committed to Nonagricultural Use**—Vacant areas; existing lands that have a permanent commitment to development but have an existing land use of agricultural or grazing lands
- ▶ **Other Lands**—Land that does not meet the criteria of the remaining categories

The designations for Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are defined together under the terms “Agricultural Land” and “Important Farmland” in CEQA (Public Resources Code Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G). The project site and off-site improvement areas include land designated as Important Farmland.

Williamson Act Contracts

The California Land Conservation Act of 1965, commonly known as the Williamson Act, enables local governments to enter into contracts with private landowners to promote the continued use of the relevant land in agricultural or related open space use. In return, landowners receive property tax assessments that are based on farming and open space uses instead of full market value. Local governments receive an annual subvention (subsidy) of forgone property tax revenues from the State via the Open Space Subvention Act of 1971.

The Williamson Act empowers local governments to establish “agricultural preserves” consisting of lands devoted to agricultural uses and other compatible uses. When such preserves are established, the locality may offer to owners of included agricultural land the opportunity to enter into annually renewable contracts that restrict the land to

agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax base, founded on the value of the land for agricultural/open space use only and unaffected by its development potential.

Cancellation of a Williamson Act contract involves an extensive review and approval process, in addition to payment by the landowner of fees of up to 12.5% of the property value. The local jurisdiction approving the cancellation must find that the cancellation is consistent with the purpose of the California Land Conservation Act or is in the public interest (Section 51282).

None of the lands on the project site or off-site improvement areas are under Williamson Act contracts; however, parcels adjacent to these areas are under Williamson Act contracts.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Regional

Natomas Basin Habitat Conservation Plan

The project site is located within the boundaries of the Natomas Basin Habitat Conservation Plan (NBHCP) area. The NBHCP establishes a multispecies conservation program to mitigate the expected loss of habitat values and incidental take of protected species that would result from urban development, operation of irrigation and drainage systems, and rice farming. The goal of the NBHCP is to preserve, restore, and enhance habitat in the Natomas Basin while allowing urban development to proceed according to local land use plans. (City of Sacramento, Sutter County, and Natomas Basin Conservancy 2003.)

Projects that would cause impacts associated with specifically covered species are required to implement avoidance and minimization measures to lessen the impacts and provide compensation through payment of fees or land dedication at a ratio of 0.5 acre of mitigation land per 1.0 acre of development. Fees are paid to the Natomas Basin Conservancy (NBC), which administers the NBHCP, and are to be used to acquire, establish, enhance, monitor, and manage mitigation lands in perpetuity for those lands exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands. Additional information on the NBHCP is provided in Section 3.13, "Biological Resources."

Local

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento Counties. Construction of the off-site elements (water transmission pipelines, distribution facilities, and pump stations; drainage facilities and pump stations; and electrical, cable natural gas transmission lines and extensions) would be within road rights-of-way and along existing property boundaries and would not involve temporary, short-term, or long-term impacts on agricultural resources. For this reason, only the adopted Sutter County plans, policies, regulations, and ordinances are presented in this section.

Sutter County General Plan

The following goals and policies from the Sutter County General Plan (1996) regarding agricultural resources are applicable to the proposed project.

Land Use Element

- ▶ **GOAL 1F:** To minimize conflicts between agricultural and non-agricultural uses.
 - **Policy 1.F-1** The County shall require that new development adjacent to agricultural areas be designed to minimize conflicts with adjacent agricultural uses.

- **Policy 1.F-2** The County shall require that all lands set aside or utilized for mitigation of development in Sutter County or the Natomas Basin demonstrates that its creation and existence will not adversely impact existing and/or future planned agriculture or urban development.
- **Policy 1.F-3** The County shall continue to implement its Right to Farm Ordinance. (Agricultural Operations Disclosure, Ordinance Code 1013, Chapter 1330 or its successor.)
- **Policy 1.F-4** The County shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Agricultural Resources Element

- ▶ **GOAL 6.A:** To preserve high quality agricultural land for agricultural purposes.
 - **Policy 6.A-1** The County shall preserve agriculturally-designated areas for agricultural uses and direct nonagricultural development to areas designated for urban/suburban growth, or rural communities and/or cities.
 - **Policy 6.A-2** The County shall balance the needs of proposed urban and suburban development with the need to preserve agricultural lands.
 - **Policy 6.A-5** The County shall require that developers proposing to use lands in the Natomas Basin as habitat conservation areas or mitigation for development demonstrate that these areas will not adversely impact existing or planned agricultural uses.

Sutter County Right-to-Farm Ordinance

The Agricultural Operations Disclosure (Ordinance Code 1013, Chapter 1330 Section 1330) implements the County's Right-to-Farm ordinance. The purpose of this ordinance is to promote the general health, safety, and welfare of the county and to preserve and protect those lands zoned for exclusive agricultural use; to support and encourage the continued agricultural operations in the county; and to warn prospective purchasers and residents of property adjacent to agricultural operations of the inherent problems associated with the agricultural uses, including but not limited to, noise, dust, odor, smoke, fertilizers, and pesticides that may accompany agricultural operations.

3.11.2 ENVIRONMENTAL SETTING

ON-SITE

The proposed project is within the 9,500-acre "Sutter County Industrial-Commercial Reserve" designated in the 1996 Sutter County General Plan to accommodate employment-related uses. The majority of the undeveloped land in the project site and vicinity, however, is still designated and zoned by the Sutter County General Plan as AG 80 (General Agriculture, 80-acre minimum lot size). Lands designated AG 80 typically have soils with characteristics that are particularly suited for field crops, row crops, and range land as defined or described in the county's soil survey. (Sutter County 1996.)

The majority of the project site has been in agricultural use for at least the last 50 to 100 years. Approximately 70% of the project site is currently in rice production. Other agriculture uses on the project site include irrigated and non-irrigated pasture and other row crops. Agricultural irrigation water is either pumped from groundwater or diverted from the Sacramento River and delivered via a series of canals to flood the rice fields. Rice fields remain inundated until the fall harvest when the water is drained via ditches where much of the water is then recirculated and reused for irrigation.

Existing industrial uses on the project site are located on Sankey Road in the northeast corner of the project site and on Pacific Avenue in the central portion of the project site. Rural residences and mobile homes and associated agricultural outbuildings are located on the eastern boundary of the project site south of Sankey Road and west of Natomas Road.

Existing land uses immediately adjacent to and surrounding the site are agricultural interspersed with low-density rural residential uses. Rice is the primary type of agricultural product grown in the vicinity of the proposed project, with other agricultural uses including wheat, alfalfa, row crops, and pastureland.

Sutter County Farmland Conversion

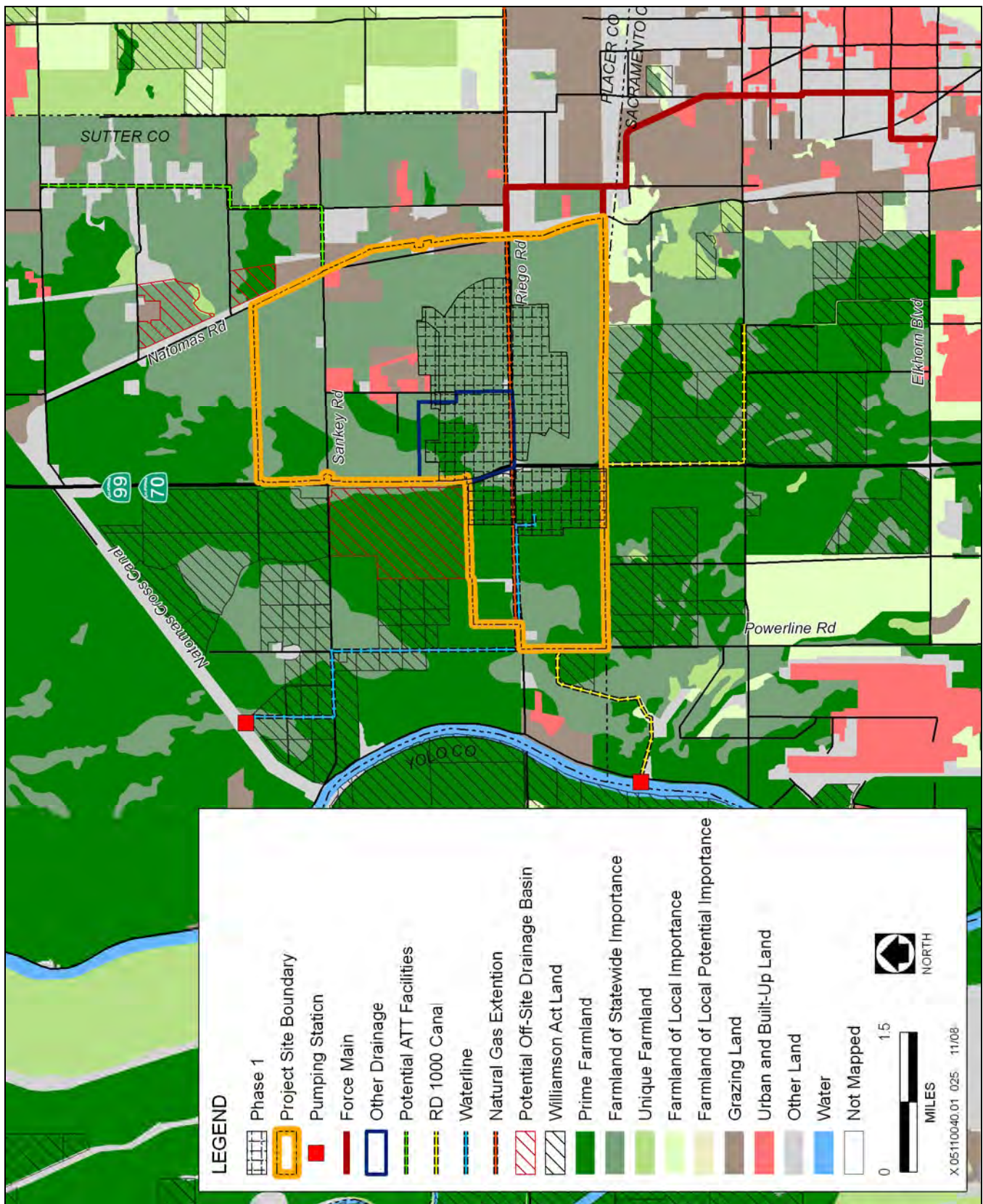
In 2006, Sutter County was estimated to have 292,256 acres of Important Farmland, 165,817 acres of Prime Farmland, 107,194 acres of Farmland of Statewide Importance, and 19,245 acres of Unique Farmland (CDC 2006). This is considered “Important Farmland” as defined in Appendix G of the CEQA Guidelines. No Farmland of Local Importance has been designated in Sutter County. Farmland of Local Importance is land of importance to the local economy, as defined by each county’s local advisory committee and adopted by its Board of Supervisors. The Sutter County Board of Supervisors has determined that no Farmland of Local Importance would be designated in Sutter County (CDC 2004b). As shown in Table 3.11-3, between 1996 and 2006 the amount of Important Farmland decreased by 14,608 acres. In the last 10 years, the availability of Important Farmland has been consistently declining by small increments from year to year primarily because of conversions to urban and other developed land uses.

Table 3.11-3 Acreages of Important Farmland in Sutter County						
Important Farmland Category	1996	1998	2000	2002	2004	2006
Prime Farmland	170,171	170,229	168,493	166,019	166,202	165,817
Farmland of Statewide Importance	113,441	113,680	111,505	109,760	107,742	107,194
Unique Farmland	23,252	22,235	21,178	19,917	19,480	19,245
Total	306,864	306,144	301,176	295,696	293,424	292,256
Source: CDC 2008						

The Sutter County Important Farmland map, published by CDC’s Division of Land Resource Protection, designates the project site as Important Farmland (CDC 2004a). The site currently includes 1,899 acres of Prime Farmland, 5,036 Farmland of Statewide Importance, 332 acres of grazing land, and 113 acres of other land (Exhibit 3.11-1). The project site contains a total of approximately 6,935 acres of Important Farmland, which accounts for approximately 2.4% of Important Farmland in Sutter County. It should be noted that the total acres of Important Farmland on the project site include existing roadways transecting the site (Pacific Avenue, State Route [SR] 99/70, Sankey Road, and Riego Road); therefore, the acres of Important Farmland on the project site are overestimated by approximately 140 acres. None of the land within the project site is held under Williamson Act contracts.

On-Site Soils

The NRCS Land Capability Class System and Storie Index Ratings are used to determine a soil’s agricultural productivity. The “prime” soil classifications of both systems indicate the absence of soil limitations, which if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) to enhance production.



Sources: FMMP 2004, 2006a

Important Farmland

Exhibit 3.11-1

The soil survey for Sutter County identifies the following soil series on the project site: Capay clay, hardpan substratum; Clear Lake clay; Clear Lake clay, hardpan substratum; Galt clay; Jacktone clay, Marcum clay, siltstone substratum; San Joaquin sandy loam; and the San Joaquin-Arents-Durochrepts complex (see Exhibit 3.6-2a and 3.6-2b in Section 3.6, “Geology, Soils, and Paleontological Resources”). Galt clay, San Joaquin-Durixeralfs complex, and to a lesser extent San Joaquin sandy loam, comprise the top three soil types covering the most area on the project site.

Table 3.11-4 identifies the soils on the project site and provides the Land Capability Class ratings associated with these soils when irrigated and non-irrigated. As shown in Table 3.11-4, all non-irrigated soils in the project site are rated Class IV. Soils rated as Class IV have very severe limitations that reduce the choice of plants, require very careful management, or both. When the soils are irrigated, Capay clay; Clear Lake clay; Clear Lake clay, hardpan substratum; and Marcum clay, siltstone substratum are rated Class II. Soils rated as Class II have moderate limitations that reduce the choice of plants or that require special conservation practices. The remaining soils are rated Class III or Class IV when irrigated.

Table 3.11-4 Agricultural Ratings of Soils on the Project Site			
Name and Characteristics	Land Capability Class		Storie Index Grade
	Non-Irrigated	Irrigated	
Capay clay, hardpan substratum Moderately well drained, 0 to 2% slopes	IV	II	3
Clear Lake clay Poorly drained, 0 to 2% slopes	IV	II	4
Clear Lake clay, hardpan substratum Poorly drained, 0 to 2% slopes	IV	II	4
Galt clay Moderately well drained, 0 to 2% slopes	IV	III	4
Jacktone clay Somewhat poorly drained, 0 to 2% slopes	IV	III	4
Marcum clay loam, siltstone substratum Moderately well drained, 0 to 1% slopes	IV	II	3
San Joaquin sandy loam Well drained, 0 to 2% slopes	IV	IV	4
San Joaquin-Arents-Durochrepts complex Well drained, 0 to 1% slopes	IV	IV	4
Source: National Cooperative Soil Survey 1983			

Table 3.11-4 also provides the Storie Index Ratings for the soil series on the project site. Capay clay, hardpan substratum and Marcum clay loam are grade 3, which are soils fairly well suited to intensively grown irrigated crops. The remaining soils are rated grade 4, which are soils limited in their agricultural potential and generally only used for rangeland.

OFF-SITE IMPROVEMENT AREAS

Off-site improvement area land uses are generally similar to those described under the on-site (project site/specific plan area) setting section above. Existing land uses immediately adjacent to off-site elements are agricultural interspersed with low-density rural residential uses. Rice is the primary type of agricultural product grown in the vicinity of the off-site improvement areas, with other agricultural uses including wheat, row crops, and pastureland.

The off-site elements of the proposed project would extend into Placer and Sacramento Counties. Construction of the off-site elements (water transmission pipelines, distribution facilities, and pump stations; drainage facilities and pump stations; and electrical, cable natural gas transmission lines and extensions) in Placer and Sacramento Counties would be within road rights-of-way and along existing property boundaries and would not involve temporary or long-term impacts on agricultural resources. Therefore, agricultural resources for these counties are not discussed further in this section.

Two properties located immediately northeast of the project site, or one property to the west of the project site, have been identified as potential locations for off-site detention storage. Construction of the storage facilities would be in areas designated as Important Farmland (Exhibit 3.11-1) and would remove approximately 300 acres of land to the northeast of the project site (or approximately 800 acres of land to the west of the project site) from agricultural use. The soil survey of Sutter County identifies the following soil series in the areas identified for potential off-site detention storage: Capay clay, hardpan substratum; Galt clay; Galt clay, frequently flooded; San Joaquin sandy loam, occasionally flooded; and San Joaquin silt loam, leveled. None of the identified detention storage properties are held under Williamson Act contract.

Although the proposed sewer force main alignment would be constructed within road rights-of-way, the alternate alignment for the off-site portion of the sewer force mains would require crossing the southern edge of an open field from the Natomas Levee and the Natomas East Main Drainage Canal to a point of intersection with Pleasant Grove Road. The Sutter County Important Farmland map designates the portion of the force main route crossing the open field as consisting of approximately 1.4 acres of Farmland of Statewide Importance (Exhibit 3.11-1). The soil survey for Sutter County identifies the following soil series in the open field associated with the alternate force main route: San Joaquin sandy loam, San Joaquin-Arents-Durochrepts complex, and Cometa loam. None of the agricultural lands that are crossed by the alternative force main alignment are held under Williamson Act contract.

The Land Capability Class and Storie Index Ratings for off-site soils series that are not also located within the project site and are therefore not shown on Table 3.11-4 include: Galt clay, frequently flooded; San Joaquin sandy loam, occasionally flooded; and San Joaquin silt loam, leveled; and Cometa loam. Ratings for these soils are shown in Table 3.11-5.

All non-irrigated soils in the off-site improvement areas are rated Class IV. When the soils are irrigated, Galt Clay, frequently flooded is rated Class III. The remaining soils are rated Class IV when irrigated. In addition, the Storie Index Rating for Cometa loam is grade 3, and all remaining soils are rated grade 4.

**Table 3.11-5
Agricultural Ratings of Other Soils within the Off-Site Improvement Areas**

Name and Characteristics	Land Capability Class		Storie Index Grade
	Non-Irrigated	Irrigated	
Galt clay, frequently flooded Moderately well drained, 0 to 2% slopes	IV	III	4
San Joaquin sandy loam, occasionally flooded Well drained, 0 to 2% slopes	IV	IV	4
San Joaquin silt loam, leveled Well drained, 0 to 1% slopes	IV	IV	4
Cometa loam Well drained, 0 to 2% slopes	IV	IV	3
Source: National Cooperative Soil Survey 1983			

3.11.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Evaluation of the proposed project's potential impacts on agricultural resources was based on a review of the planning documents pertaining to the project study area, including goals and policies from the Sutter County General Plan (1996), the Soil Survey of Sutter County (National Cooperative Soil Survey 1983), field review, and consultation with appropriate agencies. In addition, the CDC Important Farmland map for Sutter County and the NRCS Land Capability Class System and Storie Index Ratings were used to determine the agricultural significance of the lands on the project site and in the off-site improvement areas.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. An agricultural resources impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ convert Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- ▶ conflict with existing zoning for agricultural use or a Williamson Act contract; and
- ▶ involve other changes in the existing environment which, due to their location or nature, could result in conversion of Important Farmland to nonagricultural use.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT Permanent Conversion of Important Farmland to Nonagricultural Urban Uses. *Implementation of the*
3.11-1 *proposed project would result in the permanent conversion of Important Farmland to nonagricultural uses.*

On-Site Elements

Implementation of the proposed project would permanently convert Important Farmland to nonagricultural, urban uses. Based on the Sutter County Important Farmland map, published by CDC's Division of Land Resource Protection, the project site consists of approximately 1,899 acres of Prime Farmland and 5,036 acres of Farmland of Statewide Importance (Exhibit 3.11-1, Table 3.11-6). In 2006, there were approximately 165,817 acres of Prime Farmland and 107,194 acres of Farmland of Statewide Importance in Sutter County (Table 3.11-3). Implementation of the proposed project would convert approximately 1.1% of Prime Farmland and 4.7% of Farmland of Statewide Importance in Sutter County.

The NRCS relies on the Soil Capability Classification and the Storie Index Rating system to determine a soil's agricultural productivity. When irrigated, the majority of the soils on the project site are identified as Class II or Class III by the Land Capability Class system, and the Storie Index Ratings for soils on the project site are grade 3 and grade 4 (Table 3.11-4). The Land Capability Classes and Storie Index Ratings for soils on the project site indicate soils are generally well suited for agricultural uses.

Table 3.11-6 Comparison of Acres of Important Farmland Converted to Nonagricultural Use for the Project Site	
Important Farmland Category	Project Site ¹
Prime Farmland	1,899
Farmland of Statewide Importance	5,036
Unique Farmland	--
Farmland of Local Importance	--
Total	6,935
¹ The total acres of Important Farmland on the project site include existing roadways transecting the site (Pacific Avenue, SR 99/70, Sankey Road, and Riego Road); therefore, the acreage of Important Farmland on the project site is overestimated by approximately 140 acres. Source: FMMP 2006b	

The proposed project would result in the conversion of 6,935 acres of Important Farmland to nonagricultural, urban uses thereby contributing to the incremental decline of Important Farmland in the county, region, and state and result in the irreversible conversion of this agricultural land. When off-site improvements are added in (see discussion below), a total of up to 7,735 acres could be permanently converted. This **direct** impact is **significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site improvements (with the exception of the proposed off-site drainage storage facilities and the alternate alignment for the off-site portion of the sewer force mains) would be located within road rights-of-way and along existing property boundaries and would not involve conversion of Important Farmland to nonagricultural uses.

The alternate alignment for the off-site portion of the sewer force mains would cross the southern edge of an open field from the Natomas Levee and the Natomas East Main Drainage Canal to a point of intersection with Pleasant Grove Road. Lands along the alternate force main in this area consist of 1.4 acres of Farmland of Statewide Importance (Exhibit 3.11-1). Excavators and backhoes would be used for installation of the force main through this open field.

The 1.4 acres of Farmland of Statewide Importance accounts for approximately 0.001% of the total Farmland of Statewide Importance in Sutter County. No urban land uses would be developed along this portion of the alignment that would permanently convert Important Farmland to nonagricultural uses, and topsoil removed during construction would be replaced.

The three properties identified for potential off-site detention storage are designated as Important Farmland (Exhibit 3.11-1). Construction of the detention storage facilities would require significant earth movement consistent with heavy construction practices and would use large earth-moving equipment, such as graders and scrapers.

The area of disturbance required for the off-site detention basins would vary depending upon which alternative is implemented. If the area east of the project site is used, then approximately 300 acres would be disturbed. If the area west of the project site is used, then approximately 800 acres would be disturbed. Construction of detention storage facilities would permanently convert Important Farmland to nonagricultural uses. This conversion of agricultural land would contribute to the incremental decline of Important Farmland in the county, region, and state and result in the permanent irreversible conversion of this agricultural land. This is a **direct, significant** impact. **No indirect** impacts would occur.

Mitigation Measure 3.11-1: Establish Conservation Easements Consistent with the Natomas Basin Habitat Conservation Plan.

On-Site and Off-Site Elements

The project applicant(s) of all project phases shall participate in the NBHCP through payment of fees or land dedication as required under the NBHCP, on a per-acre basis for lost agricultural land during development of all elements of the proposed project that involve the conversion of Important Farmland to nonagricultural uses. The NBC would use these funds to purchase conservation easements on agricultural and habitat lands in the project vicinity. The preservation in perpetuity of agricultural lands through the NBHCP, a portion of which consists of Important Farmland, would ensure the continued protection of farmland in the project vicinity, partially offsetting project impacts.

Implementation: The project applicant(s) of all project phases and all on-site and off-site elements involving the permanent conversion of Important Farmland.

Timing: Before approval of final maps and building permits for all project phases, including on-site and off-site elements involving the conversion of Important Farmland.

Enforcement: Sutter County Community Services Department.

Significance after Mitigation

The project applicant(s) of all project phases would be required to participate in the NBHCP through the payment of fees or land dedication. The associated payment of fees would be used by the NBC to purchase conservation easements that would result in potential future benefits to agriculture by preventing loss of the protected lands. These measures also would lessen significant impacts associated with the conversion of Important Farmland on the project site because funding conservation easements would assist the public and private sectors in protecting other farmland from the pressures of development. The easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, so the compensation provided by the fee contribution for the proposed project would not be applied exclusively to agricultural lands. Therefore, fees contributed to the NBHCP would only partially offset conversions of Important Farmland associated with project implementation. Additionally, no new farmland would be made available, and the productivity of existing farmland would not be improved as a result of implementation of the NBHCP. Therefore, full compensation for permanent losses of Important Farmland would not be achieved, and the impact would remain **significant and unavoidable**.

IMPACT 3.11-2 Cancellation of Williamson Act Contracts. *Implementation of the proposed project would not result in the cancellation of Williamson Act contracts, because none of the lands located on the project site or off-site elements are currently under Williamson Act.*

On-Site and Off-Site Elements

None of the lands on or adjacent to the project site are under Williamson Act contracts (Exhibit 3.11-1). None of the off-site elements (water transmission pipelines, distribution facilities, treatment plants, and pump stations; drainage facilities and pump stations; off-site sewer force mains; and electrical, cable natural gas transmission lines and extensions) would be located on parcels identified as under Williamson Act contracts (Exhibit 3.11-1). Parcels located adjacent to the water transmission pipeline route northwest of the project site and the East Drainage Canal south of the project site would be located adjacent to Williamson Act parcels. The off-site elements would be constructed within road rights-of-way and along existing property boundaries and none of these elements would be located on parcels identified as under Williamson Act contracts or result in land uses that would require changes in agricultural zoning. Therefore, the construction of on-site and off-site elements would

not conflict with existing Williamson Act contracts or result in the cancellation of such contracts and this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.11-3 *Conflict with Existing On-Site and Off-Site Agricultural Operations. Implementation of the proposed project would locate urban land uses adjacent to existing agricultural lands, which could impair adjacent agricultural activities, result in land use compatibility conflicts, and potentially result in the ultimate conversion of this land to nonagricultural land uses.*

On-Site Elements

Lands on and in the vicinity of the project site are currently under agricultural production. Implementation of the proposed project would result in the development of urban land uses adjacent to existing agricultural operations on and off the site. In addition, the areas north, south, east, and west of the project site are zoned General Agricultural (AG), and these areas are intended for long-term agricultural uses. Agricultural-urban interfaces generally result in the potential for conflicts between agricultural practices and adjacent landowners. Agricultural operations may create risks and nuisances for urban residences and businesses. Conversely, urban land uses and the associated population create operational difficulties for agriculture. Health risks and nuisances potentially created by agricultural operations in the project area include, but are not limited to, exposure to pesticide and herbicide applications, exposure to dust (from soil preparation), exposure to noise (from machinery and trucks), and exposure to mosquitoes breeding in flooded fields.

Conflicts between agricultural and urban uses mainly would affect the agricultural areas that would remain adjacent to the project site. The project site would be developed in four phases of construction and would ultimately be built out in 20–30 years. Agricultural production would continue on each phase of the project site until these lands are ready to be developed. As development proceeds throughout the project site, there is potential for conflicts when the development edge is adjacent to ongoing agricultural operations on undeveloped portions of the project site. Sutter County considers industrial and some commercial uses compatible with adjacent agricultural operations. At buildout of the proposed project, residential uses would border off-site agricultural land. The efforts of future urban residents to reduce potential risks and nuisances emanating from surrounding agricultural areas could become a major constraint on agricultural operations. These constraints could result in increasing operational costs, phasing out of crops, and moving operations that create nuisances for adjacent urban areas. Over time, these conflicts could lead to the abandonment of agricultural operations adjacent to the site and could potentially result in the ultimate conversion of this land to nonagricultural land uses. The potential for conversion of adjacent agricultural lands to urban uses is an **indirect, significant** impact. Conflicts between urban and agricultural uses is a **direct, significant** impact.

Off-Site Elements

Infrastructure necessary to serve the site would extend into Placer and Sacramento Counties. It is assumed that off-site elements of the proposed project are related to the provision of roadways and utilities to the project site and would not involve construction of new urban uses (e.g., residential or commercial land uses) in Placer and Sacramento Counties. The construction of off-site elements would not locate urban land uses adjacent to agricultural lands that could impair adjacent agricultural activities and result in land use compatibility conflicts; therefore, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Mitigation Measure 3.11-3a: Establish Buffers between Urban Land Uses and Existing Agricultural Operations.

As development occurs on the project site, on-site fencing, walls, landscaping, or other suitable barriers shall be constructed or established at the interface between development and adjacent off-site agricultural lands. In addition, a buffer zone of at least 150 feet shall be provided between the edge of all residential development and the adjacent agricultural land. Roads, greenbelts, and similar facilities can function as these buffers. The County shall include the buffer as a condition of development approval. The buffer shall be maintained by the applicant(s) or the individual developer in areas adjacent to agricultural land until each development phase is completed, at which point maintenance of the buffer may be transferred to a homeowner's or other Sutter Pointe community association.

Implementation: The project applicant(s) of all project phases.

Timing: Before approval of final maps and building permits for all project phases.

Enforcement: Sutter County Community Services Department.

Mitigation Measure 3.11-3b: Provide the County's the Agricultural Operations Disclosure to Prospective Residents and Tenants Adjacent to the Agricultural Buffers.

The project applicant(s) of all project phases shall provide the County's Agricultural Operations Disclosure (Ordinance Code 1013, Chapter 1330 Section 1330) to all prospective residents and tenants of parcels adjacent to the 150-foot agricultural buffers, consistent with the County's Right-to-Farm ordinance. The Agricultural Operations Disclosure shall be included in all residential deed and tenant agreements at the time of sale or lease.

Implementation: The project applicant(s) of all project phases.

Timing: Before the sale or lease of properties adjoining the 150-foot agricultural buffers.

Enforcement: Sutter County Community Services Department.

Mitigation Measure 3.11-3c: Encourage the Continuation of Existing On-Site Agricultural Operations in Areas Adjacent to New Urban Land Uses.

The project applicant(s) of all project phases shall coordinate with landowners and on-site agricultural operators to sustain existing agricultural operations, at their discretion, within the project site until the individual agricultural parcels are needed for urban development.

Implementation: The project applicant(s) of all project phases.

Timing: Before and during construction activities.

Enforcement: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measures 3.11-3a, 3.11-3b, and 3.11-3c would establish a buffer zone between the edge of residential or commercial development and adjacent productive agricultural land, notify prospective residents of potential land use conflicts associated with agricultural activities adjacent to the project site, and

encourage the continuation of the existing agricultural operations on project site as long as practicable; however, although it would substantially lessen potential conflicts, it would not reduce the impact to a less-than-significant level. Other than precluding development adjacent to agricultural lands, no other feasible mitigation is available to eliminate potential urban/agricultural interface land use conflicts; therefore, this impact would remain **significant and unavoidable**.

IMPACT Potential Temporary, Short-Term Disruption of Existing Agricultural Operations during Construction.
3.11-4 *Implementation of the proposed project could potentially affect existing agricultural operations and result in a temporary, short-term loss in agricultural productivity.*

On-Site Elements

Lands on and in the vicinity of the project site are currently under agricultural production. Access to the project site would be provided by existing roads and all construction staging areas would be sited in disturbed areas to the extent feasible. Development of the project site is planned to proceed in a manner that would allow the continuation of existing agricultural operations on adjacent on-site parcels that are not scheduled for development until future phases. Therefore, project implementation would not result in any substantial disruption of existing agricultural operations on adjacent on-site parcels scheduled for future project development; therefore, this **direct** impact is **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

Access to most proposed off-site elements, including natural gas, electric, telephone, and cable infrastructure would be provided by existing roads, and all construction staging areas would be sited in disturbed areas. However, the alternate alignment for the off-site portion of the sewer force mains would require crossing the southern edge of an open field from the Natomas Levee and the Natomas East Main Drainage Canal to a point of intersection with Pleasant Grove Road. Lands along and in the vicinity of the sewer force main alignment in this area are currently in agricultural production.

Excavators and backhoes would be used for installation of the force main through the open field and could result in the disruption of agricultural production during construction. In addition, a 50-foot-wide construction corridor would be required for construction staging areas and access to the alignment. Land at construction staging areas and access haul roads could be temporarily removed from agricultural production to accommodate preconstruction and construction activities. Construction activities that occur during the growing season may temporarily hinder plant growth. In addition, although the force main would be underground, existing agricultural operations would involve ground disturbances that could damage the pipelines.

Because these construction activities would have the potential to disrupt existing agricultural operations and result in a temporary loss in agricultural productivity, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

On-Site Elements

No mitigation measures are required.

Mitigation Measure 3.11-4: Avoid Disruption of Existing Agricultural Operations.

Off-Site Elements

The project applicant(s) of all project phases, including the off-site elements, and/or construction contractor shall include the following measure in construction plans:

- ▶ Construction activities shall be undertaken in an expedient fashion, and associated construction staging areas and/or access roads shall be located outside of the agricultural fields to the extent possible. If it is necessary to locate staging areas and/or access roads on agricultural lands, these areas shall be returned to pre-project conditions by the construction contractor once construction is completed.
- ▶ Pipelines in areas subject to ground disturbance from agricultural activities shall be placed at a depth beyond the typical depth of ground disturbance that occurs as a part of the agricultural operations.

Construction plans shall be submitted to the applicable county community services department or planning department for review and approval before the issuance of building permits for all project phases and off-site elements. During project construction, the applicable county department shall conduct periodic inspection to ensure implementation of these measures.

Implementation: Project applicant(s) and/or construction contractor of all off-site elements.

Timing: Before approval of final maps and building permits for all off-site elements, and during construction activities.

Enforcement: Applicable county community services department or planning department.

Significance after Mitigation

Implementation of Mitigation Measure 3.11-4 would reduce temporary, short-term impacts on existing agricultural operations resulting from construction activities to a **less-than-significant** level.

Additional Detailed Analysis of On-Site Elements – Impacts and Mitigation Measures

IMPACT 3.11-5 Permanent Conversion of Important Farmland to Nonagricultural Urban Uses. *Implementation of Phase 1 and Phase A would result in the permanent conversion of Important Farmland to nonagricultural uses.*

Implementation of Phase 1 and Phase A of the proposed project would permanently convert Important Farmland to nonagricultural, urban uses. Based on the Sutter County Important Farmland map, published by CDC's Division of Land Resource Protection, the Phase 1 and Phase A development areas consist of approximately 620 acres of Prime Farmland and 1,597 acres of Farmland of Statewide Importance (Exhibit 3.11-1, Table 3.11-7). Implementation of Phase 1 and Phase A would convert approximately 0.4% of Prime Farmland and 1.5% of Farmland of Statewide Importance in Sutter County.

Table 3.11-7 Comparison of Acres of Important Farmland Converted to Nonagricultural Use for the Phase 1/A Development Area	
Important Farmland Category	Phase 1/A Area ¹
Prime Farmland	620
Farmland of Statewide Importance	1,597
Unique Farmland	--
Farmland of Local Importance	--
Total	2,217
¹ The total acres of Important Farmland on the Phase 1 area do not include SR 99/70; however, the acres of Important Farmland do include Pacific Avenue, Sankey Road, and Riego Road. Source: FMMP 2006b	

When irrigated, the majority of the soils on the Phase 1 and Phase A development area are identified as Class II or Class III by the Land Capability Class system, and the Storie Index Ratings are grade 3 and grade 4 (Tables 3.11-4 and 3.11-5).

Implementation of Phase 1 and Phase A would result in the conversion of 2,217 acres of Important Farmland to nonagricultural, urban uses thereby contributing to the incremental decline of Important Farmland in the county, region, and state and result in the irreversible conversion of this agricultural land. This **direct** impact is **significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measure 3.11-1.

Implementation: The project applicant(s) of Phase 1 and Phase A and all off-site elements involving the permanent conversion of Important Farmland associated with Phase 1 and Phase A.

Timing: Before approval of final maps and building permits for all project phases, including on-site and off-site elements involving the conversion of Important Farmland.

Enforcement: Sutter County Community Services Department.

Implementation of Mitigation Measure 3.11-1 would require the project applicant(s) of Phase 1 and Phase A to participate in the NBHCP through the payment of fees or land dedication. The associated payment of fees would be used by the NBC to purchase conservation easements that would result in potential future benefits to agriculture by preventing loss of the protected lands. These measures also would lessen significant impacts associated with the permanent conversion of Important Farmland on the project site because funding conservation easements would assist the public and private sectors in protecting other farmland from the pressures of development. The easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, so the compensation provided by the fee contribution for the proposed project would not be applied exclusively to agricultural lands. Therefore, fees contributed to the NBHCP would only partially offset conversions of Important Farmland associated with project implementation. Additionally, no new farmland would be made available, and the productivity of existing farmland would not be improved as a result of implementation of the NBHCP. Therefore, full compensation for losses of Important Farmland would not be achieved, and the impact would remain **significant and unavoidable**.

IMPACT 3.11-6 *Cancellation of Williamson Act Contracts. Implementation of Phase 1 and Phase A would not result in the cancellation of Williamson Act contracts, because none of the lands are currently under Williamson Act.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.11-2 for further discussion of this impact.

IMPACT 3.11-7 *Conflict with Existing Off-Site Agricultural Operations. Implementation of Phase 1 and Phase A would locate urban land uses adjacent to existing agricultural lands, which could impair adjacent agricultural activities, result in land use compatibility conflicts, and potentially result in the ultimate conversion of this land to nonagricultural land uses.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.11-3 for further discussion of this impact.

Implementation of Mitigation Measures 3.11-3a and 3.11-3b would establish a buffer zone between the edge of residential or commercial development and adjacent productive agricultural land, and notify prospective residents of potential land use conflicts associated with agricultural activities adjacent to the project site; however, it would not remove or substantially reduce potential conflicts. Other than precluding development adjacent to agricultural

lands, no other feasible mitigation is available to eliminate potential urban/agricultural interface land use conflicts; therefore, this impact would remain **significant and unavoidable**.

IMPACT **Potential Temporary, Short -Term Disruption of Existing Agricultural Operations during Construction.**
3.11-8 *Implementation of Phase 1 and Phase A could potentially affect existing agricultural operations and result in a temporary, short-term loss in agricultural productivity.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.11-4 for further discussion of this impact.

3.11.4 RESIDUAL SIGNIFICANT IMPACTS

The conversion of Important Farmland is identified as a significant impact. Implementation of Mitigation Measure 3.11-1 described above would substantially lessen significant impacts associated with the conversion of farmland; however, full compensation for losses of farmland would not be achieved and a net loss of Important Farmland would still occur. In addition, conflicts with existing off-site agricultural operations were identified as significant. Implementation of Mitigation Measure 3.11-3a, 3.11-3b, and 3.11-3c would establish a buffer zone between the edge of residential or commercial development and adjacent agricultural land, notify prospective residents of potential land use conflicts associated with agricultural activities adjacent to the project site, and encourage the continuation of the existing agricultural operations on the project site as long as practicable. Although these mitigation measures would substantially reduce potential conflicts, it would not reduce the impact to a less-than-significant level. Therefore, impacts related to loss of Important Farmland and potential conflicts with adjacent agricultural uses would remain significant and unavoidable.

3.12 PUBLIC HEALTH AND HAZARDS

This section of the DEIR addresses potential impacts related to hazardous materials; hazards associated with historic and current land use of the project site; surrounding uses; off-site improvement areas; and hazards associated with operations at Sacramento International Airport, located approximately 1.5 miles southwest of the project site. The potential for impacts on emergency response plans is also addressed in this section. Service levels by fire personnel and other emergency responders are addressed in Section 3.8, “Public Services,” of this DEIR. Potential hazards and associated impacts related to toxic air contaminant emissions are discussed in Section 3.4, “Air Quality”; potential impacts from geologic hazards are discussed in Section 3.6, “Geology, Soils, and Paleontological Resources”; and potential flooding hazards are discussed in Section 3.7, “Hydrology and Water Quality.”

3.12.1 REGULATORY BACKGROUND

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento Counties and are related to the provision of utilities to the project site. Except during construction, these activities would not involve changes that would affect emergency or fire response, airport safety, or hazardous materials issues in Placer or Sacramento County.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the U.S. Environmental Protection Agency (EPA), under the authority of the Resource Conservation and Recovery Act (RCRA). The RCRA established an all-encompassing federal regulatory program for hazardous substances that is administered by EPA. Under the RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. The RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments of 1984, which specifically prohibits the use of certain techniques to dispose of various hazardous substances. The Federal Emergency Planning and Community Right to Know Act of 1986 imposes hazardous-materials planning requirements to help protect local communities in the event of accidental release of hazardous substances. EPA has delegated much of the RCRA requirements to the California Department of Toxic Substances Control (DTSC).

Worker Safety Requirements

The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementing workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

Regulation of Polychlorinated Biphenyls and Lead-Based Paint

The Toxic Substances Control Act (TSCA) of 1976 (Title 15 of the U.S. Code, Section 2605) banned the manufacture, processing, distribution, and use of polychlorinated biphenyls (PCBs) in totally enclosed systems. PCBs are considered hazardous materials because of their toxicity. They have been shown to cause cancer in animals, along with effects on the immune, reproductive, nervous, and endocrine systems, and studies have shown evidence of similar effects in humans (EPA 2004). The EPA Region 9 PCB Program regulates remediation of PCBs in several states, including California. Title 40 of the Code of Federal Regulations (CFR), Section 761.30(a)(1)(vi)(A) states that all owners of electrical transformers containing PCBs must register their transformers with EPA. Specified electrical equipment manufactured between July 1, 1978, and July 1, 1998, that

does not contain PCBs must be marked by the manufacturer with the statement “No PCBs” (Section 761.40[g]). Transformers and other items manufactured before July 1, 1978, and containing PCBs must be marked as such.

The Residential Lead-Based Paint Hazard Reduction Act of 1992 amended the TSCA to include Title IV, Lead Exposure Reduction. EPA regulates renovation activities that could create lead-based paint hazards in target housing and child-occupied facilities and has established standards for lead-based paint hazards and lead dust cleanup levels in most pre-1978 housing and child-occupied facilities.

Asbestos

The federal Clean Air Act (CAA) was enacted in 1970. The most recent major amendments by Congress were made in 1990. The CAA required EPA to establish primary and secondary national ambient air quality standards. The CAA also required each state to prepare an air quality control plan, referred to as a State Implementation Plan. Section 112 of the CAA defines “hazardous air pollutants” and sets threshold limits. As discussed in this section of the DEIR, asbestos-containing substances are regulated by EPA under the CAA. Additional information about the CAA is contained in Section 3.4, “Air Quality.”

Airport and Airspace Safety

Part 77 of the Federal Aviation Regulations (FAR), “Objects Affecting Navigable Airspace,” has been adopted as a means of monitoring and protecting the airspace required for safe operation of aircraft and airports. Objects that exceed certain specified height limits constitute airspace obstructions. FAR Section 77.13 requires that the Federal Aviation Administration (FAA) be notified of proposed construction or alteration of certain objects within a specified vicinity of an airport, among them the following:

- (1) Any construction or alteration of more than 200 feet in height above the ground level at its site.
- (2) Any construction or alteration of greater height than an imaginary surface extending outward and upward at...[a slope of] 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each...[public-use airport, public-use airport under construction, or military airport] with at least one runway more than 3,200 feet in actual length, excluding heliports.

FAA is responsible for enforcing 14 CFR 139, which prescribes rules regarding operation of airports used by aircraft with seating capacity of more than 30 passengers. FAA roles and responsibilities relating to wildlife hazards and their associated human health and safety concerns are addressed in 14 CFR 139.337, “Wildlife Hazard Management.” An ecological study must be prepared by the certificate holder and submitted to FAA when multiple birds or other wildlife are struck by aircraft or ingested into aircraft engines or if birds or other wildlife are present in an airport flight pattern in sufficient numbers to result in such hazards. FAA determines whether a wildlife hazard management plan is needed. FAA’s Office of Airport Safety and Standards has published advisory circulars and program policy and guidance directives that further clarify this information. An advisory circular dated July 27, 2004, titled “Hazardous Wildlife Attractants on or Near Airports,” provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. FAA recommends the following separations when siting in relation to wildlife attractants (e.g., waste disposal operations, wastewater treatment facilities, wetlands) (FAA 2004):

- ▶ 5,000 feet from airports serving piston-powered aircraft,
- ▶ 10,000 feet from airports serving turbine-powered aircraft, and
- ▶ 5 statute miles from airports where the wildlife attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for managing hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies, including the Sutter County Environmental Health Division, administer these laws and regulations.

The California Education Code contains various provisions governing the siting of new public schools (e.g., Education Code Sections 17211, 17212, and 17212.5). In addition, to help focus and manage the site selection process, the California Department of Education's (CDE's) School Facilities and Planning Division has developed screening and ranking procedures based on criteria commonly affecting school selection (Education Code Section 17251[b], Title 5 California Code of Regulations [CCR] Section 14001[c]). The foremost consideration in the selection of school sites is safety. Certain health and safety requirements are governed by state statute and CDE regulations. In selecting a school site, a school district should consider the factors, including proximity to airports, proximity to high-voltage power transmission lines, presence of toxic and hazardous substances, hazardous air emissions and facilities within one-quarter mile, and proximity to railroads.

CDE requires that any school district that plans to purchase property using state funds must obtain a Phase I Environmental Site Assessment (ESA) evaluating the suitability of the soil on that site for use as a school. The Phase I ESA must be submitted to DTSC for review and approval before CDE will approve purchase of the site. If toxic or hazardous substances, including pesticides, naturally occurring asbestos, or other regulated hazardous materials, are found to be present, DTSC will require the school district to perform a Phase II Preliminary Endangerment Assessment to determine the level of risk and identify procedures for limiting the risk and/or cleaning up the contamination. In instances of substantial contamination, a Phase III remedial action may be required before the property is deemed safe for use as a school site. The ESAs prepared for the proposed project do not satisfy the CDE requirements.

Worker Safety Requirements

California OSHA (Cal-OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within California. Cal-OSHA regulations pertaining to the use of hazardous materials in the workplace (Title 8 of the CCR) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and preparation of emergency action and fire prevention plans. Cal-OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that employers make Material Safety Data Sheets available to employees and document employee information and training programs.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the Governor's Office of Emergency Services (OES), which coordinates the responses of other agencies, including the California Environmental Protection Agency (Cal-EPA), California Highway Patrol

(CHP), California Department of Fish and Game, Central Valley Regional Water Quality Control Board (RWQCB), and Sutter County Fire Services.

Hazardous Materials Transport

The U.S. Department of Transportation (DOT) regulates transportation of hazardous materials between states. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are CHP and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for transportation of hazardous waste on public roads.

The DOT Federal Railroad Administration enforces the hazardous materials regulations, which are promulgated by the Pipeline and Hazardous Materials Safety Administration for rail transportation. These regulations include requirements that railroads and other transporters of hazardous materials, including shippers, have and adhere to security plans and train their employees involved in offering, accepting, or transporting hazardous materials on both safety and security matters.

California Accidental Release Prevention Program

The goal of the California Accidental Release Prevention (CalARP) Program is to reduce the likelihood and severity of consequences of extremely hazardous materials releases. Any business that handles regulated substances (chemicals that pose a major threat to public health and safety or the environment because they are highly toxic; flammable; or explosive, including ammonia, chlorine gas, hydrogen, nitric acid, and propane) is required to prepare a risk management plan. A risk management plan describes current and past practices and releases, what the impact of releases may be, and what the business does or plans to do to prevent releases and minimize their impact if they occur.

Government Code Section 65962.5 (Cortese List)

The provisions of Government Code Section 65962.5 are commonly referred to as the “Cortese List” (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by state and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires Cal-EPA to develop an updated Cortese List annually, at minimum. DTSC is responsible for a portion of the information contained in the Cortese List. Other California state and local government agencies are required to provide additional hazardous material release information for the Cortese List.

Airport Land Use

The state regulates airports under the authority of the Airport Land Use Commission Law, Section 21670 et seq. of the California Public Utilities Code. The California Airport Land Use Planning Handbook, published by Caltrans’ Division of Aeronautics (Caltrans 2002), supports this law by providing compatibility planning guidance to airport land use commissions (ALUCs), counties and cities having jurisdiction over airport area land uses, and airport proprietors.

The Airport Land Use Commission Law is implemented through ALUCs, which are required in every county with a public use airport or with an airport served by a scheduled airline. Under the provisions of the law, the ALUC has certain responsibilities conferred upon it and specific duties to perform. Among these are preparing airport land use plans for each of the airports within its jurisdiction (California Public Utilities Code Sections 21674[c] and 21675[a]). The Sacramento Area Council of Governments has been designated the ALUC for Sutter County (see “Sacramento Airport Land Use Commission” discussion in local regulations below).

The California Airport Land Use Planning Handbook (Caltrans 2002) describes six airport safety compatibility zones. These zones have been developed to reflect the geographic pattern of aircraft accident risks. One of the airport safety compatibility zones described by Caltrans, Zone 6 (Traffic Pattern Zone), is applicable to the proposed project. The risk factors and basic compatibility qualities of the Traffic Pattern Zone are summarized below:

- ▶ **Risk Factors/Runway Proximity:** These include areas of regular traffic patterns and pattern entry routes. There is a generally low likelihood of accident occurrence; the primary risk concern is with uses for which potential consequences are severe. On a long general-aviation runway (i.e., with a runway length of 6,000 feet or more), such as the ones at Sacramento International Airport, this zone extends 6,000 feet from each side of the runway and somewhat smaller distances on either end of the runway.
- ▶ **Basic Compatibility Qualities:** Residential uses and most nonresidential uses are allowed; outdoor stadiums and similar uses with very high intensities are prohibited.

Multi-Hazard Mitigation Plan

OES issued the State of California Multi-Hazard Mitigation Plan (Multi-Hazard Mitigation Plan) (OES 2007) in October 2007. The federal Disaster Mitigation Act required all state emergency services agencies to issue such plans by November 1, 2004, for the states to receive federal grant funds for disaster assistance and mitigation under the Stafford Act (44 CFR 201.4). These plans must then be updated every 3 years. The overall intent of the Multi-Hazard Mitigation Plan is to reduce or prevent injury and damage from natural hazards in California, such as earthquakes, wildfires, and flooding. The plan identifies past and present hazard mitigation activities; current policies and programs; and mitigation goals, objectives, and strategies for the future (OES 2007).

Asbestos Abatement

The California Air Resources Board (ARB) Asbestos Program oversees implementation of and compliance with the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Asbestos, and investigates all related complaints, as specified by the California Health and Safety Code Section 39658(b)(1). The Feather River Air Quality Management District does not have an asbestos program in place. For Sutter County and other areas in “nondelegated” districts without asbestos programs, ARB reviews and investigates notifications of demolition or renovation for compliance with the NESHAP for Asbestos.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sutter County

Sutter County General Plan

The following goal and policies from the Sutter County General Plan (Sutter County 1996) regarding public health and hazardous are applicable to the proposed project:

- ▶ **GOAL 7.F:** To minimize the risk of personal injury, property damage, and environmental degradation resulting from the use, transport, disposal, and release/discharge of hazardous materials.
 - **Policy 7.F-1:** The County shall ensure that the use and disposal of hazardous materials complies with appropriate federal, State, and local requirements.
 - **Policy 7.F-3:** Review of all proposed development projects that manufacture, use or transport hazardous materials shall be coordinated between the County and appropriate State and federal agencies.

- **Policy 7.F-4:** The County shall require that development proposals that will generate hazardous waste or utilize hazardous materials provide a hazardous waste business and emergency plan pursuant to State law.
- **Policy 7.F-5:** The County shall coordinate as necessary with appropriate State and federal agencies to facilitate remediation of known hazardous waste sites.

Fire and Emergency Response

Sutter County Fire Services provides fire protection and emergency response services to the project area through the Pleasant Grove Fire Department, located at 3100 Howsley Road, approximately 2.25 miles north of the project site. Sutter County Fire Services also has fire and emergency response vehicles housed in an unattended building at the southeast corner of Sankey Road and Pleasant Grove, approximately 1 mile east of the project site.

Sutter County Fire Services has a Hazardous Materials Response Team in its County Service Area F, which includes three fire stations, all located at least 20 miles northwest of the project site. This team responds to hazardous materials incidents in addition to other calls. (Sutter County Fire Districts 2008)

Disaster Planning and Hazardous Materials

The Emergency Services Division of the Sutter County Community Services Department is responsible for disaster planning. It prepares and maintains emergency plans and conducts training programs, including exercises, to respond to routine incidents, such as hazardous materials releases, and major calamities, such as floods or major transportation accidents (Sutter County Emergency Services Program 2008).

The Sutter County Emergency Services Division also regulates the storage, use, and disposal of hazardous materials in Sutter County by issuing permits, monitoring regulatory compliance, and investigating complaints. It oversees remediation of certain contaminated sites resulting from leaking underground storage tanks (USTs), reviews technical aspects of hazardous substance site cleanups, and provides assistance to public and private operations seeking to minimize the generation of hazardous substances. The County Agricultural Commissioner regulates agricultural uses and issues use permits for pesticides on agricultural land.

The County's principal emergency response plan is the Draft Sutter County, California Multi-Hazard Mitigation Plan (Sutter County 2007). The purpose of the plan is to meet the requirements of the Disaster Mitigation Act and thereby maintain continued eligibility for certain hazard mitigation (or disaster loss reduction) programs from the Federal Emergency Management Agency (FEMA). The plan lays out the strategy that will enable Sutter County to become less vulnerable to future disaster losses. The plan reviews the County's capabilities with regard to reducing impacts of natural hazards (e.g., flooding, dam failure, wildfires, drought) and identifies recommended action items to reduce vulnerability to these hazards. The plan addresses the unincorporated county, as well as the cities of Yuba City and Live Oak. Although the multi-hazard mitigation plan does not specifically identify evacuation routes for the County, State Route (SR) 99/70, Sankey Road, and Riego Road would serve as evacuation routes based on their status as primary connecting routes between Sutter County and points to the east and south of the county.

Sacramento County

Sacramento County General Plan

The following policies from the Sacramento County General Plan (Sacramento County 1993) regarding public health and hazards are applicable to the proposed project:

- **Education and Outreach Objective:** County-wide public awareness of all available hazardous material informational and disposal programs.

- **Policy HM-1:** Work with industry, community groups, and government agencies to develop effective, workable, and equitable hazardous materials regulations and provide information to the general public and interested parties on technical and administrative developments in the field of hazardous materials management.
- ▶ **Public Health and Safety Objective:** Protect the residents of Sacramento County from the effects of a hazardous material incident via the implementation of various public health and safety programs.
- **Policy HM-4:** The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
- **Policy HM-7:** Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercial facilities are protected from accidents and the mishandling of hazardous materials.
- **Policy HM-8:** Continue the effort to prevent ground water and soil contamination.
- **Policy HM-9:** Continue the effort to prevent surface water contamination.
- **Policy HM-10:** Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.
- **Policy HM-11:** Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

Hazardous Materials Enforcement

The County enforces state regulations governing hazardous substance generators, hazardous substance storage, and the inspection, enforcement, and removals of USTs in both the City of Sacramento and Sacramento County. The *Area Plan for Emergency Response to Hazardous Materials Incidents in Sacramento County* (Sacramento County Environmental Management Department 2003) was published by the Sacramento County Environmental Management Department as required under Chapter 6.95, Section 25500 et seq. of the California Health and Safety Code. The area plan details the duties and responsibilities of governmental and other responsible agencies in a hazardous materials incident.

Placer County

Placer County General Plan

The following policies from the Placer County General Plan (Placer County 1994) regarding public health and hazards are applicable to the proposed project:

- ▶ **GOAL 8.G:** To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.
- **Policy 8.G.1:** The County shall ensure that the use and disposal of hazardous materials in the County complies with local, state, and federal safety standards.
- **Policy 8.G.2:** The County shall discourage the development of residences or schools near known hazardous waste disposal or handling facilities.

- **Policy 8.G.3:** The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County’s Hazardous Waste Management Plan (CHWMP).
- **Policy 8.G.5:** The County shall strictly regulate the storage of hazardous materials and wastes.
- **Policy 8.G.6:** The County shall require secondary containment and periodic examination for all storage of toxic materials.
- **Policy 8.G.10;** The County shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.
- **Policy 8.G.13:** The County shall work with local fire protection and other agencies to ensure an adequate Countywide response capability to hazardous materials emergencies.

Sacramento Airport Land Use Commission

Sacramento International Airport Comprehensive Land Use Plan

The Sacramento International Airport Comprehensive Land Use Plan (CLUP) (Airport Land Use Commission 1994) establishes planning boundaries for the airport and defines compatible types and patterns of future land use. The purpose of the CLUP is to provide the Sacramento International Airport land area with compatibility guidelines for height, noise, and safety. The current Sacramento International Airport CLUP is more than 11 years old. Because of the level of growth in North Natomas and the expansion of operations at the airport since publication of the CLUP, the plan needs to be updated. The ALUC is seeking funding to update the CLUP (Chew, pers. comm., 2008).

The CLUP outlines airport area height restrictions necessary to ensure that objects will not impair flight safety or decrease the operational capability of the airport. The ALUC has adopted FAR Part 77 imaginary surfaces (see the description of federal airspace safety regulations, above) to determine height restrictions for natural and artificial objects. Penetration of these imaginary surfaces by permanent structures would endanger pilots and passengers of aircraft operating at the airport and would pose a hazard to persons occupying those structures.

The CLUP also outlines the State of California noise standards. Airport land use compatibility regarding noise standards is discussed in this DEIR in Section 3.5, “Noise.”

Additionally, the CLUP designates airport safety zones to the land surrounding the airport to minimize the number of people exposed to aircraft crash hazards. This is accomplished by enforcing land use restrictions in the safety zones. The CLUP designates three safety zones:

- ▶ the clear zone, which is near the runway and is the most restrictive;
- ▶ the approach/departure zone, which is located under the takeoff and landing slopes and is less restrictive; and
- ▶ the overflight zone, which is the area overflown by aircraft during the normal traffic pattern and is the least restrictive.

Sacramento County Airport System

Sacramento International Airport Master Plan

The Sacramento County Airport System has developed a Master Plan for Sacramento International Airport (Sacramento County Airport System 2004). This plan represents the first full-scale master planning effort for the

airport since the mid-1970s. The master plan includes an evaluation of current conditions; a definition of objectives, obstacles, and alternatives; an extensive public involvement program; and an implementation plan. It also includes runway extension and construction plans that may affect the future safety zones and noise contour locations on the project site. The master plan is intended to guide airport development for at least the next 20 years. Among the future plans for the airport described in the master plan are the following plans (Sacramento County Airport System 2004):

- ▶ extension of the east runway (i.e., the runway closest to the project site) from the current 8,600 feet to 11,000 feet to accommodate nonstop transcontinental flights;
- ▶ construction of a new, 8,600-foot-long north-south runway 1,200 feet west of the current west runway;
- ▶ construction of additional taxiways;
- ▶ replacement of the existing Terminal B;
- ▶ construction of a new concourse from the replacement Terminal B, with a capacity of 23 contiguous gates;
- ▶ improvement of off-airport roadway access to the airport, including extension of Elkhorn Boulevard to the airport, where it would connect to the airport road system;
- ▶ extension of the proposed Downtown-Natomas-Airport light rail line to the airport, with a light rail stop at one of the airport terminals; and
- ▶ construction of new airport support facilities, such as a new air traffic control tower.

Sutter-Yuba Mosquito and Vector Control District

In 1915, the California Legislature adopted the “Mosquito Abatement Act” (now incorporated into the California Health and Safety Code, Chapter 5 of Division 3) which formed the basis for the creation, function, and governing powers of mosquito abatement districts. In 1946, the Sutter-Yuba Mosquito and Vector Control District (SYMVCD) was formed. The motivating force for the formation of the district was protection of the population against mosquito-borne diseases (SYMVCD 2008).

Mosquito abatement districts are governmental organizations formed at the local level that are responsible for controlling specific disease vectors within their jurisdiction. These districts receive most of their revenue from property taxes and are primarily responsible for controlling mosquitoes as pest species and as disease vectors. California law requires that if a problem source of mosquito production exists as a result of human-made conditions, the party responsible for those conditions is liable for the cost of abatement. The law is enforced at the discretion of the responsible mosquito abatement districts (California Health and Safety Code Section 2000 et seq.).

Regional Waste Management Authority

Section 25218 of the California Health and Safety Code regulates the disposal of household hazardous waste. In Sutter County, the Regional Waste Management Authority—a joint powers authority composed of Yuba and Sutter Counties and the cities of Yuba City, Live Oak, Marysville, and Wheatland—provides waste management services. The Regional Waste Management Authority requires that household hazardous waste be taken to the Yuba-Sutter Household Hazardous Waste Facility in Yuba City for appropriate disposal. These materials cannot be collected during standard waste pickups.

3.12.2 ENVIRONMENTAL SETTING

TERMINOLOGY

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined by federal regulations (49 CFR 171.8) as “a substance or material that...is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” and has been designated as hazardous under section 5103 of federal hazardous materials transportation law (49 USC 5103). California Health and Safety Code Section 25501 defines a hazardous material as follows:

Hazardous material means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that:

because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either cause, or significantly contribute to an increase in mortality or an increase in serious illness [, or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

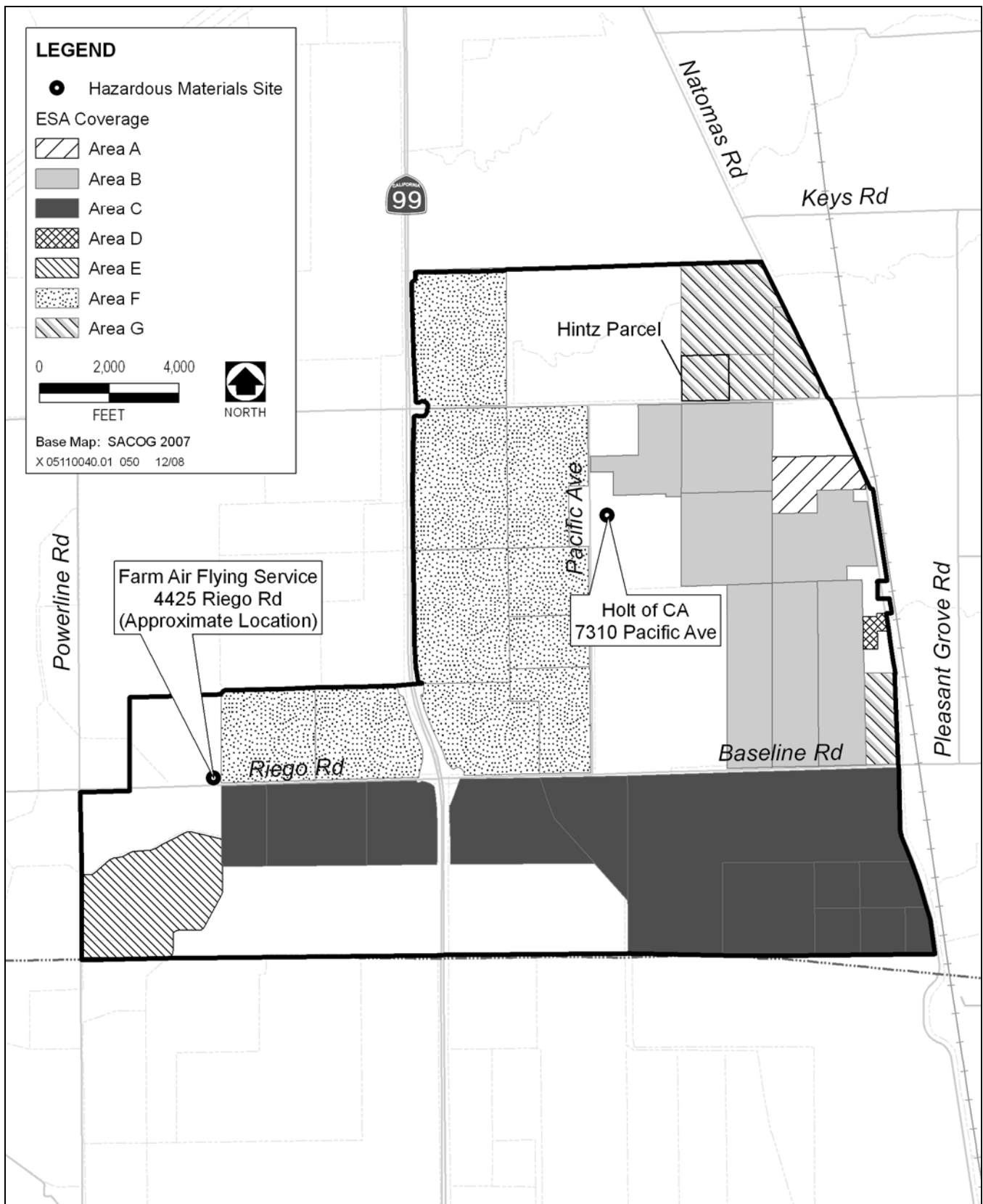
California Health and Safety Code Sections 25115, 25117, and 25316 further describe RCRA hazardous waste, acutely hazardous waste, extremely hazardous waste.

LAND USES AND CONDITIONS ON THE PROJECT SITE

Site Reconnaissance and Historical Research

At the time of the notice of preparation (NOP) for this DEIR was circulated, the project site was in agricultural and industrial use. Existing land uses include agricultural lands (primarily rice fields), a 50-acre Sysco Corporation warehousing and distribution center, and a Holt Tractor manufacturing facility. Seven Phase I Environmental Site Assessments (ESAs) have been conducted for portions of the project site. Exhibit 3.12-1 illustrates which areas of the project site have been covered by an ESA. These ESAs are as follows:

- ▶ Area A: 7203 Natomas Road, prepared by Wallace-Kuhl & Associates, Inc. (WKA), dated July 12, 2004 (WKA 2004a);
- ▶ Area B: Odysseus Farms I, prepared by Geomatrix Consultants, Inc. (Geomatrix), dated January 1, 2003 (Geomatrix 2003);
- ▶ Area C: South Sutter County Specific Plan Property, prepared by WKA, dated April 21, 2004 (WKA 2004b);
- ▶ Area D: Payne Property, 7713 and 7717 Natomas Road, prepared by WKA, dated December 2, 2005 (WKA 2005a);
- ▶ Area E: Spangler Property, Power Line and Elverta Roads, prepared by WKA, dated August 19, 2005 (WKA 2005b);



Source: Adapted by EDAW in 2008

Environmental Site Assessment Coverage

Exhibit 3.12-1

- ▶ Area F: Highway 99/Riego Road Property, prepared by Geocon Consultants, Inc. (Geocon), dated January 22, 2008 (Geocon 2008); and
- ▶ Area G: Kaufman Property, prepared by WKA, dated July 21, 2005 (WKA 2005c).

Specific findings of the ESAs are discussed below. These ESAs cover a total of about 6,216 acres. They do not cover the entire project site or the entire Phase 1/A area. However, findings of the existing ESAs concerning surrounding areas provide some information on the areas lacking ESA coverage.

Historic uses identified at the site included rice farming and irrigated pasture. Historic pesticide use is likely on most areas of the project site. The potential for residual pesticides in soil at the project site is specifically identified as a recognized environmental condition (REC) in Area B (Geomatrix 2003). However, WKA later reviewed the Geomatrix report and source data and concluded that the potential for residual pesticides should not be considered a REC (WKA 2004b). In Area A and Areas C through F, recent pesticide and herbicide use was not identified as a REC.

Two water supply wells were reportedly present in Area A (WKA 2004a). Twelve irrigation wells were reported in Area B (Geomatrix 2003). At least seven water supply wells were reportedly present in Area C (WKA 2004b). A water supply well was reported in Area D (WKA 2005a). One domestic and four agricultural supply wells were reported in Area G (WKA 2005c). A well in Area B had been cut at grade and was covered by a hubcap (Geomatrix 2003). An abandoned “dry hole” natural gas well boring was also reported to have been present in Area C (WKA 2004b). A “dry hole” natural gas boring was also reported in Area E (WKA 2005b).

A residence, barn, and two mobile homes were located in Area D. Two burn pits, three aboveground propane tanks, and a scrap pile were reported in this area. Concrete rubble, gravel, and cement were also observed in a dry pond near the residence (WKA 2005a). WKA did not identify any of these conditions as RECs.

Septic systems were reportedly present in Area A (two systems) (WKA 2004a), Area C (WKA 2004b), Area D (one to three systems) (WKA 2005a), and Area G (two systems) (WKA 2005c).

Several mobile fuel tanks were reported in Area B. A 3-foot-diameter area of stained soil was observed at Bennett Well 1 in Area B. Rusted oil filters and stained soils were observed west of Bennett Well 1 in Area B (Geomatrix 2003).

In Area E, the ESA reported an area of abandoned debris, including farm equipment, tire casings, approximately one dozen used and empty oil filters, four 55-gallon drums (three empty, one with a minor amount of liquid labeled as fire-fighting foam), empty paint cans, carpet, wood, and metal debris. No stains or odors were observed in this area, including beneath the drums and oil filters, although a complete inspection could not be conducted (WKA 2005b). Two burn areas were also observed on the western portion of Area E. These conditions were not identified as RECs by WKA (2005b).

In Area G, the ESA reported that stained surface soils were observed on an “island” in rice fields on the property. WKA recommended that surface soils be visually inspected after clearing and grubbing, with soil sampling and testing of areas with visual or olfactory evidence of soil contamination. Stained soils were also observed beneath a diesel aboveground storage tank (AST) on the central portion of Area G (WKA 2005c). These stained soils were not identified as a REC by WKA.

Area G includes an area referred to as the Hintz Parcel. This area is illustrated in Exhibit 3.12-1. The Hintz Parcel reportedly contained large quantities of debris, abandoned or discarded items and vehicles, and stained soils. Debris included at least eight ASTs, dozens of 55-gallon drums, and several burn areas. The history of the Hintz parcel includes use as a slaughterhouse, a dairy, and a hog farming operation. Suspected animal carcass pits were also observed on the Hintz Parcel (WKA 2005c).

Results of Records Search for Hazardous Materials

To determine the potential for hazardous materials contamination on or near the project site, each of the seven ESAs involved a search of regulatory databases regarding hazardous materials. The sites discussed in detail below were identified on one or more of the regulatory databases. However, no potential or confirmed state or federal “Superfund” sites were identified within 1 mile of the project site. There were also no known contaminated municipal groundwater wells, active or inactive landfills, or producing Department of Oil and Gas (DOG) petroleum wells located on, adjacent to, or within 0.5 mile of the project site. (Two abandoned DOG wells were found on the project site, but they had been abandoned appropriately in accordance with DOG environmental guidelines.)

Holt of California

The Holt of California site is located at 7310 Pacific Avenue on the project site. It was listed on multiple regulatory databases, including the Cortese list (properties with confirmed soil and/or groundwater contamination), the Leaking Underground Storage Tank list, and the Spills-Leaks-Investigations and Cleanups of Hazardous Materials list.

Two separation ponds that received washwater and radiator tank water were the subject of an investigation in 1987. One pond reportedly had elevated concentrations of petroleum hydrocarbons and lead, and about 800 cubic yards of lead-affected soil were removed and disposed of off-site. There were nine USTs, reportedly containing solvents, waste oil, regular and unleaded gasoline, and diesel fuel. Most of these tanks have reportedly been removed. Elevated petroleum hydrocarbons have been detected in groundwater at the Holt site, including benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether (MTBE), and 1,2-dichloroethane (Geomatrix 2003). This listing was identified as a REC by Geomatrix based on the potential that groundwater contamination had affected Area B. Section 3.7, “Hydrology and Water Quality,” provides further discussion of groundwater conditions related to the Holt property.

Farm Air Flying Service

The Farm Air Flying Service site is located at 4425 Riego Road on the project site. Groundwater beneath the Farm Air Flying Service site was found to be contaminated with gasoline following a leak that was reported in January 2000. A preliminary site assessment was underway at the time of the ESA preparation for the proposed project in August 2005. A toxic pit was also remediated and closed at this site, although the date of this action was not reported in the ESA (WKA 2005a).

To confirm activity occurring between preparation of the ESAs and the writing of this DEIR (October 2008) and confirm the findings of the Phase 1 and Phase A ESAs, EDAW consulted EPA’s Envirofacts database and EnviroMapper, along with DTSC’s Envirostor database. The Envirofacts database contains a variety of environmental information maintained by EPA, such as the locations of releases of more than 650 toxic chemicals. EDAW used the EnviroMapper to depict graphically whether EPA maintains any information in Envirofacts regarding the project site. The Envirofacts database included several listings for businesses and properties located on the project site. However, none of listings included information that would indicate a spill, leak, or existing contamination at the project site that in turn might pose a hazardous condition for future development. No listings on the project site were identified in the Envirostor database.

Phase I ESA Summary

The potential for residual pesticides in soil at the project site is specifically identified as a REC in Area B (Geomatrix 2003). However, WKA later reviewed the Geomatrix report and source data and concluded that the potential for residual pesticides should not be considered a REC (WKA 2004b). Other recommendations of the Phase I ESAs included:

- ▶ installation of secondary containment for ASTs,
- ▶ removal of debris from various areas of the project site,
- ▶ proper abandonment of agricultural or residential water wells that will no longer be in use,
- ▶ proper abandonment of septic systems that will no longer be in use,
- ▶ verification that former natural gas borings have been properly abandoned, and
- ▶ visual examination of areas beneath debris piles.

If soil staining is observed, including beneath debris piles, sampling is recommended by the ESAs. Stained soil observed beneath a diesel AST in Area G and on the Hintz parcel of Area G was recommended for removal and appropriate off-site disposal, with visual inspection of soils following removal of stained soils. Although a Phase II investigation was initially recommended by Geomatrix for Area B, WKA later concluded that the potential for residual pesticides cited by Geomatrix should not be considered a REC, and WKA did not recommend additional environmental investigation.

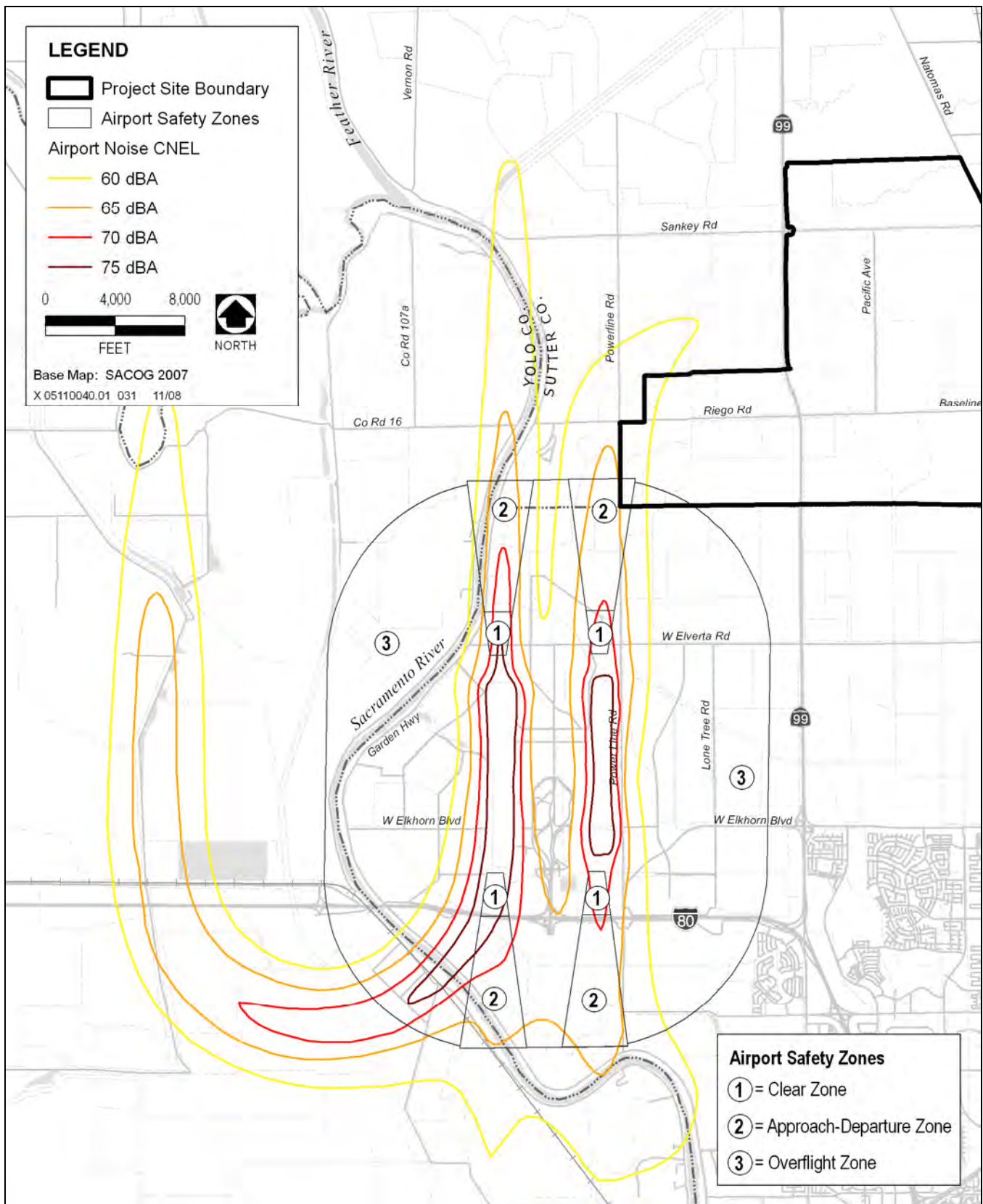
The most recent Phase I prepared for a portion of the project site (prepared by Geocon in 2008) recommended soil sampling for pesticides, herbicides, and heavy metals before residential development of Area G. Geocon recommended that a Phase II investigation, including sampling of all water wells on the Hintz Parcel, be conducted for a portion of Area G based on historical use of the parcel as a slaughterhouse, dairy, and hog farming operation.

HAZARDS ASSOCIATED WITH SURROUNDING LAND USES

Sacramento International Airport is located approximately 1.5 miles southwest of the project site. The airport is located 12 miles north of downtown Sacramento off Interstate 5 and was constructed in 1967. Sacramento County owns approximately 5,407 acres of land surrounding the airport. Of this amount, approximately 2,940 acres are considered to be part of the airport's day-to-day activities and operation; the remaining acreage is a designated buffer area, most of it in agricultural use (Sacramento County Airport System 2004). The airport currently has two primary passenger terminals (plus a renovated commuter terminal now used for international arrivals) and two runways, each 8,600 feet long by 150 feet wide, which are oriented in a north-south direction.

The ALUC prepared a CLUP in 1984 (last amended January 1994). The CLUP establishes planning boundaries for the airport and defines compatible types and patterns of future land use. The purpose of the CLUP is to provide the Sacramento International Airport land area with compatibility guidelines for height, noise, and safety. The southwesternmost area of the project site lies within two airport safety zones (Zone 2, Approach-Departure, and Zone 3, Overflight), where population densities are restricted because of the statistical likelihood of aircraft accidents in the area. These areas are identified generally in Exhibit 3.12-2.

A small area of the southwestern portion of the project site is within the overflight zone, the approach-departure zone, and/or the 60 community noise equivalent level (CNEL) noise contour. Certain uses are compatible with the overflight zone only if they do not result in a large concentration of people. The CLUP defines a large concentration of people as "a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24-hour period ending at midnight, not to exceed 50 persons per acre at any time." Among the land uses prohibited from the overflight zone are regional shopping centers, elementary and secondary schools, hospitals, communitywide and regional parks, theaters, and stadiums and arenas (Airport Land Use Commission 1994). In approach-departure zones, permitted land use types include parking lots, roads, train tracks, cemeteries, and agricultural and natural open space uses. In addition, a number of uses are specifically identified as incompatible, including uses that direct steady or flashing lights of particular colors that would be visible to aircraft, uses that cause sunlight to be reflected toward an aircraft, uses that would generate smoke or attract large concentrations of birds, uses that would cause electrical interference, and hazardous installations.



Source: Adapted by EDAW in 2008

Airport Safety Zones

Exhibit 3.12-2

HAZARDS ASSOCIATED WITH MOSQUITOES

A portion of the project site historically has been devoted to rice crop cultivation, which is a water-intensive land use that has resulted in large pools of standing water that could serve as breeding grounds for mosquitoes. In addition to being a nuisance pest, mosquitoes are vectors (i.e., carriers) of many diseases, including West Nile virus, malaria, and dengue.

Mosquitoes are blood-sucking insects whose biting habits can create irritating and unpleasant conditions for outdoor activities. To reduce mosquito populations and, consequently, the likelihood of disease transmission to humans, the SYMVCD uses a combination of various abatement procedures, each of which may have maximum effectiveness under specific habitat conditions or periods of the mosquito life cycle. Mosquito control methods used by the SYMVCD can include use of biological agents (e.g., mosquitofish, which prey on mosquito larvae) in mosquito breeding areas, source reductions (e.g., drainage of water bodies that produce mosquitoes), pesticides, and ecological manipulations of mosquito breeding habitat.

In the project area, mosquito abatement efforts are primarily focused on controlling mosquitoes that can transmit malaria and several types of encephalitis or cause a substantial nuisance in surrounding communities. The encephalitis mosquito (*Culex tarsalis*) breeds in areas that pond fresh water. This species is the primary carrier in California of western equine encephalitis, St. Louis encephalitis, and California encephalitis and is considered the most important disease vector in the state (USACE 1998).

Mosquito control in the United States has evolved from reliance on insecticide application for control of adult mosquitoes (adulticide) to integrated pest management programs that include surveillance, source reduction, larvicide, and biological control, as well as public relations and education (Rose 2001). Biological control includes use of many predators (dragonfly nymphs and other indigenous aquatic invertebrate predators, such as predacious mosquitoes) that eat larvae and pupae; however, the most commonly used biological control adjuncts are mosquitofish (Rose 2001). Mosquitofish are easily reared and therefore have become the most common supplemental biological control agent used in mosquito control (Rose 2001).

All species of mosquitoes require standing water to complete their growth cycle; therefore, any body of standing water represents a potential mosquito breeding area. Water quality also affects the productivity of a potential mosquito breeding areas. Typically, greater numbers of mosquitoes are produced in water bodies with poor circulation, higher temperatures, and higher organic content (i.e., poor water quality) than in water bodies having good circulation, lower temperatures, and lower organic content. In addition, irrigation and flooding practices may influence the level of mosquito production associated with a water body. Typically, greater numbers of mosquitoes are produced in water bodies with water levels that slowly increase or recede than in water bodies with water levels that are stable or that rapidly fluctuate. Mosquito larvae prefer stagnant water and the protected microhabitats provided by stems of emergent vegetation (USACE 1998).

TRANSPORTATION

Highways and railroads represent risks associated with accidents resulting in potential releases of hazardous materials that could injure persons or damage structures on nearby lands.

SR 99/70, which runs through the western portion of the project site and along the western project boundary, accommodates approximately 33,500 daily vehicle trips north of Riego Road, and 39,500 daily vehicle trips south of Riego Road (Caltrans 2006), and connects with Interstate 5 to the south. To the north, SR 99/70 connects with Yuba City, Marysville, Chico, and the northern Sacramento Valley. Heavy (i.e., four axles or larger) truck traffic makes up approximately 8.7% of the total traffic on this highway.

Union Pacific Railroad (UPRR) railroad tracks are located east of the project site. These railroad tracks are separated from the project site by the Natomas East Main Drainage Canal (Steelhead Creek), a levee, and

Natomas Road, which serve to buffer the railroad from the project site. This rail line supports approximately 22–26 train trips per day, based on information from noise survey data collected by Bollard Acoustical Consultants for preparation of this EIR, and information from Dowling Associates’ Conceptual Improvement Study for Riego Road (Dowling Associates 2007). DOT statistics for the UPRR railroad line indicate that rail accidents over the UPRR system as a whole have been steadily decreasing over time. The Burlington Northern Santa Fe Railway railroad line operates 32,200 miles of track (UPRR 2008) and reported 714 train accidents in 2007, with six accidents resulting in a release of hazardous material. These statistics indicate that the annual likelihood of a railroad accident along any given mile of UPRR railroad would be approximately 2%, or a frequency of approximately one accident in 50 years. Although the likelihood for railway accidents is present, the 2007 statistics indicate that injury and death related to these accidents are extremely rare, with fatalities occurring in about 0.28% of the recorded accidents (Federal Railroad Administration 2008).

Other information and issues associated with transportation and safety are addressed in Section 3.8, “Public Services,” and in Section 3.3, “Transportation and Circulation.”

HIGH-VOLTAGE ELECTRICAL TRANSMISSION LINES

High-voltage transmission lines are defined by the CDE as those with a line voltage of 50 kilovolts (kVs) or more. An existing Pacific Gas and Electric Company (PG&E) 115-kV electrical transmission line runs in a north-south direction just outside the eastern project site boundary.

Electric and Magnetic Fields

Electric and magnetic fields (EMFs) are invisible energy fields that surround any electrical device, including electrical transmission lines. Electric fields may be shielded or weakened by materials that conduct electricity, such as trees, buildings, and human skin. However, magnetic fields are more difficult to shield because they pass through most materials. Both electric and magnetic fields decrease rapidly as the distance from the source increases. The frequency of the electrical field is usually expressed in terms of a unit called a hertz (Hz), while the strength of the magnetic field is often expressed in terms of a unit called the gauss (G). A milligauss (mG) is 1/1,000 of a gauss. Different forms of EMFs are produced by different sources, including electrical energy facilities, such as substations and power transmission lines, as well as common household appliances and office equipment.

Most public attention and scientific research has been focused on EMFs generated by electric energy transmission facilities, partially because some studies have reported an increased cancer risk associated with exposure to these types of magnetic fields. These facilities generate power frequencies in the range of 50–60 Hz (referred to as extremely low frequency) and may generate magnetic fields that range from 86 mG to 0.2 mG, depending on the type of power line and the distance from the line. The National Institute of Environmental Health Sciences (NIEHS) summarized the results of monitoring studies that indicate most people in the United States are exposed to magnetic fields that average less than 2 mG (NIEHS and National Institutes of Health 2002).

A variety of epidemiological and laboratory studies, including those sponsored and funded by international, federal, and state organizations and agencies, have been carried out regarding EMF exposure and its potential human health risks. (For a summary of some of these studies, see NIEHS and National Institutes of Health 2002 and National Cancer Institute 2005.) Some of these studies have concluded that there is a weak link between the development of childhood leukemia and proximity to EMFs generated by electric power transmission facilities, while other studies have concluded there is no direct link. Scientific research in this area is ongoing in various countries throughout the world. Because of the potential that there may be a relationship between cancer and EMFs among children, CDE has taken the position that K–12 schools may not be constructed within 100 feet of an easement for a 115-kV transmission line (approximately 150 feet from the power line itself). However, because so many studies have concluded that evidence for a direct link is “weak,” the State of California has not adopted

any laws or regulations requiring an additional setback from electric power transmission facilities beyond the utility right-of-way easement, which is generally 50 feet on either side of a 115-kV line.

Regarding electrical substations, evidence reviewed by NIEHS indicates that the strongest EMF around the outside of a substation comes from the power lines entering and leaving the substation. The strength of the EMF from equipment within the substations, such as transformers, reactors, and capacitor banks, decreases rapidly with increasing distance. Beyond the substation fence or wall, the EMF produced by the substation equipment is typically indistinguishable from background levels.

NATURAL GAS TRANSMISSION LINES

No natural gas transmission lines are currently located on the project site or in the immediate vicinity (MacKay and Soms 2008).

3.12.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from implementation of the proposed project and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. As discussed above, compliance with applicable federal, state, and local health and safety laws and regulations by residents and businesses in the project site would generally protect the health and safety of the public. Local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

The following reports documenting potential hazardous conditions at the project site were reviewed for this analysis:

- ▶ applicable land use plans;
- ▶ available literature, including documents published by city, county, state, and federal agencies;
- ▶ applicable elements from the Sutter County General Plan;
- ▶ Phase I ESAs for the following properties:
 - 7203 Natomas Road, prepared by WKA, dated July 12, 2004 (WKA 2004a);
 - Odysseus Farms I, prepared by Geomatrix, dated January 1, 2003 (Geomatrix 2003);
 - South Sutter County Specific Plan Property, prepared by WKA, dated April 21, 2004 (WKA 2004b);
 - Kaufman Property, prepared by WKA, dated July 21, 2005a (WKA 2005c);
 - Payne Property, 7713 and 7717 Natomas Road, prepared by WKA, dated December 2, 2005c (WKA 2005a);
 - Spangler Property, Power Line and Elverta Roads, prepared by WKA, dated August 19, 2005 (WKA 2005b); and
 - Highway 99/Riego Road Property, prepared by Geocon, on January 22, 2008 (Geocon 2008).

The information obtained from these sources was reviewed and summarized to establish existing conditions and to evaluate the significance of potential environmental effects, based on the thresholds of significance presented below. In determining the level of significance, this analysis assumes that development in the project site would comply with relevant federal, state, regional, and local ordinances and regulations. Some areas of the project site do not have Phase I ESA coverage. The seven ESAs that were completed include a discussion of surrounding sites, as required by American Society for Testing and Materials (ASTM) standards 1527-00 and 1527-05 for Phase I ESAs. These discussions provide some information on portions of the project site not covered by Phase I ESAs; regulatory information for surrounding sites provides background information on the existing industrial uses, including the Holt property. These discussions of surrounding sites were used to the extent possible to evaluate areas of the project site not covered by the ESAs. In areas that have been in agricultural use, the primary potential for environmental conditions would be related to pesticide use and hydrocarbon contamination from machinery. Areas of the project site that have been in industrial use have the potential for release of industrial byproducts. Completion of a Phase I ESA or ESAs for all areas without current coverage would be required as a mitigation measure for the proposed project, and the ESA or ESAs would recommend additional investigation if warranted by conditions on these unevaluated parcels.

The analysis of hazards related to vector-borne diseases is based on information provided by the Yuba-Sutter Mosquito and Vector Control District. The analysis of hazards related to aircraft damage from birdstrikes is based on professional judgment, experience in northern California with airport projects and aircraft birdstrike hazards, and on information provided by the Sacramento County Department of Airports. The analysis of hazards related to exposure to EMFs is based on data published by numerous professional sources listed in Chapter 7, "References," the California Department of Education (CDE) school siting criteria, and on professional judgment.

The proposed project would involve a variety of land uses, including residences, commercial and industrial uses, community uses, open space, and public services facilities (i.e., educational and institutional uses). Specific businesses that could locate in the project site are unknown at this time. As a result, this analysis assumes and evaluates a broad range of potential uses that could bring hazardous materials to the project site.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines and on professional judgment and experience. A public safety or hazards impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- ▶ create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment;
- ▶ emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- ▶ be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- ▶ for a project located within an airport land use plan or within 2 miles of a public airport, result in a safety hazard for people residing or working in the project area;
- ▶ for a project located in the vicinity of a private air strip, result in a safety hazard for people residing or working in the project area;

- ▶ impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- ▶ expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or residences are intermixed with wildlands;
- ▶ create public health hazards from increased exposure to mosquitoes by providing substantial new habitat for mosquitoes or other vectors;
- ▶ create a safety hazard for aircraft operations based on the presence of water bodies within five miles of the Sacramento International Airport; or
- ▶ expose project residents to electrical or magnetic fields in excess of CDE school siting standards.

IMPACT ANALYSIS

No existing schools are located on the project site. Construction of the proposed project would include up to six new elementary or middle schools and one high school. The proposed locations are all more than one-quarter mile from off-site industrial areas and areas proposed for industrial development, including development that would emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste. Therefore, there would be no impact. This issue is not analyzed further in this DEIR.

One air strip is located on the project site. Use of this air strip would be discontinued before development of the project site. Therefore, there would be no impact related to safety of new residents related to the on-site air strip. This potential impact is not analyzed further in this DEIR.

For a discussion of impacts related to wildland fires and potential obstruction of emergency vehicles, see Section 3.8, “Public Services.”

Program-Level Impacts and Mitigation Measures

IMPACT 3.12-1 *Routine Transport, Use, or Disposal of Hazardous Materials. Project implementation would involve the storage, use, and transport of hazardous materials at the project site during demolition, construction, and operation activities.*

On-Site and Off-Site Elements

Land uses and development on the project site would allow new residential, commercial, and industrial uses. Increased residential development would result in increased use, storage, and disposal of household hazardous materials within the project site. Increased commercial and industrial development may result in increased use, storage, and/or disposal of hazardous materials during routine operations. Industries subject to CalARP would be subject to additional planning and reporting. Of particular concern are facilities with USTs or other methods of storage that could be impaired during a seismic event or could otherwise accidentally leak into the soil, water, or air. Such facilities include gas stations, automotive repair shops, and dry cleaners. Groundwater could become contaminated from these impairments. In addition, construction of the proposed project would involve the storage, use, and transport of hazardous materials (e.g., asphalt, fuel, lubricants, paint) during construction activities.

The amount of hazardous materials transported through the project site on major arterials and regional state highways is likely to increase as a result of development of the proposed project.

The project applicant(s), builders, contractors, business owners, and others would be required to use, store, and transport hazardous materials in compliance with local, state, and federal regulations during project construction

and operation. Transportation of hazardous materials on area roadways is regulated by CHP and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the CCR. Facilities that would use hazardous materials on-site after the project is constructed would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Because the proposed project is required by law to implement and comply with existing hazardous material regulations, **direct** and **indirect** impacts related to the creation of significant hazards to the public through routine, transport, use, disposal, and risk of upset are **less than significant**.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.12-2	Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Material. <i>Construction workers could be exposed to hazardous materials present on-site during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place.</i>

On-Site and Off-Site Elements

As discussed in the “Environmental Setting” section above, the project site contains several ASTs, USTs, debris piles, pole-mounted transformers, water wells, stained soils, and other features that could pose a human health hazard. Particulate and nitrate contamination of groundwater may be present based on historical use of the Hintz Parcel on Area G as a slaughterhouse, dairy, and hog farming operation. The WKA (2005c) Phase I ESA recommended that additional Phase II testing be performed in Area G. Further, lead-based paint, asbestos, and PCBs could be present in on-site buildings proposed for demolition and transformers because of their age. All of these conditions could result in human health hazards if not closed or removed properly.

Septic systems would need to be abandoned following the guidance of a geotechnical engineer, and water wells would need to be properly abandoned before initiation of any construction or grading activities. Although the two “dry hole” gas borings were reportedly abandoned, reabandonment of the wells might be required to meet current standards, depending on the age of the abandoned gas boring. An inspection of the abandoned boring sites by the DOG would be required to make this determination. DOG also recommends that structures not be constructed atop abandoned wells.

The project site has been used for agricultural purposes as early as 1952 (Geocon 2008). Since then, pesticides have been applied to the project site in conjunction with agricultural production, including rice production and irrigated pasture. No orchard crops were reported on the property in the seven ESAs. Based on review of pesticide use reports for the property as described in the Phase I ESA reports, agricultural chemicals used on the project site are not believed to persist in site soils (WKA 2004a, 2004b, 2005a, 2005b and Geocon 2008). Although a Phase II investigation was initially recommended by Geomatrix for Area B, WKA later concluded that the potential for residual pesticides cited by Geomatrix should not be considered a REC, and WKA did not recommend additional environmental investigation. The Phase I ESAs did not report definitive evidence of any agricultural chemicals manufacturing, warehousing, mixing, storage, or disposal on the project site, where pesticide residuals could accumulate at greater concentrations. Therefore, potential persistent pesticide residuals at the project site are not expected to exceed health-based criteria for unrestricted future development or the “hazardous waste” criteria for soils disposal contained in 22 CCR 66261.24. For these reasons, future workers and residents of the project site would not be exposed to hazardous concentrations of pesticides. CDE requires that any school district that plans to purchase property using state funds must obtain a Phase I ESA evaluating the suitability of the soil on that site for use as a school. The Phase I ESA must be submitted to DTSC for review and approval before CDE can approve purchase of the site. This requirement has not been met by the existing Phase I ESAs.

The conditions described above in the “Environmental Setting” section are based on information contained in existing Phase I ESAs for the project site. However, some areas of the project site have not been evaluated

through the Phase I ESA process. Potential environmental conditions in these areas have been evaluated to the extent possible with available information, including the information provided in the ESAs regarding “surrounding properties.” Potential impacts in areas of the project site that have historically been in agricultural use include residual pesticide concentrations in soils, and hydrocarbon contamination associated with machinery use. Potential impacts in industrial areas include contamination of soil and/or groundwater with hydrocarbons and/or industrial byproducts.

During construction activities and demolition, construction workers could come in contact with and be exposed to the other hazardous materials listed above that are present in on-site buildings, soils, USTs, or pole-mounted transformers. Further, the presence of contamination in on-site soils or transformers could create a significant environmental or health hazard to later residents, employees, or other occupants if left in place. Because construction workers could be exposed to hazardous materials present on-site during construction activities and hazardous materials on-site could create an environmental or health hazard for later residents or occupants if left in place, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure: 3.12-2: Retain a Licensed Professional to Investigate the Extent to Which Soil and/or Groundwater May Have Been Contaminated, Including in Areas Not Covered by the Phase I ESAs, and Implement Required Measures, as Necessary.

On-Site and Off-Site Elements

To reduce health hazards associated with potential exposure to hazardous substances, the project applicant(s) for all project phases shall implement the following measures before the start of ground-disturbing or demolition activities within each phase of project development:

- ▶ Prepare a Phase II ESA investigation of Area G based on the recommendation of the WKA (2005c) Phase I ESA.
- ▶ Prepare a Phase I ESA covering all areas before development. If recommended by the Phase I(s), a Phase II ESA investigation is also required. These investigations shall follow Phase I and/or II ESA and/or other appropriate testing guidelines and shall include, as necessary, analysis of soil and/or groundwater samples taken at or near the potential contamination sites. Recommendations in the Phase I and/or II ESA(s) to address any contamination that is found shall be implemented before ground-disturbing activities are initiated in these areas.
- ▶ A new Phase I ESA or ESAs covering sites that are proposed for use by schools shall be submitted to DTSC for review and approval before CDE will approve purchase of the site. If toxic or hazardous substances, including pesticides, naturally occurring asbestos, or other regulated hazardous materials, are found to be present, subsequent studies (i.e., a Phase II Preliminary Endangerment Assessment, Phase III remedial action) shall be performed as required by DTSC and CDE.
- ▶ If Phase I and/or Phase II ESAs indicate the presence of soil and/or groundwater contamination, a site remediation plan shall be prepared pursuant to Section 25401.05(a)(1) that identifies any necessary remediation activities appropriate for proposed land uses, including excavation and removal of on-site contaminated soils, redistribution of clean fill material on the project site, and remediation of contaminated groundwater (e.g., installation of groundwater extraction and treatment [GET] facilities). The plan shall include measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site (e.g., compliance with Division of Traffic Operations (DTO) and Caltrans transport regulations, and disposal at facilities permitted by EPA and/or DTSC to accept hazardous wastes). If contaminated groundwater is encountered during site excavation activities, the contractor shall report the contamination to the County, DTSC, and other appropriate regulatory agencies as required (e.g., the Central Valley RWQCB), and shall follow required actions specified by the regulatory agencies (e.g., dewater the excavated area, properly dispose of contaminated groundwater, or set up GET facilities as required). The

contractors of all project phases shall be required to comply with the site remediation plan, which shall outline measures for specific handling and reporting procedures for hazardous materials, and disposal of hazardous materials removed from the site at an appropriately permitted off-site disposal facility.

- ▶ Retain a licensed contractor to remove all USTs, leaking USTs, and ASTs within the project site. Additionally, any stained soils associated with the debris piles, USTs, and/or ASTs shall also be removed by the licensed contractor, in accordance with Sutter County Environmental Management Department and RWQCB regulations, including Division 7 of the California Water Code (Porter Cologne Water Quality Control Act) and the State Water Resources Control Board regulations (Underground Tank Regulations, CCR 23 Division 3, Chapter 16).
- ▶ Retain a licensed contractor to remove and dispose of all transite pipe found within the project site in accordance with Section 39658(b)(1) of the Health and Safety Code and EPA's NESHAP for Asbestos.
- ▶ Retain a licensed contractor to remove all septic systems in accordance with applicable local, state, and federal regulations.
- ▶ Retain a licensed professional to conduct groundwater sampling from existing water supply wells on the Hintz parcel of Area G to evaluate the potential for nitrate and/or particulate contamination of groundwater as recommended by Geocon. If groundwater contamination is identified, prepare a site remediation plan pursuant to Section 25401.05(a)(1), as described above, in consultation with the appropriate regulatory agencies (e.g., EPA, DTSC, RWQCB).
- ▶ Retain a Cal-OSHA-certified Asbestos Consultant and Lead Based Paint Inspector/Assessor before demolition of any on-site buildings to investigate whether any asbestos-containing materials or lead-based paints are present. If any materials containing asbestos or lead are found, they shall be removed by an accredited contractor in accordance CCR 17 Section 36000 and 36100 (lead based paint) and Section 39658(b)(1) of the Health and Safety Code (asbestos). In addition, all activities (construction or demolition) in the vicinity of these materials shall comply with Cal-OSHA asbestos and lead worker construction standards. The materials containing asbestos and lead shall be disposed of properly at an appropriately permitted off-site disposal facility.
- ▶ Obtain an assessment conducted by PG&E pertaining to the contents of the existing pole-mounted transformers located on the project site. The assessment shall determine whether existing on-site electrical transformers contain PCBs and whether there are any records of spills from such equipment. If equipment containing PCB is identified, the maintenance and/or disposal of the transformer shall be subject to the regulations of the Toxic Substances Control Act under the authority of the Sutter County Environmental Health Division.
- ▶ Refrain from developing existing on-site agriculture or domestic water wells for further use. Such wells shall be closed in accordance with local and state guidelines. Consistent with DOG guidelines, project-related structures shall not be constructed atop abandoned wells.
- ▶ Obtain an inspection of abandoned boring sites by DOG and hire a licensed environmental professional to determine whether reabandonment of the two "dry hole" gas borings is required to meet current standards.

Implementation of this mitigation measure for later project phases may have indirect impacts that could affect residents of earlier project phases, as the required activities have the potential to generate dust, noise, traffic, and transportation of hazardous materials. Hazardous materials transportation is governed by existing regulations as described in the "Environmental Setting" section above and the discussion of Impact 3.12-1. Other indirect impacts, including noise, traffic, and air quality emissions, are analyzed throughout this DEIR in Sections 3.1 through 3.17.

Implementation: Project applicant(s) of all project phases.

Timing: Before excavations or demolitions on the project site.

Enforcement: Sutter County Environmental Health Division; DOG; and other regulatory agencies, such as DTSC or Central Valley RWQCB, if warranted.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-2 would reduce the potentially significant impacts related to exposure to hazardous substances to a **less-than-significant** level because a site plan identifying remediation activities and setting forth procedures to appropriately handle hazardous materials would be prepared, and hazardous substances would be removed and properly disposed of by a licensed contractor in accordance with federal, state, and local regulations. Even though ESAs have not been performed for the entire project site, based on the findings of the existing Phase I ESAs for portions of the project site and on the types of environmental concerns that would be expected for areas of the project site not covered during the ESA process (as described in the discussion of Impact 3.12-2, above), it is expected that any environmental issues identified in future Phase I ESAs would be resolvable and reduced to a less-than-significant level by implementation of this mitigation measure.

IMPACT 3.12-3 Public Health Hazards from Project Development on a Known Hazardous Materials Site Compiled Pursuant to Government Code Section 65962.5. *Two areas of the project site are listed on the Cortese List as known hazardous materials sites. Implementation of the proposed project could expose construction workers to hazardous materials from these sites during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place.*

On-Site Elements

According to the Phase I and Phase II ESAs performed for the project site, environmental contamination, including soil and groundwater contamination, has been identified on the Holt Tractor parcel and at the former Farm Air Service site, both of which are included on the Cortese list developed according to Government Code Section 65962.5. The Farm Air Service location could not be defined based on the information included in the ESAs; the address provided for this site is 4425 Riego Road, which is on the west side of the intersection of SR 99/70 and Riego Road. As described previously, activities at both sites have resulted in contaminated soil and groundwater. The existing industrial uses, including Holt Tractor, are expected to continue on the project site. However, residual soil and/or groundwater contamination, either related to the Holt or the Farm Air Service sites or to currently unknown sources, could be encountered on other areas of the project site.

During construction activities, dewatering could change groundwater flows and shift groundwater contamination. During construction activities and demolition, construction workers could come into contact with and be exposed to hazardous materials present in on-site soils or groundwater. Further, the presence of contamination in on-site soils or groundwater could create a significant environmental or health hazard if left in place. Because construction workers could be exposed to hazardous materials present on-site during construction activities and hazardous materials on-site could create an environmental or health hazard if left in place, this **direct** impact is **potentially significant**. No **indirect** impacts would occur.

Off-Site Elements

Phase I ESAs have not been completed for the areas of these project components, and insufficient information is available to evaluate the potential for hazards related to development on a Cortese-listed site.

During construction activities and demolition, construction workers could come into contact with and be exposed to hazardous materials present in soils or groundwater. Further, the presence of contamination in soils or

groundwater could create a significant environmental or health hazard if left in place. Because construction workers could be exposed to hazardous materials present during construction activities and hazardous materials could create an environmental or health hazard if left in place, this **direct** impact is **potentially significant**. No **indirect** impacts would occur.

Mitigation Measure: 3.12-3: Retain Licensed Professional to Investigate the Environmental Status of the Contaminated Groundwater Plume, Contaminated Soils, and Any Remediation Activities at the Holt Tractor and Farm Air Service Sites, and Implement All Remedial Measures, as Necessary.

On-Site Elements

Before excavation or construction activities begin on the project site in the vicinity of the Farm Air Service and Holt Tractor parcels, the project applicant(s) of all affected project phases shall retain a licensed professional to investigate the environmental status of the contaminated groundwater plume, contaminated soils, and any remediation activities at the Holt Tractor and Farm Air Service sites. This investigation may include a review of Cal-EPA or DTSC files and shall include identification of the specific location of the Farm Air Service site, which was not defined in the available Phase I ESAs. Prior to the start of development activities adjacent to the Holt Tractor parcel, additional intrusive investigation shall be conducted by a licensed professional to delineate the extent of the contaminated groundwater plume (which could have changed after preparation of this EIR) and recommend potential treatment options.

Project development shall not occur in any area of contaminated soil or groundwater until the following activities take place:

- ▶ Remove all contaminated soil, dispose of contaminated soils at a properly licensed facility, and replace contaminated soil with clean fill dirt.
- ▶ Consult with appropriate regulatory agencies, such as DTSC, Central Valley RWQCB, and Sutter County Department of Environmental Health, and implement all actions required by the regulatory agencies (e.g., dewatering, installation of groundwater monitoring wells, installation of GET facilities) during the consultation process in areas of contaminated groundwater.

Implementation: Project applicant(s) of all project phases in the vicinity of the Farm Air Service and Holt Tractor parcels, and the owners of the Farm Air Service.

Timing: Before excavation or construction activities begin on the project site in the vicinity of the Farm Air Service and Holt Tractor parcels.

Monitoring: Sutter County Environmental Health Division and other regulatory agencies, such as DTSC or Central Valley RWQCB, if warranted.

Off-Site Elements

The project applicant(s) of all affected project phases shall retain a licensed professional to prepare Phase I ESAs for all off-site project elements. Project development shall not occur in any area of contaminated soil or groundwater until the following activities take place:

- ▶ Remove all contaminated soil, dispose of contaminated soils at a properly licensed facility, and replace contaminated soil with clean fill dirt.
- ▶ Consult with appropriate regulatory agencies, such as DTSC, Central Valley RWQCB, and Sutter County Department of Environmental Health, and implement actions required by the regulatory agencies during the

consultation process (e.g, dewatering, installation of groundwater monitoring wells, installation of GET facilities) in areas of contaminated groundwater.

To further reduce health hazards associated with potential exposure to hazardous substances, the project applicant(s) of all project phases shall implement the following measures before the start of ground-disturbing or demolition activities within each phase of project development:

- ▶ Prepare a site plan for each development phase that identifies any necessary remediation activities appropriate for proposed land uses, including excavation and removal of on-site contaminated soils, redistribution of clean fill material on the project site, and remediation of contaminated groundwater (e.g., installation of groundwater extraction and treatment [GET] facilities). The plan shall include measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the site (e.g., compliance with DTO and Caltrans transport regulations, and disposal at facilities permitted by EPA and/or DTSC to accept hazardous wastes). If contaminated groundwater is encountered during site excavation activities, the contractor shall report the contamination to the County, DTSC, and other appropriate regulatory agencies as required (e.g., the Central Valley RWQCB), and shall follow all required actions specified by the regulatory agencies (e.g., dewater the excavated area, properly dispose of contaminated groundwater, or set up GET facilities as required). The contractors of all project phases shall be required to comply with the site remediation plan, which shall outline measures for specific handling and reporting procedures for hazardous materials, and disposal of hazardous materials removed from the site at an appropriately permitted off-site disposal facility.
- ▶ Notify the Sutter County Environmental Health Division and DTSC if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during construction activities. Any contaminated areas shall be cleaned up in accordance with recommendations made by the Sutter County Environmental Health Division, Central Valley RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies as generally described above.

Implementation: Project applicant(s) of off-site project elements.

Timing: Before excavation or construction activities begin on the off-site project components.

Monitoring: Sutter County Environmental Health Division and other regulatory agencies, such as DTSC or Central Valley RWQCB, if warranted.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-3 would reduce the potentially significant impacts related to exposure to hazardous substances from known sites on the Cortese List to a **less-than-significant** level because a site plan identifying remediation activities and setting forth procedures to appropriately handle hazardous materials would be prepared, and hazardous substances would be removed and properly disposed of by a licensed contractor in accordance with federal, state, and local regulations.

IMPACT 3.12-4 Safety Hazard for People Residing or Working Near a Public or Private Airstrip. *A portion of the project site is located within Sacramento International Airport's designated safety zone.*

On-Site Elements

The southwest corner of the project site is located approximately 1.5 miles northeast of Sacramento International Airport. An area of the project site is located within the airport's designated safety zones—one portion is in the approach-departure zone, and another portion in the overflight zone—as illustrated in Exhibit 3.12-2. Safety zone

designations are assigned to lands surrounding the airport to minimize the number of people exposed to aircraft crash hazards.

The proposed project appropriately designates Employment 2 and Industrial Drainage Basins as the only land uses proposed within airport safety zones. The Sacramento International Airport Master Plan identifies the extension of the existing east runway as a possible future project. This runway extension would increase the area of the project site within the airport safety zones, but the entire potentially affected area lies within the Employment 2 and Industrial Drainage Basin land use designations. These land uses are compatible with the overflight zone. However, many specific types of manufacturing and commercial uses are not compatible in the approach-departure zone. The specific types of manufacturing and commercial uses that would be developed as part of the proposed project are not known at this time. Therefore, additional restrictions (relating to, among others, lights of certain colors, reflection of sunlight, generation of smoke, electrical interference, and hazardous material use and storage) may be required for those future manufacturing and commercial land uses. Therefore, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site elements would not include changes to land use with the potential to increase hazards for people living or working within airport safety zones. Therefore, **no direct or indirect** impact would occur.

Mitigation Measure 3.12-4: Evaluate Compatibility of Future On-Site Land Uses in the Sacramento International Airport's Approach-Departure Zone and Implement Any Required Restrictions on Land Uses by the Airport.

On-Site Elements

Where required by state law, the County shall consult with the Airport Land Use Commission to obtain a determination as to whether proposed land uses are consistent with the Sacramento International Airport Comprehensive Land Use Plan. In no event shall the Board of Supervisors approve any land use that the Board determines is inconsistent with the purposes of the State Aeronautics Act. In addition, prior to County approval of improvement plans for any individual development proposal that includes land within the approach-departure zone, the County shall consult with the Sacramento International Airport. Any feasible restrictions on land uses recommended by the Sacramento International Airport (e.g., lights of certain colors, building materials to reduce reflection of sunlight, requirements for hazardous material use and storage) shall be implemented by the project applicant(s).

Implementation: Project applicant(s) of all on-site project elements of all project phases within the Sacramento International Airport's airport safety zones.

Timing: Before approval of improvement plans.

Monitoring: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-4 would reduce the potentially significant impacts related to safety hazards from incompatibility with the Sacramento International Airport's airport safety zones to a **less-than-significant** level because the project applicant(s) of all phases would consult with the Sacramento County ALUCP to ensure land use compatibility, and would obtain a letter of concurrence prior to County approval of improvement plans.

IMPACT **Potential for Airspace Safety Hazards Associated with Project Water Features.** *The proposed project 3.12-5 would include on-site lakes/detention basins, which could attract large numbers of birds, thereby potentially creating a flyway between the site and the Sacramento River and interfering with existing aircraft flight routes. Birds are recognized by the Sacramento International Airport CLUP as a potential hazard to aircraft because of the remote potential for high-speed collisions with birds, as well as the ingestion of birds into aircraft engines.*

On-Site Elements

Hazards to existing flight operations at Sacramento International Airport could result from project features that could attract birds. The proposed project would include approximately 160 acres occupied by lakes/detention basins that could attract birds to the area, thereby potentially affecting existing aircraft flight routes. Although the lakes/detention basins located on the project site are more than 10,000 feet from the aircraft runways (the FAA's typical recommended siting distance for such facilities), FAA regulations recommend a separation of at least 5 statute miles from airport facilities where the wildlife attractant may cause hazardous wildlife movement into or across the approach or departure airspace. Based on the location of the Sacramento River to the west and south of Sacramento International Airport, the potential exists for wildlife to pass through or across approach or departure airspace in transit from the river to the project water features.

Wildlife species or groups expected to use the project site for foraging include blackbirds, meadowlarks, hawks, geese, egrets, herons, ducks, and swans (see Section 3.13, "Biological Resources," for a description of the birds present or with the potential to be present on the project site). These species and groups include those that have been identified by the FAA as presenting the highest risk for aircraft-wildlife strikes in the United States (FAA 2003). The Sacramento International Airport CLUP does not support any land uses that could attract large numbers of birds, recognizing birds as a potential hazard to aircraft. In addition to damage resulting from high-speed collisions with birds, the ingestion of birds into aircraft engines is a hazard. Damage or potential damage caused by birds and other wildlife is termed a "strike" or "strike hazard." To reduce strike hazards, the CLUP has placed restrictions on the land uses in the influence area of Sacramento International Airport, or the area within the compatibility zones defined by the CLUP. The CLUP states that any uses that attract large flocks of birds shall not be permitted within the airport's influence area. In support of this goal, SCAS no longer renews leases for rice cultivation based on the attraction that rice fields under cultivation present to birds.

As stated previously, the FAA discourages land uses that could potentially increase aircraft strike hazards by attracting birds into airport overflight zones. Urban lakes, such as those being constructed as part of urban developments in the Natomas Basin, have the potential to attract waterfowl, including geese, gulls, and other species known to be involved in aircraft strikes. However, the Natomas Basin has historically supported waterfowl because of its low position in the watershed and its tendency to flood (Berryman Ecological 2006).

To gain a greater understanding of the numbers of waterfowl in the Natomas Basin, Berryman Ecological surveyed three artificially created lakes and three rice fields between the dates of January 2 and 17, 2006 (Berryman Ecological 2006). The surveys consisted of an observer surveying both the lakes and rice fields and recording the number of birds observed for each species at specific observation points. The number of birds observed per observation point was significantly higher for rice fields as compared to urban lakes. For rice fields, the total number of birds observed per point ranged between 1 and 2,652, and for urban lakes the total number of birds observed per point ranged between 0 and 37. Overall, the study resulted in a mean number of birds per observation point of 224.12 birds for rice fields and 12.12 birds for urban lakes (Berryman Ecological 2006). The study suggests that rice fields likely serve as a greater attractant to birds and waterfowl than lakes. Implementing the proposed project would involve converting former rice fields (sometimes, but not always, in rice production) to urban development. Thus, project implementation would not introduce a new hazard to aircraft and would reduce the density of expected waterfowl compared with historic use of the site. The proposed project would, nonetheless, result in the construction of a lake/detention basin at a location less than the minimum FAA-recommended siting distance for such facilities and could result in potential airspace hazards to aircraft.

Because of the potential for airspace safety hazards from birds attracted to the project site because of the on-site lake/detention basin, this **direct** impact is **significant**. **No indirect** impacts would occur.

Off-Site Elements

These project components would not include changes resulting in increased bird attraction in the vicinity of the Sacramento International Airport. **No direct or indirect impacts** would occur.

Mitigation Measure: 3.12-5: Prepare and Implement a Design and Management Plan for the Proposed Water Features.

On-Site Elements

The project applicant(s) of all project phases shall prepare and implement a design and management plan for all proposed water features. The plan shall be prepared in coordination with the Sacramento International Airport Operations Manager and the Sacramento County ALUC and approved by Sutter County before commencement of construction. The plan shall identify the sizes for the lakes/detention basins and incorporate specific design measures to minimize bird strikes and other wildlife-related airspace safety hazards in the vicinity of the project site(s) (e.g., allowing grass to grow up to 20 centimeters in height, preventing growth of cattails or aquatic plants, installing barriers between lakes and nearby vegetated areas, installing signs prohibiting feeding of birds, removing nesting materials, and hazing birds to discourage use of lakes). The plan shall include information sufficient to satisfy requirements for preparation of a wildlife hazard management plan and shall be prepared by a qualified wildlife hazard damage biologist. The plan shall include a detailed design drawing of the proposed lake/detention, and include a description of design and landscape features which will reduce attraction of birds.

An adaptive management plan shall be prepared and incorporated into the wildlife hazard management plan. The adaptive management plan shall provide for the long-term management of nuisance birds around the lakes/basin. The management plan shall involve perpetual monitoring and employment of various techniques for controlling birds using adaptive information and bird control products. A CSA (and the city, following incorporation) shall be responsible for ensuring the implementation and continued enforcement of the adaptive management plan and provision of adequate funding.

If monitoring efforts reveal that additional control efforts are necessary, the program manager for the adaptive management plan may implement one or more control techniques outlined in the adaptive management plan or other techniques based on best available scientific and commercial information. Bird control techniques currently being used at airports, on agricultural lands, and in other areas where birds pose a hazard or nuisance shall be described in the adaptive management plan. These techniques include (but are not limited to) allowing grass to grow up to 20 centimeters in height, preventing growth of cattails or aquatic plants, installing barriers between lakes and nearby vegetated areas, installing signs prohibiting feeding of birds, removing nesting materials, and hazing birds to discourage use of the lakes. The bird control program manager shall have the discretion to use any one or more of the techniques based on the need, practicability, and land use compatibility.

Implementation: Project applicant(s) of all project phases.

Timing: Before construction of all project phases containing water features.

Monitoring: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-5 would reduce potential aircraft safety hazards associated with the potential for on-site project water features to attract hazardous wildlife to a level below the existing conditions on the project site, in a manner consistent with FAA guidelines. The preparation of a wildlife hazards management plan and an adaptive management plan with specific design and control techniques (e.g., allowing grass to grow up to 20 centimeters in height, preventing growth of cattails or aquatic plants, installing barriers between lakes and nearby vegetated areas, installing signs prohibiting feeding of birds, removing nesting materials, and hazing birds to discourage use of large water features) would reduce this impact to a **less-than-significant** level.

IMPACT Potential for Public Health Hazards from Mosquitoes Associated with Project Water Features. *The 3.12-6 proposed project would include on-site lakes/detention basins, which could attract mosquitoes and other water-borne vectors of disease.*

On-Site Elements

The proposed project would include approximately 160 acres occupied by lakes/detention basins that could attract mosquitoes and other water-borne vectors of disease.

All species of mosquitoes require standing water to complete their growth cycle; therefore, any body of standing water represents a potential mosquito breeding area. Water quality also affects the productivity of a potential mosquito breeding areas. Typically, greater numbers of mosquitoes are produced in water bodies with poor circulation, higher temperatures, and higher organic content (i.e., poor water quality) than in water bodies having good circulation, lower temperatures, and lower organic content. In addition, irrigation and flooding practices may influence the level of mosquito production associated with a water body. Typically, greater numbers of mosquitoes are produced in water bodies with water levels that slowly increase or recede than in water bodies with water levels that are stable or that rapidly fluctuate. Mosquito larvae prefer stagnant water and the protected microhabitats provided by stems of emergent vegetation.

Design features of the lakes/detention basins would include:

- ▶ depths between 8 and 12 feet, which would keep water temperatures low and discourage growth of algae;
- ▶ long and narrow shapes of the lake/detention basins, which would encourage water circulation and flow; and
- ▶ changes in depth of the lakes/detention basins ranging from higher elevation, lower depth areas to lower elevation areas with higher depths to induce water circulation.

Because the potential for exposure of people to mosquito-borne health hazards would increase above existing conditions with development of the project, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site elements would not include changes resulting in increased exposure to mosquitoes and other vectors. Therefore, **no direct or indirect** impacts would occur.

Mitigation Measure: 3.12-6: Prepare and Implement a Vector Control Plan.

On-Site Elements

The project applicant(s) of all project phases shall prepare and implement a vector control plan. This plan shall be prepared in coordination with the SYMVCD and shall be submitted to the County for approval before issuance of the grading permit for the lake/detention basin. The plan shall incorporate specific measures deemed sufficient by Sutter County in consultation with SYMVCD to minimize public health risks from mosquitoes. The plan shall include the following:

- ▶ description of the project;
- ▶ description of lakes/detention basins and all facilities that would control on-site water levels;
- ▶ goals of the plan;
- ▶ description of the water management elements and features that would be implemented:
 - best management practices (BMPs) that would implemented on-site,
 - public education and awareness,
 - sanitary methods used (e.g., disposal of garbage),
 - mosquito-control methods used (e.g., fluctuating water levels, biological agents, pesticides, larvacides, circulating water), and
 - stormwater management (consistent with stormwater management plan); and
- ▶ long-term maintenance of the lakes/detention basins and all related facilities (e.g., specific ongoing enforceable conditions or maintenance by a homeowner's association).

To reduce the potential for mosquitoes to reproduce in the lake/detention basin, the project applicant(s) shall coordinate with the SYMVCD to identify and implement BMPs based on their potential effectiveness for project site conditions. Potential BMPs that the project applicant(s) shall include, but are not limited to, the following practices:

Stock the lakes/detention basins with mosquitofish, guppies, backswimmers, flatworms, and/or other invertebrate predators.

Maintain a stable water level in the lakes/detention basins to reduce water level fluctuation resulting from evaporation, transpiration, outflow, and seepage.

Implementation: Project applicant(s) of all project phases.

Timing: Before issuance of the grading permit for the project water features and during long-term project operation.

Monitoring: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-6 would reduce potential human health hazards associated with increased exposure to mosquito-borne diseases to a **less-than-significant** level through implementation of a vector control plan that would contain BMPs to reduce mosquitoes, would be prepared in consultation with the SYMVCD, and would be reviewed and approved by the County before implementation.

IMPACT 3.12-7 **Exposure of Project Residents to Electric and Magnetic Fields.** *The proposed project would place residential housing within 100 feet of a 115-kV transmission line along the eastern project site boundary. There is a potential that EMFs emitted from the 115-kV transmission line could result in potential health hazards to residents at the project site.*

On-Site Elements

A 115-kV transmission line is located just outside the eastern boundary of the project site. This transmission line parallels the eastern project site boundary, traveling in a north-south direction. As discussed above in the “Environmental Setting,” all electrical devices generate EMFs. Most public attention and scientific research has been focused on 60-Hz EMFs generated by electric energy transmission facilities, partially because some studies have reported an increased cancer risk associated with exposure to these types of magnetic fields. NIEHS has collected data indicating that most people in the United States are exposed to magnetic fields that average less than 2 mG (NIEHS and National Institutes of Health 2002).

In 2001, the International Agency for Research on Cancer, a specialized cancer research agency of the World Health Organization, determined that EMFs should be considered a “possible human carcinogen.” This is the weakest of three categories used by the International Agency for Research on Cancer to classify scientific evidence on potential carcinogens. “Possible human carcinogen” is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals. This classification of EMFs was based on epidemiological studies of childhood leukemia (World Health Organization 1998, 2001).

Data collected by the NIEHS showing exposure to EMFs at various distances from electrical transmission lines range from 29.7 mG directly under a 115-kV transmission line to 1.7 mG 100 feet from the line and 0.4 mG at 200 feet from the line.

Common utility line setbacks generally incorporate a distance of approximately 50 feet on each side of the high-tension power lines. California does not require additional housing setback requirements from electrical transmission lines that would take into account the generation of EMFs. However, a few organizations have taken active steps to limit exposure to EMFs, while other organizations have issued guidelines to reduce EMF exposure. For example, the National Association of Certified Home Inspectors cites the Office of Technology Assessment of the U.S. Congress, which recommends a policy of “prudent avoidance” with respect to EMFs. “Prudent avoidance” means to measure fields, determine the sources, and act to reduce exposure. CDE has taken the position that K–12 schools may not be constructed within 100 feet of an easement for a 115-kV transmission line (approximately 150 feet from the power line itself). This effectively reduces school-site exposures to 2 mG or less.

No K–12 schools in the project site would be located within 100 feet of an easement for a 115-kV transmission line (approximately 150 feet from the power lines). In evaluating the proposed project for the potential for EMF exposure, the CDE standard for school buffers has also been applied to areas designated for residential use. The proposed project would place residential housing within 100 feet of an easement for a 115-kV transmission line along the eastern property boundary.

As part of project development, PG&E would provide a new on-site substation to serve project development within the project site. The facility has not yet been designed by PG&E; therefore, the exact components are not known at this time. However, the facility would be located in an area designated for “Employment 1” land use, which would not permit residential or school use. As stated above in the “Environmental Setting” section, the strongest EMF around the outside of a substation comes from the power lines entering and leaving the substation. The strength of the EMF from equipment within the substations, such as transformers, reactors, and capacitor banks, decreases rapidly with increasing distance. Beyond the substation fence or wall, the EMF produced by the substation equipment is typically indistinguishable from background levels.

Because the proposed project would place residential housing within 100 feet of an easement for a 115-kV transmission line along the eastern project site boundary, those residents would be exposed to EMFs greater than 2mG (the level to which most residents in the U.S. are exposed). There is a potential that EMFs emitted from the 115-kV transmission line could result in potential health hazards to residents at the project site. Therefore, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site elements would not include construction of sensitive land uses. Therefore, **no direct or indirect** impacts would occur.

Mitigation Measure: 3.12-7: Prohibit Construction of Residential Housing within 100 Feet of Any 115-kV Transmission Line.

On-Site Elements

The project applicant(s) of all project phases shall demonstrate to the County that residential housing would be located a minimum of 100 feet from the 115-kV transmission line easement prior to subdivision map approval.

Implementation: Project applicant(s) of all project phases.

Timing: Before approval of subdivision maps for all project phases.

Enforcement: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation:

Implementation of Mitigation Measure 3.12-7 would reduce the potentially significant impact related to adverse health effects from exposure to 60-Hz EMFs to a **less-than-significant** level because residential housing would be constructed at a safe distance from the 115-kV transmission line, thereby reducing exposure of project site residents to EMFs to below acceptable levels as established based on available science.

IMPACT 3.12-8 Safety of Project Residents and Workers Proximate to SR 99/70 and UPRR Rail Line. *Implementing the proposed project would result in the construction of urban uses in proximity to SR 99/70 and the UPRR rail line.*

On-Site Elements

Implementation of the proposed project would place new urban land uses close to SR 99/70 and the UPRR rail line. The proposed project would involve development of new industrial, commercial, and open space uses, along with mixed-use areas (including residential uses) adjacent to the SR 99/70 alignment. All proposed land uses would be constructed outside the proposed SR 99/70 right-of-way. In addition, residential uses adjacent to this highway would be further separated by open space lands along the state highway. The proposed project involves development of low- and medium-density residential uses, as well as employment uses, along the eastern project boundary. A UPRR rail line runs in an approximately north-south direction east of the project boundary. The UPRR line is separated from the project site by the Natomas East Main Drainage Canal and Natomas Road. Natomas Road is elevated (this portion is also called Levee Road) in the northern portion of the project site.

Transportation of hazardous materials on area roadways is regulated by CHP and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the CCR. Hazardous materials transportation by rail, including movement of petroleum, chemical, and nuclear products, is regulated by the Federal Railroad Administration. As discussed above in the “Environmental Setting” section, DOT Federal Railroad Safety Statistics indicate that the annual likelihood of a railroad accident along any given mile of the UPRR rail line would be approximately 2%, or a frequency of approximately one accident in 50 years. Although likelihood for railway accidents is present, the statistics indicate that injury and death related to these accidents are extremely rare.

The proposed project would be set back from the railroad line (based on the presence of the Natomas East Main Drainage Canal, the levee, and Natomas Road) and from SR 99/70 through use of open space lands to buffer residential uses. Because of these setbacks, and because the likelihood of a hazardous material spill on an area highway or rail line is considered extremely low, transportation safety hazards for project residents is a **less-than-significant** impact. **No indirect** impacts would occur.

Off-Site Elements

The off-site elements would not include changes to land use with the potential to increase hazards for people living or working in proximity to SR 99/70 or the UPRR rail line. Therefore, **no direct or indirect impact** would occur.

Mitigation Measures

No mitigation measures are required.

Additional Detailed On-Site Analysis – Impacts and Mitigation Measures

IMPACT 3.12-9 Routine Transport, Use, or Disposal of Hazardous Materials. *Implementation of Phase 1 and Phase A would involve the storage, use, and transport of hazardous materials at the project site during demolition, construction, and operation activities.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-1 for further discussion of this impact.

IMPACT 3.12-10 **Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Material.** *Construction workers in Phase 1 and Phase A could be exposed to hazardous materials present on-site during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-2 for further discussion of this impact.

Implementation of Mitigation Measure 3.12-2 would reduce the potentially significant impacts related to exposure to hazardous substances to a **less-than-significant** level because a site plan identifying remediation activities and setting forth procedures to appropriately handle hazardous materials would be prepared, and hazardous substances would be removed and properly disposed of by a licensed contractor in accordance with federal, state, and local regulations. Even though ESAs have not been performed for the entire project site, based on the findings of the existing Phase I ESAs for portions of the project site and on the types of environmental concerns that would be expected for areas of the project site not covered during the ESA process (as described in the discussion of Impact 3.12-2, above), it is expected that any environmental issues identified in future Phase I ESAs would be resolvable and reduced to a less-than-significant level by implementation of this mitigation measure.

IMPACT 3.12-11 **Public Health Hazards from Project Development on a Known Hazardous Materials Site Compiled Pursuant to Government Code Section 65962.5.** *The Farm Area Flying Service, within Phase A, is listed on the Cortese List as known hazardous materials sites. Implementation of Phase A could expose construction workers to hazardous materials from these sites during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-3 for further discussion of this impact.

Implementation of Mitigation Measure 3.12-3 would reduce the potentially significant impacts related to exposure to hazardous substances from known sites on the Cortese List to a **less-than-significant** level because a site plan identifying remediation activities and setting forth procedures to appropriately handle hazardous materials would be prepared, and hazardous substances would be removed and properly disposed of by a licensed contractor in accordance with federal, state, and local regulations.

IMPACT 3.12-12 **Safety Hazard for People Residing or Working Near a Public or Private Airstrip.** *Neither Phase 1 nor Phase A are located within Sacramento International Airport's designated safety zone.*

Because neither the Phase 1 nor the Phase A development areas are located within the Sacramento Airport's designated safety zone, there would be **no direct or indirect** impact related to this issue.

IMPACT 3.12-13 **Potential for Airspace Safety Hazards Associated with Project Water Features.** *Phase 1 and Phase A would include on-site lakes/detention basins, which could attract large numbers of birds, thereby potentially creating a flyway between the site and the Sacramento River and interfering with existing aircraft flight routes. Birds are recognized by the Sacramento International Airport CLUP as a potential hazard to aircraft because of the remote potential for high-speed collisions with birds, as well as the ingestion of birds into aircraft engines.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-5 for further discussion of this impact.

Implementation of Mitigation Measure 3.12-5 would reduce potential aircraft safety hazards associated with the potential for on-site project water features to attract hazardous wildlife to a level below the existing conditions on the project site, in a manner consistent with FAA guidelines. The preparation of a wildlife hazards management plan and an adaptive management plan with specific design and control techniques (e.g., allowing grass to grow

up to 20 centimeters in height, preventing growth of cattails or aquatic plants, installing barriers between lakes and nearby vegetated areas, installing signs prohibiting feeding of birds, removing nesting materials, and hazing birds to discourage use of large water features) would reduce this impact to a **less-than-significant** level.

IMPACT 3.12-14 Potential for Public Health Hazards from Mosquitoes Associated with Project Water Features. *Phase 1 and Phase A would include on-site lakes/detention basins, which could attract mosquitoes and other water-borne vectors of disease.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-6 for further discussion of this impact.

Implementation of Mitigation Measure 3.12-6 would reduce potential human health hazards associated with increased exposure to mosquito-borne diseases to a **less-than-significant** level through implementation of a vector control plan that would contain BMPs to reduce mosquitos, would be prepared in consultation with the SYMVCD, and would be reviewed and approved by the County before implementation.

IMPACT 3.12-15 Exposure of Project Residents to Electric and Magnetic Fields. *Phase 1 and Phase A would place residential housing within 100 feet of a 115-kV transmission line along the eastern project site boundary. There is a potential that EMFs emitted from the 115-kV transmission line could result in potential health hazards to residents at the project site.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-7 for further discussion of this impact.

Implementation of Mitigation Measure 3.12-7 would reduce the potentially significant impact related to adverse health effects from exposure to 60-Hz EMFs to a **less-than-significant** level because residential housing would be constructed at a safe distance from the 115-kV transmission line, thereby reducing exposure of project site residents to EMFs to below acceptable levels as established based on available science.

IMPACT 3.12-16 Safety of Project Residents and Workers Proximate to SR 99/70 and UPRR Rail Line. *Phase 1 and Phase A would result in the construction of urban uses in proximity to SR 99/70 and the UPRR rail line.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.12-8 for further discussion of this impact.

3.12.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures described above, project implementation would not result in any residual significant impacts related to public health and hazards.

3.13 BIOLOGICAL RESOURCES

This section addresses biological resources that could be affected by implementation of the proposed project.

3.13.1 REGULATORY BACKGROUND

Biological resources in California are protected and/or regulated by a variety of federal and state laws and policies. Key regulatory and conservation planning issues applicable to the proposed project are discussed below.

This section also describes the proposed project and its inclusion within the Natomas Basin Habitat Conservation Plan (NBHCP). Development of the project site, which is located within the NBHCP Sutter Permit Area, is authorized under the NBHCP Sutter County incidental take permit (ITP). The ITP also covers proposed new infrastructure and improvements to existing infrastructure within the permit area. Major infrastructure improvements for the project proposed outside of the permit area include construction of pumping stations; a sewer force main; stormwater detention basins; and water, natural gas, and electrical power conveyance facilities. Other proposed off-site improvements include the widening of the East Drainage Canal, which is part of the Reclamation District 1000 (RD 1000) channel system, between the project site and existing pump stations. With the exception of improvements to two canals, the East Drainage Canal and Montna Canal, off-site infrastructure improvements are not within the area covered by the ITP. Detail about the NBHCP is provided as appropriate throughout this section.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) have regulatory authority over federally listed species. Under the ESA, a permit to "take" a listed species is required for any action that may harm an individual of that species. "Take" is defined under Section 9 of the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S. Code [USC] 1532, 50 Code of Federal Regulations [CFR] 17.3). Under federal regulation, "take" is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Implementing the proposed project could result in the take of one federally listed species: giant garter snake. Take of federally listed species may be authorized under Section 10(a) or Section 7 of the ESA. Section 10(a) of the ESA allows USFWS to permit the incidental take of listed species if the applicant submits a habitat conservation plan (HCP) that meets statutory requirements including components to minimize and mitigate impacts associated with the take. The permit is known as an incidental take permit. The ITP issued to Sutter County through the NBHCP covers effects on giant garter snake of urban development within the Sutter County permit area and authorizes take for this proposed project if it complies with the ITP. Any effects on giant garter snake that could result from construction of off-site improvements outside of the permit area would not be covered by the ITP.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat. To ensure against jeopardy, each federal agency must consult with USFWS or NMFS, or both, if the federal agency determines that its action might affect a listed species. NMFS jurisdiction under the ESA is limited to the protection of marine mammals and fish and anadromous fish; all other species are within USFWS jurisdiction.

Clean Water Act

Section 404 of the federal Clean Water Act (CWA) establishes a requirement for a project proponent to obtain a permit from the U.S. Army Corps of Engineers (USACE) before engaging in any activity that involves any discharge of dredged or fill material into "waters of the United States," including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Many surface waters and wetlands in California meet the criteria for waters of the United States, including intermittent streams and seasonal lakes and wetlands.

The first step in seeking a Section 404 permit is to determine whether the area in question contains jurisdictional waters of the United States.¹ Thus, the applicant should approach USACE for a verified jurisdictional determination, which the applicant typically performs through a submission of maps and data forms. The regulatory staff of USACE will then perform a field review. Any wetlands that are not jurisdictional would fall within the regulatory authority of the regional water quality control board (RWQCB), as discussed below, as "waters of the State."

In early 2001, the U.S. Supreme Court issued a landmark ruling regarding the regulation of isolated intrastate waters by USACE in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*. Before this decision, USACE generally extended its jurisdiction over wetlands beyond "adjacent wetlands" and regulated the discharge of dredged or fill material into any intrastate wetlands and isolated waters, whether or not they had a link to navigable waters. The U.S. Supreme Court held that USACE jurisdiction under Section 404 of the CWA does not extend to nonnavigable, isolated, intrastate waters based solely on the fact that these waters are used as habitat by migratory birds. In 2006, the Supreme Court again attempted to clarify the extent of USACE jurisdiction of isolated waters in *Rapanos v. United States*. The test established in *Rapanos* is that only a water that possesses a "significant nexus to waters that are navigable-in-fact or that could reasonably be so made" are subject to regulation under CWA.

On June 5, 2007, the U.S. Environmental Protection Agency (EPA) and USACE issued joint guidance to establish the protocol for determining the presence of waters of the United States under the U.S. Supreme Court's 2006 *Rapanos* decision. The guidance directs the agencies to more thoroughly document jurisdiction using a standardized form. Agencies will continue to assert jurisdiction over traditional navigable waters (TNWs) and adjacent wetlands. The agencies will have jurisdiction over a water body that is not a TNW if that water body is "relatively permanent." Jurisdiction will be asserted over tributaries that are not relatively permanent on a case-by-case basis applying a "significant nexus" analysis to determine whether there is a significant nexus between the tributary and a TNW.

In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB, in this case, the Central Valley RWQCB, indicating that the proposed project would uphold state water quality standards.

¹ As stated above, the CWA prohibits the discharge of pollutants, including dredged and fill material, into "navigable waters" without a federal permit and defines the term "navigable waters" as "waters of the United States." By regulation, USACE's jurisdiction extends to wetlands "adjacent" to waters of the United States.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA) of the California Fish and Game Code, a permit from the California Department of Fish and Game (DFG) is required for projects the implementation of which could result in the take of a species state listed as threatened or endangered (i.e., species listed under CESA), except that plants may be taken without a permit pursuant to the terms of the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.). Pursuant to Section 2080, take of a listed species is prohibited without an ITP. A take of a species under CESA is defined as an activity that would directly or indirectly kill an individual of the species. The CESA definition of take does not include "harm" or "harass" as is included in the federal act. As a result, the threshold for take under CESA is generally considered higher than under ESA. Two state-listed threatened species, Swainson's hawk and giant garter snake, are presumed to occur on the project site. However, use of the project site by Swainson's hawk is expected to be limited to foraging activities because no suitable nesting habitat is present.

California Fish and Game Code Section 1602—Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife or fishery resources are subject to regulation by DFG under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying DFG: substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or, channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. DFG's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A DFG streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Porter-Cologne Water Quality Control Act

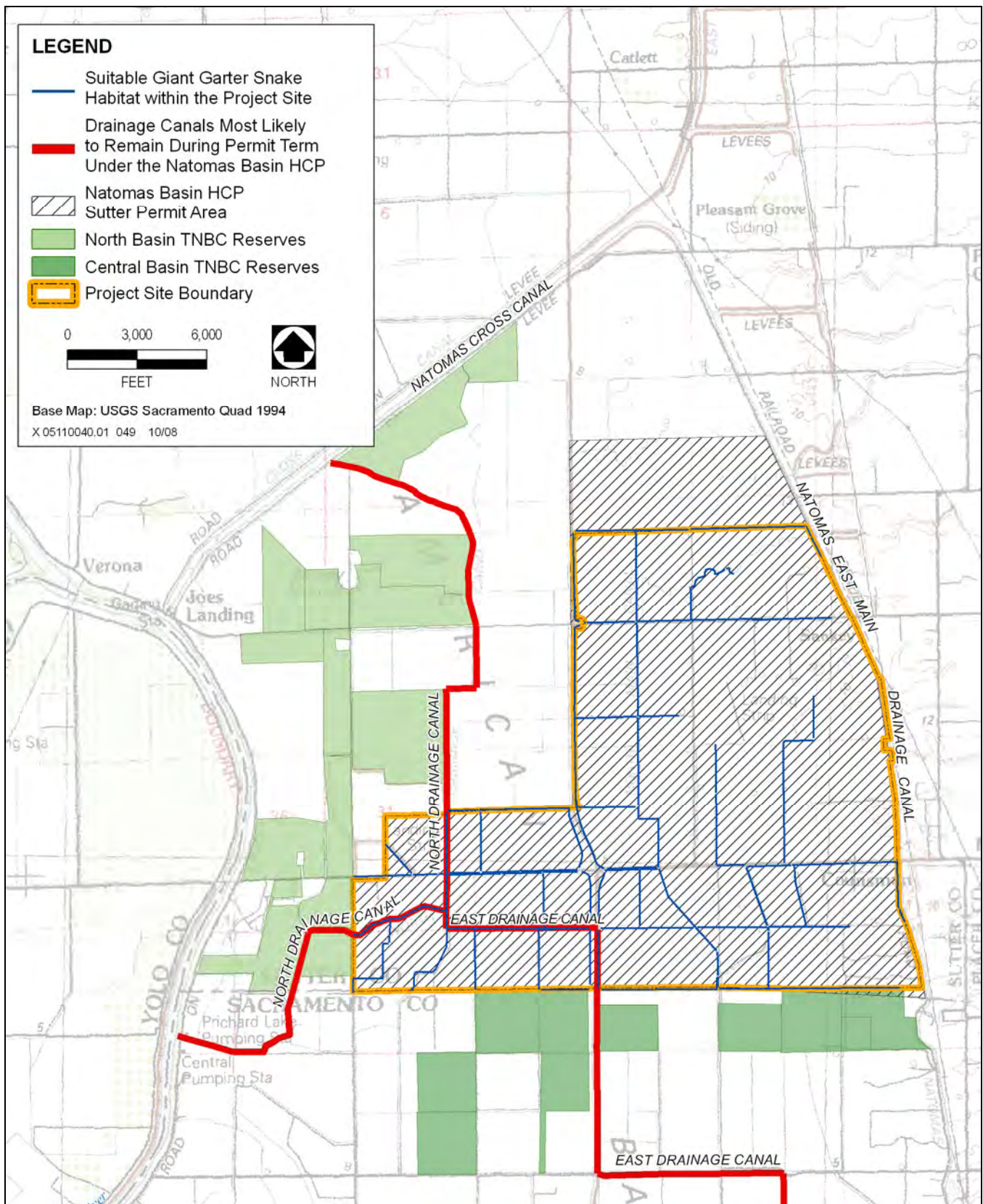
Under the Porter-Cologne Water Quality Control Act, "waters of the state" fall under the jurisdiction of the appropriate RWQCB. The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that discharge waste to wetlands or waters of the state must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA.

More recently, the appropriate RWQCB has also generally taken jurisdiction over "waters of the state" that are not subject to USACE jurisdiction under the CWA, in cases where USACE has determined that certain features do not fall under its jurisdiction. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Natomas Basin Habitat Conservation Plan

The NBHCP (City of Sacramento 2003) was developed to promote biological conservation within the Natomas Basin (Exhibit 3.13-1 illustrates the NBHCP permit area in southern Sutter County) in conjunction with economic and urban development. The plan provides an expedited process for approving development projects



Source: Hansen 2006, NBC 2008

Habitat Connectivity between Natomas Basin Conservancy Reserves

Exhibit 3.13-1

and establishes a multispecies conservation program to minimize and mitigate the expected loss of habitat values and incidental take of 22 "covered species" that could result from that development. The Natomas Basin consists of ±53,000 acres. The NBHCP authorizes take associated with 17,500 acres of urban development in the Basin, within southern Sutter County and within the City and County of Sacramento. USFWS approved the NBHCP in 2003 and issued ITPs to the City of Sacramento and Sutter County for take of federally listed species resulting from permitted activities. The ITPs provide authorization for take of covered species provided the proposed project conforms to the objectives and goals of the NBHCP. As shown in Exhibit 3.13-1, the boundaries of the project site are the same as the boundaries of the south Sutter permit area.

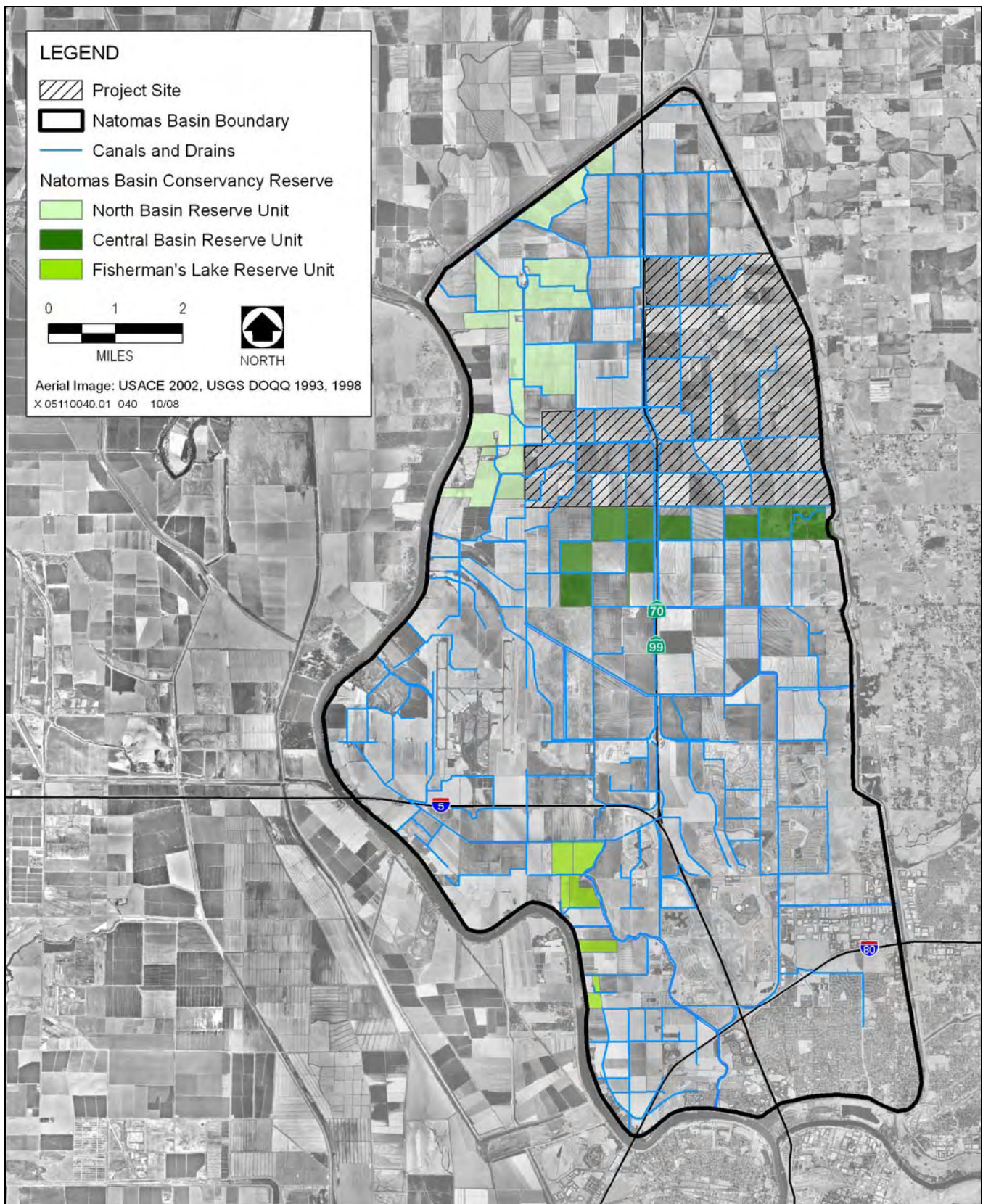
The primary biological goal of the NBHCP is to create a system of reserves with both wetland and upland components that will contribute to the maintenance of viable populations of the giant garter snake, Swainson's hawk, and other covered species in the basin. Project impacts on species covered by the NBHCP are mitigated at a ratio of 0.5 acre of mitigation land for every 1.0 gross acre of development authorized under the ITP. The NBHCP provides for a general division of habitat types within the Natomas Basin Conservancy's (NBC's) system of reserves as follows: 25% managed marsh, 50% rice production, and 25% upland habitat.

The primary compensatory mitigation mechanism in the NBHCP is the progressive establishment and maintenance in perpetuity of a system of biological reserves. The NBHCP's reserve acquisition and management activities are implemented by the NBC, a private, nonprofit organization that began operating in 1998 and whose mission is to serve as "plan operator" of the NBHCP. The NBC receives mitigation fees paid by developers and other NBHCP participants. These funds are used to acquire, establish, enhance, monitor, and manage mitigation lands in perpetuity. As development within the Natomas Basin occurs, and as the NBC acquires mitigation lands, site-specific management plans are prepared, adopted, and implemented by the NBC to ensure that the objectives of the NBHCP are fulfilled. Developers also have the option to dedicate land in-lieu of paying the portion of the fee used for land acquisition. The NBHCP includes an endowment component of the mitigation fee to fund the operation and maintenance, adaptive management, and monitoring obligations for mitigation lands in perpetuity, including after authorized development is fully built-out.

Approximately half of the required acres of reserve lands have been acquired since adoption of the NBHCP. The reserves are divided in three general regions of the Basin: (1) north of Interstate 5 (I-5) and west of State Route (SR) 99/70 (North Basin Reserve Unit), (2) south and west of I-5 (Fisherman's Lake Reserve Unit), and (3) north of I-5 along SR 99/70 (Central Basin Reserve Unit). The project site is located adjacent to the North Basin and Central Basin Reserve Units (Exhibit 3.13-2).

The NBHCP biological goals are the broad guiding principles for the operating conservation program and provide the rationale behind the minimization and mitigation strategies. The specific biological objectives are the measurable targets for achieving the biological goals. The goals and objectives together provide a framework for developing a monitoring program that measures progress toward meeting those goals and objectives. The following NBHCP goals and objectives are considered relevant to the proposed project (City of Sacramento 2003):

- ▶ **Overall Goal 1:** Establish and manage in perpetuity a biologically sound and interconnected habitat reserve system that mitigates impacts on Covered Species resulting from Covered Activities and provides habitat for existing, and new viable populations of Covered Species.
- ▶ **Overall Goal 2:** Implement an adaptive management program that responds to changing circumstances affecting Covered Species and their habitats.
- ▶ **Overall Goal 3:** Preserve open space and habitat that may also benefit local, non-listed and transitory wildlife species not identified within the NBHCP.
- ▶ **Overall Goal 4:** Ensure that direct impacts of Authorized Development upon Covered Species are avoided or minimized to the maximum extent practicable.



Source: NBC 2008, adapted by EDAW 2008

Habitat Reserves in the Natomas Basin

Exhibit 3.13-2

- **Overall Objective 1:** Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic pets, and harassment by people.
- **Overall Objective 3:** Ensure connectivity between NBC reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves, and/or an interlinking network of water supply channels or canals.

American Basin Fish Screen and Habitat Improvement Project

Implementing the American Basin Fish Screen and Habitat Improvement Project would modify the Natomas Central Mutual Water Company's water diversion from the Sacramento River and distribution system to avoid and minimize potentially adverse effects on fish, particularly juvenile anadromous salmonids. Migration barriers and entrainment at unscreened diversions can result in direct mortality of fish. Reductions in direct mortality unscreened diversion, particularly those located within critical fisheries habitat of the Sacramento-San Joaquin Bay-Delta system, have been identified as a high-priority action by the U.S. Bureau of Reclamation and DFG. A specific objective of the project is to install state-of-the-art fish screens to minimize the potential for entrainment of resident and migratory fish species.

Sutter County General Plan

The Sutter County General Plan Policy Document (Sutter County 1996) provides overall guidance for resource conservation in Sutter County and includes several resource conservation goals and objectives. The Sutter County General Plan includes policies that generally address preservation of natural vegetation, including wetlands. It requires that new development mitigate for loss of federally protected wetlands to achieve "no net loss," but does not include any other specific requirements.

The Sutter County General Plan applies to the entirety of the project site, as well as to the proposed off-site improvement areas within Sutter County. The following goal and policies from the Sutter County General Plan regarding biological resources are applicable to the proposed project:

- ▶ **GOAL 4.B:** To protect wetland and riparian areas throughout Sutter County.
 - **Policy 4.B-1:** The County shall require new development to fully mitigate the loss of federally regulated wetlands to achieve "no net loss" through any combination of avoidance, minimization, or compensation.
 - **Policy 4.C-6:** The County encourages the preservation of existing wildlife corridors between natural habitat areas to maintain biodiversity and prevent the creation of biological islands. This would also include promoting the re-establishment of previous corridors where feasible.
 - **Policy 4.D-3:** The County shall require that new development projects avoid, to the maximum extent possible, ecologically-fragile areas (e.g., areas of rare, threatened or endangered species of plants, riparian areas, vernal pools).

Placer County General Plan

The Placer County General Plan (Placer County 1994) identifies setbacks from streams and other sensitive habitats; a "no net loss" policy for federally protected and state-protected wetlands; and general preservation of outstanding areas of natural vegetation, including oak woodlands, riparian habitat, and vernal pools. The Placer County Code specifically addresses protection of native, landmark, and riparian zone trees and indicates replacement of removed trees may be required. Other policies involve preserving and protecting waterfowl

resources; establishing wildlife corridors to prevent biological islands; and enhancing and promoting the preservation of rare, threatened, or endangered wildlife through participation in mitigation programs.

The Placer County General Plan applies to areas proposed for off-site sewer force mains and dry utilities. The following goal and policies from the Placer County General Plan regarding biological resources are applicable to those components of the proposed project:

- ▶ **GOAL 6.B:** To protect wetland communities and related riparian areas throughout Placer County as valuable resources.
- **Policy 6.B.1:** The County shall support the "no net loss" policy for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.
- **Policy 6.B.2:** The County shall require new development to mitigate wetland loss in both regulated and nonregulated wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation banking program that provides the opportunity to mitigate impacts on rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.
- **Policy 6.B.5:** The County shall require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. The County shall continue to implement and refine criteria for determining when an alteration to a wetland is considered a less-than-significant impact under CEQA.

Sacramento County General Plan

The Sacramento County General Plan (Sacramento County 1993) Conservation Element addresses the preservation and protection of a variety of natural resources, including native oak trees, "no net loss" of wetlands, vernal pools, oak and riparian woodlands, streams and special-status species habitat.

The Sacramento County General Plan applies to areas proposed for off-site sewer mains. The following policies from the Sacramento County General Plan regarding biological resources are applicable to those components of the proposed project:

- **Policy CO-71:** Ensure no net loss of wetlands, stream and river corridors, riparian woodlands, oak woodlands, oak savannah, or special status species habitat acreage and their respective functions.
- **Policy CO-72:** Ensure in-kind mitigation occurs for any loss of or modification to the following types of acreage and habitat function: vernal pools, wetlands, riparian, native vegetative habitat, and special status species habitat.
- **Policy CO-73:** When on-site preservation or mitigation is not feasible or desirable per regulatory agencies, require off-site mitigation within Sacramento County for the habitats listed below. Mitigation shall be directed to lands identified on the Open Space Vision Diagram and associated component maps

(please refer to the Open Space Element): vernal pools, wetlands, riparian, native vegetative habitat, and special status species habitat.

- **Policy CO-74:** For development projects, the project applicant shall have a habitat restoration plan prepared by a qualified restoration specialist to mitigate for project-related disturbances to vegetation and wildlife habitats in Sacramento County. This plan shall include monitoring protocols, implementation and funding mechanisms.
- **Policy CO-91:** Maintain viable populations of special status species through the protection of habitat in preserves and linked with natural wildlife corridors.

3.13.2 ENVIRONMENTAL SETTING

A large percentage of the project site has been in agricultural use for at least 50 years. Most of the project site is currently used for rice production (Exhibit 3.13-3). Uses on developed areas on the project site include light industrial uses, a food distribution facility, and a manufacturing plant. Rice fields and other agricultural uses surround most of the project site. Proposed new infrastructure and improvements to existing infrastructure outside of the Sutter Permit Area are located primarily along the alignments of existing paved roadway. Habitats adjacent to these alignments are similar to those found on the project site, with rice and fallow rice the predominate habitat type (Exhibit 3.13-4).

The habitat types described below and shown in Exhibits 3.13-3 and 3.13-4 reflect conditions recently documented by ICF/Jones & Stokes (J&S) and EDAW. In addition, specific information on wetland habitats on the project site, documented by ECORP Consulting (ECORP), is discussed below. EDAW consolidated the J&S and ECORP information into major habitat types, which are described below.

The NBC retained J&S to prepare a comprehensive habitat map and conduct annual biological monitoring required by the NBHCP (NBC 2007a). The mapping data presented in this document are based on data collected by J&S during the 2006 growing season. The J&S habitat mapping for the 2007 growing season has been completed but was not available at the time this analysis was prepared in mid-2008. The habitat types and locations shown in Exhibit 3.13-3 for the project site are based on J&S 2007 survey results.

ECORP described and mapped wetland and other waters of the United States as defined by USACE on the project site based on 2005 field surveys in support of a wetland delineation conducted for the project applicant (ECORP 2007) (Appendix H of this DEIR).

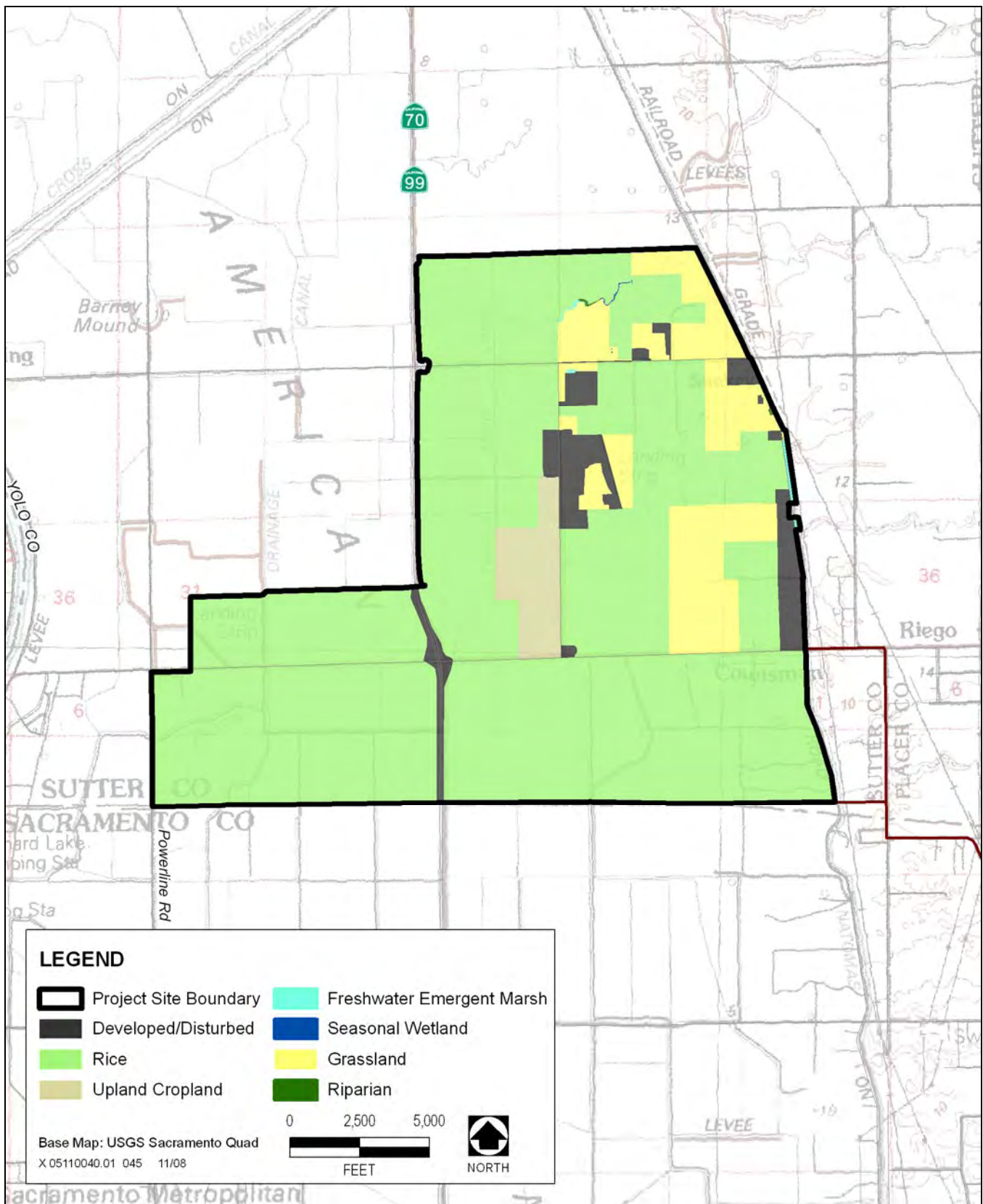
Habitats located within the alignments of proposed off-site improvements were based on J&S (NBC 2007a) and EDAW 2007 survey results (Exhibit 3.13-4).

UPLAND HABITAT TYPES

Upland habitat types present on the project site and within the alignments of proposed new infrastructure and improvements to existing infrastructure include rice and fallow rice, upland cropland, grassland, and developed and disturbed areas.

Rice and Fallow Rice

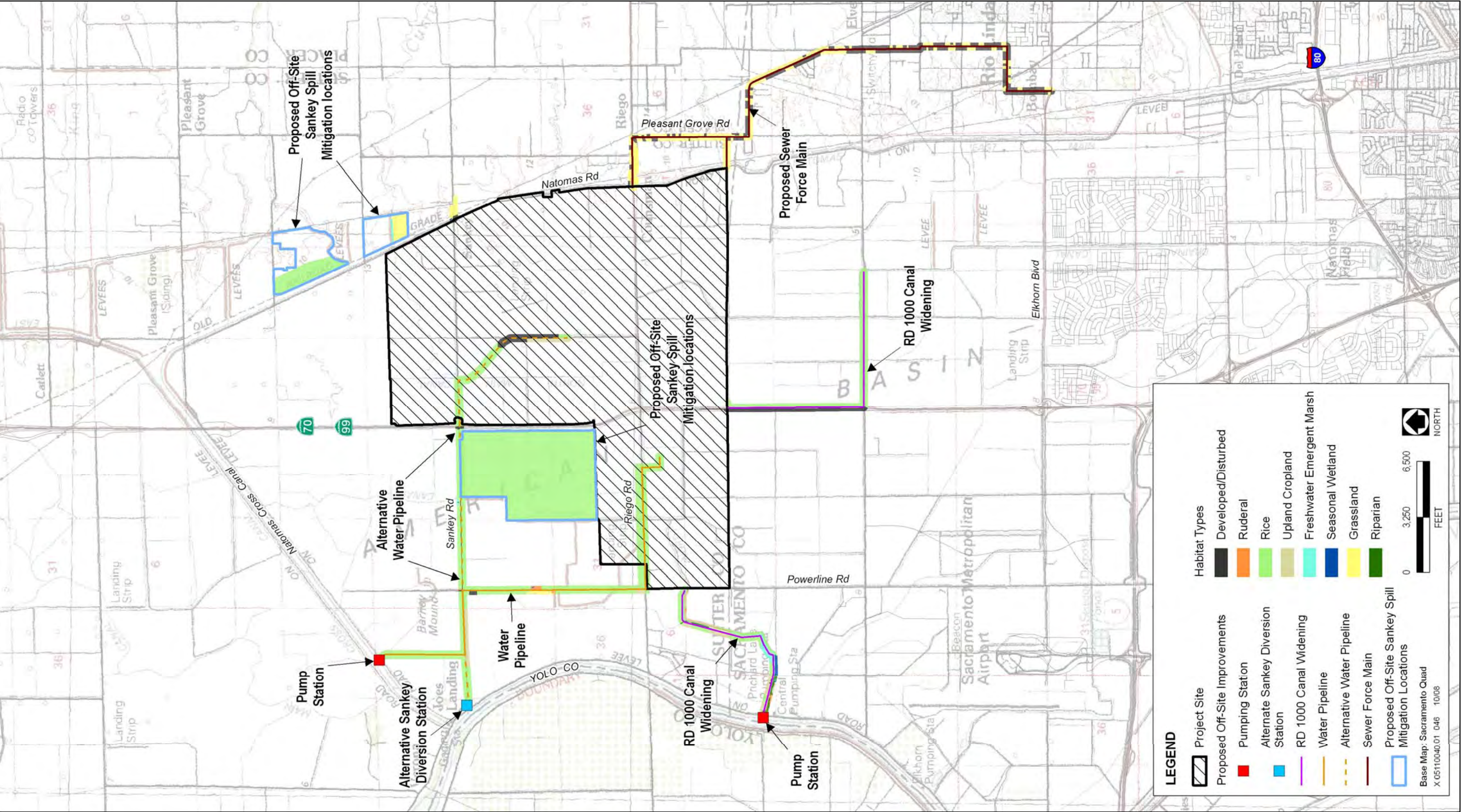
Rice is the most common habitat type on the project site (Table 3.13-1). The project site includes 5,203 acres of active rice fields and 863 acres of fallow rice fields. Rice fields are flooded at the beginning of the growing season and remain inundated until the fall harvest. Most of the water used to irrigate rice and other crops on the project site is delivered from the Sacramento River by the Natomas Central Mutual Water Company through a series of canals and pumps owned by the water company. (See Section 3.9, "Water Supply," for a complete description of



Source: Jones & Stokes 2007

Habitat Types on the Project Site

Exhibit 3.13-3



Source: NBC 2007a, adapted by EDAW in 2007

Habitat Types within the Proposed Off-Site Improvement Areas

Exhibit 3.13-4

water supply and conveyance to the project site.) Rice fields are typically rotated in and out of production. Plants found in rice fields and along canals used to irrigate rice include paradox canary grass (*Phalaris paradoxa*), toad rush (*Juncus bufonus*), water plantains (*Alisma* spp.), fringed water plantain (*Damsonium californicum*), cattail (*Typha* spp.), rabbit's-foot grass (*Polypogon monspeliensis*), and water primrose (*Ludwigia* spp.).

Table 3.13-1 Habitat Types on the Project Site	
Habitat Type	Approximate Acres
Rice/fallow rice	6,066
Upland cropland	242
Grassland	854
Developed/disturbed	381
Seasonal wetlands	2
Freshwater emergent marsh	9
Riparian	2
Total	7,556
Sources: ECORP 2007, adapted by EDAW in 2008	

Rice and fallow rice are also common within the alignments of proposed new infrastructure and improvements to existing infrastructure. The alignment for the widening of the RD 1000 canal includes a total of 204 acres of rice and fallow rice (Table 3.13-2). The water pipeline alignment includes 310 acres of rice fields and the alternative water pipeline alignment includes 129 acres of rice fields (Exhibit 3.13-4).

Table 3.13-2 Habitat Types within the Alignments of New Off-Site Infrastructure and Improvements to Existing Off-Site Infrastructure	
Habitat Type	Approximate Acres
Sewer Force Main	
Grassland	204
Developed/disturbed	168
RD 1000 Canal Widening	
Rice/fallow rice	204
Upland cropland	28
Grassland	9
Developed/disturbed	39
Seasonal wetlands	5
Freshwater emergent marsh	21
Riparian	12
Waterline	
Rice/fallow rice	310
Upland cropland	21

Table 3.13-2 Habitat Types within the Alignments of New Off-Site Infrastructure and Improvements to Existing Off-Site Infrastructure	
Habitat Type	Approximate Acres
Grassland	14
Developed/disturbed	12
Alternative Waterline	
Rice/fallow rice	129
Upland cropland	3
Grassland	1
Developed/disturbed	5
Freshwater emergent marsh	2
Source: ECORP 2007, adapted by EDAW in 2007	

Upland Cropland

Upland cropland present on the project site and within the alignments of proposed new infrastructure and improvements to existing infrastructure include wheat and other grain crops, safflower, and alfalfa. A total of 242 acres of upland cropland are present on the project site. Approximately 52 acres of upland cropland are present within the alignments of proposed off-site infrastructure improvements.

Grassland

The project site includes approximately 827 acres of nonnative annual grassland and approximately 27 acres of irrigated grassland managed primarily for hay production. This herbaceous plant community is characterized by a dense, tall cover of nonnative annual grasses, such as soft brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wild oats (*Avena fatua*), and medusahead (*Taeniatherum caput-medusae*), and nonnative forbs, such as rose clover (*Trifolium hirtum*), rush skeletonweed (*Chondrilla juncea*), and yellow star-thistle (*Centaurea solstitialis*). Native forbs common in annual grasslands include common madia (*Madia elegans*), western ragweed (*Ambrosia psilostachya*), and common fiddleneck (*Amsinckia menziesii*).

Grassland habitat is present along all proposed off-site infrastructure alignments. The sewer force main alignment includes 204 acres of grassland. Less than 25 acres of grassland habitat are present within the alignments of the other proposed off-site infrastructure.

Developed and Disturbed Areas

The project site includes approximately 381 acres of land mapped as developed or disturbed. These areas include existing industrial uses, as well as farms, homes, and ranching structures. Developed and disturbed areas are adjacent to all off-site infrastructure alignments.

WETLAND AND RIPARIAN HABITAT TYPES

Wetland and riparian habitats present on the project site and within the alignments of proposed new infrastructure and improvements to existing infrastructure include irrigation canals and ditches, seasonal wetlands, freshwater emergent marsh, and riparian areas.

Irrigation Canals and Ditches

The project site includes an extensive network of canals and ditches that are part of a complex agricultural supply and drainage system managed by RD 1000 and the Natomas Central Mutual Water Company (NCMWC). This system is completely enclosed by levees, so there is no natural drainage out of the basin. RD 1000 operates the primary drainage canals within the basin and is responsible for conveying and pumping storm runoff from the basin. The basin's closely related agricultural ditch system is operated by Natomas Central Mutual Water Company, a private, nonprofit water company. RD 1000 maintains drainage through miles of major and minor ditches using seven pump stations. Urban and agricultural drainage water is eventually pumped out of the basin and into the Sacramento River.

ECORP (2007) identified approximately 67 acres of irrigation canals on the project site. This acreage figure represents only larger canals and ditches. Smaller features, such as temporary ditches and furrows, were not mapped by ECORP because they are reconstructed on a regular basis as part of normal farming practices. The canals and ditches range from temporary features generally less than 5 feet wide and 1 foot deep to permanent drainage features of up to 30 feet wide and several feet deep. The larger permanent drainage ditches mapped during the wetland delineation are shown in Exhibit 3.13-6. There are approximately 15 miles of canals, including 4 miles of the North Main Canal, and approximately 22 miles of ditches, including 4 miles of larger main drains on the project site. The Natomas East Main Drainage Canal is located immediately east of the project site. Most of the ditches on the project site are unvegetated, except for relatively narrow strips of wetland vegetation at the ordinary high-water mark. Also present are scattered mature Goodding's black willow (*Salix gooddingii*) and Fremont's cottonwood (*Populus fremontii*) along the banks.

Existing canals and ditches are located throughout the off-site improvement areas, particularly those areas within the Natomas Basin. The proposed sewer force main alignment crosses the Natomas East Main Drainage Canal. Outside of the Natomas Basin, canal and ditches are present along Pleasant Grove Road and Baseline Road (Exhibits 3.13-4 and 3.13-6).

Seasonal Wetlands

Seasonal wetlands are characterized by depressions lacking an outlet that hold ponded water for short periods following winter and spring rains. These areas often have distinct substrates, such as a hardpan, claypan, or bedrock, that prevent water loss from percolation.

A 4-acre seasonal wetland is located in the northeast corner of the project site (Exhibit 3.13-4). The seasonal wetland receives runoff during the wet season from natural precipitation and through periodic irrigation runoff from the adjacent rice field and pastures. The drainage pattern and the topography surrounding this wetland suggest that irrigation runoff contributes to the hydrology. The wetland is situated within a field that is planted for hay crops that has not been leveled. The field had been plowed before the ECORP field survey, so most of the vegetation could not be identified (ECORP 2007). Scattered plant species that remained identifiable included Mediterranean barley (*Hordeum marinurn*), ryegrass (*Lolium* spp.), vetch (*Vicia* spp.), and soft brome. Plant species present in the adjacent upland areas included wild oats and ryegrass.

Seasonal wetlands, including intermittent and ephemeral drainages, are present within the alignments of proposed off-site infrastructure improvements. Intermittent and ephemeral drainages are located within the proposed off-site infrastructure alignments. A number of drainages are present within the proposed sewer force main alignment area. Drainages are also located along the proposed natural gas alignment along Baseline Road. These drainages range from narrowly cut channels with rocky substrates and little in-channel vegetation to wide channels with little to no vegetation. Generally, standing water is present only during and shortly after storm events.

A swale that was formed by impounded water at the base of the Natomas East Main Drainage level is located along the proposed sewer force main alignment. This swale is part of a larger seasonal wetland or wetland complex that parallels the canal. Most of the off-site seasonal wetlands are topographic drainages that primarily

convey water during storm events. They occur in areas that remain saturated into the growing season, support wetland vegetation, and exhibit soil characteristics typical of wetlands. Seasonal wetlands within the alignments proposed for off-site improvement are typically dominated by herbaceous species, such as Italian ryegrass, curly dock (*Rumex crispus*), and nutsedge (*Cyperus eragrostis*), with occasional stands of Himalayan blackberry (*Rubus discolor*).

Freshwater Emergent Marsh

The project site includes approximately 9 acres of freshwater emergent marsh (NBC 2007a). Part of this acreage corresponds to the remnant channel of Curry Creek, which was not included in the ECORP wetland delineation survey area. Curry Creek was redirected/channelized sometime after 1975, and only a truncated portion remains (ECORP 2007). The remnant creek bed is now used for irrigation purposes and functions much like an irrigation ditch, receiving controlled flows. The remainder of the freshwater emergent marsh habitat mapped on the project site is located along Natomas East Main Canal at the eastern boundary of the project site. Vegetation commonly found in freshwater emergent marshes include cattail (*Typha* spp.), sedges (*Carex* spp.), and bulrush (*Scirpus* spp.).

Off-site, freshwater emergent wetlands are located along Baseline Road and Pleasant Grove Road. The emergent wetlands along Baseline Road were less extensive than those along Pleasant Grove Road, where large stands of emergent vegetation are present (Exhibit 3.13-4).

Riparian Areas

The project site includes approximately 2 acres of riparian habitat. Riparian habitat includes both scrub and woodland habitats. The 2006 J&S mapping effort identified riparian woodland along the remnant portion of Curry Creek in the Brennan Tract and riparian scrub along the Natomas East Main Canal. These areas are typified by the presence of woody vegetation, such as shrubby willows (*Salix exigua* and *Salix lasiolepis*) and cottonwood.

Riparian scrub and riparian woodland are also present in areas proposed for off-site improvements. Riparian scrub is located adjacent to the proposed natural gas line alignment adjacent to Curry Creek and two other, unnamed creeks (the natural gas pipeline alignment is shown on Exhibit 2-12). Plant species include willows and occasionally cottonwoods. Riparian scrub habitat is also present on the NBC reserve areas south of Riego Road.

WILDLIFE

Before European settlement, the Sacramento River floodplain, including the Natomas Basin, supported a wide diversity and large number of wildlife species associated with its riparian habitats, permanent and seasonal wetlands, and oak woodlands and savannas. Much of this habitat was lost after levees were built to prevent flooding on the Sacramento and American Rivers. Initially, land within the Natomas Basin was converted to agriculture. More recently, land use conversion has been to urban development. With land use conversion, the abundance of wildlife species restricted to natural habitats likely decreased and in some cases led to local extirpation (City of Sacramento 2003). With most native habitats greatly reduced or eliminated, many native wildlife species are now dependant upon the mosaic of agricultural fields, canals, and remnant patches of riparian and wetland habitat in the Natomas Basin.

The combination of vegetation types on the project site provides nesting, feeding, and movement habitat for wildlife species commonly found on agricultural land in the Natomas Basin. Rice fields provide habitat for a wide diversity of wetland-dependent wildlife species, including ducks, geese, and swans. Cattails and dense weedy vegetation along the ditches provide potential nesting habitat for red-winged blackbird (*Agelaius phoeniceus*) and other common birds with similar habitat requirements. Grasslands provide potential nesting habitat for a number of species, including western meadowlark (*Sturnella neglecta*). The wheat fields and grasslands provide foraging habitat for raptors such as white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), red-tailed hawk

(*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*). During the winter, the crop fields provide foraging habitat for migratory waterfowl, raptors, and passerines.

The diversity of reptiles, amphibians, and mammals on the project site is expected to be low because natural habitats on the project site have been converted to agricultural uses that have reduced the habitat value for most terrestrial animals that are native to this region. The canals and ditches that support permanent or intermittent aquatic habitat also provide potential habitat for common and adaptable species such as bullfrog (*Rana catesbeiana*) and Pacific chorus frog (*Pseudacris regilla*). These areas also provide potential habitat for the giant garter snake (*Thamnophis gigas*). Mammals expected on the project site include raccoon (*Procyon lotor*), coyote (*Canis latrans*), and California vole (*Microtus californicus*).

The Sacramento River and Natomas Basin canals provide fish spawning, rearing, and migratory habitat for a diverse assemblage of nonnative and native fish species. Canals on the project site support a fish community dominated by nonnative species, such as mosquitofish (*Gambusia affinis*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), and golden shiner (*Notemigonus crysoleucas*). The Sacramento River provides habitat for native anadromous species, including four runs of Chinook salmon, steelhead trout (*Oncorhynchus mykiss*), green and white sturgeon (*Acipenser medirostris* and *A. transmontanus*), and Pacific lamprey (*Lampetra tridentata*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed below include those that are afforded special protection under CEQA, the California Fish and Game Code (including the CESA), the ESA, the CWA, the NBHCP, and local policies and ordinances.

Special-Status Species

Special-status species are plants and wildlife that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations, including:

- ▶ plant and wildlife species that are listed under the ESA and/or CESA as rare, threatened, or endangered;
- ▶ plant and wildlife species considered candidates for listing or proposed for listing;
- ▶ wildlife species identified by DFG as special animals or species of special concern;
- ▶ wildlife species identified by statute as fully protected;
- ▶ plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered; and
- ▶ plants and animals covered by the NBHCP.

Tables below provide lists of special-status plant and wildlife species, respectively, known to occur or with potential to occur on the project site or in proposed off-site improvement areas. These lists were developed through a review of biological studies previously conducted on the project site and in the project vicinity. The electronic versions of the California Natural Diversity Database (CNDDB) and CNPS databases were reviewed by EDAW for specific information on previously documented occurrences of special-status species in the Pleasant Grove, Taylor Monument, and Rio Linda, California, 7.5-minute U.S. Geological Survey (USGS) quadrangles. Although listed, a number of special-status species known to occur in the vicinity of the project site are not addressed in this section because these species are restricted to habitats that are not present on the project site or in the proposed off-site improvement areas.

Special-Status Plants

Eight special-status plants were evaluated for their potential to occur in the project site and in proposed off-site improvement areas. The regulatory status and potential for occurrence are summarized for each species in Table 3.13-3. Two of the eight species were determined to have potential to occur on the project site: Sanford's

arrowhead (*Sagittaria sanfordii*) and Delta tule pea (*Lathyrus jepsonii jepsonii*). All eight plants species could occur in the proposed off-site improvement areas.

A focused survey for special-status plants was conducted on the project site by ECORP on April 13 and June 16, 2005 (Appendix I of this DEIR). The survey was conducted in accordance with DFG and USFWS guidelines. No special-status plant species were found during the survey (ECORP 2006a). Although the species were not detected during on-site surveys, slow-moving freshwater habitats, including ponds, marshes, and ditches on-site, provide potential habitat for Sanford's arrowhead and Delta tule pea. The larger canals and ditches on-site support potential habitat for both plants.

Potential habitat for special-status plants adjacent to proposed off-site improvement alignments was assessed during reconnaissance-level field surveys conducted by EDAW biologists on June 13 and 14, 2007. No focused surveys for special-status plants were conducted within the proposed off-site improvement areas. Vernal pools and seasonal wetlands along the proposed off-site improvement areas could provide habitat for Sacramento Orcutt grass (*Orcuttia viscida*), slender Orcutt grass (*Orcuttia tenuis*), legenere (*Legenere limosa*), Colusa grass (*Neostapfia colusana*), dwarf downingia (*Downingia pusilla*), and Boggs Lake hedge-hyssop (*Gratiola heterosepala*). Freshwater marsh habitat, ditches, and canals adjacent to the proposed off-site infrastructure alignments were identified as potential habitat for Sanford's arrowhead and Delta tule pea.

Table 3.13-3 Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site and in the Vicinity			
Common Name	Scientific Name	Status ¹	Potential for Occurrence
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	CNPS: 1B NBHCP: covered	On- and off-site: Could occur. This herbaceous perennial plant occurs in marshes and swamps. The closest known occurrence is in Sacramento County at the American River. Potential habitat exists in canals and ditches both on- and off-site.
Sacramento Orcutt grass	<i>Orcuttia viscida</i>	Fed: Endangered CA: Endangered CNPS: 1B NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. This annual plant occurs in large, deep vernal pools in eastern Sacramento County. No suitable habitat is present on-site. Off-site locales may provide marginally suitable habitat.
Slender Orcutt grass	<i>Orcuttia tenuis</i>	Fed: Threatened CA: Endangered CNPS: 1B NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. This annual plant occurs in large, deep vernal pools in eastern Sacramento County. No suitable habitat is present on-site. Off-site locales may provide marginally suitable habitat.
Legenere	<i>Legenere limosa</i>	CNPS: 1B NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. However, off-site locales may provide suitable habitat. Known to occur in Sacramento County.
Colusa grass	<i>Neostapfia colusana</i>	Fed: Threatened CA: Endangered CNPS: 1B NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. This annual plant occurs in vernal pools. No suitable habitat is present on-site. However, off-site locales may provide marginally suitable habitat. Known to occur in Yolo County.

Table 3.13-3
Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site and in the Vicinity

Common Name	Scientific Name	Status ¹	Potential for Occurrence
Dwarf downingia	<i>Downingia pusilla</i>	CNPS: 2 NBHCP: not covered	On-site: Not expected to occur. Off-site: Could occur. This species occurs in mesic sites in valley and foothill grassland and vernal pools. No suitable habitat is present on-site. Suitable habitat is present off-site in vernal pools and swales. This species has been recorded in Placer and Sacramento Counties.
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	CA: Endangered CNPS: 1B NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. This annual plant occurs in vernal pools and along the margins of lakes. No suitable habitat is present on-site. However, off-site locales may provide suitable habitat. This plant is found in Sacramento County.
Delta tule pea	<i>Lathyrus jepsonii jepsonii</i>	CNPS: 1B NBHCP: covered	On- and off-site: Could occur. This herbaceous perennial plant occurs in freshwater and brackish marsh habitats. Potential habitat exists in a variety of canals. Suitable habitat may be present off-site in canals. Known to occur in southern Sacramento County.
Notes: CNPS = California Native Plant Society; DFG = California Department of Fish and Game; USFWS = U.S. Fish and Wildlife Service. ¹ Legal Status Definitions CNPS Categories 1B Plant species considered rare or endangered in California and elsewhere (but not legally protected under the ESA or CESA) Sources: CNDDDB 2007, CNPS 2007, ECORP 2006a, adapted by EDAW in 2007			

Special-Status Wildlife

A total of 28 special-status wildlife species were evaluated for their potential to occur in the project site and proposed off-site improvement areas (Table 3.13-4). The CNDDDB includes documented records of giant garter snake (*Thamnophis gigas*), black-crowned night-heron (*Nycticorax nycticorax*), and burrowing owl (*Athene cunicularia*) as occurring on the project site. Other special-status wildlife species that were determined to potentially occur on the project site are Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), tricolored blackbird (*Agelaius tricolor*), white-faced ibis (*Plegadis chihi*), greater sandhill crane (*Grus canadensis tabida*), loggerhead shrike (*Lanius ludovicianus*), and northwestern pond turtle (*Emys marmorata marmorata*). Vernal pool tadpole shrimp (*Lepidurus packardii*) and vernal pool fairy shrimp (*Branchinecta lynchi*) have been documented east of the project site but are not expected to occur on-site because no suitable vernal pool habitat has been identified. The seasonal wetland on the project site is not considered suitable habitat for vernal pool tadpole shrimp or vernal pool fairy shrimp because it is located in a plowed field that has recently been used for growing hay (ECORP 2007).

**Table 3.13-4
Special-Status Wildlife Species Known to Occur or with Potential to Occur on the Project Site
and in the Vicinity**

Common Name	Scientific Name	Status	Potential for Occurrence
Birds			
Swainson's hawk	<i>Buteo swainsoni</i>	CA: Threatened NBHCP: covered	On-site: Known to occur. Off-site: Could occur. Suitable foraging habitat present on-site. Not expected to nest on-site because suitable nesting trees are not present. Potential nest trees occur off-site.
White-tailed kite	<i>Elanus leucurus</i>	CA: Fully Protected NBHCP: not covered	On-site: Expected to occur. Off-site: Could occur. Suitable foraging habitat is present on-site. Not expected to nest on-site because suitable nesting trees are not present. Potential nest trees occur off-site.
Tricolored blackbird	<i>Agelaius tricolor</i>	CA: Species of Special Concern NBHCP: covered	On- and off-site: Could occur. No suitable nesting habitat is present on-site; however, in 2007, this species nested on NBC reserve lands abutting the project site. Suitable foraging habitat is present on-site and off-site.
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	NBHCP: covered	On- and off-site: Not expected to occur. No recent records from the project vicinity.
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	CA: Special Animal NBHCP: not covered	On- and off-site: Expected to occur. A colony (rookery) was documented in the project area in 1991. The rookery was located in blackberry adjacent to a drainage canal. It is not known if the rookery is still active.
White-faced ibis	<i>Plegadis chihi</i>	CA: Species of Special Concern NBHCP: covered	On-site: Known to occur. Off-site: Expected to occur. Observed foraging in rice fields on-site. This species was found nesting off-site in 2007 on NBC reserve lands abutting the project site. Not expected to nest on-site because suitable habitat is absent. Expected to occur off-site in suitable foraging habitat.
American peregrine falcon	<i>Falco peregrinus anatum</i>	CA: Endangered and Fully Protected NBHCP: covered	On- and off-site: Not expected to occur. Marginal foraging habitat is present. No suitable nesting habitat is present on- or off-site.
Greater sandhill crane	<i>Grus canadensis tabida</i>	CA: Threatened and Fully Protected NBHCP: covered	On- and off-site: Could occur. Expected to forage in winter or during migration in fallow rice fields on-site. No recent records from the project vicinity.
Bunowing owl	<i>Athene cunicularia</i>	CA: Species of Special Concern NBHCP: covered	On- and off-site: Known to occur. Field edges, culverts, and upland areas that are not frequently cultivated represent potential nesting and foraging habitat on- and off-site.
Loggerhead shrike	<i>Lanius ludovicianus</i>	CA: Species of Special Concern NBHCP: covered	On-site: Known to occur. Off-site: Could occur. Suitable foraging habitat and marginal nesting habitat is present on-site as well as off-site.

**Table 3.13-4
Special-Status Wildlife Species Known to Occur or with Potential to Occur on the Project Site
and in the Vicinity**

Common Name	Scientific Name	Status	Potential for Occurrence
Bank swallow	<i>Riparia riparia</i>	CA: Threatened NBHCP: covered	On- and off-site: Not expected to occur. No suitable nesting habitat is present on- or off-site.
Reptiles			
Giant garter snake	<i>Thamnophis gigas</i>	Fed: Threatened CA: Threatened NBHCP: covered	On- and off-site: Known to occur. Previously documented in V Drain, Northern Main Drainage Canal, and other ancillary drains on- and off-site.
Northwestern pond turtle	<i>Emys mannorata mannorata</i>	CA: Species of Special Concern NBHCP: covered	On- and off-site: Potential to occur. Slower moving drains and canals provide marginal habitat.
Amphibians			
California tiger salamander	<i>Ambystoma californiense</i>	Fed: Threatened CA: Species of Special Concern NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. No vernal pools or other potential breeding habitat present on the project site; however, marginally suitable habitat may exist along the off-site improvement areas with presence of vernal pools. This species has not been documented in the Natomas Basin or Placer County.
Western spadefoot	<i>Spea hammondi</i>	CA: Species of Special Concern NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. Marginally suitable habitat exists along the off-site improvement areas, specifically along Baseline Road, where vernal pools or other shallow temporary pools for breeding habitat may be present. This species is documented north of Baseline Road in Placer County.
Fish			
Central Valley fall-late/fall-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	CA: Species of Special Concern NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Sacramento River winter-run Chinook salmon ESU	<i>Oncorhynchus tshawytscha</i>	Fed: Endangered CA: Endangered NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Central Valley spring-run Chinook salmon ESU	<i>Oncorhynchus tshawytscha</i>	Fed: Threatened CA: Threatened NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Central Valley steelhead DPS	<i>Oncorhynchus mykiss</i>	Fed: Threatened NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Green sturgeon	<i>Acipenser medirostris</i>	Fed: Threatened NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.

Table 3.13-4
Special-Status Wildlife Species Known to Occur or with Potential to Occur on the Project Site and in the Vicinity

Common Name	Scientific Name	Status	Potential for Occurrence
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	Fed: Threatened CA: Species of Special Concern	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Hardhead	<i>Mylopharodon conocephalus</i>	CA: Species of Special Concern NBHCP: not covered	On-site: Not expected to occur. Off-site: Known to occur. Known to occur in Sacramento River.
Invertebrates			
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Fed: Threatened (proposed for delisting) NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. Requires elderberry shrubs for all life stages. No suitable habitat is present on-site. Suitable habitat occurs near the Sacramento River with the occurrence of elderberry shrubs.
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	Fed: Endangered NBHCP: not covered	On-site: Not expected to occur. Off-site: Could occur. No suitable habitat is present on-site. Vernal pools in the off-site improvement areas may be suitable for this species.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Fed: Endangered NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. No suitable habitat is present on-site. Vernal pools in the off-site improvement areas may be suitable for this species. This species has been documented north of Baseline Road in Placer County and east of Natomas Road in Placer County.
Midvalley fairy shrimp	<i>Branchinecta mesoallensis</i>	NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. No suitable habitat is present on-site. Vernal pools in the off-site improvement areas may be suitable for this species.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Fed: Threatened NBHCP: covered	On-site: Not expected to occur. Off-site: Could occur. No suitable habitat is present on-site. Vernal pools in the off-site improvement areas may be suitable for this species. This species has been documented north of Baseline Road in Placer County and along Elverta Road in Sacramento County.
Conservancy fairy shrimp	<i>Branchinecta conservation</i>	Fed: Endangered NBHCP: not covered	On-site: Not expected to occur. Off-site: Could occur. No suitable habitat is present on-site. Vernal pools in the off-site improvement areas may be suitable for this species. This species has been documented CNDDB occurrences of this species from Yolo County and western Placer County.
Notes: DPS = distinct population segment, ESU = evolutionarily significant unit. Sources: City of Sacramento 2003, CNDDB 2007, NBC 2007a, adapted by EDAW in 2007			

Potential habitat for special-status wildlife species adjacent to off-site improvement areas was assessed during reconnaissance-level field surveys by EDAW biologists in 2007. Vernal pools and seasonal wetlands along the

proposed improvement areas could provide habitat for California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondi*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool tadpole shrimp, midvalley fairy shrimp (*Branchinecta mesovallensis*), vernal pool fairy shrimp, and Conservancy fairy shrimp (*Branchinecta conservancy*). Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) could occur where elderberry shrubs are present. Rice fields and wetland habitats are considered potential habitat for tricolored blackbird, white-faced ibis, greater sandhill crane, giant garter snake, and northwestern pond turtle. Riparian woodland habitat and isolated mature trees provide potential nesting habitat for white-tailed kite and Swainson's hawk. Burrowing owl (*Athene cunicularia*) could occur in grasslands and other open habitats. Potential nesting habitat for loggerhead shrike includes grasslands and agricultural areas with scattered trees and shrubs.

The Sacramento River and possibly larger canals in the Natomas Basin could support Chinook salmon (*Oncorhynchus* spp.), Central Valley steelhead (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirostris*), Sacramento splittail (*Pogonichthys macrolepidotus*), and hardhead (*Mylopharodon conocephalus*).

Giant garter snake and Swainson's hawk are discussed below because the NBHCP focuses preservation efforts primarily on these two species.

Giant Garter Snake

The giant garter snake is federally and state listed as threatened and is a primary covered species under the NBHCP. This species formerly ranged throughout the wetlands of California's Central Valley, from Buena Vista Lake near Bakersfield in Kern County north to the vicinity of Chico in Glenn and Butte Counties (Hansen and Brode 1980). The species appears to have been extirpated from the San Joaquin Valley south of Mendota in Fresno County (Hansen and Brode 1980, USFWS 1999) and has suffered serious declines in other parts of its former range. The primary cause of decline, aquatic habitat loss or degradation caused by agricultural development, has been compounded by the loss of upland refugia and bankside vegetation cover (USFWS 1999).

This aquatic snake inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, rice fields, marshes, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands in the Central Valley (USFWS 1999). Rice fields and their adjacent irrigation and drainage canals serve an important role as aquatic habitat for giant garter snake. The elements and cycle of the rice field ecosystem coincides fairly closely with the biological needs of the giant garter snake. During the summer, giant garter snakes use the flooded rice fields as long as their prey (e.g., small fish and frogs) is present in sufficient densities. During the late summer, rice fields provide important nursery areas for newborn giant garter snakes. In late summer/fall, water is drained from the rice fields, and giant garter snake prey items become concentrated in the remaining pockets of standing water, which allows the snakes to gorge before their period of winter inactivity (USFWS 1999). It appears that most giant garter snakes move back into the canals and ditches as the rice fields are drained, although a few may overwinter in the fallow fields where they hibernate within burrows in the small berms separating the rice fields (Hansen 1988).

USFWS typically considers 200 feet as the width of upland vegetation needed to provide adequate habitat along the borders of aquatic habitat for giant garter snake (USFWS 1999). However, the width of uplands used by giant garter snake varies considerably. Many summer basking and refuge areas used by this snake are immediately adjacent to canals and other aquatic habitats and may even be located in the upper canal banks (NBC 2007a). However, giant garter snakes have also been found hibernating as far as 820 feet from water, and land within this distance may be important for snake survival (Hansen 1988).

The CNDDDB identifies 55 giant garter snake occurrences for Sutter County (CNDDDB 2007). Most of these occurrences are located within the Natomas Basin (Exhibit 3.13-5). Live-trapping on NBC reserve lands in 2005 and 2006 resulted in the capture of 241 giant garter snakes (NBC 2005a). There are five documented occurrences of giant garter snakes on the project site (CNDDDB 2007).

**Exhibit 3.13-5**

The NBHCP emphasized the need to maintain connectivity between NBC reserves to allow giant garter snake movement within the Natomas Basin. The primary opportunity for connectivity between reserves is the system of channels maintained and operated by RD 1000 and Natomas Central Mutual Water Company (City of Sacramento 2003). The NBHCP noted that the combination of primary drainage channels (drainage canals anticipated to remain throughout the term of the ITP), secondary drainage channels (which tend to be less affected by urban development), and irrigation channels provides substantial connectivity between NBC reserves. Primary drainage channels identified in the NBHCP are shown in Exhibit 3.13-6.

The project site was evaluated by biologist Eric Hansen in 2006 to assess giant garter snake habitat and habitat connectivity (Appendix J of this DEIR). Hansen evaluated the suitability of the linear water features on the project site based on a variety of variables, including those defined by the *Draft Recovery Plan for the Giant Garter Snake* (USFWS 1999). Hansen defined suitable habitat as areas that include all the features necessary to support permanent populations of giant garter snakes and marginal habitat as areas that may support transient giant garter snakes on a temporary basis or that act as connective corridors between areas of suitable habitat. He defined unsuitable habitat as areas devoid of water, vegetation, and/or refugia necessary to support giant garter snakes for any extended period.

Hansen's assessment identified nearly 16 miles of suitable linear habitat and more than 17 miles of marginally suitable linear habitat (Exhibit 3.13-1). Generally, drainages in the southern half of the project site were categorized as suitable or marginally suitable; most of the drainages in the northern portion were categorized as marginally suitable. Four small drainages located in the interior portion of the site were categorized as unsuitable.

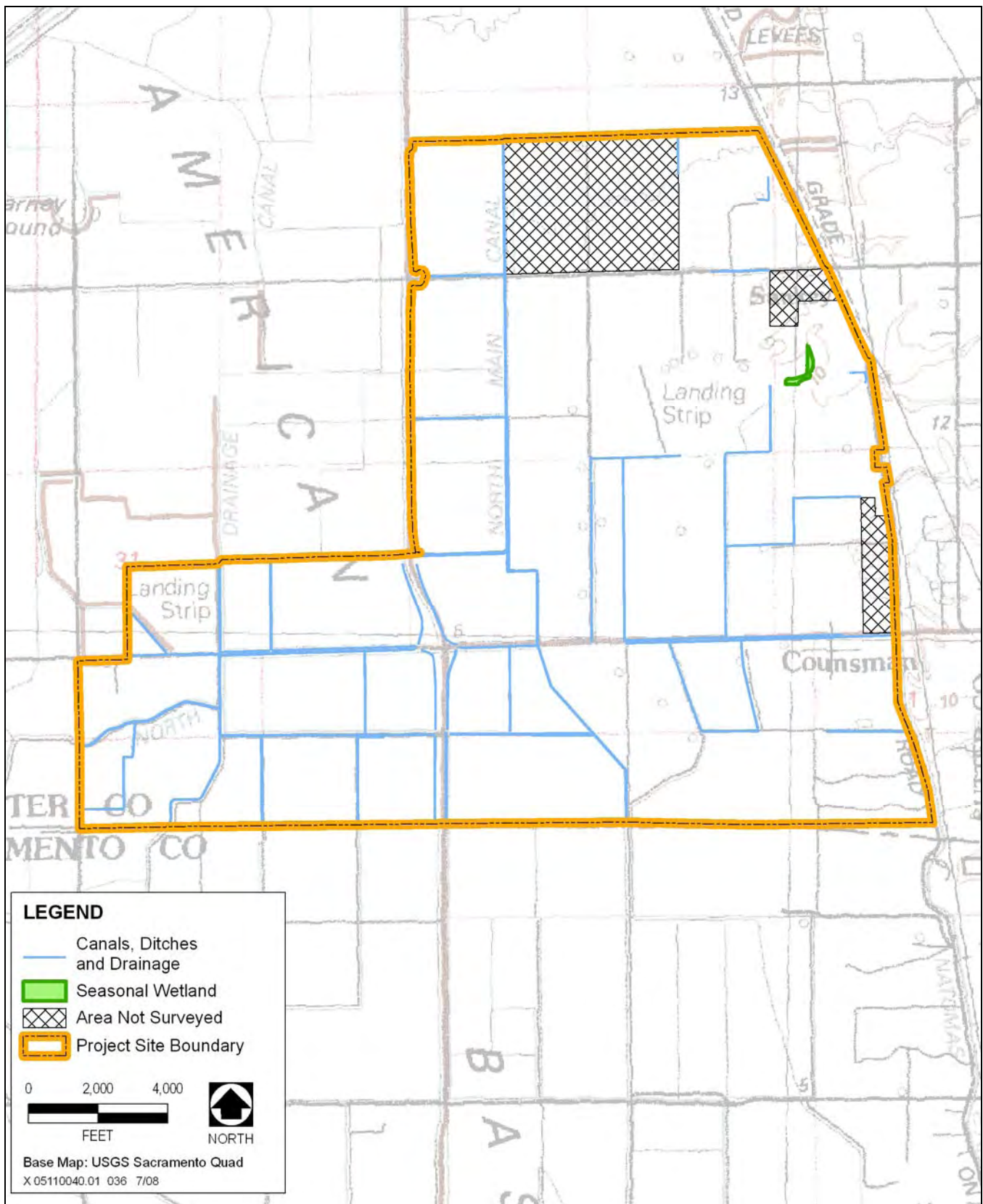
Hansen (2006) concluded that the project site has at least three drainages that pass under SR 99/70 via culverts that provide habitat connectivity for giant garter snake between the North Basin and Central Basin Reserve Units: the RD 1000 V Drain, the RD 1000 R Drain, and the East Drainage Canal. In addition, the North Drainage Canal, which passes through the western portion of the project site, constitutes the primary linkage between the NBC reserves and the future Sacramento County Airport reserves (Hansen 2006). Giant garter snakes are present throughout the North Drainage Canal and were documented in densities ranging from 39 to 63 snakes per linear kilometer (Hansen 2006).

Existing canals and ditches located throughout the off-site improvement areas, particularly those areas within the Natomas Basin, provide potential habitat for giant garter snake. The proposed sewer force main alignment crosses the Natomas East Main Drainage Canal. Outside of the Natomas Basin, canals and ditches present along Pleasant Grove Road and Baseline Road could support giant garter snake.

Swainson's Hawk

Swainson's hawk is state listed as threatened and is a primary covered species under the NBHCP. Historically, Swainson's hawks nested throughout lowland California. As many as 17,000 Swainson's hawk pairs may have nested in California at one time (DFG 1994). Currently, there are estimated to be more than 2,000 breeding pairs in California in 2006, of which between 750 and 1,100 are in the Sacramento Valley (Anderson, Dinsdale, and Schlorff 2007). Swainson's hawks typically occur in California only during the breeding season (March through September) and winter in Mexico and South America. Migrant Swainson's hawks begin to arrive in the Central Valley in March. Nesting territories are usually established by April, with incubation and rearing of young occurring through June (Estep 1989).

Swainson's hawks generally nest where local foraging is adequate, although they have been known to forage more than 18 miles from their nesting territory (Woodbridge 1998). Any habitat within the foraging distance may provide food at some time in the breeding season that is necessary for reproductive success. In a dynamic agricultural environment, such as the Natomas Basin, the area required for Swainson's hawk foraging habitat depends on time of season, crop cycle, crop type, and discing/harvesting schedule because these factors affect the abundance and availability of prey (City of Sacramento 2003).



Source: ECORP 2007

Major Canals and Drainages on the Project Site

Exhibit 3.13-6

The most recent survey published by the NBC (2007b) mapped 45 active nest sites in or adjacent to the Natomas Basin in 2006. Most nest sites are located along the Sacramento River where large trees are available. In 2006, most nests occurred primarily in the southwestern portion of the basin. However, nesting and foraging occurs throughout the basin, depending on the availability of suitable nest trees in proximity to upland foraging areas (NBC 2005b).

The NBHCP establishes a 1-mile Swainson's hawk zone along the Sacramento River where most Swainson's hawk nests occur in the Natomas Basin. The NBHCP's primary strategies to mitigate impacts on Swainson's hawk are to avoid development in the Swainson's hawk zone and to acquire upland habitat as mitigation lands within the zone (City of Sacramento 2003). The NBHCP assumes that development in the zone will be limited over the term of the plan but does not prohibit or restrict development within the zone.

There are no records of Swainson's hawk nesting on the project site, and no suitable nesting sites are present; however, potentially suitable foraging habitat for Swainson's hawk occurs on the project site. A Swainson's hawk was observed flying over the project site on May 29, 2008. The NBC report identified one nest located within 1 mile of the project site on an NBC reserve. The nest was occupied by Swainson's hawks in 2004. In 2006, the nest was occupied by red-tailed hawks (NBC 2007b).

The NBHCP ranks Swainson's hawk foraging habitat in the order of suitability as follows: (1) native grassland; (2) agriculture soon after discing; (3) alfalfa and other hay crops; (4) fallow fields; (5) lightly grazed pasture; (6) combinations of hay, grain, and row crops; (7) rice fields before flooding and after draining; and (8) heavily grazed pasture (City of Sacramento 2003). The rice fields on the project site are generally unsuitable foraging habitat when rice is being actively cultivated. However, fallow rice fields and active rice fields before flooding and after draining provide moderate quality foraging habitat. The 242 acres of row and grain crops also provide moderate quality foraging habitat.

Off-site improvement areas to the east likely provide the most optimal foraging habitat in areas where irrigated grasslands, nonnative grasslands, and hay crops occur. Suitable nesting trees are present along the alignments for proposed off-site improvements.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, Section 404 of the federal CWA, and the Porter-Cologne Water Quality Control Act, as discussed under "Regulatory Background," above. All wetland and riparian habitats in the project site and in proposed off-site improvement areas are considered sensitive.

3.13.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

This analysis of impacts on biological resources resulting from implementing the proposed project and constructing off-site improvements is based on review of data collected during field surveys, existing documentation that addresses biological resources on or near the project site and proposed for the off-site improvement areas, geographic information systems (GIS) data, and site-specific information collected by biological resources consultants for the project applicant.

EDAW biologists performed reconnaissance-level surveys of the project site on September 29, 2006, and on June 13 and 14, 2007. Sources of site-specific information referenced herein prepared for the project applicant include:

- ▶ *Wetland Delineation for Sutter Pointe Specific Plan, Sutter County, California* (ECORP 2007) (Appendix H of this DEIR);
- ▶ *Special-Status Plant Survey for South Sutter Specific Plan, Sutter County, California* (ECORP 2006a) (Appendix I of this DEIR);
- ▶ *Assessment of Giant Garter Snake (Thamnophis gigas) Habitat and Conservation Considerations in the Natomas Basin Sutter Pointe Specific Plan Area, Sutter County, California* (Hansen 2006) (Appendix J of this DEIR);
- ▶ *South Sutter Specific Plan, Sutter County, California – Valley Elderberry Longhorn Beetle Survey* (ECORP 2006b) (Appendix K of this DEIR); and
- ▶ *Biological Effectiveness Monitoring for the Natomas Basin Habitat Conservation Plan Area – 2006 Annual Survey Results* (NBC 2007a).

This impact analysis assumes grading of the entire project site, including open space areas, because some form of project enhancements would likely occur within these areas (e.g., trails, stormwater detention). Impacts resulting from construction of off-site infrastructure improvements are based on the assumption that disturbance could occur within a 450-foot-wide corridor centered on the alignments. However, it is likely that much of the habitat within the corridor would be avoided because construction is generally proposed along existing paved roadways.

This analysis separates impacts on special-status species into two groups: impacts covered under the NBHCP and impacts not covered under the NBHCP. Impacts covered under the NBHCP are those resulting from development of the project site and of the proposed off-site drainage improvements resulting in expansion of the East Drainage Canal. Impacts not covered under the NBHCP include those resulting from the remaining proposed off-site infrastructure improvements described in Chapter 2, "Project Description," and summarized in Table 2-4.

The NBHCP establishes a multispecies conservation program to minimize and mitigate the expected loss of habitat values and incidental take of covered species that could result from these covered activities. Project impacts on covered species would be mitigated at a ratio of 0.5 acre preserved and enhanced for every 1 acre developed, and species-specific avoidance and minimization measures would be implemented in accordance with the NBHCP. The NBHCP notes that the effective habitat reserve ratio is actually higher than the 0.5:1 ratio because not all lands to be developed under the NBHCP ITPs are of high value to the covered species as habitat and notes that in some cases the 0.5:1 ratio results in a substantial increase in overall habitat value. No additional consultation with USFWS or DFG would be required for impacts on covered special-status species within the NBHCP ITP permit area. The marsh mitigation component required under the NBHCP would offset impacts on jurisdictional wetlands. Proposed project impacts not covered under the NBHCP would be mitigated separately from the mitigation provided by the NBHCP with a goal of no net loss of functions and values of all resources substantially affected by the project. Project consistency with the NBHCP is evaluated based on the potential for the proposed project to preclude the attainment of the goals and objectives of the NBHCP.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A biological resources impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ 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 DEG or USFWS;

- ▶ have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by DFG or USFWS;
- ▶ have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any state-protected wetlands not subject to regulation under Section 404 of the CWA 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 community conservation plan; or other approved local, regional, or state habitat conservation plan; or
- ▶ substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.13-1	<i>Effects on Giant Garter Snake. Implementation of the proposed project would result in both direct and indirect impacts on the giant garter snake. These impacts would include loss and degradation of existing habitat and effects on habitat connectivity.</i>

On-Site and Off-Site Elements

Implementation of the proposed project would result in both direct and indirect impacts on the giant garter snake by removing habitat and reducing habitat connectivity. Development of the project could also result in the loss of individuals. Most of the project site is considered suitable habitat for giant garter snake. Development would result in the removal of aquatic and upland habitat, including a number of drainages identified as suitable habitat for the giant garter snake. Habitat connectivity between the North Basin and Central Basin reserve units would be maintained by the preservation of the North and East Drainage Canals. Take of giant garter snake within the NBHCP ITP area and associated with improvements to the East Drainage Canal and the Montna Canal (“Authorized Development”) is covered under the NBHCP ITP. Mitigation is necessary to offset potential impacts on giant garter snake resulting from construction of other proposed off-site improvements. These improvements could result in direct and indirect impacts on giant garter snake. Impacts from construction of these off-site improvements are expected to be generally minor because most alignments would be along existing paved roadways. However, potentially significant impacts on giant garter snake could occur where these alignments cross ditches and other suitable habitat.

Habitat Loss and Loss of Individuals

Development of the project site would result in the permanent loss of giant garter snake habitat, including 5,202 acres of active rice fields, 863 acres of fallow rice fields, and approximately 27 miles of existing aquatic corridors (canals and drains). Permanent habitat loss would include filling irrigation ditches and marsh habitat and grading upland habitat before construction. Additional impacts on giant garter snake habitat, such as lack of sufficient water during the giant garter snake active season, increased predation, and increased human activities, all could

degrade the quality of remaining habitat, increase mortality, and reduce snake use of the remaining canals and drains. Giant garter snakes could experience increased mortality from motor vehicle activity associated with urbanization. Snakes could be killed on new roads constructed as part of the proposed project or on existing roads because of the increased traffic that would result from Authorized Development. During project construction, giant garter snakes could be killed or injured by vehicle strikes on roads, crushed beneath heavy construction equipment, or entombed in their winter retreats. Habitat loss and loss of individuals resulting from Authorized Development would be covered under the NBHCP. Take of individuals would also be addressed under the NBHCP. However, the project applicant(s) would be required to implement avoidance and minimization measures specified in the NBHCP ITP to reduce take of giant garter snake and to mitigate for impacts as provided in the NBHCP. For impacts included under the ITP for covered species, the NBHCP requires compensatory mitigation and impact minimization measures. The primary compensatory mitigation requirement is the preservation, enhancement, and creation of 0.5 acre of habitat reserve for each 1.0 acre of habitat developed. Take avoidance and minimization measures for GGS include a variety of actions to be completed before ground disturbance for all project phases and off-site elements in the NBHCP ITP area. However, the ITP requires the permittee to follow avoidance and minimization measures to fulfill the requirements of the permit.

Implementation of the proposed project could result in a potentially significant impact on off-site giant garter snake habitat, including degradation of giant garter snake habitat on adjacent NBC reserve units. In addition, development of off-site improvement areas that could result in giant garter snake habitat loss and loss of individuals includes expansion of off-site drainage improvements and installation of the force main sewer line and other utilities. Construction of the sewer force main and other utilities could result in the loss of giant garter snake habitat, and these alignments cross drainages and canals that have been identified as suitable habitat for this species. These types of impacts in the NBHCP ITP areas are covered under the NBHCP. Off-site impacts (with the exception of improvements to two canals) are not permitted under the ITP and would require further consultation with USFWS and DFG. **Direct** and **indirect** impacts to giant garter snake and habitat for the species are **potentially significant**.

Habitat Connectivity

Giant garter snake habitat in the Natomas Basin is inherently fragmented by the effects of rivers, levees, freeways, development, and other impediments to movement by this aquatic snake. Implementing the proposed project would involve removing two existing east-west culverts under SR 99/70 that currently provide linkage between NBC's North Basin and Central Basin Reserve Units. The loss of smaller canals and ditches on the project site would also adversely affect habitat connectivity, as would modifications (e.g., concrete lining) to any canals and ditches retained as part of the proposed project.

The NBHCP assumes that two existing canals on the project site, the North Drainage Canal and East Drainage Canal, will be maintained as giant garter snake movement corridors. The NBHCP recognizes these drainages as part of the "backbone" of RD 1000 canal connections between reserves (Exhibit 3.13-1). Regarding basinwide connectivity, the NBHCP concludes that the combination of primary drainages channels (drainage channels anticipated to remain through the term of the ITP), secondary drainage channels (which tend to remain unless affected by urban development), and irrigation channels provides substantial connectivity between the existing NBC reserves.

Implementation of the proposed project would result in the removal of several secondary drainage and irrigation channels. The North Drainage Canal and East Drainage Canal would remain present and functional. Maintaining these two canals as viable movement habitat for giant garter snake would, based on overall implementation of the NBHCP, maintain connectivity between the North Basin and Central Basin Reserve Units and would not conflict with the NBHCP's overall objective to ensure that connectivity between reserve units remains attainable. Direct and indirect impacts on habitat connectivity, including construction and post-construction impacts that result in degradation of giant garter snake habitat in the North and East Drainage Canals and reduced connectivity between NBC reserves, are less than significant based on compliance with the NBHCP.

Contaminants

Implementing the proposed project could affect adjacent giant garter snake habitat through urban runoff and the introduction of sediment, pesticides, herbicides, petroleum products, heavy metals, polynuclear aromatic hydrocarbons, and other organic nutrients into waterways (USFWS 2003). The proposed project would be required to operate under the National Pollutant Discharge Elimination System (NPDES) stormwater discharge permit from the Central Valley RWQCB, which would require implementation of the best pollution control technology available before discharge of drainage water. The Central Valley RWQCB also requires participation in the statewide NPDES permit for construction activities. Under this permit, adherence to erosion control standards and BMPs during project construction activities is required. Therefore, **indirect** impacts on giant garter snakes resulting from contaminants in urban runoff are **less than significant**. Direct impacts related to potential contaminants in urban runoff are addressed in Section 3.7, "Hydrology and Water Quality."

Mitigation Measure 3.13-1a: Implement NBHCP ITP Giant Garter Snake Mitigation Measures.

On-Site Elements

The project applicant(s) of all Authorized Development shall adhere to the relevant giant garter snake take, avoidance, and minimization measures contained in the NBHCP (Sections V.A.1 and VI.E.1i) and summarized below:

- ▶ Reduce direct impacts on giant garter snake by restricting construction in giant garter snake habitat to the active period for giant garter snake (between May 1 and September 30).
- ▶ Completely dewater all irrigation ditches, canals, or other aquatic habitat, with no puddled water remaining, for at least 15 consecutive days before the excavation or filling in of the dewatered habitat to remove giant garter snake prey. Dewatering shall occur between April 15 and September 30.
- ▶ Survey the project area for giant garter snake no more than 24 hours before the start of construction activities (site preparation and/or grading). If construction activities stop on the project site for 2 weeks or more, a new snake survey shall be completed no more than 24 hours before the restart of construction activities.
- ▶ Confine clearing to the minimal area necessary to facilitate construction activities. Giant garter snake habitat within or adjacent to the project site shall be flagged as an "Environmentally Sensitive Area" and designated as avoided.
- ▶ Provide USFWS-approved environmental awareness training for all construction personnel completing site preparation and grading operations. Construction personnel shall be trained on how to identify giant garter snakes and their habitats and on handling protocol if a giant garter snake is encountered during construction activities. An on-site biological monitor shall be available during the training.
- ▶ Immediately notify USFWS and the project biological monitor if a live snake is found during construction activities. The snake shall be monitored by the biological monitor and allowed to leave the area on its own.
- ▶ Remove any temporary fill and/or construction debris used by the snake as an overwintering site from the site upon completion of construction.
- ▶ When working within 200 feet of snake aquatic or rice habitat, avoid plastic, monofilament, jute, or similar erosion control matting that could entangle snakes.
- ▶ Construct fences within the project site along the shared boundary of urban development and the North Drainage Canal and the East Drainage Canal. The fences shall be subject to the following guidelines:

- a. Provide a minimum of 100 feet from fence to fence.
- b. Limit access to the canals by constructing gates.
- c. Place a snake deterrent along the fences on the North Drainage Canal and the East Drainage Canal. The design of the deterrent shall be subject to approval by a qualified biologist.
- d. Immediately install the fence/barrier after site grading is completed.

Implementation: Project applicant(s) of all project phases and on-site and off-site elements.

Timing: Before any ground-disturbing activities in giant garter snake habitat covered by the NBHCP.

Enforcement: USFWS, DFG, California Department of Transportation, Sutter County Community Services Department, and Sacramento County Planning and Community Development Department.

Mitigation Measure 3.13-1b: Implement Measures to Mitigate Impacts on the Giant Garter Snake That Are Not Covered by the NBHCP.

Off-Site Elements

The project applicant(s) of all off-site elements not covered by the NBHCP shall implement the following measures to avoid, minimize, and compensate for potential project impacts on giant garter snake:

- Consult with a qualified biologist to ensure that the alignments for all off-site improvement areas avoid giant garter snake to the extent feasible. All aquatic and upland habitats that can be avoided shall be protected by temporary fencing during construction. Additional measures consistent with the goals and objectives of the NBHCP shall be implemented to minimize the potential direct injury or mortality of individual giant garter snakes during construction. Such measures shall be finalized in consultation with DFG and USFWS and are likely to include conducting worker awareness training, timing initial ground disturbance to correspond with the snake's active season (as feasible in combination with minimizing disturbance of nesting Swainson's hawks), dewatering aquatic habitat before fill, conducting preconstruction surveys, and conducting biological monitoring during construction.
- Develop and implement a giant garter snake conservation strategy that is consistent with the NBHCP's strategy for establishing an interconnected reserve system composed of marshland, uplands, and rice fields in the Natomas Basin. The conservation strategy shall include on- and off-site habitat preservation, restoration, and creation as needed to meet the performance standard of no net loss in function and value of giant garter snake habitat. The conservation strategy shall establish specific success for habitat creation, specify remedial measures to be undertaken if success criteria are not met (e.g., adaptive management, physical adjustments to created habitat, additional monitoring), and describe short- and long-term maintenance and management of the features. Long-term protection of the created features and funding for their management shall be provided through appropriate mechanism to be determined by the project applicant(s), DFG, and USFWS before project implementation. Authorization for take of giant garter snake shall be obtained as necessary to comply with the ESA and CESA. All measures subsequently adopted through the permitting process shall be implemented.

Implementation: Project applicant(s) of all off-site elements not covered by the NBHCP.

Timing: Before any noncovered ground-disturbing activities in giant garter snake habitat.

Enforcement: USFWS, DFG, Sutter County Community Services Department, Sacramento County Planning and Community Development Department, and Placer County Planning Department, as applicable.

Significance after Mitigation

Implementation of Mitigation Measure 3.13-1 a and compliance with the NBHCP ITP would reduce potentially significant impacts on giant garter snake for proposed project activities covered by the NBHCP. Take of giant garter snake and loss of habitat resulting from implementation of the proposed project has been authorized under the NBHCP Sutter County ITP. Under the NBHCP, development of the project site would require 0.5 acre of mitigation for every 1.0 acre of development. This take coverage allows development of the project site to proceed without necessitating additional compensatory mitigation to comply with the ESA and CESA.

Improvement to existing infrastructure and construction of new infrastructure, including the RD 1000 canal enlargement, within the Sutter County ITP area are also covered under the NBHCP.

Mitigation Measure 3.13-lb would require that any potential impacts on giant garter snake resulting from off-site improvements to existing infrastructure and construction of new infrastructure outside of the ITP area be mitigated by implementing avoidance, minimization, and compensation measures that are consistent with the NBHCP and that provide a similar level of protection for the giant garter snake. The compensatory mitigation requirement includes development of mitigation strategy consistent with the goals and objectives of the NBHCP and a performance standard of no net loss of in function and value of giant garter snake habitat. Mitigation Measure 3.13-lb also requires consultation with DFG and USFWS and compliance with the ESA and CESA for any take of giant garter snake or its habitat beyond what is authorized by the NBHCP.

In combination with compliance with the NBHCP, implementation of Mitigation Measures 3.13-1a and -lb would reduce **direct** and **indirect** impacts on giant garter snake to a **less-than-significant** level.

IMPACT *Potential Loss and Degradation of Jurisdictional Wetlands and Other Waters of the United States and Waters of the State. Implementation of the proposed project could result in the placement of fill material into jurisdictional waters of the United States, including wetlands subject to USACE jurisdiction under the federal CWA, and the potential loss and degradation of wetland habitats protected under state and local regulations.*

3.13-2

On-Site and Off-Site Elements

A number of features on the project site and in areas proposed for off-site infrastructure improvements meet the USACE wetland criteria. Some of these areas may be considered waters of the United States as defined under Section 404 of the CWA and/or waters of the state as defined under the California Porter-Cologne Water Quality Act. Lakes, rivers, and streams are protected under Section 1602 of the California Fish and Game Code. All wetland habitats in California are considered sensitive by DFG. Wetlands in the Natomas Basin are known to support a number of special-status species. Any net loss of wetlands resulting from implementation of the proposed project would be considered a significant impact.

A wetland delineation conducted by ECORP (2007) that covered most of the project site identified approximately 66 acres of irrigation canals and 4 acres of seasonal wetland on the project site. Portions of the project site not covered by the ECORP delineation are shown in Exhibit 3.13-6. The ECORP delineation did not include the proposed off-site improvement areas. ECORP determined that the irrigation canals and seasonal wetlands on the project site do not appear to qualify for federal protection under Section 404 of the CWA because they are not connected to waters of the United States. The 5,203 acres of active rice fields and the 863 acres of fallow rice fields were also determined to not meet the USACE criteria for jurisdictional wetlands. The delineation has been submitted to USACE for verification in 2007 but it has not been verified. The wetland features identified by

ECORP likely meet the definition of waters of the state. Portions of the project site not covered by the ECORP delineation could also support jurisdictional waters of the United States and waters of the state.

Wetland delineations were not conducted for off-site elements; therefore, it has not been determined if these features are subject to USACE, RWQCB, and/or DFG jurisdiction. Implementation of off-site infrastructure improvements along Baseline Road and Pleasant Grove Road would cross two notable drainages, Curry Creek and Pleasant Grove Creek, respectively. These two waterways are likely subject to state and federal protection as jurisdictional waters. Most of the wetland features within the proposed off-site infrastructure alignments would likely be avoided because the alignments are within existing roadways. However, construction of off-site improvements could result in fill of or indirectly affect some jurisdictional areas. Expansion of the East Drainage Canal would affect the associated wetland habitats and could result in fill of jurisdictional waters of the United States or waters of the state. The extent to which these features may be jurisdictional or may be adversely affected has not been determined.

Fill of any wetlands, including areas that could be determined to be jurisdictional by USACE, DFG, and/or RWQCB, is a **direct, significant** impact because these areas are considered sensitive habitats by DFG, and they provide important ecological functions and values and can support a number of special-status species. It is anticipated that impacts to wetlands on the project site would be partially offset by complying with the NBHCP, which include creation, enhancement, and preservation of managed marsh as part of the overall conservation strategy.

Potentially significant indirect effects of the proposed project on wetlands resulting from increased urbanization and population include reduction in water quality caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals adjacent to canals and reserve sites, open space/buffer area, and off-site wetlands; and introduction of invasive plant species that could result in habitat degradation. The proposed project would be required to employ BMPs throughout the project's implementation to reduce such indirect impacts from occurring as required by the RWQCB (see Section 3.7, "Hydrology and Water Quality"). However, any **indirect** impacts that degrade wetlands subject to USACE or RWQCB jurisdiction are **significant**.

Mitigation Measure 3.13-2: Secure Clean Water Act Section 404 and 401 Permits and California Fish and Game Code Streambed Alteration Agreements; Implement All Permit Conditions; and Ensure No Net Loss of Wetlands, Other Waters of the United States, and Associated Functions and Values.

On-Site and Off-Site Elements

The project applicant(s) of all project phases shall retain a qualified biologist to delineate all wetlands and waters of the United States within proposed off-site improvement areas and all on-site areas not included in the ECORP wetland delineation. The findings shall be documented in detailed reports and submitted to USACE for verification as part of the formal Section 404 wetland delineation process. If wetland delineations for a particular phase conclude that wetlands are not present or would be avoided (no direct or indirect impacts), no further mitigation actions would be needed. For each phase of development, including off-site improvements, the County shall ensure the avoidance of any net loss of wetland function and values for direct and indirect impacts to wetlands subject to federal, state, and/or local jurisdiction, and the project applicant(s) shall secure applicable permits and regulatory approvals described below and shall implement all permit conditions:

- ▶ If there would be unavoidable impacts on habitats under USACE jurisdiction for direct and indirect impacts requiring a Section 404 permit, the Section 404 permitting process shall be completed and authorization shall be secured before any fill is placed in jurisdictional wetlands or other waters of the United States. The acreage of jurisdictional wetlands affected shall be replaced so as to ensure no net loss of functions and values, in accordance with USACE regulations. The range of compensation for fill of jurisdictional waters could be less than 1:1 or more than 1:1, depending on the timing, functions, and values of the jurisdictional waters created

for compensation. The final compensatory range shall be negotiated with the resources agencies and specified in regulatory permits issued for that particular phase of the project.

- ▶ Habitat restoration, rehabilitation, and/or replacement shall be at a location and shall be conducted by feasible methods agreeable to USACE, the County, or other applicable agencies (depending on which agency has permitting authority). Agreement by the applicable agencies shall be obtained before the start of any grading activities that could affect wetland features. Methods for designing and implementing restored, rehabilitated, and replacement wetlands shall be determined by qualified restoration ecologists and geomorphologists to ensure that the desired results are achievable. The design shall include features to maximize the long-term maintenance of functions and values (e.g., fencing) and success criteria. A minimum of 5 years of monitoring shall be required for all restored, rehabilitated, and replacement wetlands. A monitoring plan shall be developed that includes remedial actions to be taken if the success criteria are not met. Before the mitigation design and monitoring plan are finalized, the project applicant(s) shall obtain the approval of USACE, RWQCB, and DFG, as appropriate, indicating that the planned features are sufficient to replace lost habitat values at equivalent or higher levels. Compensation requirements shall be evaluated in conjunction with any benefits obtained through compliance with the NBHCP.
- ▶ A streambed alteration agreement shall be obtained for any unavoidable impacts on habitats regulated under Section 1602 of the California Fish and Game Code, and affected habitats shall be mitigated on a no-net-loss basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and shall be conducted by methods agreeable to DFG. Minimization and compensation measures adopted through the Section 1602 permitting process shall be implemented.
- ▶ Water quality certification pursuant to Section 401 of the CWA shall be obtained as required for any USACE permit. Any measures required as part of the issuance of water quality certification shall be implemented.
- ▶ A report of waste discharge shall be filed for any waters of the state with the Regional Water Quality Control Board.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before approval of any plans or permits for ground-disturbing activities affecting wetland features of any project development phase, including off-site elements containing wetland features. Mitigation shall be implemented on an ongoing basis before, during, and after construction, as required.

Enforcement: USACE, Sacramento District; Central Valley RWQCB; and applicable County Community Development or Planning Departments, as determined during the permitting processes and in compliance with any other appropriate local ordinances.

Significance after Mitigation

Implementation of Mitigation Measure 3.13-2 would reduce potentially significant direct impacts on jurisdictional wetlands and other waters of the United States and waters of the state resulting from the proposed project and off-site elements. As part of the permitting process, the applicants must implement no-net-loss of wetland function and values for wetlands subject to federal, state, and/or local jurisdiction by avoiding, minimizing, and mitigating impacts, and the project applicant(s) must secure federal and state permits for each phase of development, including off-site improvements. In accordance with federal regulation, compensatory mitigation for wetland impacts would be carried out through acceptable methods including permittee-responsible compensatory mitigation, mitigation banks, and in-lieu mitigation fees. The mitigation methods, mechanisms and compensation ratios would be defined as part of the permitting processes between the regulatory agencies and the project applicant(s). These processes will also address indirect impacts. Therefore, these **direct** and **indirect** impacts are **less than significant**.

IMPACT *Effects on Swainson's Hawk. Implementation of the proposed project would result in short- and*
3.13-3 *long-term loss of Swainson's hawk foraging habitat within the project site and off-site improvement*
 areas, potential nest tree removal, and disturbance during breeding season.

On-Site and Off-Site Elements

Swainson's hawk is not expected to nest on the project site because no nests have been previously documented and no suitable nest trees are currently present on the project site. Most of the project site provides low- to moderate-quality foraging habitat. The rice fields on the project site are generally unsuitable foraging habitat when rice is being actively cultivated, but fallow rice fields and active rice fields before flooding and after draining may be used for foraging. The 242 acres of row and grain crops on the project site provide moderate-quality foraging habitat. It is assumed that development of the project site would remove a total of approximately 7,000 acres of potential foraging habitat for Swainson's hawk.

Direct and indirect impacts associated with on-site development and the improvements to the East Main Drain and the Montna Drain on Swainson's hawk resulting from implementation of the proposed project would be mitigated and permitted under the NBHCP ITP. The NBHCP compensates for Swainson's hawk habitat loss by acquiring and managing reserve lands that provide suitable nesting and foraging habitat. The NBHCP would reduce impacts related to the permanent loss of Swainson's hawk foraging habitat by requiring that the loss of low- to moderate-quality foraging habitat on the project site be mitigated by preserving, enhancing, and managing high-quality habitat on NBC reserves. For impacts included under the ITP for covered species, the NBHCP requires compensatory mitigation and impact minimization measures. The primary compensatory mitigation requirement is the preservation, enhancement, and creation of 0.5 acre of habitat reserve for each 1.0 acre of habitat developed. Take avoidance and minimization measures for Swainson's hawk include a variety of actions to be completed before ground disturbance for all project phases and off-site elements in the NBHCP ITP area. Implementation of this mitigation in combination with the other measures in the NBHCP would ensure that the loss of Swainson's hawk foraging habitat is mitigated to less-than-significant levels. However, off-site improvements not covered by the NBHCP ITP could result in significant impacts on Swainson's hawk.

Construction of off-site improvements is expected to result in the loss of a small amount of foraging habitat. Suitable foraging habitats, including alfalfa, grasslands, and row crops, have been identified along all of the alignments for the proposed off-site improvements (Exhibit 3.13-4). However, most of this habitat would be unaffected because these alignments are generally proposed along existing roadways, and many of the impacts would be only temporary, associated with the construction of underground utilities (e.g., pipelines), which would not affect important habitat features, such as nesting trees. The temporary loss of Swainson's hawk foraging habitat during construction activities is considered a less-than-significant impact because the area of disturbance would be highly limited (a few acres in an area with thousands of acres of potential foraging habitat), it would be returned to the same type of habitat after construction is completed, and it would not meaningfully reduce habitat to the extent that any individual hawks would be affected.

Implementation of the proposed project could disturb Swainson's hawks nesting near the project site and along proposed off-site improvement areas. The southeastern boundary of the project site is located adjacent to a nesting territory on an NBC reserve unit, and the western portion of the project site abuts the Sacramento River 1-mile Swainson's hawk buffer zone. Sutter County has agreed to not allow development within this buffer zone to preserve foraging habitat (City of Sacramento 2003).

Construction of off-site infrastructure could affect Swainson's hawk in some areas by direct removal of nest trees and temporary, short-term disturbance of active nests in areas proximate to nest trees, particularly where nests are within 0.50 mile of construction. Nests this close to construction could be affected by overall construction noise and activities, as well as by potential direct removal. In existing urban areas, where nesting species are more acclimated to urban activities, it is likely that construction would only result in potential impacts within 0.25 mile of construction. Disturbance from construction activities could result in nest abandonment. The loss of an active

Swainson's hawk nest would be considered a significant impact. The alignments for proposed off-site improvements are generally along roadways; therefore, impacts are generally anticipated to be limited, temporary, short-term disturbance to potential nesting and foraging habitat. However, because Swainson's hawks nesting within 0.25 to 0.5 mile of the project site and off-site elements could be disturbed by construction activity, **direct** and **indirect** impacts are **potentially significant**.

Mitigation Measure 3.13-3a: Implement NBHCP ITP Swainson's Hawk Avoidance and Minimization Measures.

On-Site Elements

The project applicants(s) of all Authorized Development shall adhere to the relevant Swainson's hawk take avoidance and minimization measures described in the NBHCP (Sections V.A.1 and VI.E.10 and summarized below:

- ▶ Conduct a preconstruction survey by a qualified biologist before the commencement of activities at any construction site to determine (1) whether any hawk nest trees will be removed on-site or (2) whether any active hawk nest sites occur on or within 0.5 mile of the development site. These surveys shall be conducted by an experienced Swainson's hawk biologist and according to the Swainson's Hawk Technical Advisory Committee's methodology or updated methodologies, as approved by USFWS and DFG.
- ▶ Avoid construction if breeding hawks are identified. No new disturbances shall occur within 0.5 mile of the active nest between March 15 and September 15 or until a qualified biologist, with concurrence by DFG, has determined that the young have fledged, that the nest is no longer occupied, or that construction will not affect nest success. If the active nest site is located within 0.25 mile of existing urban development, the no-new-disturbance zone can be limited to 0.25 mile.
- ▶ Temporarily avoid (i.e., defer construction activities until after the nesting season) construction where disturbance of a Swainson's hawk nest cannot be avoided. If permanently unavoidable, the nest tree may be destroyed during the nonnesting season. For purposes of this provision, the Swainson's hawk nesting season is defined as March 15 to September 15. If a nest tree must be removed, tree removal shall only occur between September 14 and February 1.
- ▶ Avoid removal of a Swainson's hawk nest tree if fledglings are present. The tree shall not be removed until September 15 or until DFG has determined that the young have fledged and are no longer dependent upon the nest tree.
- ▶ The raptor nesting season shall be avoided when scheduling construction near nests in accordance with applicable guidelines published by DFG or through consultation with DFG.
- ▶ Provide funding for purchase, planting, maintenance, and monitoring of trees in accordance with the NBHCP.
- ▶ Provide sufficient funding for monitoring survival success of existing Swainson's hawk nest trees for a period of 5 years. Provide for replacement trees in accordance with the NBHCP. Ensure that a 100 % success rate is achieved.

Implementation: Project applicant(s) of all project phases.

Timing: Before approval of grading or improvement plans or any ground-disturbing activities for any project development phase, including the off-site elements.

Enforcement: USFWS; DFG; Sutter County Community Services Department; and Sacramento County Planning and Community Development Department and/or Placer County Planning Department, as applicable:

Mitigation Measure 3.13-3b: Implement Measures to Mitigate Impacts on Swainson's Hawk Not Covered by the NBHCP.

Off-Site Elements

Before commencement of elements of the proposed project development not covered by the NBHCP ITP, the project applicant(s) of all project phases shall implement the following measures to reduce potential impacts on Swainson's hawk:

- ▶ Retain a qualified biologist to conduct preconstruction surveys to identify active nests (i.e., occupied nests) within 0.5 mile of construction areas, in accordance with DFG guidelines. If an active nest is found, no new disturbance shall occur within 0.5 mile of the nest until the nest is no longer active or appropriate avoidance measures are developed, approved by DFG, and implemented to ensure that the nest is adequately protected.
- ▶ Restore off-site temporary disturbance to grassland and agriculture habitat to provide equal or greater foraging value for Swainson's hawk. The project applicant(s) shall develop and implement a restoration plan for each off-site improvement that could result in impacts on Swainson's hawk foraging habitat to ensure that the performance standard of no net loss of Swainson's hawk foraging habitat is met. The restoration plans shall establish specific success criteria for habitat restoration, specify remedial measures to be undertaken if success criteria are not met (e.g., supplementary planting and additional monitoring), and describe short- and long-term maintenance and management actions.
- ▶ If there is any permanent loss of habitat, the project applicant(s) shall mitigate for that loss at 1:1 with lands of equivalent value.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before approval of grading or improvement plans or any ground-disturbing activities for any project development phase, including the off-site elements.

Enforcement: USFWS; DFG; Sutter County Community Services Department; and Sacramento County Planning and Community Development Department and/or Placer County Planning Department, as applicable.

Significance after Mitigation

Implementation of Mitigation Measures 3.13-3a and 3.13-3b would reduce potentially significant direct impacts on Swainson's hawk by requiring compliance with the NBHCP and fully mitigating impacts on Swainson's hawk that may occur outside of the NBHCP area, for the reasons described below.

The NBHCP includes a comprehensive strategy for mitigating impacts on Swainson's hawk that result from development in the Sutter County ITP area that includes avoidance, take minimization, and compensatory mitigation. The NBHCP take avoidance and minimization measure would be implemented as required. These include measures to reduce cumulative impacts on foraging habitat, measures to reduce nest disturbance, and measures to prevent and mitigate the loss of Swainson's hawk nest trees. The proposed project is consistent with the NBHCP measures to reduce cumulative impacts on foraging habitat by not proposing additional development within the 1-mile-wide Swainson's hawk zone adjacent to the Sacramento River. Implementation of Mitigation Measures 3.13-3a would ensure that take of active Swainson's hawk nests does not occur. However, take is considered unlikely because no potential nesting trees have been identified on the project site.

As discussed for Mitigation Measure 3.13-1a, development of the site would require 0.5 acre of mitigation for every 1.0 acre of development. This mitigation strategy is expected to ultimately result in the establishment of 3,372 acres of high- and moderate-quality upland foraging habitat for Swainson's hawk on NBC reserves. The

NBHCP protects additional Swainson's hawk foraging habitat by specifically excluding 1,015 acres of agricultural land from future development. The NBHCP concludes that the 4,387 acres of mitigation land, in conjunction with retention of nesting and foraging habitat by preservation of foraging habitat within the Swainson's hawk zone, implementation of the NBHCP's avoidance and minimization measures, and implementation of mitigation measures, fully mitigates the loss of foraging habitat resulting from authorized development (City of Sacramento 2003). Therefore, it is reasonable to assume that the NBHCP mitigation requirement would fully mitigate project impacts on Swainson's hawk foraging habitat because the rice fields covering most of the project site are not considered high-quality foraging habitat.

Implementation of Mitigation Measure 3.13-3b would reduce the potential for take of an active Swainson's hawk nest and replace any loss of foraging habitat on a no-net-loss basis. Impacts on Swainson's hawk habitat outside of the Sutter ITP area are expected to be relatively minor, and most impacts would be temporary.

Therefore, implementing Mitigation Measures 3.13-3a and 3.13-3b would reduce **direct** and **indirect** impacts on Swainson's hawk to a **less-than-significant** level.

IMPACT *Potential Loss and Degradation of Habitat for Special-Status Fish and Wildlife Species.*
3.13-4 *Implementation of the proposed project could result in the loss and degradation of habitat for a number of special-status wildlife species. The black-crowned night-heron and burrowing owl have both been documented on the project site. The project site and area proposed for off-site improvements provide potential habitat for vernal pool invertebrates, valley elderberry longhorn beetle, western spadefoot toad, northwestern pond turtle, burrowing owl and other raptors, tricolored blackbird, white-faced ibis, loggerhead shrike, and special-status fish species; however, these species are not known to occur in these areas.*

On-Site and Off-Site Elements

Development pursuant to the proposed project would result in an increase in development and human population that could result in adverse impacts on a number of special-status fish and wildlife species. Direct and indirect impacts could occur as a result of construction and operation of proposed off-site elements. Special-status wildlife species listed under the ESA that could be affected by the proposed off-site elements include vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, valley elderberry longhorn beetle, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, and green sturgeon. Other special-status species that could be affected by implementation of the proposed project include burrowing owl, tricolored blackbird, black-crowned night-heron, white-faced ibis, loggerhead shrike, western spadefoot toad, northwestern pond turtle, Central Valley fall-/late fall-run Chinook salmon, and hardhead. **Direct and indirect** impacts on these species listed above are **potentially significant**. **Direct and indirect** impacts on all other special-status wildlife species are **less than significant**. For impacts included under the ITP for covered species, the NBHCP requires compensatory mitigation and impact minimization measures. The primary compensatory mitigation requirement is the preservation, enhancement, and creation of 0.5 acre of habitat reserve for each 1.0 acre of habitat developed. Take avoidance and minimization measures for special-status wildlife species include a variety of actions to be completed before ground disturbance for all project phases and off-site elements.

Federally Listed Vernal Pool Invertebrates

Vernal pool invertebrates covered under the NBHCP ITP are not expected to occur on the project site. The seasonal wetland on the project site is not considered suitable habitat for vernal pool tadpole shrimp or vernal pool fairy shrimp because it is located in a plowed field that has recently been used for growing hay (ECORP 2007). However, vernal pool fairy shrimp and vernal pool tadpole shrimp have been identified in vernal pools located along the outer edges of the project site. Potential habitat for Conservancy fairy shrimp may also be present off-site. Conservancy fairy shrimp are not covered under the NBHCP ITP. Off-site habitats include nonnative

grasslands potentially containing vernal pools or other seasonally inundated features adjacent to the proposed natural gas line alignment along Baseline Road and the proposed sewer force main alignment. These habitat could be affected by construction of proposed off-site elements. **Direct** and **indirect** impacts on vernal pool invertebrates related to proposed off-site project features that are not covered under the NBHCP ITP are **potentially significant**.

Valley Elderberry Longhorn Beetle

No elderberry shrubs that would be covered under the NBHCP ITP were identified on the project site during focused surveys (ECORP 2006b) (Appendix K of this DEIR). The potential habitat nearest to the project site is located outside the project site, adjacent to the Sacramento River. Therefore, development of the project site would have no impact on this species. No elderberry shrubs were encountered during reconnaissance surveys of proposed off-site improvement areas; however, no focused surveys for elderberry shrubs have been conducted along the proposed infrastructure alignments and in the improvement areas. Therefore, elderberry shrubs could be affected by implementation of the proposed off-site elements. These potential impacts on elderberry shrubs related to proposed off-site project features that are not covered under the NBHCP ITP could result in **direct** and **indirect, potentially significant** impacts on the valley elderberry longhorn beetle.

Burrowing Owl

Burrowing owls have been known to occur in suitable habitat in the Natomas Basin (NBC 2007a). Most of the project site (the active and fallow rice fields) is unsuitable or marginally suitable for this species. Field edges on the project site and other upland areas not subject to frequent disking provide suitable habitat for burrowing owl, and there is one reported occurrence of this species from the project site. Potentially suitable habitat for burrowing owl is also present within the alignments of proposed off-site improvements. Participation in the NBHCP would fully mitigate impacts on burrowing foraging habitat on the project site. Suitable foraging habitats, including alfalfa, grasslands, and row crops, have been identified along all of the alignments for proposed off-site improvements (Exhibit 3.13-4). Grasslands and field edges also provide potential nesting habitat for burrowing owls. Most of this habitat would be unaffected because these alignments are generally proposed along existing roadways, and many of the impacts would be only temporary, associated with the construction of underground utilities (e.g., pipelines). Potential foraging habitat for burrowing owl of similar quality is common adjacent to areas proposed for off-site improvements. Therefore, the loss of foraging habitat is considered less than significant. However, the loss of an active burrowing owl burrow would be a significant impact. Implementation of the proposed project and off-site improvements, including project features that are covered under the NBHCP ITP and project features that are not afforded such coverage, could result in **direct** and **indirect, significant** impact to this species,

Special-Status Fish

The Sacramento River provides habitat for a number of special-status fish species, including Chinook salmon, steelhead trout, green sturgeon, Sacramento splittail, and hardhead. None of these species are expected to occur in the canals or ditches on the project site, and the proposed project would not have any direct adverse impacts on habitat for fish in the Sacramento River. However, future indirect impacts on special-status fish could occur under one of the two long-term options for diverting water from the Sacramento River for water supply. Water is currently diverted from the Sacramento River by the NCMWC during summer months for agricultural uses. Water diversion from the Sacramento River at existing pump stations in the Natomas Basin is a concern because of the potential for entrainment at unscreened diversions of special-status fish, particularly juvenile salmon and steelhead, at unscreened diversion. The proposed American Basin Fish Screen and Habitat Improvement Project would modify the NCMWC's water diversion from the Sacramento River and distribution system to avoid and minimize potentially adverse effects on fish. However, it is not known if that project will be implemented.

Under the proposed project and water supply Alternative A, there would be no change in the timing or amount of existing water diversions from the Sacramento River, and therefore no adverse impacts on special-status fish (from a change in hydrology and associated physical habitat) would be anticipated. However, under Alternative B, water diversions would occur throughout the year compared to the baseline condition (as the proposed project and Alternative A) where diversions occur primarily during the summer season. The total annual amount of water diverted would be the same under all four scenarios (including existing conditions). The average daily diversion rates for Alternative B, however, would be reduced due to the year-round (as opposed to seasonal) diversion cycle. Winter-time diversions would also occur at time when typically the Sacramento River has higher flows compared with the current summer-time diversion pattern. It is difficult to predict at this time the magnitude of impact on special-status fish that would result from shifting to a year-round diversion schedule (related to hydrology and associated physical habitat in the Sacramento River). However, it is possible that the potential for entrainment and/or impingement and associated injury and/or mortality of juvenile salmonids could increase because the diversions would occur during periods when the more sensitive, early life stages are more likely to be present in the river. Any increase in entrainment or impingement and associated injury or mortality of steelhead or Chinook salmon would be considered a “take” of a special-status fish species and therefore would represent a potentially significant impact. If Alternative B is ultimately chosen and the diversion schedule shifts to a year-round cycle, that new diversion schedule would constitute a change in the project, which in turn would require either subsequent environmental review under CEQA to evaluate any new or increased adverse impacts to special-status fish species or an entirely new CEQA analysis undertaken by a different lead agency such as the State Water Resources Control Board. Under the proposed project, the magnitude of the project-related impact also depends on whether the American Basin Fish Screen and Habitat Improvement Project is implemented before water diversion is initiated as part of the proposed project. Therefore, **direct** and **indirect** impacts on special-status fish are **potentially significant**.

Other Special-Status Species

Other special-status species that may be affected by project implementation are tricolored blackbird, black-crowned night-heron, white-faced ibis, loggerhead shrike, northwestern pond turtle, California tiger salamander, and western spadefoot toad. Tricolored blackbird, northwestern pond turtle, black-crowned night-heron, white-faced ibis, and loggerhead shrike have been recorded on or adjacent to the project site. The project site does not include potential habitat for California tiger salamander or western spadefoot toad, but these species could occur in the proposed off-site improvement areas. Implementation of the proposed project would result in the loss of potential foraging and nesting habitat for white-faced ibis, black-crowned night-heron, loggerhead shrike, and tricolored blackbird. However, white-faced ibis, loggerhead shrike, and tricolored blackbird are covered by the NBHCP ITP, which includes mitigation to reduce impacts on these species, including the loss of foraging habitat. The loss of active white-faced ibis, black-crowned night-heron loggerhead shrike, and tricolored blackbird would be considered a significant impact. Construction of proposed off-site improvements could also temporarily affect habitat for all the special-status wildlife species discussed above. Therefore, implementation of the proposed project and off-site infrastructure improvements, including project features that are covered under the NBHCP ITP and project features that are not afforded such coverage, could result in **direct** and **indirect, significant** impacts on these species.

Mitigation Measure 3.13-4a: Implement NBHCP ITP Avoidance and Minimization Measures for Valley Elderberry Longhorn Beetle, White-Faced Ibis, Loggerhead Shrike, Burrowing Owl, Northwestern Pond Turtle, California Tiger Salamander, Western Spadefoot Toad, and Vernal Pool Invertebrates.

On-Site Elements

The project applicants(s) of all Authorized Development shall adhere to the relevant take, avoidance, and minimization measures described in the NBHCP (Sections V.A.1 and VI.E.1i) and summarized below. In case of conflict, the NBHCP controls.

Valley Elderberry Longhorn Beetle

The project applicant(s) of all Authorized Development shall implement the following measures:

- ▶ Comply with USFWS Compensation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 1999).
- ▶ Avoid impacts on habitat for the valley elderberry longhorn beetle whenever possible.
- ▶ Transplant during the dormant season (November 1 to February 15) all elderberry plants that cannot be avoided to an area protected in perpetuity and approved by USFWS.
- ▶ Provide replacement seedling plants at a ratio of 2:1 to 5:1 depending on the extent of beetle, utilizing the plants moved or lost.
- ▶ Monitor annually valley elderberry longhorn beetle habitat in planted mitigation sites for a 10-year period.
- ▶ Meet a 60% survival rate by the end of the year and a 60% survival rate for the term of the applicable permit for all replacement elderberry shrubs.

Tricolored Blackbird

The project applicant(s) of all Authorized Development shall implement the following measures:

- ▶ Conduct a preconstruction survey of potential breeding and nesting habitat for presence of tricolored blackbird before approval of an urban development permit.
- ▶ If surveys determine this species to be present, install brightly colored construction fencing to establish a boundary 500 feet from the active nest site. Avoid disturbance within 500 feet of active (occupied) nests during the nesting season of May 15 through July 1 or until a qualified biologist, with concurrence of USFWS, has determined that young have fledged or that the nest is no longer occupied.

White-Faced Ibis

The project applicant(s) of all Authorized Development shall implement the following measures:

- ▶ Conduct a preconstruction survey of potential nesting habitat for presence of white-faced ibis before approval of an urban development permit.
- ▶ Avoid disturbance within 0.25 mile of active (occupied) nesting colonies during the nesting season of May 15 through August 31 or until a qualified biologist, with concurrence of DFG and USFWS, has determined that young have fledged or that the nest is no longer occupied if surveys determine this species to be present.

Loggerhead Shrike

The project applicant(s) of all Authorized Development shall implement the following measures:

- ▶ Conduct a preconstruction survey to determine the presence of the loggerhead shrike.
- ▶ Install brightly colored construction fencing that establishes a boundary 100 feet from any active loggerhead shrike nests identified during preconstruction surveys. No disturbance associated with authorized development shall occur within the 100-foot fenced area during the nesting season of March 1 through July 31. A qualified biologist, with the concurrence of USFWS, must determine that young have fledged or that the nest is no longer occupied before disturbance of the nest site can occur.

Burrowing Owl

The project applicant(s) of all Authorized Development shall implement the following measures:

- ▶ Retain a DFG-approved qualified biologist to conduct a preconstruction survey of all construction site(s) to determine whether any burrowing owls are using the site for foraging or nesting before the initiation of grading or earth-disturbing activities. Submit the pre-construction survey to the County prior to commencement of construction activities.
- ▶ Avoid disturbance of occupied burrows during the nesting season (February 1 through August 31) unless a qualified biologist approved by DFG verifies through noninvasive measures either that the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- ▶ Contact USFWS and DFG if nest site(s) are found. The agencies shall be contacted regarding suitable mitigation measures, which may include establishing a 300-foot buffer around the nest site during the breeding season (February 1 through August 31) or relocating the burrowing owls if the birds have not begun egg laying and incubation or the juveniles from the occupied burrows are foraging independently and are capable of independent survival. If on-site avoidance is required, then the location of the buffer zone shall be determined by a qualified biologist. Mark the limit of the buffer zone with yellow caution tape, stakes, or temporary fencing. Maintain the buffer during the construction period.
- ▶ Retain a qualified biologist to prepare a plan for relocating the owls to a suitable site if relocation of the owls is approved by USFWS and DFG. The relocation plan must include the content specified by the NBHCP.
- ▶ Offset disturbance and/or destruction of burrows through development of suitable habitat on NBC upland reserves where on-site avoidance is not possible. Such habitat shall include creation of new burrows with adequate foraging area (a minimum of 6.5 acres) or 300-foot radii around the newly created burrows.

Northwestern Pond Turtle

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Minimize the take of the northwestern pond turtle as a result of habitat destruction during construction activities, including construction related to the removal of irrigation ditches and drains and ditch and drain maintenance (e.g., relocate turtles to suitable habitat away from the construction area).
- ▶ The dewatering requirements described in the NBHCP take avoidance, minimization, and mitigation measures for giant garter snake shall be implemented.

California Tiger Salamander

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct a preconstruction survey for California tiger salamander before approval of an urban development permit. If the survey determines the presence of California tiger salamander, the project applicant(s) shall consult with USFWS and DFG to determine appropriate measures to avoid and minimize take of individuals, which may include but are not limited to, modifying the project design to avoid occupied habitat; limiting access and construction activities in the vicinity of the occupied habitat using fencing or other means; relocating adult salamanders to suitable habitat outside of the construction area; and implementing compensatory mitigation, including preservation of off-site habitat.

Western Spadefoot Toad

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct a preconstruction survey of western spadefoot toad before approval of an urban development permit. If the survey determines that western spadefoot toad is present, the project applicant(s) shall consult with DFG to determine appropriate measures to avoid and minimize take of individuals, which include but are not limited to, modifying the project design to avoid occupied habitat; limiting access and construction activities in the vicinity of the occupied habitat using fencing or other means; relocating adult toads to suitable habitat outside of the construction area; and implementing compensatory mitigation, including preservation of off-site habitat.

Special-Status Vernal Pool Invertebrates

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct a preconstruction survey for special-status vernal pool invertebrates. If the survey determines that vernal pool fairy shrimp, vernal pool tadpole, and midvalley fairy shrimp are present, the project applicant(s) shall consult with USFWS to determine appropriate measures to avoid and minimize take of individuals, which include but are not limited to, modifying the project design to avoid occupied habitat; limiting access and construction activities in the vicinity of the occupied habitat using fencing or other means; relocating vernal pool invertebrates to suitable habitat outside of the construction area; and implementing compensatory mitigation, including preservation of off-site habitat.
- ▶ Comply with Measures to Minimize Take of Vernal Pool Species in NBHCP V.A.4.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before approval of grading or improvement plans or any ground-disturbing activities for each project development phase, including off-site elements.

Enforcement: USFWS; DFG; Sutter County Community Services Department; and Sacramento County Planning and Community Development Department and/or Placer County Planning Department, as applicable.

Mitigation Measure 3.13-4b: Implement Measures to Mitigate Impacts on Special-Status Wildlife Species Not Covered by the NBHCP.

Off-Site Elements

Before commencement of construction activities outside the NBHCP ITP area, the project applicant(s) of all project elements not covered by the NBHCP shall implement the following measures to reduce potential effects on special-status wildlife species.

Valley Elderberry Longhorn Beetle

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Comply with USFWS Compensation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 1999), which requires that impacts on elderberry shrubs be avoided whenever possible. If elderberry shrubs cannot be avoided, they must be transplanted in accordance with methods outlined in the guidelines, replaced by

planting shrubs in a conservation area at a ratio ranging from 1:1 to 8:1, or mitigated by purchasing credits in an approved mitigation bank as agreed upon through consultation with USFWS.

- ▶ Retain a qualified biologist to conduct preconstruction surveys for elderberry shrubs before initiation of earth-moving activities for all proposed project phases not covered by the NBHCP ITP, including the proposed off-site infrastructure elements. If the survey determines that elderberry shrubs are present and that they could be adversely affected by the project, the project applicant(s) shall develop and implement a management plan for each off-site improvement the implementation of which could result in impacts on valley elderberry longhorn beetle. Implementation of the plan shall ensure that the performance standard of no net loss of valley elderberry longhorn beetle habitat is met. The restoration plans shall establish specific success criteria for habitat restoration, specify remedial measures to be undertaken if success criteria are not met (e.g., supplementary planting and additional monitoring), and describe short- and long-term maintenance and management actions. Long-term protection of restored areas and funding for their management shall be provided through appropriate mechanism to be determined by the project applicant(s) and the applicable county in consultation with USFWS. Authorization for take of valley elderberry longhorn beetle shall be obtained as necessary to comply with the ESA. All measures subsequently adopted through the permitting process shall be implemented.

Tricolored Blackbird

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct preconstruction surveys for tricolored blackbird before initiation of earth-moving activities for all proposed project phases not covered by the NBHCP ITP, including the proposed off-site infrastructure elements.
- ▶ Avoid disturbance to active (occupied) nesting colonies during the nesting season if the surveys determine that tricolored blackbirds are present. If they are present, a boundary shall be marked by brightly colored construction fencing that establishes a boundary 500 feet from the active nest site. No disturbance associated with project development shall occur within the 500-foot fenced area during the nesting season or while birds are present. Construction shall not commence until a qualified biologist, with the concurrence of DFG, has determined that the young have fledged and that the nest sites are no longer active.

Black-Crowned Night-Heron and White-Faced Ibis

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct preconstruction surveys for black-crowned night-heron and white-faced ibis before initiation of earth-moving activities for all project phases not covered by the NBHCP ITP, including the proposed off-site infrastructure elements. The preconstruction surveys shall be conducted within 0.25 mile of the applicable project site(s).
- ▶ Avoid construction activities within 0.25 mile of any nests found during the nesting season (May 15 through August 31) until a qualified biologist, in consultation with DFG, has determined that the young have fledged or that the nest is no longer occupied.

Loggerhead Shrike

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct preconstruction surveys for loggerhead shrike before initiation of earth-moving activities of all proposed project phases not covered by the NBHCP ITP, including the proposed off-site infrastructure elements. The preconstruction surveys shall be conducted within 100 feet of the applicable project site(s).
- ▶ Install a buffer with brightly colored construction fencing that establishes a boundary 100 feet from the active nest if surveys identify an active loggerhead shrike nest that would be adversely affected by project development. No disturbance associated with authorized development shall occur within the 100-foot fenced area during the nesting season (March 1 through July 31). A qualified biologist, with concurrence of DFG, must determine that the young have fledged or that the nest is no longer occupied before disturbance of the nest site can occur.

Burrowing Owl

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct preconstruction surveys before initiation of earth-moving activities for all project phases not afforded coverage by the NBHCP ITP. The preconstruction surveys shall occur during the breeding season (February through August) to identify active burrows within 500 feet of the project site.
- ▶ Establish a buffer to protect any burrowing owl nest within 500 feet of the project site. No project activity shall commence within the buffer area until a qualified biologist confirms that the young have fledged and the nest is no longer active. DFG guidelines recommend implementation of a 0.25- or 0.5-mile buffer, but the size of the buffer may be adjusted if a qualified biologist and the applicable county, in consultation with DFG, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities shall be required if the activity has potential to adversely affect the nest.
- ▶ Conduct a survey for active owl burrows before the approval of grading and/or improvement plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction for all proposed project phases, including proposed off-site infrastructure elements. If burrowing owls are detected, the project applicant(s) shall notify DFG. If no active burrows are found, no further mitigation is required. If active burrows are found, the project applicant(s) shall prepare a mitigation plan. The plan shall be submitted to the applicable county for review and approval before initiation of any ground-disturbing activities. The plan may consist of installing one-way doors on all burrows during the nonbreeding season to allow owls to exit but not reenter and constructing artificial burrows within the project vicinity, as needed. If active burrows contain eggs and/or young, no construction shall occur within 165 feet of the burrow until the young have fledged or no longer rely on the burrow. After it is confirmed that there are no owls inside burrows, these burrows may be collapsed.

Northwestern Pond Turtle

The project applicant(s) of all project phases, including off-site elements, shall implement the following measure:

- ▶ Retain a qualified biologist to conduct preconstruction surveys before initiation of earth-moving activities for all project phase(s) not covered by the NBHCP ITP. The surveys shall include all aquatic habitats to be dewatered and/or filled during project construction. Surveys shall be conducted immediately after any dewatering and before any fill of aquatic habitat. If pond turtles are found, the biologist shall capture them and move them to the nearby areas of suitable habitat that would not be disturbed by project construction.

California Tiger Salamander

The project applicant(s) of all project phases, including off-site elements, shall implement the following measure:

- ▶ Retain a qualified biologist to conduct preconstruction surveys during the appropriate survey period as determined through consultation with USFWS and DFG, and before initiation of earth-moving activities for all project phases not afforded coverage by the NBHCP ITP. If a future survey determines the presence of California tiger salamander, the project applicant(s) shall develop and implement a management plan for each off-site improvement the implementation of which could result in impacts on California tiger salamander. If feasible, the management plan shall describe measures to avoid and minimize impacts to California tiger salamander habitat. If complete avoidance is not feasible, the plan shall include compensatory mitigation. Implementation of the plan shall ensure that the performance standard of no net loss of California tiger salamander habitat is met. The management plan shall establish specific success criteria for habitat creation/preservation, specify remedial measures to be undertaken if success criteria are not met, and describe short- and long-term maintenance and management actions. Long-term protection of created and preserved areas and funding for their management shall be provided through an appropriate mechanism to be determined by the project applicant(s) and the applicable county in consultation with USFWS. Authorization for take of California tiger salamander shall be obtained if necessary to comply with the ESA. All measures subsequently adopted through the permitting process shall be implemented.

Western Spadefoot Toad

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct a survey for western spadefoot toad during the appropriate survey period as determined during consultation with USFWS and DFG, before initiation of earth-moving activities for all project phases not afforded coverage by the NBHCP ITP.
- ▶ Develop and implement a management plan for each off-site improvement, the implementation of which could result in impacts on western spadefoot toad, if the preconstruction survey determines the presence of the toad. Implementation of the plan shall ensure that the performance standard of no net loss of western spadefoot toad habitat is met. The management plan shall establish specific success criteria for habitat creation/preservation, specify remedial measures to be undertaken if success criteria are not met, and describe short- and long-term maintenance and management actions. Long-term protection of created and preserved areas and funding for their management shall be provided through an appropriate mechanism to be determined by the project applicant(s) and the applicable county in consultation with DFG.

Vernal Pool Invertebrates

The project applicant(s) of all project phases, including off-site elements, shall implement the following measures:

- ▶ Retain a qualified biologist to conduct preconstruction surveys to identify potential habitat for vernal pool species during the appropriate season (as established by USFWS). The surveys shall identify vernal pools, seasonal swales, and other suitable habitats that might be directly or indirectly affected by the project. The project shall, if feasible, avoid causing take of any federally listed vernal pool invertebrates. Standards for the survey shall be in accordance with the USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the ESA for the Listed Vernal Pool Branchiopods (April 19, 1996) or the most recent approved USFWS survey guidelines for vernal pool species. Conservation and minimization measures are likely to include preparation of supporting documentation describing methods to protect existing vernal pools during and after project construction, a detailed monitoring plan, and reporting requirements.

- ▶ If complete avoidance is not feasible, construction shall not proceed until a take authorization has been issued by USFWS and the project applicant(s) have abided by the conditions of the authorization, including the conservation and minimization measures intended to be completed before construction begins.
- ▶ Identify mitigation for direct and indirect impacts on vernal pools and other seasonal wetland habitats that support or potentially support federally listed vernal pool invertebrates that shall ensure no net loss of habitat (acreage and function) for these species (e.g., through habitat creation, rehabilitation, and/or preservation). The project applicant(s) shall complete and implement a habitat mitigation and monitoring plan that compensates for the loss of acreage, function, and value of affected vernal pool habitat. The habitat mitigation and monitoring plan shall be consistent with guidance provided in *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (USFWS 1996) or shall provide an alternative approach that accomplishes no net loss of habitat.
- ▶ If the project discharges dredge or fill material into wetlands or other waters of the United States, the project applicant(s) shall secure a USACE Section 404 CWA permit and achieve no net loss of wetlands.
- ▶ Provide sufficient upland habitat within the proposed mitigation areas for creation and restoration of vernal pools and vernal pool complexes to provide ecosystem health. The land used to satisfy this mitigation measure shall be protected through a conservation easement or deed restriction.

Special-Status Fish

The project applicant(s) of all project phases, including off-site elements, shall implement, or ensure the implementation of, the following measures:

- ▶ If the American Basin Fish Screen and Habitat Improvement Project is fully implemented, it is assumed that the potential for entrainment and associated injury or mortality would be substantially reduced from baseline conditions and that no additional analysis or mitigation would be necessary to reduce this impact or to comply with the ESA. However, if NMFS determines that take of listed salmonids would occur, authorization for take shall be obtained to comply with ESA. All measures subsequently adopted through the permitting process shall be implemented.
- ▶ If water supply Alternative B is selected and it requires long-term modification of the timing of water diversion from the Sacramento River, this would be considered a change in the proposed project and a separate CEQA analysis shall be prepared to determine whether additional mitigation would be required to ensure that impacts to special-status fish species from changes in river hydrology and associated physical habitat would remain less than significant. Additional mitigation may include, for example, improved fish screens, limits on diversions when juvenile salmonids may be present in the river system, and other avoidance and minimization measures developed in consultation with NOAA Fisheries under Section 7 of the ESA.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before approval of grading and improvement plans, before any ground-disturbing activities, and during project construction as applicable for all project phases, including off-site elements.

Enforcement: USFWS; DFG; Sutter County Community Services Department; and Sacramento County Planning and Community Development Department and/or Placer County Planning Department, as applicable.

Significance after Mitigation

Implementation of Mitigation Measures 3.13-4a and 3.13-4b would reduce potentially significant direct and indirect impacts by avoiding, minimizing, and compensating for potential impacts on vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, valley elderberry longhorn beetle, burrowing owl, tricolored blackbird, black-crowned night-heron, white-faced ibis, loggerhead shrike, western spadefoot toad, and northwestern pond turtle.

Mitigation Measure 3.13-4a would require that the project applicant(s) implement avoidance and minimization measures for the following NBHCP-covered species: valley elderberry longhorn beetle, white-faced ibis, loggerhead shrike, burrowing owl, northwestern pond turtle, California tiger salamander, western spadefoot toad, and vernal pool invertebrates. No take of valley elderberry longhorn beetle, California tiger salamander, western spadefoot toad, and vernal pool invertebrates is expected from development of the project site because no habitat suitable for these species is present. Implementation of the take avoidance measures would substantially reduce the potential for take of other special-status species. Complying with the NBHCP would compensate for impacts on foraging habitat for covered species by providing 0.5 acre of high-quality habitat for every acre of habitat removed by development. The NBHCP concludes that the combination of take avoidance, minimization, and compensation measures fully mitigates impacts on these special-status species resulting from development authorized under the NBHCP ITP (City of Sacramento 2003). Because the project site is not known to support important breeding habitat for any of these species and because similar quality foraging habitat is available elsewhere in the Natomas Basin, including on nearby NBC preserves, implementation of Mitigation Measure 3.13-4a would reduce on-site impacts on special-status species to a less-than-significant level.

Implementation of Mitigation Measure 3.13-4b would reduce impacts on special-status species not covered by the NBHCP and would reduce any impacts that could occur outside of the NBHCP ITP area. These impacts could include effects on special-status species not covered by the NBHCP, as well as effects that occur outside of the ITP area. Mitigation Measure 3.13-4b, which is consistent with avoidance and minimization measures in the NBHCP, would substantially reduce the potential for take of special-status species. Any take of a species listed as threatened or endangered would need to be authorized by USFWS and/or DFG before development, and all measures subsequently adopted through the permitting process would need to be implemented before development.

In combination, Mitigation Measures 3.13-4a and 3.13-4b would reduce **direct** and **indirect** impacts on vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, valley elderberry longhorn beetle, burrowing owl, tricolored blackbird, black-crowned night-heron, white-faced ibis, loggerhead shrike, western spadefoot toad, northwestern pond turtle to a **less-than-significant** level.

If the American Basin Fish Screen and Habitat Improvement Project is fully implemented, then project-related impacts to special-status fish species would be **less than significant**. If water supply Alternative B is selected and long-term modification of the timing of water diversion from the Sacramento River is required, this new diversion schedule would constitute a change in the project which may require further CEQA analysis to determine the environmental impacts of implementing that alternative, including impacts to special-status fish species from changes in river hydrology and associated physical habitat. Because the precise flow schedule has not been developed, however, it is difficult and impractical to determine the magnitude of those potential impacts at this time. Consequently, these impacts are presumed to be **potentially significant** and **unavoidable**.

IMPACT 3.13-5 *Potential Loss and Degradation of Special-Status Plant Species and Habitat. Implementation of the proposed project could result in impacts on special-status plant species and in the removal of vernal pool grassland, seasonal wetland, and riparian habitat along the off-site infrastructure alignments that have potential to support special-status plant species.*

On-Site and Off-Site Elements

No on-site special-status plant species were encountered during focused surveys conducted by ECORP (2006) (Appendix I of this DEIR). Focused surveys for special-status plants were not conducted for the proposed off-site improvements. However, potential habitat for special-status plant species was identified for a number of special-status plant species on-site and along off-site improvement areas. Habitats that could support special-status plants include canals, drains, vernal pools, seasonal wetlands, and riparian habitat. Any loss of habitat occupied by special-status plants would be considered a significant impact. For impacts included under the ITP for covered species, the NBHCP requires compensatory mitigation and impact minimization measures. The primary compensatory mitigation requirement is the preservation, enhancement, and creation of 0.5 acre of habitat reserve for each 1.0 acre of habitat developed. Take avoidance and minimization measures for special-status plant species include a variety of actions to be completed before ground disturbance for all project phases and off-site elements. **Direct** impacts on special-status plants as a result of construction of on- and off-site elements are therefore **potentially significant**.

Indirect impacts may result from transportation of pollutants by urban runoff and other means, installation of piping and drainage and swale culverts, changes in vegetation as a result of changes in land use and management practices, construction of off-site infrastructure that lead to changes in on-site hydrology, and the introduction of invasive species or noxious weeds from the surrounding development. These **indirect** impacts are **potentially significant**.

Mitigation Measure 3.13-5a: Implement NBHCP ITP Avoidance and Minimization Measures for Impacts on Special-Status Plant Species.

On-Site Elements

The project applicants(s) of all Authorized Development shall adhere to the relevant take, avoidance, and minimization measures described in the NBHCP and summarized below. In case of conflict, the NBHCP controls.

Delta Tule Pea

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct preconstruction survey of Delta tule pea. If Delta tule pea plants are identified through the preconstruction survey, USFWS and DFG shall be immediately notified. Under such circumstances, the project applicant(s) shall provide for transplantation of the identified plants before site disturbance.

Sanford's Arrowhead

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct a preconstruction survey of Sanford's arrowhead. If Sanford's arrowhead plants are identified through the preconstruction survey, USFWS and DFG shall be notified immediately. Under such circumstances, the project applicant(s) shall provide for the transplantation of the identified plants before site disturbance.

Boggs Lake Hedge-Hyssop, Sacramento Orcutt Grass, Slender Orcutt Grass, Colusa Grass, and Legenere

The project applicant(s) of all Authorized Development shall implement the following measure:

- ▶ Conduct a preconstruction survey of Boggs Lake hedge-hyssop, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, and legenere. If the survey determines that Boggs Lake hedge-hyssop, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, or legenere are present, the project applicant(s) shall consult with USFWS and DFG to determine appropriate measures to avoid and minimize loss of individuals, which may include but is not limited to, fencing of the population before construction and exclusion of project activities from the fenced-off areas, and construction monitoring by a qualified botanist to keep construction crews away from the population. Indirect impacts (i.e., changes in hydrology) shall be minimized by placing culverts away from any plant populations, if necessary. Other potential actions include the collection of seeds from the existing populations and inoculation of the collected seeds into a new area.

Mitigation Measure 3.13-5b: Implement Measures to Mitigate Impacts on Special-Status Plants Not Covered by the NBHCP.

Off-Site Elements

The project applicant(s) of all proposed project phases not covered by the NBHCP, including the proposed off-site infrastructure elements, shall:

- ▶ Retain a qualified biologist to conduct preconstruction surveys to identify potential habitat for special-status plant species during the appropriate season (as established by USFWS). The surveys shall identify vernal pools, seasonal swales, and other suitable habitats that might be directly or indirectly affected by the project. If no special-status plants are found during focused surveys, the botanist shall document the findings in a letter report to USFWS, DFG, and the applicable county, and no further mitigation shall be required. The project shall, if feasible, avoid causing take of special-status plant species. If complete avoidance is not feasible, construction shall not proceed until take authorization has been issued by USFWS or DFG, and the project applicant(s) have abided by the conditions of the authorization, including the conservation and minimization measures intended to be completed before construction begins.

Implementation: Project applicant(s) of all project phases and off-site elements.

Timing: Before approval of grading or improvement plans or any ground-breaking activity, including grubbing and clearing, for any project development phase, including off-site elements. Off-site monitoring shall occur for a minimum of 5 years following the completion of all construction activities.

Enforcement: USFWS; DFG; Sutter County Community Services Department; and Sacramento County Planning and Community Development Department and/or Placer County Planning Department, as applicable.

Significance after Mitigation

Implementation of Mitigation Measures 3.13-1 and 3.13-5a and -5b and compliance with the NBHCP ITP measures would reduce potentially significant impacts on special-status plant species by providing compensatory mitigation for NBHCP-covered species at a 0:5:1 ratio. Mitigation measures for species not covered and for impacts outside of the ITP area would include avoidance and compensatory measures, as deemed appropriate by USFWS and DFG and consistent with the NBHCP, through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Implementation of these mitigation measures would reduce **direct** and **indirect** impacts to a **less-than-significant** level.

IMPACT *Consistency with the NBHCP. Implementation of the proposed project and the mitigation measures*
3.13-6 *presented in this DER would be consistent with the adopted NBHCP and would not preclude the*
 attainment of any goals or objectives included in the plan.

On-Site and Off-Site Elements

The proposed project's consistency with the NBHCP was evaluated based on the viability of population of species covered by the NBHCP, the effectiveness of the NBHCP conservation strategy, and attainment of the goals and objectives of the NBHCP.

Effect on Population Viability of Covered Species

Implementation of the proposed project would not threaten the viability of any covered species because most impacts on listed species would be mitigated through implementation of the avoidance, minimization, and compensation measures identified in the NBHCP. Impacts resulting from implementation of the proposed off-site improvements on covered species could be mitigated through implementation of feasible mitigation measures that are similar to those required by the NBHCP, as described above.

Effects on the Conservation Strategy of the NBHCP

The NBHCP describes key components of a conservation strategy and how the components provide effective mitigation for incidental take of covered species within the NBHCP area. These components include a 0.5:1 mitigation ratio, site-specific management plans for reserve lands, buffers within reserve lands, connectivity, minimum habitat block size requirements for reserve lands, and foraging habitat.

As described in the discussion of Impact 3.13-2, above, implementation of the proposed project could reduce habitat connectivity by eliminating canals and ditches on the project site. However, connectivity between the NBC's North Basin and Central Basin Reserve Units would be ensured by retaining the East Drainage Canal and North Drainage Canal. Implementation of the proposed project could also reduce buffers between existing reserves and proposed development below widths required under the NBHCP. Development of the proposed project could affect the existing reserve lands located immediately west and south of the project site (Exhibit 3.13-1). A portion of the project site's southern boundary is adjacent to NBC reserve units. NBC reserve units are also located adjacent to the southwestern portion of the project site. These reserve units were intended to be situated a minimum of 800 feet from existing urban lands or lands designated for urban uses in an adopted general plan. The setback zone, however, is intended to function as a limitation on where NBHCP reserve lands can be located, but not a limitation on where local agencies can approve development, provided that the location of such development was anticipated in a local General Plan at the time of NBHCP adoption (NBHCP, page IV-15). Although the project site is within 800 feet of an existing reserve unit, the project site is located in an area designated for urban uses in the Sutter County General Plan and was so designated at the time of adoption of the NBHCP. Under the NBHCP, the proposed project would therefore be consistent with the setback zone. Also, the proposed project land plan identifies an open space buffer along the southern boundary of the site adjacent to existing reserve units.

Because the setback zone is not intended to constrain land use decisions, and the proposed project includes a 200-foot buffer adjacent to NBC reserve units, the proposed project is consistent with the NBHCP, and this impact therefore is **less than significant**.

3.13.4 RESIDUAL SIGNIFICANT IMPACTS

Implementation of the mitigation measures described above would reduce most impacts on biological resources to less-than-significant levels. Because water supply Alternative B is not part of the proposed project and the precise schedule of diversions under Alternative B are as of yet unknown, it is too speculative at this point in time to

evaluate the potential environmental impacts of water supply Alternative B and any long-term alteration of the existing water diversion schedule from the Sacramento River on fisheries resources in this DEIR. Consequently, the impacts related to special-status fish species from implementing water supply Alternative B are considered **potentially significant** and **unavoidable**.

3.14. PARKS AND OPEN SPACE

This section generally describes existing recreational facilities in the project region. It also provides a discussion of impacts of the proposed project on local and regional recreational facilities, including the adequacy of the recreational facilities included as part of the proposed project in meeting the recreational demand generated by the proposed Sutter Pointe development.

3.14.1. REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

National Recreation and Park Association

The National Recreation and Park Association (NRPA) recommends that communities have a park system that includes 5–10 acres of developed parkland for every 1,000 residents. Although the amount of parkland varies from community to community and is not regulated by law, many communities have used the NRPA recommendation to develop a standard of 5 acres per 1,000 residents for traditional service/passive park acreage, with an additional 5 acres allocated for special-use facilities and open space (i.e., nontraditional parklands), for a total standard of 10 acres per 1,000 residents.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 (42 United States Code [USC] 12181) prohibits discrimination on the basis of disability in public accommodation and state and local government services. Under the ADA, the Architectural and Transportation Barriers Compliance Board issues guidelines to ensure that facilities, public sidewalks, and street crossings are accessible to individuals with disabilities. Typical ADA improvements include creating parking spaces for handicap use, restroom modifications, door hardware requirements, and lighting upgrades. Play areas, meeting rooms, park restrooms, and other buildings and park structures must comply with ADA requirements. Park facilities under the proposed project or any project alternative would be required to be ADA compliant.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Quimby Act

The Quimby Act (California Government Code Section 66477) was established by the California legislature in 1965 to preserve open space and parkland in the rapidly urbanizing areas of the State. This legislation was in response to California's increased rate of urbanization and the need to preserve open space and provide parks and recreation facilities for California's growing communities. The Quimby Act authorizes local governments to establish ordinances requiring developers of new subdivisions to dedicate land for parks, pay an in-lieu fee, or perform a combination of the two.

The Quimby Act provides two standards for the dedication of land for use as parkland. If the existing area of parkland in a community is greater than 3 acres per 1,000 persons, then the community may require dedication based on a standard of up to 5 acres per 1,000 persons residing in the subdivision. If the existing amount of parkland in a community is less than 3 acres per 1,000 persons, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision. The Quimby Act requires a city or county to adopt standards for recreational facilities in the recreation element of its general plan if it is to adopt a parkland dedication or fee ordinance.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento Counties and are related to the provision of utilities to the project site. They would not involve construction of new housing in Placer or Sacramento Counties and therefore would neither lead to an increase in population nor a resulting increased demand for parkland in those counties. For this reason, only Sutter County plans, policies, regulations, and ordinances are presented in this section.

Sutter County

Sutter County General Plan

The following policies from the Sutter County General Plan (Sutter County 1996) regarding parks and open space are applicable to the proposed project.

- ▶ **Policy 3.H-6:** The County and the School District should work cooperatively to plan for the location of school sites in tandem with park sites for shared school and park use.
- ▶ **Policy 5.A-1:** The County shall strive to maintain and improve the distribution of local and regional parks to support the recreational needs of Sutter County residents.
- ▶ **Policy 5.A-2:** The County shall strive to achieve and maintain a standard of 10 acres of parkland per 1,000 population. This target ratio should be further divided between neighborhood, community and regional parks according to the standards set forth in the County's park and recreation master plan.

Sutter County has not developed a park and recreation master plan.

3.14.2. ENVIRONMENTAL SETTING

The project site is located within the jurisdictional boundaries of Sutter County. Therefore, the County's existing park and recreation facilities and open space areas are described below. No local or regional parks or bikeways are located on the project site, which includes undeveloped land that supports agricultural land uses, as well as some industrial lands.

Off-site program elements would not add any permanent new residents to the area and thus would not increase the use of existing neighborhood and regional parks. Therefore, the environmental setting discussion does not address off-site areas.

SUTTER COUNTY PARKLAND AND OPEN SPACE

County Park Responsibility

Sutter County does not have a park and recreation department and does not provide recreational facilities or opportunities through county programs under such a public agency. A variety of parks and recreation opportunities are located in the unincorporated area. However, there are no county park and recreation districts that serve the unincorporated area. Although not established to function as park districts, five "quadrants" have been established in the unincorporated urban area. Money for parks is collected through developer impact fees as new development occurs and is then used in the quadrant in which it was collected to develop new parks after a park assessment district is formed. According to the 1996 Sutter County General Plan Background Report, the County had two park assessment boundaries more than 22 miles north of the project site: one used to maintain West Walton Park and the second formed to fund the construction and maintenance of Happy Park. However,

both of these parks are now owned and maintained by the City of Yuba City (Sutter County 1996, Walton, pers. comm., 2007).

The Sutter County Board of Supervisors established a Parks and Recreation Advisory Commission to provide advice on recreational planning, policy, and practice issues. The County Public Works Department provides staff assistance to the commission in coordination with other departments and prepares a monthly commission agenda (Sutter County 1996).

The County Public Works Department provides park maintenance, which is limited to mowing grass and repairing damaged facilities. In a quadrant with a park assessment boundary, park maintenance may be expanded to include replacement and/or purchase of new park equipment and the replacement and/or purchase of new vegetation when necessary (Sutter County 1996). The project site is not located within the boundaries of any specific County park quadrant (Walton, pers. comm., 2007).

Existing Recreational Facilities

The 1996 Sutter County General Plan listed nine county park facilities. Since the preparation of that plan, the county has lost close to 32 acres of parkland to Yuba City. In addition, the Tisdale Boat Ramp (with relatively small acreage) has since closed and is no longer operational. Currently, the Sutter County Public Works Department maintains 89.02 acres of recreation areas, consisting of Live Oak Park, Yuba City Boat Ramp, Boyd's Pump, Donahue Road Park, and the 61-acre Feather River Park (Mosquito Beach) (Walton, pers. comm., 2007). With 89.02 acres of parkland in the unincorporated portions of the county, an estimated population in unincorporated Sutter County in 2006 of 23,008, and a goal to achieve and maintain a standard of 10 acres of parkland per 1,000 population, the County has an existing ratio of 3.87 acres of parkland per 1,000 residents, only a portion of which are developed parks. In addition, the County does not expect park maintenance acreage to increase in the near future (Walton, pers. comm., 2007).

The County-maintained recreational facilities nearest to the project site are:

- ▶ Donahue Road Park, 11 miles northwest of the project site on the Sacramento River—provides primitive camping for up to 72 hours; and
- ▶ Boyd's Pump, 19 miles north of the project site on the Feather River—a boat ramp with paved parking (Sutter County 1996, 2007).

The privately owned recreational facilities nearest to the project site are:

- ▶ Rio Ramanza Marina, 1 mile west of the project site—marina, campground, and boat launch;
- ▶ Verona Village Resort, 3.25 miles west of the project site—marina, campground, bar, and restaurant;
- ▶ Rio La Paz Golf Club, 6.7 miles northwest of the project site—golf course; and
- ▶ Naco West Lake Minden, 7.3 miles north of the project site—recreational vehicle park.

Existing Open Space

The Sutter County Assessor's parcel data from 2004 identify close to 42,000 acres in Sutter County as open space, primarily in two areas: around the Sutter Bypass, which runs roughly north-south through the center of the county; and along the Feather River, which runs along the eastern county border (Sutter County 2004, data compiled by EDAW in 2007).

Although Sutter County Assessor's data depict open space areas in Sutter County in 2004, a comparison of past, present, and projected open space areas in Sutter County cannot be made with certainty for purposes of this EIR analysis. The County General Plan's open space map does not indicate land use acreages, and the County does not keep a detailed accounting of past, present, or projected countywide open space acreage and potential acreage loss

(Walton, pers. comm., 2007). Furthermore, the Sacramento Area Council of Governments (SACOG) does not specifically monitor open space acreages in the jurisdictions it covers. Although SACOG completed a study of open space in 2001, the data from this 2001 analysis are questionable because each jurisdiction has its own definition of open space (Hossack, pers. comm., 2005), and the projections for Sutter County in SACOG's Preferred Blueprint Scenario for year 2050 do not include open space acreage numbers (SACOG 2004).

Area Population Growth

According to the 1996 Sutter County General Plan Background Report:

Between 1980 and 1995, total Sutter County population grew from 52,246 to 74,932, a gain of 43.42 percent. Of this growth 4,871 persons or 21.47 percent of the total growth, resided in unincorporated Sutter County. From all indications, unincorporated Sutter County will continue to grow at a relatively slow but steady rate. This growth has the potential to impact the quality of life of Sutter County residents unless steps are taken to balance the demands of a growing population with the need to retain and protect the natural, cultural, and intangible aesthetic resources and environmental qualities which contribute to the quality of life. The County currently has a program which calls for the development of a parks and recreation master plan. It is anticipated that this plan will evaluate current recreational opportunities in Sutter County, and identify methods of improving and/or expanding these opportunities. (Sutter County 1996.)

According to the U.S. Census Bureau, Sutter County's population is estimated to have grown between 2000 and 2006 from 78,930 to 91,410—a gain of 15.81%. Distribution of this growth was not equal; the unincorporated county experienced an estimated net loss of 455 persons (a total population of 23,008) and incorporated Yuba City experienced increasing population gains (U.S. Census Bureau 2007).

The large population center nearest to the project site is the city of Sacramento, whose northern boundary is located 3.5 miles to the south of the project site. The intervening Natomas area has historically been devoted to agriculture but has seen rapid urban development replace much of this open space over the past 10 years. The North Natomas Community Plan area has converted from predominantly agriculture to a suburbanized setting. The area has a current population of 14,865 that is expected to grow to 45,040 by 2015 and 66,495 by 2025 (SACOG 2005).

Park Costs

Based on rough and preliminary estimates of required average service and staffing levels from the nearby cities of Woodland and Folsom, annual park maintenance services costs and gross annual recreation services costs were estimated for the proposed project.

Park maintenance services include maintenance of park facilities and upkeep of all parklands, including turf, irrigation, playgrounds, and lighting and sport facilities. Staff crews also clean restrooms and repair facilities damaged by vandalism. In addition, park maintenance service includes trail maintenance on publicly owned pedestrian and bike trails. The annual park maintenance services costs resulting from the proposed project are estimated to total nearly \$2.9 million. No offsetting revenues are assumed for park maintenance (see the Draft Urban Services Plan, which is included as Appendix F to the Specific Plan).

Recreation services encompass the coordination of recreational activities, leagues, programs, and special events through the park department or in partnership with local business, community groups, or volunteers. In Folsom and Woodland (identified as comparable cities in the Draft Urban Services Plan [included as Appendix F to the Specific Plan]), recreation services include programs for youth, adults, teens, and special interests. Both cities also provide program revenue-generating services in the form of concession sales and facility rental. In addition, Folsom operates a batting cage, whereas Woodland organizes camp activities. Folsom and Woodland recreation program costs have an approximate average cost recovery ratio of 45%. Gross annual recreation services costs

resulting from implementation of the proposed project are estimated to total nearly \$2.2 million. It is preliminarily estimated that gross annual costs would be offset by 50% (nearly \$1.1 million), yielding net annual recreation services costs of nearly \$1.1 million.

3.14.3. IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

Analysis provided in this section is based on information obtained from the Sutter County General Plan, the County of Sutter General Plan 2015: Background Report (Sutter County 1996), Sutter County Assessor's Parcel data (Sutter County 2004), the Administrative Draft Sutter Pointe Specific Plan (Sutter County 2008), and the Sutter Pointe Urban Services Plan Draft Memorandum (Measure M Group 2006). Existing recreational facilities were compared with the relevant Urban Services Plan analysis to determine whether the proposed facilities would be adequate to meet the demand created by the proposed project.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A parks and open space impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- ▶ include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Although CEQA is concerned only with physical environmental effects resulting from construction related to the provision and use of parks and other recreational facilities, the County in preparing this DEIR has included, for purposes of full disclosure, a discussion of how well the project would meet service standards or other performance objectives even though a lack of compliance with service standards would not result in a physical impact on the environment. The physical environmental impacts associated with construction of recreational facilities are evaluated in Sections 3.1 through 3.17 of this DEIR. Thus, the County's analysis of how well the project would meet service standards or other performance objectives not tied to physical environmental impacts goes beyond the minimum informational purpose and requirements of CEQA.

This analysis examines the impacts that would occur with development of the 7,528-acre specific plan area. Because the off-site program elements and force mains would not include any increase in population, no direct or indirect park and recreation impacts would occur related to these project components, and therefore the off-site elements are not considered in the analysis in this section.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.14-1 *Sufficiency of Project Site Parkland to Meet Increased Demand. The proposed project provides 6.14 acres per 1,000 residents of developed parks, which exceeds the Quimby Act maximum requirement of 5 acres per 1,000 residents. The total amount of parkland (including greenbelts, pedestrian and bicycle trails, lakes, basins, a potential golf course, and other similar amenities) proposed is 18.7 acres per 1,000 residents, which exceeds the County policy of striving to achieve and maintain a standard of 10 acres of total parkland per 1,000 residents. Construction of the developed parks and other parkland areas may result in an adverse physical impact on the environment.*

The Specific Plan population is estimated to be 46,818 persons at project buildout. This estimate is based on the various projected household sizes, which are expected to range from 2.3 residents per unit in high density and mixed-use units, to 2.77 residents per unit in medium density units, to 2.93 residents per unit in low density units.

However, the proposed project also includes 3,000 units of senior housing. The average household size in senior housing units is 1.8 persons per household. For the purposes of park demand estimation, these 3,000 units of senior housing have been allocated proportionally across the different residential land use categories (low, medium, and high density, and mixed-use), resulting in a lower estimated population of 44,192 at project buildout.

The Quimby Act sets a maximum park dedication standard of 5 acres per 1,000 residents. A total of 271.5 acres of developed parks for active recreation are proposed within the project site. This would result in 5.8 acres of developed parks per 1,000 residents at buildout (or 6.14 acres per 1,000 residents assuming the 3,000 senior housing units). Developed parks for active recreation would consist of 96.8 acres of regional parks, 101.7 acres of community parks, and 73 acres of neighborhood parks. Regional parks are intended to provide a variety of facilities and amenities that would serve all residents within the area and that would accommodate active recreation on sport specific fields, including baseball and soccer fields. These facilities could support organized league play with lighted fields and permanent seating facilities and areas for unstructured free play. Regional parks would also provide parking and restroom facilities. Community parks are intended to provide many of the same amenities as regional parks, but at a smaller scale to serve the local community. Neighborhood parks would be developed to serve the active recreational needs of the community at an even more localized level than community parks. Wherever possible, neighborhood parks are co-located adjacent to schools in order to maximize opportunity for joint use of school and park facilities consistent with General Plan Policy 3.H-6. Neighborhood parks may include such facilities as hard courts for basketball and other sports, play structures, and leveled ball fields either through joint use arrangements with the school district or as stand-alone facilities.

Sutter County's General Plan Policy 5.A-2 states that the County shall strive to achieve a standard of 10 acres per 1,000 residents and that this target ratio should be further divided according to standards to be set forth in the County's park and recreation master plan. However, a park and recreation master plan has not yet been adopted to further refine the General Plan's target standard. The County's existing level of service is approximately 3.87 acres of parkland per 1,000 residents, only a portion of which are developed parks. The applicant is proposing an amendment to the Sutter County General Plan to allow the parkland standards within the project area to be defined in the Sutter Pointe Specific Plan. The Sutter Pointe Specific Plan contains policy language that requires a minimum of 5 acres per 1,000 residents of developed parks for active use and a minimum of an additional 5 acres per 1,000 residents of parkland and open space for active and passive use. The policy language and the parks and open space chapter within the Sutter Pointe Specific Plan function as a refinement to the existing County policy by defining specific park standards for the Specific Plan area that would meet the needs of the new community. In addition to the developed parks discussed above, the Specific Plan proposes approximately 555 acres of parkland and open space for active and passive recreation. These additional parkland and open space areas would consist of trails, lakes, greenbelts, multi-use drainage basins, and a potential golf course area. The additional parkland and

open space areas contribute to the proposed project's overall recreational amenities and compliment the developed park acreage provided by the proposed project as discussed above.

Because the developed park acreage in the proposed project exceeds both the County's existing level of service and the Quimby Act maximum of 5 acres per 1,000 residents and because the additional parkland and open space amenities exceed the acreage required to meet the County's overall target of 10 acres per 1,000 residents for all parkland in a manner consistent with the NRPA recommended guidelines, impacts would be **less-than-significant**. Construction of proposed parkland may result in adverse physical impacts on the environment. Those indirect impacts would occur on the project site and are evaluated in Sections 3.1 through 3.17 of this DEIR.

Table 3.14-1 Proposed Parkland and Parkland Demand for the Proposed Project	
Parkland Demand	Proposed Parkland (acres)
Projected population	46,818 or 44,192
Developed Parks - Community, and Neighborhood Parks	271.5
Additional Parkland – Open Space, Trails, Multi-use Drainage Basins, Lakes, Greenbelts	554.8
Total Parkland	826.3
Acres of parkland required to meet County goal of 10 acres of parkland per 1,000 residents	468 or 442
Acres of parkland required to meet maximum Quimby Act standard	234 or 221
Source: Sutter County 1996; Martinez and Shattuck, pers. comm., 2008; data compiled by EDAW in 2008.	

Mitigation Measures

No mitigation measures are required.

IMPACT 3.14-2 Increased Use and Potential Physical Deterioration of Existing Off-Site Local or Regional Park Facilities. *Project implementation would result in a large number of new residents, which would increase the use and cause the potential physical deterioration of existing off-site local and regional park facilities.*

At full project buildout, the proposed project would result in 44,192 to 46,818 new residents in Sutter County. This represents a substantial population increase. In addition to the on-site facilities, the new residents would also be expected to use existing off-site recreational opportunities and facilities such as bicycle trails, campgrounds, boat launch facilities, and sports parks. Although it cannot be fully ascertained with any degree of certainty exactly how many residents and with what frequency would choose to use off-site recreational facilities, for purpose of this analysis, it is assumed that revenues from use charges and admission fees of these off-site facilities would increase along with increased usage, supporting increased maintenance. This **indirect** impact is **less than significant**. **No direct** impacts would occur.

Mitigation Measures

No mitigation measures are required.

Additional Detailed Analysis of On-Site Elements—Impacts and Mitigation Measures

IMPACT 3.14-3 Sufficiency of Project Site Parkland to Meet Increased Demand. *The proposed Phase 1 and Phase A development areas may fall short of the maximum Quimby Act standard of 5 acres per 1,000 residents for developed parks and the County’s goal of 10 acres per 1,000 residents of overall parkland, depending on the mix of age-restricted units in Phase 1.*

The Phase 1 and Phase A population is estimated to be 21,621 persons at buildout. This estimate is based on the various projected household sizes, ranging from 2.3 residents per unit in high density and mixed-use units, to 2.77 residents per unit in medium density units, to 2.93 residents per unit in low density units. An estimated population of 21,621 would require 108 acres of developed parks to meet the maximum Quimby Act requirement of 5 acres per 1,000 residents and 216 acres of overall parkland to achieve the County’s General Plan goal of 10 acres of parkland per 1,000 residents.

However, the proposed project includes 3,000 units of senior housing. Based on the proportion of the total units that are part of Phase 1 and Phase A, 1,332 senior units could be constructed during the first project phase. The average household size in senior housing units is 1.8 persons per household. For the purposes of park demand estimation, these 1,332 units of senior housing have been allocated proportionally across the different residential land use categories (low, medium, and high density, and mixed-use), resulting in a lower estimated population of 19,485 at buildout of Phase 1 and Phase A. Under this estimate, 97.5 acres of developed parks would be needed to meet the maximum Quimby Act standard and 195 acres of overall parkland would be required to meet the County’s park dedication goal (Table 3.14-2).

A total of 99.4 acres of developed parks are designated on the project site in Phase 1 and Phase A. In addition, 115.8 acres of other parkland and open space for active and passive recreation is designated in Phase 1 and Phase A. This additional parkland would consist of trails, greenbelts, and multi-use drainage basins.

Table 3.14-2 Proposed Parkland and Parkland Demand for the Proposed Phase 1 and Phase A Development Areas	
Parkland Demand	Proposed Parkland (acres)
Projected population	19,485 or 21,621
Developed Parks - Community, and Neighborhood Parks	99.4
Additional Parkland – Open Space, Trails, Multi-use Drainage Basins, Greenbelts	115.8
Total Acres of Proposed Parkland	215.2
Acres of parkland required to meet County goal of 10 acres of parkland per 1,000 residents	195 or 216
Acres of parkland required to meet maximum Quimby Act standard	97.5 or 108
Source: Sutter County 1996; Martinez and Shattuck, pers. comm., 2008; data compiled by EDAW in 2008	

The currently proposed 99.4 acres of parks in the Phase 1 and Phase A area would result in approximately 4.60 to 5.10 acres of developed parks per 1,000 residents, depending on how senior households are treated in the population estimate. With senior households included in the population estimate, this total is higher than the state maximum requirement, although it falls slightly below the standard if senior housing is not included. The same is true for overall parkland acreage. Because the proposed project, depending on the mix of age-restricted units, potentially falls short of the maximum State requirement for developed parks and the overall parkland goal set by the Sutter County General Plan, this **direct** impact is potentially **significant**. Construction of proposed parkland may result in adverse physical impacts on the environment. Those indirect impacts would occur on the project site and are evaluated in Sections 3.1 through 3.17 of this DEIR.

Mitigation Measure 3.14-3: Require Compliance with the Parkland Standards through a Combination of Parkland Dedication and the Payment of In-lieu Fees.

To achieve a park dedication goal of 5 acres of parkland per 1,000 residents, a condition of approval shall be required of future subdivisions that include residential lands that shall require compliance with parkland standards set forth in the Sutter Pointe Specific Plan by either providing sufficient parkland to meet the standards or in combination with payment of in-lieu fees to cover the deficiency between parkland provided by the development and the standard.

- Implementation:** Project applicant(s).
- Timing:** Prior to submission of the first tentative maps
- Enforcement:** Sutter County Community Services Department.

Significance after Mitigation

Phase 1 and Phase A of the proposed project potentially fall short of the maximum Quimby Act requirement and the target established by Sutter County General Plan Policy 5.A-2, depending on the mix of age-restricted units. Implementation of Mitigation Measure 3.14-3 would reduce potential impacts associated with the provision of adequate park space to a **less-than-significant** level by providing adequate parkland to meet standards throughout development or ensuring that adequate funds are being collected with development to acquire the necessary parkland.

IMPACT 3.14-4 Increased Use and Potential Deterioration of Existing Off-Site Local or Regional Park Facilities. *Phase 1 and Phase A would result in a large number of new residents, which would increase the use of and cause the potential deterioration of existing off-site local and regional park facilities.*

Development of the Phase 1 area would result in approximately 21,621 new residents in Sutter County. In addition to on-site facilities, the new residents would also be expected to use existing off-site recreational opportunities such as bicycle trails, campgrounds, boat launch facilities, and sports parks in addition to facilities provided by the proposed project. While it cannot be ascertained with any degree of certainty exactly how many residents would choose to use off-site recreational facilities, or their frequency of use, for purpose of this analysis, it is assumed that revenues from use charges and admission fees of these off-site facilities would increase along with increased usage, supporting increased maintenance. This **indirect** impact is **less than significant**. **No direct** impacts would occur.

Mitigation Measures

No mitigation measures are required.

3.14.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures listed above, implementation of the proposed project would not result in any residual significant impacts related to parks and recreation.

3.15 CULTURAL RESOURCES

This section presents an evaluation of the potential impacts on cultural resources that could result from implementation of the proposed project. This section is based primarily on identifications of cultural resources documented in *Cultural Resources Survey Report Sutter Pointe Specific Plan, Sutter County, California* (ECORP 2007). The results of these identifications and other smaller studies are summarized in the *Cultural Resources Inventory Report Sutter Pointe Specific Plan EIR (Off-Site Infrastructure Improvements) Placer, Sacramento, Sutter, and Yolo Counties, California* (EDAW 2008). A complete list of studies and investigations related to this project is presented below in Table 3.15-1.

Cultural resources include buildings, sites, structures, objects, or districts that may have historical, architectural, archaeological, cultural, or scientific significance. Cultural resources may also include archaeological traces such as early Native American occupation sites and artifacts, or historic-era resources. These materials, along with prehistoric and historic human remains and associated grave goods, are protected under various federal and state statutes. The most inclusive of these are Section 106 of the National Historic Preservation Act and CEQA, both of which are described below. Fossils (the remains of prehistoric animals and plants) are addressed in Section 3.6, “Geology, Soils, and Paleontological Resources.”

3.15.1 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Section 106 of the National Historic Preservation Act—Overview

Federal approval will be required for the issuance of permits associated with the proposed project; therefore, cultural resources inventories, identification, and assessments of effects must be consistent with Section 106 of the National Historic Preservation Act of 1966. Under Section 106 implementing regulations (36 Code of Federal Regulations [CFR] Part 800, as amended in 1999), federal agencies are required to consider the effects of their actions, or those they fund or permit, on properties that may be eligible for listing or that are listed in the National Register of Historic Places (NRHP).

The NRHP is a register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. The regulations provided in 36 CFR Part 60.4 describe the criteria to evaluate cultural resources for inclusion in the NRHP. Cultural resources can be significant on the national, state, or local level. Properties may be listed in the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and they:

- (A) are associated with events that have made a significant contribution to the broad patterns of our history;
- (B) are associated with the lives of persons significant in our past;
- (C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- (D) have yielded, or may be likely to yield, information important in prehistory or history.

Section 106 Review Process

To determine whether a proposed undertaking could affect properties that might be eligible for NRHP listing, cultural resources (archaeological, historical, and architectural properties) must be identified, inventoried, and evaluated for listing in the NRHP. Although compliance with Section 106 is the responsibility of the lead federal

agency, others can undertake the work necessary for compliance. The Section 106 process would need to be completed by any federal agency issuing a permit for the proposed project, but it is not specifically required for CEQA compliance, which is discussed below under “State Plans, Policies, Regulations, and Laws.”

The Section 106 review process involves a four-step procedure:

- ▶ Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.
- ▶ Identify historic properties by determining the scope of efforts, identifying cultural resources, and evaluating their eligibility for inclusion in the NRHP.
- ▶ Assess adverse effects by applying the criteria of adverse effect on historic properties (resources that are eligible for inclusion in the NRHP).
- ▶ Resolve adverse effects by consulting with the State Historic Preservation Officer and other consulting agencies, including the Advisory Council on Historic Preservation if necessary, to develop an agreement that addresses the treatment of historic properties.

Rural Historic Landscapes

The rural historic landscape is one of the categories of property qualifying for listing in the NRHP as a historic site or district. For the purposes of the NRHP, a rural historic landscape is defined as a geographical area that historically has been used by people, or has been shaped or modified by human activity, occupancy, or intervention; and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features. Rural landscapes commonly reflect the day-to-day occupational activities of people engaged in traditional work such as mining, fishing, and various types of agriculture. Often they have developed and evolved in response to both the forces of nature and the pragmatic human need to make a living. Landscapes that are small and have no buildings or structures are classified as sites; an example would be an experimental orchard. Most rural historic landscapes, as typified by a ranch or farming community, are extensive in acreage and contain a number of buildings, sites, and structures. They are classified as historic districts. Large acreage and a proportionately small number of buildings and structures differentiate rural historic landscapes from other kinds of historic properties.

Distinct from designed landscapes, rural landscapes usually are not the work of a professional designer and have not been developed according to academic or professional design standards, theories, or philosophies of landscape architecture. These properties possess tangible features (called landscape characteristics) that have resulted from historic human use. In this way, they also differ from natural areas that embody important cultural values but have experienced little modification, such as sites having religious meaning for Native American groups.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

CEQA includes protection of cultural resources as an important component of its oversight and management policies. CEQA states that if a proposed project would result in an impact that might cause a substantial adverse change in the significance of a cultural resource (termed a “historical resource”), then an EIR must be prepared and mitigation measures and alternatives must be considered. A “substantial adverse change” in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (CEQA Section 15064.5[b][1]). Because only significant cultural resources need to be addressed, the significance of cultural resources must be determined before mitigation measures need to be developed.

CEQA Section 5024.1 (California Public Resources Code Section 5024.1) and Section 15064.5 of the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064.5) define a historical resource as “a

resource listed or eligible for listing on the California Register of Historical Resources.” A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR) if it:

- (1) is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- (2) is associated with the lives of persons important to our past;
- (3) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) has yielded, or may be likely to yield, information important in prehistory or history.

CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource as above, and “unique archaeological resources.” Under CEQA (Public Resources Code Section 21083.2[g]), an archaeological resource is considered “unique” if it:

- ▶ contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information,
- ▶ has a special and particular quality such as being the oldest of its type or the best available example of its type, or
- ▶ is directly associated with a scientifically recognized important prehistoric or historic event or person.

The State CEQA Guidelines (14 CCR Section 15064.5[c]) also provide specific guidance on the treatment of archaeological resources, depending on whether they meet the definition of a historical resource or a unique resource. If the site meets the definition of a unique archaeological resource, it must be treated in accordance with the provisions of Section 21083.2.

In addition, excavation must be stopped whenever human remains are uncovered, and the county coroner must be called in to assess the remains (14 CCR Section 15064.5[e]). If the county coroner determines that the remains are those of a Native American, the Native American Heritage Commission (NAHC) must be contacted within 24 hours, and the provisions for treating or disposing of the remains and any associated grave goods as described in CCR Section 15064.5 must be followed.

The steps normally taken in a cultural resources investigation for CEQA compliance are as follows:

- ▶ identify cultural resources,
- ▶ evaluate the significance of the resources,
- ▶ evaluate the effects of a project on all cultural resources, and
- ▶ develop and implement measures to mitigate the effects of the project on significant resources.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Although the 7,528-acre project site is located completely within Sutter County, off-site improvements extend east into Placer County and south into Sacramento County. Therefore, for various portions of the project site, the following regional and local plans, policies, regulations, and ordinances are applicable.

Sutter County

The following policies from the Sutter County General Plan (Sutter County 1996) regarding cultural resources are applicable to the proposed project.

- ▶ **Policy 5.B-1:** The County shall encourage the preservation of historic sites, buildings, structures, and objects in addition to points of historical interest as identified in the Background Report.
- ▶ **Policy 5.B-2:** The County should promote the registration of historic sites, buildings, structures and objects in the National Register of Historic Places, and inclusion in the California State Office of Historic Preservation's California Points of Interest and California Inventory of Historic Resources.
- ▶ **Policy 5.B-3:** The County shall solicit the views of the local Native American community in the cases where development may result in disturbance to sites containing evidence of Native American activity and/or tomb sites of cultural importance.

Placer County

The following goal and policies from the Placer County General Plan (Placer County 1994) regarding cultural resources are applicable to the proposed project.

- ▶ **GOAL 5.D:** To identify, protect, and enhance Placer County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.
 - **Policy 5.D.2:** The County shall solicit the cooperation of the owners of cultural and paleontological resources, encourage those owners to treat these resources as assets rather than liabilities, and encourage the support of the general public for the preservation and enhancement of these resources.
 - **Policy 5.D.3:** The County shall solicit the views of the Native American Heritage Commission and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.
 - **Policy 5.D.6:** The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a countywide cultural resource data base, to be maintained by the Department of Museums.
 - **Policy 5.D.7:** The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending upon the type of resource in question.

Sacramento County

The following objective and policies from the Sacramento County General Plan (Sacramento County 1993) regarding cultural resources are applicable to the proposed project.

Objective: Comprehensive knowledge of archeological and historic site locations.

- ▶ **Policy CO-155:** Utilize the California Archaeological and Sacramento History and Science Division to assist in determining need for survey.
- ▶ **Policy CO-156:** Refer projects with identified archaeological and cultural resources to the Cultural Resources Committee to determine significance of resource and recommend appropriate means of protection and mitigation. The Committee shall coordinate with the Native American Heritage Commission in developing recommendations.

- ▶ **Policy CO-158:** Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain *in situ*. Excavation and reburial shall occur when in situ preservation is not possible or when the archaeological significance of the site merits excavation and recording procedure. On-site re-interment shall have priority. The project developer shall provide the burden of proof that off-site re-interment is the only feasible alternative. Re-interment shall be the responsibility of local tribal representatives.
- ▶ **Policy CO-159:** The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.
- ▶ **Policy CO-160:** Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.
- ▶ **Policy CO-161:** As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.
- ▶ **Policy CO-162:** As a condition of approval for discretionary projects which are in areas of cultural resource sensitivity, the following procedure shall be included to cover the potential discovery of archaeological resources during development or construction:

Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work shall be suspended and the Sacramento County Department of Environmental Review and Assessment shall be immediately notified. At that time, the Department of Environmental Review and Assessment will coordinate any necessary investigation of the site with appropriate specialists, as needed. The project proponent shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

3.15.2 ENVIRONMENTAL SETTING

CULTURAL SETTING

Native American and Euro-American peoples have inhabited or at least traveled through the present-day Sutter County–Sacramento County region for at least 10,000 years. This long record of occupation and activity in the area has left numerous prehistoric and historic-era remains on the landscape, including scattered artifacts, human interments, buildings, structures, and in some cases, heavily altered landscapes. The following archaeological and historical review is presented to place this human occupation and its associated sites, features, and artifacts within a broader cultural setting.

Prehistoric Context

The Central Valley region of California was one of the most densely populated areas in North America during prehistoric times. Summaries and overviews of the prehistory of the vicinity can be found in *California Archaeology* (Moratto 1984) and *Summary of the Prehistory of the Lower Sacramento Valley and Adjacent Mountains* (Johnson 1982). A more detailed discussion of the broad cultural patterns postulated for Central California can be found in Bennyhoff and Fredrickson (1969).

Early work conducted by researchers at then-Sacramento Junior College and the University of California, Berkeley, resulted in the development of the Central California Taxonomic System and a tripartite classification scheme (Early, Middle, and Late Periods). Although these broad temporal periods have been further subdivided (Bennyhoff and Hughes 1987), they are briefly described below.

Early Horizon (Windmiller Pattern, ca. 4500–2500 years Before Present [BP]) sites are characterized by extended burials oriented to the west, specialized grave goods, baked clay balls, charmstones, and exotic lithic materials. Year-round settlements with seasonal forays into the foothills resulted in the acquisition of a varied subsistence resource base that was dominated by fish and acorns. However, archaeological evidence shows heavy exploitation of elk, deer, antelope, rabbits, waterfowl, and numerous additional floral and faunal species.

Middle Horizon (Berkeley Pattern, ca. 2500–1500 BP) artifact assemblages show a dramatic increase in the use of mortars and pestles, possibly related to an expanded reliance on acorn as a staple food resource. At sites dated to this period, flexed burials with various orientations are common, as are specialized bone tools, numerous distinctive shell beads and ornaments, and stone tools unique to the period.

Late Horizon (Augustine Pattern, ca. 1400–200 BP) cultural manifestations are distinguished by the presence of shaped mortars and pestles, the use of bow and arrow technology, and the introduction of the harpoon, particularly during early phases of this period. Bone awls are common, there is an increased usage of shell for decorative items, and ground stone artifacts such as tubular pipes and charmstones are commonly encountered. Mortuary practices can be highly variable and include preinterment pit burning, cremations, and flex burials (Bennyhoff and Fredrickson 1969).

ETHNOGRAPHIC SETTING

The project site is located within the area occupied and used by the Nisenan, or Southern Maidu. The language of the Nisenan, which includes several dialects, is classified within the Maiduan family of the Penutian linguistic stock (Kroeber 1925, Shipley 1978). The western boundary of Nisenan territory was the western bank of the Sacramento River. The eastern boundary was “the line in the Sierra Nevada mountains where the snow lay on the ground all winter” (Littlejohn 1928).

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Wilson and Towne (1978) indicate that village size ranged from three houses to 40 or 50 houses. During expeditions in 1833, fur trader John Work (Maloney 1944) indicated that these villages along the Sacramento River were composed of up to 200 individuals. Houses were domed structures covered with earth and tule or grass and they measured approximately 10–15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule or brush and had a central smoke hole at the top and an east-facing entrance. Another common village structure was a granary, which was used for storing acorns (Wilson and Towne 1978). Three Nisenan villages, *Wishuna*, *Totola*, and *Pusune*, were located east of the Sacramento River in the vicinity of the project site (Wilson and Towne 1978).

John Work’s California Expedition passed through this area in 1833. His record from August 1833 provides insight into the depopulation of the Sacramento Valley villages caused by disease, which afflicted the natives throughout the interior valley (Maloney 1944):

...The villages which were so populous and swarming with inhabitants when we passed that way in Jary [January] or Febry [February] last seem now almost deserted & have a desolate appearance. The few wretched Indians who remain seem wretched they are lying apparently scarcely able to move, it is not starvation as they have considerable quantities of their winter stock of acorns still remaining. We are

unable to learn the malady or its cause. I have given the people orders to avoid approaching the villages lest it be infectious.

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna that the rich valley environment provided. The Valley Nisenan economy involved riparian resources, in contrast to that of the Hill Nisenan, whose resource base consisted primarily of acorns and game. The only domestic plant was native tobacco (*Nicotiana* sp.), but many wild species were closely husbanded. The acorn crop from the blue oak (*Quercus douglasii*) and black oak (*Q. kelloggii*) was so carefully managed that its management served as the equivalent of agriculture. Acorns could be stored in anticipation of winter shortfalls. Elk, antelope, deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many insect and other animal species were taken when available.

HISTORIC SETTING

Early Settlement

Beginning in the late 1700s, the Spanish made forays into the Central Valley south of Sacramento; however, it was not until 1808 that Captain Gabriel Moraga explored the Sacramento area. Another expedition, led by Father Narciso Duñán and accompanied by Spanish explorer Lús Argüello, sailed up the Sacramento River to a point near the confluence with the Feather River. On a second voyage, Argüello named the Feather River and may have traveled as far north as Tehama County (Hoover et al. 1990).

Later in 1827, the trapper Jedediah Smith traveled along the Sacramento River and into the San Joaquin Valley. In 1832, John Work traveled south from Oregon to San Francisco, returning north in 1833.

Initially, part of Sutter's Mexican land grant of New Helvetia extended north from the confluence of the American and Sacramento Rivers into Sutter County, which was one of the 27 original counties established in California. Sutter built an adobe at the Hock Farm on the west side of the Feather River south of Yuba City in 1841, and it appears to be the first structure erected by a European settler in the county. He grazed approximately 5,000 head of cattle and 1,200 horses on the plains between the Sacramento and Feather Rivers. By the 1850s, three towns had been established: Yuba City, Vernon (the oldest town established north of Sacramento), and Nicolaus. Yuba City, the largest, became the county seat (Thompson and West 1879, cited in Peak 1997).

Farming and Ranching

Because of seasonal inundation, little settlement occurred in the basin of the American River in Sutter and north Sacramento Counties. Seasonal agriculture and cattle grazing were the primary industries during the historic period in the present-day Sacramento and Sutter County region. Regional ranching originated on the New Helvetia rancho in the early 1840s. The Gold Rush precipitated growth in agriculture and ranching, as ranchers and farmers realized handsome returns from supplying food and other goods to miners. Frequent floods, however, plagued the residents of the region and posed a significant threat to the viability of agricultural interests and further settlement.

Reclamation Projects

Initial efforts at flood control were generally uncoordinated and consisted of small levees and drains constructed by individual landowners. These efforts proved insufficient to protect cultivated land, and much of the Natomas area (a part of the larger American River Basin) flooded regularly (Dames & Moore 1994). In 1861, the California legislature created the State Board of Swampland Commissioners to oversee reclamation of swamp and overflow lands. The State Board of Swampland Commissioners established 32 districts that attempted to enclose large areas with natural levees. Lack of cooperation among the landowners in the districts led to chronic financial crises. When the legislature terminated the State Board of Swampland Commissioners in 1866, responsibility for swamp and overflow land fell to the individual counties. Many counties offered incentives to landowners for reclaiming

agriculturally unproductive land. If a landowner could certify that he had spent at least \$2 per acre in reclamation, the county would refund the purchase price of the property to the owner. Speculators took advantage of this program and a period of opportunistic and often-irrational levee building followed (McGowan 1961, Thompson 1958).

In the early part of the 20th century, the legislature established the California Reclamation Board (known today as the Central Valley Flood Protection Board) to exercise jurisdiction over reclamation districts and levee plans. During that time, the State of California approved and began implementation of the Sacramento River Flood Control Project (SRFCP). The ambitious project included the construction of levees, weirs, and bypasses along the river to channel floodwaters away from population centers. Under the SRFCP, new reclamation districts were created, including Reclamation District 1000 (RD 1000), which consisted of approximately 55,000 acres in the Natomas area. RD 1000 was largely controlled by the Natomas Company, which was formed in 1851 in Sacramento County to supply water for placer mining and irrigation. It later became involved in dredging for gold and expanded its water supply business, and still later became involved in land reclamation, in part as a rebuttal of criticism that farmland was being destroyed by the company's gold dredging activities (Dames & Moore 1994).

Reclamation District 1000 Rural Historic Landscape District

The infrastructure of RD 1000 was completed in the 1920s. It includes levees, drainage canals, pumps, irrigation systems, agricultural fields, and roads, as well as remnant natural features. The originally constructed features included levees and exterior drainage canals, an interior drainage canal system, nine pumping plants, a series of levee and interior roads, and unpaved rights-of-way between the farm fields.

Previous efforts to document and mitigate impacts on elements of RD 1000 are relevant to the proposed project. The RD 1000 area has been identified as eligible for inclusion in the NRHP as a Rural Historic Landscape District. The evaluation process was conducted both to determine the NRHP eligibility of the district and to evaluate whether the district would be substantially affected by flood control projects planned and subsequently implemented by the U.S. Army Corps of Engineers (USACE) as part of the American River Watershed Project (Dames & Moore 1994). The "determination of effects" statement concluded that the USACE projects would adversely affect both contributing and noncontributing elements of the Rural Historic Landscape District by allowing for greater development to occur in the region. Mitigation measures were recommended and adopted. These consisted of Historic American Engineering Record documentation, which was prepared by Peak & Associates (1997); videotapes of historic properties; and a list of repositories where copies of the information would be made available to the public.

Dames & Moore determined that RD 1000 appeared to be eligible for listing as a Rural Historic Landscape District at the state level of significance for the period from 1911 to 1939 under Criterion A. The area of significance was listed as reclamation and the historical context was listed as the flood control and reclamation of the Sacramento River basin within the SRFCP as an important part of the history of reclamation and flood control. The district retains much of its historic integrity: location design, setting, materials, workmanship, feeling, and association. The contributing and noncontributing elements of the district were defined as part of this effort. Contributing elements were described as follows:

- ▶ **Drainage System:** East Levee, River Levee, and Cross Canal Levee; Natomas East Main Drainage Canal; Cross Canal; Pleasant Grove Canal; Pumping Plants No. 1A, 2, and 3; the canal connecting Pumping Plant No. 3 and the West Drainage Canal, North Drainage Canal, East Drainage Canal, West Drainage Canal, Natomas Main Drainage Canal, and the drainage ditches within the areas of contributing large-scale land patterns.
- ▶ **Road System:** Garden Highway from Orchard Lane north to the Cross Canal; East Levee/Natomas Road; Sankey Road; Riego Road; Elverta Road; Elkhorn Boulevard from Garden Highway to the western boundary of the Sacramento International Airport (Airport); Del Paso Road from Powerline Road to its intersection

with Interstate 5 (I-5); San Juan Road from Garden Highway to its intersection with I-5; Powerline Road; El Centro Road from north of Interstate 80 (I-80) to its intersection with Bayou Way; and the right-of-way roads within fields in the areas of contributing large scale land patterns.

- **Large-Scale Land Patterns:** Land area that consists of open fields, formed by the intersection of the canals and roads in the area bounded as follows: west of the East Levee; west of Sorrento Road; north of Del Paso Road between the East Levee and I-5, west of I-5 from its intersection with Del Paso Road to its intersection with I-80; north of I-80 from its intersection with I-5 to the River Levee; east of the River Levee; and south of the Cross Canal Levee.

Noncontributing resources include parts of the drainage system (some pumping plants and associated branch canals); parts of the road system; some large-scale land patterns (the area bounded by Sorrento Road to the East Levee, south of Del Paso Road between I-5 and the East Levee, south of I-80, and the Airport); and some land uses, vegetation, boundary demarcations, buildings, and structures, such as those more closely associated with agriculture than reclamation, municipal structures, commercial structures, and electric power lines.

Transportation

Western Pacific Railroad

On November 1, 1909, less than 40 years after the completion of the first transcontinental railway, Leonardo Di Tomasso drove the final spike securing a rail to the bridge across Spanish Creek, completing the Western Pacific Railroad (Crump 1963). The railroad's route through the Feather River Canyon was first conceived by Ashbury Harpending in the 1860s, and it became the vision of Scottish surveyor Arthur Walter Keddie. His goal was to create a "second and highly competitive rail to the transcontinental," following the Feather River through Beckwourth Pass. Keddie "hoped to end California isolation and bring people unparalleled prosperity, cultural maturity, and social stability" (De Nevi 1978). Keddie staked the route through the canyon, but he did not capitalize on it until almost 30 years later when George J. Gould, the heir to railroad tycoon Jay Gould, lent his financial support.

Construction on this new railroad began in 1906, and the line was originally set to be ready for service by 1908. However, heavy storms in March 1907 slowed construction, but also showed the wisdom of the route compared to the Southern Pacific route through the Sierra Nevada, which encountered heavy snows, had twisting curves, and crossed Donner Pass at an elevation of more than 7,000 feet. The Feather River canyon route through Beckwourth Pass climbed only slightly over 5,000 feet, had gentle 1% grades, and had a maximum curvature of 10 (De Nevi 1978). These features caused the Western Pacific Railroad to be known as an "engineer's dream," and made the line quite prosperous after its completion late in 1909.

Despite the railroad's success, Gould lost control of it after his eastern railway extensions suffered heavy financial losses. The Western Pacific Railroad was sold at auction in 1916 (Crump 1963). During World War I, the United States Railway Administration took over and controlled the Western Pacific Railroad. After the Railway Administration returned control to its owners in 1920, a lawsuit was brought against the agency, claiming that it had damaged the railway. The lawsuit was won, and the owners used the \$9 million award to purchase the Sacramento Northern in 1921 (Crump 1963).

In 1924, Despite tremendous political turmoil and heavy competition with the Southern Pacific, "many historians have documented that during the last half of the 19th century self-interest led the land-grant railroads to advertise their territories, promote compact settlement by small farms, and stimulate agricultural diversity and stability" (De Nevi 1978:59). These tensions began to diminish when a 50-year agreement for joint usage of parallel tracks was completed by the Southern Pacific and the Western Pacific Railroad. Soon after this agreement, in 1926, Arthur Curtis James added the Western Pacific Railroad to his other railroad holdings, and he placed bids to extend the line into the Pacific Northwest. Despite these optimistic construction efforts, the railroad faced many financial difficulties (Crump 1963). Heavy traffic did not return until World War II. Soon after the war, Harry A.

Mitchell modernized the railroad, making track line improvements and increasing the use of diesel engines. The company's increased profitability made it sought after by other railroads, and a battle for control of the Western Pacific ensued (Crump 1963). Since Union Pacific's acquisition of the line in 1982, the Western Pacific Railroad has survived only as the Feather River Subdivision of Union Pacific's growing railroad empire (Western Pacific Historical Society 2007).

Sacramento Northern Railroad

First organized in 1913, the Oakland, Antioch, and Eastern Railway provided high-speed passenger service between San Francisco and Sacramento. The system was reorganized into the San Francisco–Sacramento Railroad in 1919 and was purchased by the Sacramento Northern Railroad in 1928, forming a route 184 miles long and extending service from Sacramento to Chico. The Sacramento Northern featured an electric train that crossed Suisun Bay via barge. To get across the Yolo Bypass, the train traveled on trestles, built upon large mounds, bridged by shorter trestle spans.

Passenger service was discontinued in 1940. In 1953, the Sacramento Northern's ferry (the Ramon), which had been used to transfer trains across Suisun Bay, was also retired (Bay Area Electric Railroad Association 2006) and the route north to Sacramento became a secondary line. The Yolo Shortline continues to operate on the route from Woodland to West Sacramento, while other segments have been taken over by Sacramento Regional Transit, Bay Area Rapid Transit, and the Western Railway Museum (Bay Area Electric Railroad Association 2006).

PREVIOUS RESEARCH

A review of previous research conducted within the project site consisted of a search of the files at the Northeast Information Center (NEIC) at California State University, Chico. The initial search was conducted in May 2005 and updated in October 2006 by ECORP Consulting, Inc. (ECORP). Additional research was also conducted by EDAW in 2007 at the North Central Information Center (NCIC) at California State University, Sacramento, and the Northwest Information Center (NWIC) at California State University, Sonoma. In addition to the atlases of previous studies, documented cultural resources, and historic maps, the following resources were also consulted:

- ▶ the National Register of Historic Places (National Park Service 1996, and computer updates 1966–2006),
- ▶ the California Register of Historical Resources (State of California 2004),
- ▶ *California Points of Historical Interest* (State of California 1992 and updates),
- ▶ *Historic Spots in California* (Hoover et al. 1990),
- ▶ *Directory of Properties in the Historical Resources Inventory* (State of California 1976 and updates),
- ▶ the Office of Historic Preservation's historic property data file (current computer list as of 2006),
- ▶ *California Place Names* (1969),
- ▶ *Survey of Surveys (Historical and Architectural Resources)* (1989 and updates),
- ▶ *Caltrans Local Bridge Survey* (1989),
- ▶ *Caltrans State Bridge Survey* (1987), and
- ▶ General Land Office plats and historic maps.

Previous Cultural Resources Investigations

Records searches conducted by the NEIC, NCIC, and NWIC indicate that a total of 232 cultural resources studies and evaluations have been conducted, both within the project site and for the off-site improvements. Table 3.15-1 presents these investigations and indicates the applicable project element(s). Five of these studies (EDAW 2008, ECORP 2007, Dames & Moore 1994, Bradley and Corbett 1996, and Peak 1997) have resulted in an intensive systematic inventory of approximately 90% of the 7,258-acre project site. All but a small portion (less than 10%) of the rights-of-way for off-site improvements and the proposed Sankey Spill Mitigation Area have been subjected to systematic intensive field inventory conducted by EDAW (2008). Surveyed and unsurveyed areas are shown in Exhibit 3.15-1.

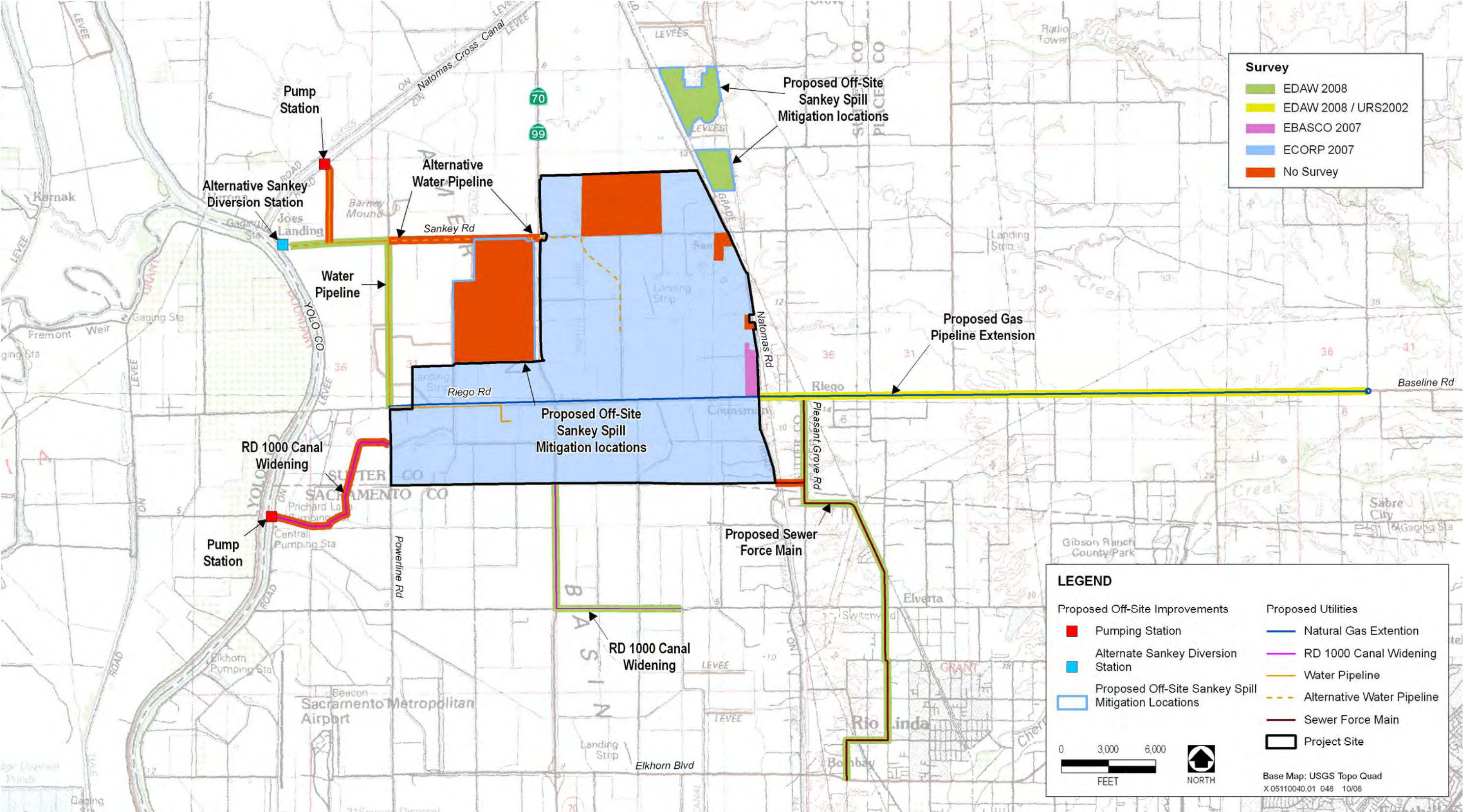
Table 3.15-1 Relevant Cultural Resources Studies					
Report No.	Report Title	Date	Author	Cultural Resources Documented	Location of Resources
–	<i>Cultural Resources Survey Report, Sutter Pointe Specific Plan, Sutter County, California</i>	2007	ECORP	EC-05-22, EC-05-23, EC-06-01, EC-06-73, EC-07-08, Bridge No. 18C0050	On-site
NCIC 4197	<i>Archaeological Inventory Report, Natomas Locality, Cultural Resources Inventory and Evaluation, American River Watershed Investigation, El Dorado Placer, Sacramento, and Sutter Counties, California</i>	1994	Dames & Moore	CA-SUT-85H	On-site
NEIC 7649	<i>Archaeological Survey Report to HPSR for Riego Road—Pacific Avenue Interchange, Sutter County, California</i>	2005	Jensen	None	On-site
NCIC 7955/ NWIC 6893	<i>Historic Property Survey Report for the State Route 99/Riego Road Interchange Project, Sutter and Sacramento Counties, California</i>	2005	Kaptain	P-51-000115	On-site
NWIC 5655	<i>Roseville Energy Facility Cultural Resources Appendix J-I of Application for Certification</i>	2002	Egherman and Hatoff	CA-SUT-85H (CA-SAC-463H)	On-site
NEIC 4658/ NCIC 3853	<i>Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project</i>	2000	Nelson, Carpenter, and Holanda	None	On-site
NCIC 4195	<i>Cultural Resources Report: North Natomas Comprehensive Drainage Plan; Levee Improvements, Canal Widening and Additional Pumping Capacity</i>	1998	Derr and Boghosian	P-34-886H	On-site
NEIC 6945	<i>An Archaeological Survey of the South Sutter Industrial Center Property, Sutter County, California</i>	1992	Foster and Foster	None	On-site
NEIC 7175	<i>A Cultural Resources Study for Sutter Bay Project, Highway 99/70 Interchange/Crossroad Improvements, Sutter County, California</i>	1992	Cultural Resources Unlimited	None	On-site
NCIC 3441	<i>Cultural Resources Survey of the Sacramento Power Project, Sacramento County, California</i>	1992a	Ebasco Environmental	None	On-site
NEIC 3141	<i>Cultural Resources Inventory Report for Two Borrow Sites in the North Natomas Area, Sacramento and Sutter Counties, California</i>	1997	Ashkar	None	On-site
NWIC 6944	<i>Cultural Resources Survey of the Sacramento Energy Project, Sacramento County, California</i>	1992b	Ebasco Environmental	None	On-site
NCIC 70/ NEIC 1135	<i>Negative Archeological Survey Report for the Expansion of State Route 99 Between Interstate 5 and Striplin Road, Sacramento and Sutter Counties</i>	1983	Bass	None	On-site
NCIC 4181	<i>Cultural Resources Overview for the North Natomas Long-Term Planning Area, Sacramento County, California</i>	1990a	Peak & Associates	RD 1000	On-site/ Off-site
NCIC 4203	<i>Biological and Cultural Resources Investigation of the Lennane 400 Acre Parcel, Sacramento County, California</i>	1988	Sanders and Syda	None	Off-site
NCIC 3469a	<i>Historic American Engineering Record: Reclamation District 1000. HAER No. CA-187</i>	1997	Peak	RD 1000	On-site/ Off-site

**Table 3.15-1
Relevant Cultural Resources Studies**

Report No.	Report Title	Date	Author	Cultural Resources Documented	Location of Resources
NCIC 5777	<i>Historic Property Treatment Plan for Reclamation District 1000 Rural Historic Landscape District for the Cultural Resources Inventory and Evaluations for the American River Watershed Investigation, Sacramento and Sutter Counties, California</i>	1996	Dames & Moore	RD 1000	On-site/ Off-site
—	<i>Cultural Resources Inventory Report Sutter Pointe Specific Plan EIR (Off-Site Infrastructure Improvements) Placer, Sacramento, and Sutter Counties, California</i>	2008	EDAW	WP-1, CA-PLA-946H, testing at EC-05-22 and EC-06-01	On-site/ Off-site
NCIC 1335	<i>Draft Historic Property Treatment Plan for Reclamation District 1000, Rural Historic Landscape District</i>	1994	Dames & Moore	RD 1000	On-site/Off-site
NCIC 388	<i>An Archaeological Survey and Assessment for the Willowbrook Ranch, Placer County, California</i>	1988	Fuller and Associates	None	Off-site
NCIC 396	<i>Cultural Resource Assessment of Sacramento Municipal Utility district's Project C, Phase I 230 kV Transmission Line, Tower No. 355, Placer County to Elverta Substation, Sacramento County, California</i>	1979	Peak & Associates	None	Off-site
NEIC 4180	<i>Cultural Resources Inventory and Evaluation for the Proposed NorthPointe Development, Sacramento County, California</i>	1990	Maniery and Heipel	None	Off-site
NCIC 2484	<i>Phase I Inventory and Overview of Cultural Resources, Placer Vineyards Specific Plan, Placer County, California</i>	2000	Windmiller et al.	None	Off-site
NCIC 3782	<i>Baseline/Fiddymont Property Assessment, Roseville, Placer County, California</i>	2001	Derr	None	Off-site
NCIC 5655	<i>Roseville Energy Facility Cultural Resources</i>	2002	URS	CA-PLA-946H	Off-site
NCIC 6571	<i>Placer Vineyards Specific Plan, Updated Cultural Resources Study, Placer County, California</i>	2005	Windmiller et al.	None	Off-site
NCIC 6698	<i>Archaeological Inventory Survey, Proposed Regional University Development Project, c. 2,200 acres near Roseville, Placer County, California</i>	2005	Foothill associates, Inc.	None	Off-site
NCIC 6894	<i>Determination of Eligibility and Effect for the Natomas Basin Habitat Preserve, Sutter County, California</i>	2005	Peak & Associates	None	Off-site
NCIC 7726	<i>Cultural Resources Survey Report, Sierra Vista Specific Plan, Placer County, California</i>	2006	EIP Associates	None	Off-site

Notes: NCIC = North Central Information Center; NEIC = Northeast Information Center; NWIC = Northwest Information Center; RD 1000 = Reclamation District 1000

Source: Records searches by ECORP in 2005 and 2006 at the Northeast Information Center at California State University, Chico; and by EDAW at the North Central Information Center at California State University, Sacramento, and the Northwest Information Center at California State University, Sonoma, in 2008



Source: EDAW 2008

Areas Surveyed for Cultural Resources

Exhibit 3.15-1

Native American Consultation

Native American consultation for the proposed project was conducted by ECORP (2007) and by EDAW (2008). A search of the Sacred Lands Files by the NAHC did not indicate the presence of Native American sacred sites or areas of concern within the project site, including the off-site improvements. Letters were also sent to the Native American groups and individuals based upon a list supplied by the NAHC. Of these groups and individuals, only the United Auburn Indian Community (UAIC) responded (EDAW 2008). The UAIC indicated that it is concerned about development within ancestral territory that has the potential to adversely affect sites and landscapes that may be of cultural or religious significance; however, the UAIC did not identify any potential conflicts between the proposed project and known areas of cultural or religious significance. The UAIC requested copies of project-related archaeological and environmental reports to review and comment on potential impacts on any identified Native American cultural resources.

IDENTIFIED CULTURAL RESOURCES AND NRHP/CRHR ASSESSMENTS

Previous research (EDAW 2008; ECORP 2007; Kaptain 2005; URS 2002; Derr and Boghosian 1998; Dames & Moore 1994, 1996; Bradley and Corbett 1996; Peak 1997; Eggherman and Hatoff 2002) has resulted in the documentation of 12 separate cultural resources sites and one rural historic landscape site, which are depicted by on-site and off-site project elements in Table 3.15-2. Three of these documented resources (P-34-886H, P-51-000115H, and CA-SUT-85H/CA-SAC-463H) are elements of RD 1000 and have subsequently been documented in the Historic American Engineering Record for RD 1000 (Peak 1997). Constituents of RD 1000 are present throughout the entire project site and vicinity, both on-site and off-site. Of the remaining resources, all but three are located within the 7,528-acre project site. The exceptions are a segment of the Western Pacific Railroad (SP-1), which is located within the right-of-way of the off-site sewer force main; the route of the Sacramento Northern Railroad (CA-PLA-946H), which bisects the proposed gas transmission line within the Riego Road/Baseline Road right-of-way; and Elkhorn Boulevard (P-34-886H), which bisects the proposed off-site infrastructure elements. All of the previously documented resources were revisited by EDAW in 2007.

Table 3.15-2 Cultural Resources on the Project Site and in the Vicinity				
CHRIS Resource No.	Resource Name	Temporal Association	Reference(s)	CRHR/NRHP Significance
Project Site				
—	RD 1000	Historic	Dames & Moore (1996), Peak (1997)	Eligible under Criterion A of the NRHP and Criterion 1 of the CRHR
P-51-000115H	Segment of Riego Road and East Drainage Canal	Historic	Kaptain (2005), ECORP (2007)	Noncontributing elements of RD 1000
CA-SUT-85H/CA-SAC-463H	RD 1000 east levee	Historic	Dames & Moore (1994), Eggherman and Hatoff (2002)	Noncontributing element of RD 1000
Bridge No. 18C0050	North Drainage Canal bridge	Historic	Caltrans (2006)	Not eligible
CA-SUT-80H	Historic refuse	Historic	Davy (1992)	Not eligible
EC-05-22	Farm complex	Historic	ECORP (2007), EDAW (2008)	Not eligible
EC-05-23	Barns	Historic	ECORP (2007)	Pending completion of evaluation
EC-06-01	Concrete foundation	Historic	ECORP (2007), EDAW (2008)	Not eligible

**Table 3.15-2
Cultural Resources on the Project Site and in the Vicinity**

CHRIS Resource No.	Resource Name	Temporal Association	Reference(s)	CRHR/NRHP Significance
EC-06-73	Rice and storage facility	Historic	ECORP (2007)	Pending completion of evaluation
EC-07-08	House, garage, and barn	Historic	ECORP (2007)	Pending completion of explanation
Off-Site Improvements				
—	RD 1000	Historic	Dames & Moore (1996), Peak (1997)	Eligible under Criterion A of the NRHP and Criterion 1 of the CRHR
CA-PLA-946H	Sacramento Northern Railroad	Historic	URS (2002), EDAW (2008)	Not eligible
P-34-886H	Elkhorn Boulevard	Historic	Derr and Boghosian (1998)	Contributing element of RD 1000
SP-1	Western Pacific Railroad	Historic	EDAW (2008)	Not eligible
Notes: CHRIS = California Historical Resources Information System; CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places; RD 1000 = Reclamation District 1000				
Sources: California Historic Resource Information System, ECORP Consulting, and EDAW 2008: compiled by EDAW 2008				

Evidence of the structures/buildings or roads indicated on historic-era maps were not located during any of these studies. ECORP identified five previously unidentified cultural resources within the project site. Based on these results, ECORP recommended that the NRHP/CRHR assessment of eligibility/significance be postponed pending the results of archival research and/or subsurface testing. At the request of EDAW, Solano Archaeological Services performed subsurface testing at sites EC-05-22 and EC-06-01 in June 2008. With the exception of contemporary refuse, no cultural materials reflecting historic use at either site were observed. Based on this information, neither site was recommended eligible for inclusion in the NRHP or the CRHR.

EDAW archeologists revisited one of the previously documented cultural resources (P-34-886H) and found that it had not changed in terms of condition and overall integrity since the initial recording in 1998. No features or other associated elements that may qualify the resources as eligible were observed. Ditches associated with RD 1000 are located within and near the project site. These ditches are currently in use and were not further recorded by EDAW. No previously undocumented prehistoric or historic-era archaeological sites, features, or artifacts were noted during the 2008 EDAW survey. A deposit of historic refuse (CA-SUT-80H) and a segment of the route of the Sacramento Northern Railroad (CA-PLA-946H) were found to be not eligible/not significant for inclusion in the NRHP or the CRHR. The following provides a brief description of these resources and assessments of eligibility/significance.

Documented Cultural Resources Identified within the Project Site

Reclamation District 1000

RD 1000 has been previously evaluated as a Rural Historic Landscape District on behalf of USACE's Sacramento District, and was found eligible for NRHP and CRHR listing (Dames & Moore 1994). The resource consists of canals, drainage ditches, roads, pumps, fields, and other features within a 87-square-mile area bounded by the Sacramento River on the west and south, the Natomas Cross Canal on the north, and the Natomas East Main Drainage Canal on the east and south.

Dames & Moore (1994) determined that RD 1000 appears to be eligible for listing as a Rural Historic Landscape District at the state level of significance for the period from 1911 to 1939 under Criterion A of the NRHP and Criterion 1 of the CRHR. The area of significance is listed as reclamation and the historical context is listed as the flood control and reclamation of the Sacramento River basin within the SRFCP as an important part of the history of reclamation and flood control. Specifically, the district was part of a regional reclamation plan that resulted in the social, economic, and physical transformation from the original floodplain to a distinctly different open rural landscape consisting of levees, canals, and roads intersecting to form large open blocks of fields (Dames & Moore 1994, 1996; Peak 1997; Peak & Associates 2005). The district retains much of its historic integrity, including location design, setting, materials, workmanship, feeling, and association. The contributing and noncontributing elements of the district were defined as part of this effort. Contributing elements were described as follows:

- ▶ **Drainage System:** East Levee, River Levee, and Cross Canal Levee; Natomas East Main Drainage Canal; Cross Canal; Pleasant Grove Canal; Pumping Plants No. 1A, 2, and 3; and the drainage ditches within the areas of contributing large-scale land patterns.
- ▶ **Road System:** Garden Highway from Orchard Lane north to the Cross Canal; East Levee/Natomas Road; Sankey Road; Riego Road; Elverta Road; Elkhorn Boulevard from Garden Highway to the western boundary of the Airport; Del Paso Road from Powerline Road to its intersection with I-5; San Juan Road from Garden Highway to its intersection with I-5; Powerline Road; El Centro Road from north of I-80 to its intersection with Bayou Way; and the right-of-way roads within fields in the areas of contributing large-scale land patterns.
- ▶ **Large-Scale Land Patterns:** Land area that comprises open fields formed by the intersection of the canals and roads in the area bounded as follows: west of the East Levee; west of Sorrento Road; north of Del Paso Road between the East Levee and I-5, west of I-5 from its intersection with Del Paso Road to its intersection with I-80; north of I-80 from its intersection with I-5 to the River Levee; east of the River Levee; and south of the Cross Canal Levee.

Noncontributing resources include parts of the drainage system (some pumping plants and associated branch canals); parts of the road system, some large-scale land patterns (the area bounded by Sorrento Road to the east levee, south of Del Paso Road between I-5 and the east levee, south of I-80, and the Airport); and some land uses, vegetation, boundary demarcations, buildings, and structures such as those more closely associated with agriculture than reclamation, municipal structures, commercial structures, and electric power lines.

Specifically, within the project's on-site elements, contributing elements of RD 1000 consist of Riego Road, Sankey Road, Pacific Avenue, the North Main Canal, the levee of the Natomas East Main Drainage Canal, and large-scale land patterns containing small ditches and unpaved roads that serve as rights-of-way.

In the historic property treatment plan (HPTP), Dames & Moore (1994) outlined a series of mitigation measures that should be implemented to mitigate future impacts on RD 1000:

- ▶ preparation of Historic American Engineering Record (HAER) documentation,
- ▶ preparation of a 30-minute video presenting the history and significance of RD 1000 in the context of the regional reclamation and flood control history of California, and
- ▶ distribution of documentation and information to local and regional libraries and interested organizations, the Sacramento Archives and Museum Collection, the California Collection of the California State Library, local schools within RD 1000, RD 1000 itself, the Natomas Central Mutual Water Company, and the Natomas Community Association.

The district was subjected to HAER documentation (Peak & Associates 1997). Staff members from the state Office of Historic Preservation subsequently indicated that they did not believe further documentation of the

district features was necessary for mitigation of impacts from future projects (Peak & Associates 2000:16). Patti Johnson, an archaeologist with USACE, indicated in a personal communication that USACE was satisfied that all mitigation proposed in the HPTP had been accomplished in a timely manner, and that no further effort or mitigation was required (Peak & Associates 2005:19). Dan Bell, pers. comm., 2008, indicated that the State Historic Preservation Officer has concurred with the mitigation measures proposed by Dames & Moore (1996) for the American River project, including future development that may affect contributing elements of the district.

Bridge No. 18C0050/North Drainage Canal Bridge

The North Drainage Canal Bridge is located on Riego Road at a point where the North Drainage Canal crosses the road. The bridge was built in 1938 and was modified in 1975. It has been evaluated by the California Department of Transportation (Caltrans) and determined to be not eligible for listing in the NRHP/CRHR (Caltrans 2006 in ECORP 2007:20).

Site P-51-000115H

This resource consists of a segment of Riego Road and the East Drainage Canal, a constituent of RD 1000. Riego Road was constructed as part of RD 1000's original road network. Kaptain (2005) evaluated a 2,400-foot-long segment of the road and 300-foot-long segment of the canal. Both of these segments are in the vicinity of State Route (SR) 99/70 and Riego Road. Kaptain concluded that as a result of the conversion of SR 99/70 from a two-lane road to a divided four-lane highway, the segments retain only integrity of location, and they no longer retain integrity of design, setting, materials, workmanship, feeling, and association. Therefore, he concluded that neither element contributes to the NRHP eligibility of RD 1000, and that they are not individually eligible for listing in the NRHP, nor are they significant resources for the purposes of CEQA.

Site CA-SUT-85H/CA-SAC-463H

This segment of the historic Natomas East Main Drainage Canal and associated levee borders is included within a portion of the east edge of the project site. The features are associated with RD 1000 and were built shortly after legislation was passed in 1911–1913 related to formation of the Reclamation District. This canal and the associated levee form the eastern boundary of RD 1000 and were recommended as a noncontributing element to the NRHP-eligible landscape (Dames & Moore 1994).

Site CA-SUT-80H

This site is a scatter of historic debris eroding out of the west side of the Natomas East Main Drainage Canal levee into the adjacent agricultural field. Artifacts consist of small pieces of white earthenware, dinnerware with transfer prints, sun-colored fragments of amethyst bottle glass (including a neck with applied lip), fragmented stoneware, toilet fragments, cut faunal bone, a graphite rod, and bottle caps. Together these artifacts appear to be the result of several episodes of refuse disposal that appear to date from at least 1903 and possibly from as early as the 1880s, and to extend into the early to mid-1900s. EBASCO (1992a, 1992b) determined that the artifacts had not been incorporated into the levee during its construction between 1912 and 1914. Because an association with a specific historic event could not be determined, EBASCO concluded that the site lacked the integrity to be included in the NRHP or the CRHR.

Site EC-05-022

Site EC-05-022 is a farm complex consisting of three standing features—a residence, a barn, and a slaughterhouse—and the foundation remains of a fourth building/structure. The buildings are depicted on the 1952 U.S. Geological Survey (USGS) Knights Landing quadrangle map, indicating that they predate the early 1950s. Les Hintz, property owner, in an interview by ECORP, indicated that the slaughterhouse was constructed in the late 1800s. In 2007, ECORP recommended that archaeological testing be conducted at this site because

potentially significant subsurface deposits with important historical associations or data potential could be present.

On June 26, 2008, archaeologists with Solano Archaeological Services, an EDAW subcontractor, excavated nine shovel test pits around the existing residence, barn, and slaughterhouse. Most of the shovel test pits could not be excavated deeper than about 40 centimeters below the surface because of the presence of concrete rubble, compacted and summer-dried soil, and gravel. Only a few artifacts were found (e.g., wire nails, faunal bone, concrete fragments, window glass). None predated the middle to late decades of the 20th century, after the historic period of significance, which appears to predate the middle of the 20th century (EDAW 2008).

Archival research did not uncover any evidence suggesting that this complex was associated with any historically significant events or individuals, or that it was the work of a master, the earliest of its type, or a particularly important example. In addition, any potential archaeological or scientific information has been realized through its documentation and it is unlikely that any additional important data would be provided by future research. Consequently, this site is recommended as not eligible for the NRHP or the CRHR.

Site EC-05-23

When documented, this site consisted of a barn and associated features (animal stalls, gates, and watering troughs). The barn subsequently collapsed during heavy rainstorms, however. ECORP (2007:21) indicated that additional historic research would be required to complete the evaluation of eligibility/significance for inclusion in the NRHP and CRHR.

Site EC-06-01

Site EC-06-01 is the remains of a demolished barn (a pile of sediments intermixed with refuse) and a pile of scrap metal that appears to be the remains of agricultural equipment. ECORP (2007) recommended that test excavations be conducted at this location to determine whether any potentially significant subsurface deposits were present that could contribute to a significance finding under Section 106 or CEQA. Solano Archaeological Services archaeologists dug a series of shovel test pits at this location, but found no evidence of subsurface constituents or strata that would indicate the presence of important scientific or historic-era information. Consequently, this site was recommended as not eligible for the NRHP or the CRHR (EDAW 2008).

Site EC-06-73

Site EC-06-73 is a rice storage and shipping facility situated on the west side of Pacific Avenue. Existing structures consist of two houses, six metal silos, 14 concrete silos, a rice dryer, and a scale/inspection station. Peter Panton, son-in-law of the owner, stated that both houses were moved to this location from an air base near Sacramento. Because these two buildings are shown at this location on the 1952 USGS Knights Landing quadrangle map, the structures must have been moved to this location before the early 1950s (ECORP 2007:19). ECORP (2007) recommended that additional historic research be conducted to complete the significance evaluation and determine whether the site is eligible for the NRHP or the CRHR.

Site EC-07-08

Site EC-07-08 is a house, garage, and barn located at 7281 Natomas Road. All of the structures at this site are depicted on the 1952 USGS Knights Landing quadrangle map, indicating that they were constructed before the early 1950s. ECORP recommended that additional historic research be conducted to complete the significance evaluation and determine whether the site is eligible for the NRHP or the CRHR.

Resources Associated with Off-Site Elements

Reclamation District 1000

Documented resources located within the rights-of-way of proposed off-site infrastructure and the proposed Sankey stormwater detention basin are limited to the contributing elements of RD 1000: Sankey Road, Elkhorn Boulevard (recorded separately and discussed below), the North Drainage Canal, large-scale land patterns containing small ditches, and unpaved roads that serve as rights-of-way.

Site P-34-886H

This segment of Elkhorn Boulevard, a paved two-lane road, dates to the period before 1921. In the project vicinity, the route runs east-west between the Sacramento River east levee and the Natomas East Main Drainage Canal. It is likely that this was originally a dirt farm field road and was paved several times in the past, but it still retains integrity of setting. At the time of recordation, Derr and Boghosian (1998) considered the linear feature to be a contributing element to RD 1000.

Site SP-1 (Western Pacific Railroad)

EDAW (2008) documented a segment of the Western Pacific Railroad that would be bisected by the proposed sewer force main. The entire route of the railroad appears eligible for inclusion in the NRHP under Criteria A and C, based on engineering features located elsewhere and as a transportation network that contributed to the economic development of the West. Although the documented segment displays integrity of location, the setting has been adversely affected by modern development, and with modern modifications (including replacement of the rails), the grade no longer displays the materials and workmanship of the original grade and the feeling associated with the early 1900s, the period of significance. In addition, archaeological deposits that date to the period of significance were not observed. Because of a lack of integrity and data potential, this portion of the route does not appear to be a contributing element to NRHP eligibility (EDAW 2008).

Site CA-PLA-946H

This site is the remains of the Sacramento Northern electric interurban railroad, which was organized in 1911. Later (in 1928), the route was extended north to Chico. Passenger service along this route ceased in 1940. All that remains is the ballast-covered railroad grade with tracks and ties removed. The site was evaluated for significance by EDAW (2008) and, because of a lack of integrity, was recommended as not eligible for inclusion in the NRHP or the CRHR.

3.15.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

The analysis of cultural resources presented herein is based upon the *Cultural Resources Survey Report Sutter Pointe Specific Plan, Sutter County, California* prepared by ECORP (2007). The results of these identifications and other smaller studies are summarized in the *Cultural Resources Inventory Report Sutter Pointe Specific Plan EIR (Off-Site Infrastructure Improvements) Placer, Sacramento, Sutter, and Yolo Counties, California* (EDAW 2008), and on a Native American consultation program conducted by ECORP (2007) and by EDAW (2008). A complete list of studies and investigations related to this project is presented above in Table 3.15-1. Also, a search of the files at the Northeast Information Center (NEIC) at California State University, Chico was conducted in May 2005 and updated in October 2006 by ECORP. Additional research was also conducted by EDAW in 2007 at the NCIC at California State University, Sacramento, and the NWIC at California State University, Sonoma. In addition, EDAW conducted an intensive field inventory of the proposed off-site elements in 2008.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A cultural resources impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5 of the State CEQA Guidelines;
- ▶ cause a substantial adverse change in the significance of a unique archaeological resource, as defined in Section 15064.5 of the State CEQA Guidelines or Public Resources Code Section 21083.2; or
- ▶ disturb any human remains, including those interred outside formal cemeteries.

A substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the CRHR, or in a local register or survey that meets the requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g).

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.15-1 Damage to or Destruction of Historic-Era Identified Resources. *Implementation of the proposed project would result in ground disturbance to a depth of several feet and removal of certain existing structures, which may result in damage or destruction to identified historic-era building/structure complexes.*

On-Site Elements

Identified historic-era resources within the project site consist of the following:

- ▶ Bridge No. 18C0050;
- ▶ elements of RD 1000 (including a segment of Riego Road and the East Drainage Canal documented by Kaptain [2005]);
- ▶ the Natomas East Main Drainage Canal (Dames & Moore 1996) and the more detailed recordation contained in the HAER report (Peak 1997);
- ▶ a scatter of historic debris (CA-SUT-80H);
- ▶ a farm complex (EC-05-22);
- ▶ a barn and associated features (EC-05-23);
- ▶ a demolished barn with associated debris (EC-06-01);
- ▶ a rice storage facility (EC-07-73); and

- ▶ a house, garage, and barn (EC-07-08).

No prehistoric resources have been identified within the project site. The historic bridge has been determined to be not eligible for the NRHP or the CRHR (Caltrans 2006). At the request of USACE, a HAER document and additional mitigation measures outlined in an HPTP have been prepared to mitigate effects on the elements of RD 1000. Therefore, although RD 1000 has been determined to be eligible for listing in the NRHP under Criterion A and the CRHR under Criterion 1, impacts from past and future projects have already been mitigated.

The deposit of historic refuse (CA-SUT-80H) was evaluated by EBASCO (1992a, 1992b) and found to lack integrity and association, and was therefore recommended not eligible for inclusion in the NRHP or the CRHR. Two sites documented by ECORP (2007), EC-05-22 and EC-06-01, were subsequently tested for subsurface constituents and found not to be eligible for listing in the NRHP or the CRHR.

Three sites containing historic-era buildings/structures (EC-05-23, EC-07-73, and EC-07-08) have yet to be evaluated for significance and are pending the results of further archival research and documentation to complete the evaluation process. Because evaluation of these three complexes has yet to be completed, development that involves removing these structures within the area proposed for on-site development could result adverse impacts. Therefore, these **direct** impacts are **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

Previous cultural resources investigations coupled with those completed by EDAW in 2007 resulted in the identification of a segment of the Western Pacific Railroad, a segment of the Sacramento Northern Railroad, and several contributing elements of RD 1000. Because of a lack of integrity to the period of significance, the segments of the Western Pacific and Sacramento Northern Railroads were recommended as not eligible for inclusion in the NRHP or the CRHR (EDAW 2008). At the request of USACE, a HAER document and additional mitigation measures outlined in the HPTP have been prepared to mitigate effects on RD 1000 associated with the American River project and future developments. Therefore, although RD 1000 has been determined to be eligible for listing in the NRHP under Criterion A and in the CRHR under Criterion 1, impacts from past and future projects have already been mitigated. Project implementation would result in impacts on documented resources; however, either these resources have been determined to be not eligible/significant or the future effects have already been mitigated. Therefore, these **direct** impacts on off-site resources are **less than significant**. **No indirect** impacts would occur.

Mitigation Measure 3.15-1: Complete Cultural Resources Evaluations of Previously Identified Historic-Era Resources.

On-Site Elements

The project applicant(s) and the construction contractors within development Phases B and 4 shall implement the following measures to reduce potentially significant impacts on the three historic-era structure/building complexes on the project site:

- ▶ Before the start of any ground-disturbing activities within 100 feet of the three historic-era structure/building complexes, a qualified professional architectural historian shall conduct archival research and additional documentation of the sites to complete NRHP/CRHR evaluations.
- ▶ If any of the three complexes is found to be significant as defined under CEQA, additional treatment shall be implemented at that complex. Treatment designed to mitigate adverse impacts may involve avoidance; rehabilitation or reuse consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*; or a Historic American Buildings Survey, HAER, or similar documentation, as recommended by a qualified architectural historian.

Implementation: The project applicant(s) for Phase B and Phase 4 of the on-site elements.

Timing: Before any ground-disturbing activities.

Enforcement: Sutter County Community Services Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.15-1 would reduce the potentially significant impact associated with the destruction of the three building/structure complexes, but not to a less-than-significant level. The State CEQA Guidelines (CCR Section 15126.4[b][2]) state that a project causing a substantial adverse change in the significance of an historical resource (such as damaging or destroying the qualities that make it significant) may have a significant effect on the environment. In some circumstances, depending on the significance of the resource, even the requirement for documentation of a historical resource (historical narrative, photographs, or architectural drawings) may not be sufficient to reduce the impact below the level of significance. Because the three historic-era resources have not been subjected to a detailed evaluation, it is not possible to determine their significance under CEQA at this time; thus, the efficacy of the recommended mitigation is unknown. Sutter County believes that the recommended mitigation is the feasible method for reducing significant impacts, if any. However Sutter County is constrained in this decision making process

The project contains numerous jurisdictional wetlands, requiring a permit from USACE to discharge fill to these features. Sutter County also anticipates that the project will require authorization from USACE to modify flood control works. Both of these federal actions require satisfaction of Section 106 of the National Historic Preservation Act (NHPA). USACE has the primary responsibility for determining how to manage cultural resources in satisfaction of Section 106 (36 CFR Part 800.1[a]). USACE and the SHPO also must concur on major management decisions such as how adverse effects will be resolved (36 CFR Part 800.6). Section 106 requires a consultation and decision making process that prevents Sutter County from acting unilaterally in decision making regarding treatment of cultural resources. Therefore, while this section identifies what Sutter County believes are all feasible methods of anticipating and minimizing impacts on cultural resources, USACE and other consulting parties under Section 106 have a duty to also identify and adopt these measures, as described in Public Resources Code Section 21081(a)(2). Sutter County thus cannot guarantee that particular methods or mitigation measures will be performed exactly as described, because the project is subject to Section 106. Thus, these impacts remain **potentially significant and unavoidable**.

IMPACT **Damage to or Destruction of Undocumented Subsurface Archaeological Resources during**
3.15-2 **Construction.** *Because of the project's proximity to Curry Creek and the Sacramento River, there is a potential for unidentified archaeological resources, particularly the remains of Native American occupation, to be encountered during ground-disturbing activities.*

On-Site and Off-Site Elements

Project elements would be located near the Sacramento River and Curry Creek. Because perennial and seasonal drainages were often the focus of early Native American activities, these areas commonly contain subsurface cultural materials that can remain undiscovered, despite intensive-level pedestrian surveys. If such resources were to represent historical resources or unique archaeological resources as defined by CEQA, any substantial adverse change in the significance or the loss or destruction of these resources would be considered a significant impact. Because previously unidentified buried and/or previously undiscovered prehistoric archaeological resources could

be encountered and damaged or destroyed during ground-disturbing activities, this **direct** impact is **potentially significant**. No **indirect** impacts would occur.

Mitigation Measure 3.15-2: Educate Construction Workers regarding Buried Cultural Resources, Suspend Ground-Disturbing Activities if Resources are Encountered, Employ an Archaeologist to Assess the Find, and Implement all Required Measures.

On-Site and Off-Site Elements

To reduce impacts on potentially undiscovered cultural resources, the project applicant(s) of all project phases shall do the following:

- ▶ Before the start of construction activities, the project applicant(s) of all project phases shall retain a qualified archaeologist to conduct training for construction workers, to educate them about the possibility of encountering buried cultural resources and inform them of the proper procedures should resources be encountered.
- ▶ The project applicant(s) of all project phases, including off-site elements, shall retain a qualified archaeologist who is trained in the identification of buried deposits to be present for all ground-disturbing activities within 1,000 feet of Curry Creek, which is located within Phase D and Phase 4 of project development.
- ▶ The project applicant(s) of all project phases shall temporarily suspend all ground-disturbing activity if previously undocumented archaeological materials (e.g., remains of historic buildings or structures; deposits or scatters of historic artifacts; or prehistoric artifacts such as stone tool flaking debris, mortars, pestles, shell, or bone) are encountered during project construction,. At that time, the project applicant(s) shall retain a qualified archaeologist. Construction activities shall be suspended within a 100-foot radius of the find or a distance determined by a qualified archaeologist to be appropriate based on the potential for disturbance of additional resource-bearing soils. The archaeologist shall conduct a field investigation of the specific site and recommend specific treatment measures deemed necessary to protect or recover any cultural resources concluded by the archaeologist to represent significant or potentially significant resources as defined by CEQA. Specific treatment measures include but are not limited to avoiding the resource or conducting data recovery and recordation. The applicant(s) shall implement all of the archaeologist's feasible recommendations to the satisfaction of the County before construction resumes in the area where cultural materials were discovered.

Implementation: The project applicant(s) of all project phases, including off-site elements.

Timing: During ground-disturbing activities.

Enforcement: Sutter County Community Services Department or Applicable County Planning Services Department.

Significance after Mitigation

Implementation of Mitigation Measure 3.15-2 would reduce the potential impacts associated with the destruction of significant buried archaeological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering buried cultural resources and any "significant" (under CEQA) cultural resources encountered would either be avoided or recovered and archived.

IMPACT 3.15-3 *Damage to or Destruction of Human Remains during Construction. Numerous Native American habitation sites, many of which contain human remains, have been documented within and on the periphery of the Natomas Basin. Although none are known to exist within the project site, there is a potential for previously unknown human remains to be located below the surface both on-site and off-site.*

On-Site and Off-Site Elements

As with subsurface archaeological resources discussed above (see Impact 3.15-2), it is possible that previously undiscovered human remains could be unearthed and damaged or destroyed during project-related ground-disturbing activities, causing damage to or destruction of such remains. For the same reasons as described for Impact 3.15-2, this **direct** impact is **potentially significant**. No **indirect** impacts would occur.

Mitigation Measure 3.15-3: Suspend Ground-Disturbing Activities if Undocumented Human Remains are Encountered and follow California Health and Safety Code Procedures.

On-Site and Off-Site Elements

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, including those associated with off-site improvements, the project applicant(s) shall immediately halt potentially damaging excavation in the area of the burial and notify the County coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or public lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]).

After the coroner's findings are complete, the project applicant(s), an archaeologist, and the NAHC-designated Most Likely Descendant (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting on notification of a discovery of Native American human remains are identified in Section 5097.9 of the California Public Resources Code.

Upon the discovery of Native American remains, the procedures above regarding involvement of the County coroner, notification of the NAHC, and identification of an MLD shall be followed. The applicant(s) shall ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the MLD has taken place. The MLD shall have at least 48 hours after being granted access to the site to inspect the site and make recommendations. A range of possible treatments for the remains may be discussed: nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment. As suggested by Assembly Bill (AB) 2641 (Chapter 863, Statutes of 2006), the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. AB 2641(e) includes a list of site protection measures and states that the applicant(s) shall comply with one or more of the following requirements:

- ▶ Record the site with the NAHC or the appropriate Information Center.
- ▶ Use an open-space or conservation zoning designation or easement.
- ▶ Record a document with the county in which the property is located.

The project applicant(s) or its authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance if the NAHC is unable to identify an MLD or if the MLD fails to make a recommendation within 48 hours after being granted access to the site. The applicant(s) or its authorized representative may also reinter the

remains in a location not subject to further disturbance if it rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to the landowner. Ground disturbance in the zone of suspended activity shall not recommence without authorization from the archaeologist.

Implementation: Project applicant(s) of all project phases, both on-site and off-site elements.

Timing: Upon the discovery of suspected human remains.

Enforcement: Sutter County Community Services Department or applicable County Planning Department.

Significance after Mitigation

Implementation of Mitigation Measure 3.15-3 would reduce the potentially significant impact associated with the possible destruction of human remains to a **less-than-significant** level by immediately suspending work within a 100-foot radius of the discovery and complying with state laws.

IMPACT **Damage to or Destruction of Cultural Resources in Unsurveyed Areas.** *Portions of the project site either*
3.15-4 *have not been subjected to systematic inventory or are covered with a dense cover of vegetation that*
 precludes observation of the surface and assessment of the presence of cultural resources.

On-Site Elements

Of the 7,528 acres proposed for on-site development, all but approximately 495 acres have been subjected to systematic intensive field investigations. The unsurveyed acreage includes approximately 431 acres in Phase D (the northern portion of the project site surrounding Curry Creek) and small parcels located within Phases 2 and 4 of the project site. Because areas near streams and rivers are likely to contain the archaeological remains of prehistoric Native American occupation, this area has a high potential for the presence of significant cultural resources. Although an intensive survey has not been conducted, a review of historic maps indicates that these unsurveyed parcels do not contain any buildings or structures that could be considered a historic-era resource. Damage or destruction of any resources deemed significant under CEQA would represent a significant impact. Therefore, this **direct** impact is **potentially significant**. **No indirect** impacts would occur.

Off-Site Elements

Field observations conducted by EDAW (2008) at the off-site project elements south of Fifield Road and Keys Road indicated that the ground surface is completely obscured by vegetation. Therefore, adequate archaeological surveys could not be conducted. In addition, inventories were not previously conducted within all of the rights-of-way for the proposed alignments. Off-site project areas that remain to be inventoried are the proposed Sankey Spill Mitigation location, approximately 1 mile of the right-of-way for the raw-water transmission pipeline, approximately 1.5 miles of the right-of-way for the alternative raw-water transmission line, and approximately 0.25 miles of the right-of-way for the off-site sewer force main. Although an intensive survey has not been conducted, a review of historic maps indicates that these unsurveyed areas do not contain any buildings or structures that could be considered a historic-era resource. Significant (as defined by CEQA) cultural resources could be present in these areas, and could be damaged by project-related ground-disturbing activities. This **direct** impact is therefore **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure 3.15-4: Conduct Archaeological Surveys of All Unsurveyed Areas, and Implement Additional Treatment of Resources, if Necessary.

On-Site and Off-Site Elements

The project applicant(s) of all project phases, both on-site and off-site elements, shall retain a qualified archaeologist to conduct focused surveys of all portions of the project site that have not been previously surveyed. The survey shall be conducted before any ground-disturbing activities, including site preparation, commence. If cultural resources are identified as a result of the survey, the archaeologist shall evaluate the significance of the finds and recommend appropriate mitigation measures for significant resources. Mitigation shall include but shall not be limited to avoiding significant (as defined under CEQA) resources through modifications in project design, and/or conducting subsurface testing and data recovery.

Implementation: The project applicant(s) for on-site Phases D, 2, 3, and 4, and off-site elements.

Timing: Before any ground-disturbing activities, including demolition and site preparation.

Enforcement: Sutter County Community Services Department and applicable County Planning Services Department.

Significance after Mitigation

Implementation of Mitigation Measure 3.15-4 would reduce the potential impacts on unknown cultural resources in previously unsurveyed portions of the project site to a **less-than-significant** level by requiring focused surveys and, if necessary, an assessment of significance and further treatment (such as avoidance or recovery and recordation) as determined by a qualified archaeologist.

Additional Detailed Analysis of On-Site Elements—Impacts and Mitigation Measures

IMPACT 3.15-5 *Damage to or Destruction of Identified Resources. Phase 1 and Phase A would result in ground disturbance to a depth of several feet, resulting in damage to or destruction of archaeological deposits and the removal of any existing buildings and structures.*

All of the proposed Phase 1 and Phase A on-site development areas have been surveyed by ECORP (2007). These studies have resulted in the documentation of one historic-era resource (Bridge No. 18C0050) and elements of the NRHP-eligible RD 1000 within the Phase 1 and Phase A areas. Bridge No. 18C0050 has been determined to be not eligible/significant for inclusion in the NRHP or the CRHR (Caltrans 2006). Regarding RD 1000, Kaptain (2005) documented a segment of Riego Road; the North Drainage Canal, the North Main Canal, and large-scale land patterns were addressed in the HPTP by (Dames & Moore 1996); and the more detailed recordation for all of these elements is contained in a HAER document (Peak 1997) prepared in accordance with an HPTP. The HAER document and other mitigation measures outlined in the HPTP have been accepted by USACE as mitigation for past and future impacts on RD 1000 and in consultation with the State Historic Preservation Officer. Because either the documented resources have been determined to be not eligible/significant or mitigation has already been completed, **direct** impacts are **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.15-6 Damage to or Destruction of Undocumented Subsurface Archaeological Resources during Construction. *Although an intensive inventory has been conducted within Phase 1 and Phase A of the project site, there is a potential that previously unknown subsurface cultural materials may be discovered during ground-disturbing activities.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.15-2 for further discussion of this impact.

Implementation of Mitigation Measure 3.15-2 would reduce the potential impact associated with the destruction of significant buried archaeological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering buried cultural resources and any “significant” (under CEQA) cultural resources encountered would either be avoided or recovered and archived.

IMPACT 3.15-7 Damage to or Destruction of Human Remains during Construction. *Numerous Native American habitation sites, many of which contain human remains, have been documented in the vicinity of the project site. There is the potential for previously undocumented remains to be located below the surface within Phase 1 and Phase A.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.15-3 for further discussion of this impact.

Implementation of Mitigation Measure 3.15-3 would reduce the potentially significant impact associated with the possible destruction of human remains to a **less-than-significant** level because work would be suspended within a 100-foot radius of the discovery and because compliance with state laws, including the California Health and Safety Code, would be required.

3.15.4 RESIDUAL SIGNIFICANT IMPACTS

With implementation of the mitigation measures described above, most impacts related to cultural resources would be reduced to a less-than-significant level. However, because the three historic-era resources discussed in Impact 3.15-1 have not been subjected to a detailed evaluation, it is not possible to determine their significance under CEQA at this time. Therefore, if one or more of the building/structure complexes is found to be significant and could not be avoided or adapted to reuse, even after Mitigation Measure 3.15-1 is implemented, a residual significant and unavoidable impact would occur related to these resources.

3.16 VISUAL RESOURCES

This section provides a description of existing visual conditions on the 7,528-acre project site in south Sutter County, immediately north of the Sacramento/Sutter County line, as well as a description of existing conditions in the immediate vicinity of the project site. Visual resources, or aesthetics, are the natural and human-built features of the landscape that can be seen and that contribute to the public's appreciative enjoyment of the environment. This section provides an analysis of the changes to those conditions that would occur from project implementation. Effects of the project on the visual environment are generally defined in terms of a project's visual characteristics and potential visibility, the extent to which the project's presence would change the perceived visual character and quality of the environment where it would be located, and the expected level of sensitivity that the viewing public may have in areas where project facilities would alter existing views. The "Analysis Methodology" discussion below provides further detail on the approach used in this section.

The aesthetic quality of a community is composed of visual resources, which are those physical features that make up the visible landscape, including land, water, vegetation, and the built environment (i.e., buildings, roadways, and other structures). The description of existing visual resources in this section is accompanied by representative photographs (taken on July 17, 2008) of on- and off-site physical features and a key identifying the locations and viewpoints of the photographs on an aerial image of the project site (Exhibits 3.16-1 and 3.16-2a through 3.16-2o).

3.16.1 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws related to visual resources are applicable to the proposed project.

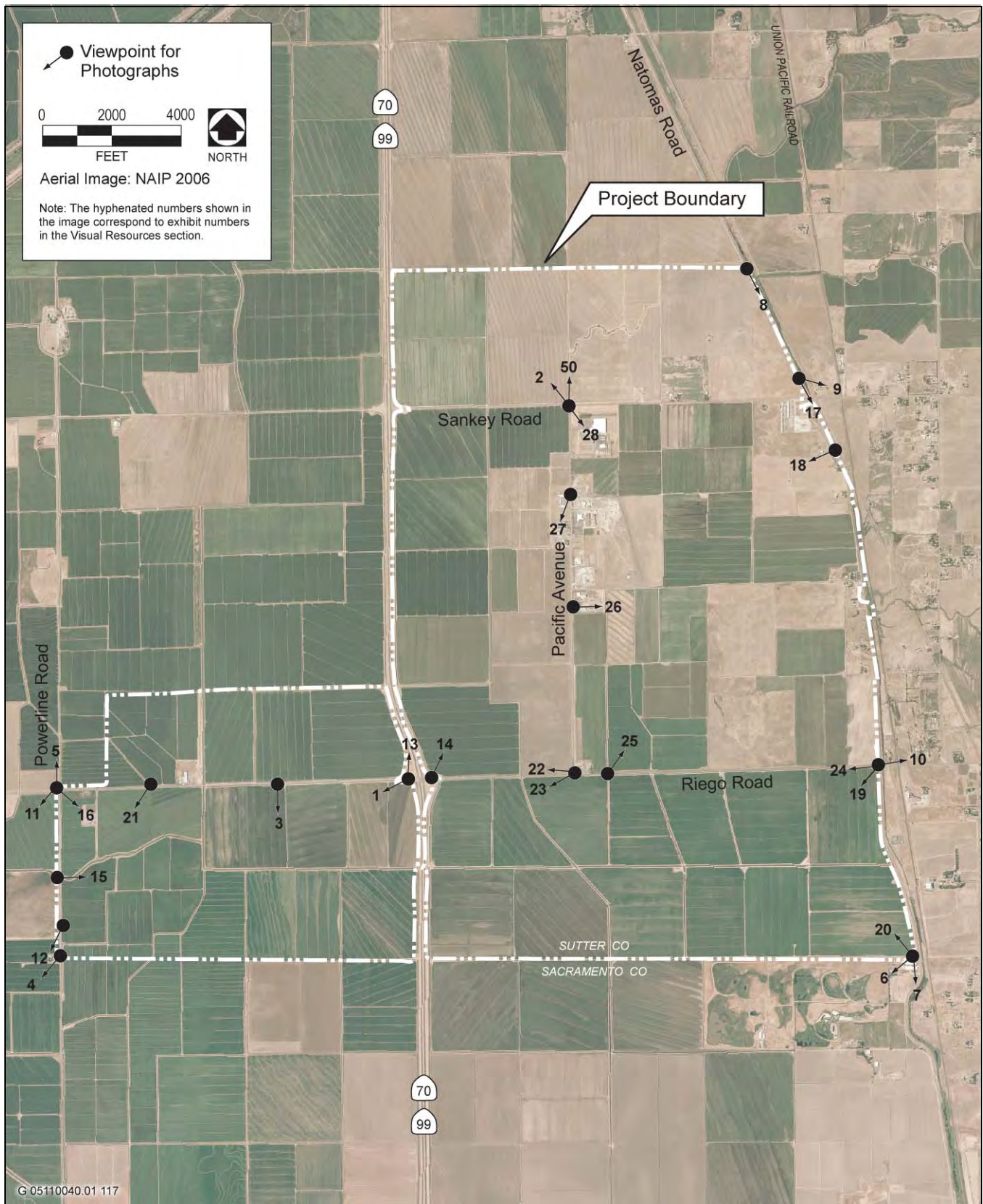
STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Department of Transportation

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to designated highways. There are no state-designated scenic highways in the vicinity of the project site (Caltrans 1999).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

The project site is located in unincorporated Sutter County. The off-site elements of the proposed project would extend into Placer and Sacramento Counties and are related to the provision of utilities to the project site. These elements would be placed underground in existing roadway rights-of-way and would not be readily visible once completed. For this reason, only adopted Sutter County plans, policies, regulations, and ordinances are presented in this section.



Source: Adapted by EDAW in 2008

Viewpoint Locations

Exhibit 3.16-1



Viewpoint 1. View from the intersection of Riego Road and SR 99/70, looking southwest at on-site rice fields in the foreground and trees along the Sacramento River in the background (off-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 2. View from the intersection of Pacific Avenue and Sankey Road, looking northwest at on-site rice fields in the foreground, SR 99/70 in the middleground (off-site), and trees along the Sacramento River in the background (off-site). *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2a



Viewpoint 3. View from Riego Road in the western portion of the project site, looking south at on-site rice fields in the foreground and downtown Sacramento in the background (off-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 4. View from Powerline Road at the southwestern corner of the project site, looking southwest across off-site agricultural fields in the foreground to the Sacramento International Airport in the background. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2b



Viewpoint 5. View from the intersection of Riego Road and Powerline Road at the western boundary of the project site, looking north (off-site) along Powerline Road. Views include the two-lane road, power lines, and rice fields in the foreground and trees and farm structures in the background. *(Photograph taken by EDAW in 2008)*



Viewpoint 6. View from the southeast corner of the project site, looking southwest at East Canal and created fresh emergent marsh. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2c



Viewpoint 7. View from the southeast corner of the project site, looking south (off-site) along Natomas Road. Off-site views include the two-lane Natomas Road, trees and power lines with nonnative annual grassland, and emergent marsh to the west and nonnative annual grassland and agricultural structures to the east. *(Photograph taken by EDAW in 2008)*



Viewpoint 8. View from the northeastern corner of the project site on Natomas Road, looking south along Natomas Road. Views include the two-lane Natomas Road, which is located on an elevated levee (also called “Levee Road” for this portion); off-site views of an abandoned portion of East Canal, nonnative annual grassland, and power lines to the east; and on-site rice fields and industrial structures to the west. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2d



Viewpoint 9. View from Natomas Road at the eastern boundary of the project site, looking east at off-site rural residence, nonnative annual grassland, Union Pacific Railroad tracks, rail cars, and power lines. *(Photograph taken by EDAW in 2008)*



Viewpoint 10. View from the intersection of Natomas Road and Riego Road, looking east along Riego Road at off-site bridge over East Canal, power lines, railroad crossing, commercial structures, and trees. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2e



Viewpoint 11. View from the intersection of Riego Road and Powerline Road at the western boundary of the project site, looking southwest (off-site). Views include rice fields in the foreground and trees, buildings, and the Sacramento International Airport in the background. *(Photograph taken by EDAW in 2008)*



Viewpoint 12. View from Powerline Road at the southwestern boundary of the project site, looking southwest at off-site drainage canal (part of Reclamation District 1000 [RD 1000]), rice field, and rural residence. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2f



Viewpoint 13. View from the intersection of Riego Road and SR 99/70, looking north along SR 99/70. SR 99/70 is not within the project site boundaries, but bifurcates the site south of this viewpoint. *(Photograph taken by EDAW in 2008)*



Viewpoint 14. View from the intersection of Riego Road and SR 99/70, looking northeast at on-site rice fields in the foreground and on-site agriculture structures, industrial facilities, and trees in the background. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2g



Viewpoint 15. View from Powerline Road at the western boundary of the project site, looking east at on-site North Drainage Canal (an improved RD 1000 facility) and rice fields. *(Photograph taken by EDAW in 2008)*



Viewpoint 16. View from the intersection of Riego Road and Powerline Road at the western boundary of the project site, looking southeast at the on-site rice fields and agricultural facilities/equipment. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2h



Viewpoint 17. View from Natomas Road (north of the intersection of Natomas Road and Sankey Road) at the eastern boundary of the project site, looking south along Natomas Road. Views include an abandoned RD 1000 canal, nonnative annual grassland, a rural residence, trees, and power lines to the east (off-site) and nonnative annual grassland, trees, power lines, and an industrial batch plant to the west (on-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 18. View from Natomas Road at the eastern boundary of the project site, looking west toward nonnative annual grassland and on-site rural residence. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2i



Viewpoint 19. View from the intersection of Natomas Road and Riego Road, looking southwest at on-site power line and rice fields. *(Photograph taken by EDAW in 2008)*



Viewpoint 20. View from the southeast corner of the project site, looking northwest. Views include Natomas Road running north with off-site power lines in the background and on-site fallow rice fields in the foreground, agricultural structures and trees in the middleground (on-site), and power lines and trees in the background (on-site). *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2j



Viewpoint 21. View from Riego Road in the western portion of the project site looking west/southwest along Riego Road. Views include the two-lane road, drainage ditch, power lines, and rice fields (active and fallow) (on-site) in the foreground; views of agricultural facilities (silos) (on-site) in the middleground; and trees along the Sacramento River in the background (off-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 22. View from the intersection of Riego Road and Pacific Avenue, looking west/northwest. Views include the two-lane Riego Road and rice fields (on-site) in the foreground, SR 99/70 in the middleground, and trees along the Sacramento River in the background (off-site). *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2k



Viewpoint 23. View from the intersection of Riego Road and Pacific Avenue, looking west/southwest. Views include the two-lane Riego Road, power lines, a drainage ditch, and rice fields (on-site) in the foreground, SR 99/70 in the middleground, and trees along the Sacramento River in the background (off-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 24. View from the intersection of Natomas Road and Riego Road, looking west along Riego Road. Views include the two-lane Riego Road, on-site disturbed land, and rice fields on the north side of the road and on-site power lines and rice fields on the south side of the road. Views of trees along the Sacramento River can be seen in the background (off-site). *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2I



Viewpoint 25. View from the intersection of Riego Road and Pacific Avenue, looking northeast at on-site rice fields in the foreground and agricultural structures and industrial facilities in the background (on-site). *(Photograph taken by EDAW in 2008)*



Viewpoint 26. View from Pacific Avenue, looking east at on-site commercial building (Holt Tractor manufacturing facility). *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2m



Viewpoint 27. View from Pacific Avenue south of Sankey Road, looking south along Pacific Avenue. Views include on-site two-lane Pacific Avenue, power lines, rice fields, and agricultural facilities. *(Photograph taken by EDAW in 2008)*



Viewpoint 28. View from the intersection of Pacific Avenue and Sankey Road, looking southeast at the on-site SYSCO facilities. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2n



Viewpoint 29. View on-site from the intersection of Pacific Avenue and Sankey Road, looking north at on-site power lines, nonnative annual grassland, and rice fields in the foreground and agricultural structures and trees in the background. *(Photograph taken by EDAW in 2008)*

Representative Photographs of Existing On- and Off-Site Features

Exhibit 3.16-2o

Sutter County General Plan

The following policies from the Sutter County General Plan (Sutter County 1996) regarding visual resources are applicable to the proposed project.

Land Use Element

- ▶ **Goal 1.H:** To preserve and protect the visual and scenic resources of the area.
 - **Policy 1.H-1:** The County shall require that new development be designed to utilize vegetation for screening structures and parking areas.
 - **Policy 1.H-3:** The County shall require that design and development standards be applied to all industrial and commercial areas to improve the aesthetic appearance of those developments.

3.16.2 ENVIRONMENTAL SETTING

REGIONAL SETTING

As noted above, the Sutter Point Specific Plan development would encompass approximately 7,528 acres in south Sutter County, immediately north of the Sacramento/Sutter County line (see Exhibits 2-1 and 2-2 in Chapter 2, “Project Description”). Sutter County lies in the Sacramento Valley, a nearly flat alluvial plain that extends almost 180 miles from the Sacramento–San Joaquin River Delta on the south to Redding on the north, to approximately 50 miles from the Sierra Nevada foothills on the east, and to the Coast Ranges on the west. The western boundary of the project site is located approximately 1 to 1.4 miles east of the Sacramento River. The project site was historically part of a larger area of marshland until the Sacramento River levee system was completed in approximately 1915. Eventually, the site was drained by a network of canals and pumping stations and converted to farmland in the 1930s. Foreground views of rice fields, middleground views of agricultural structures, and background views of trees along the Sacramento River are visible from the western portion of the project site (Exhibit 3.16-2a).

The primary area of urban development in the region is the Sacramento metropolitan area, which is the largest metropolitan area in the Central Valley. The project site is located approximately 12 miles north of downtown Sacramento and approximately 2 miles northeast of the Sacramento International Airport and the proposed Metro Air Park (a proposed industrial and business park). Distant views of downtown Sacramento are visible looking south from the project site, and the Sacramento International Airport is visible from the southwest corner of the project site (Exhibit 3.16-2b).

The project site is located within a larger area of generally flat, low-lying agricultural lands in the southeastern corner of unincorporated Sutter County and in proximity to Placer and Sacramento Counties. Land uses surrounding the project site are generally open, largely treeless, and agricultural in character with scattered structures that typically would be found in agricultural settings, such as equipment storage facilities, sheds, single-family dwellings, and irrigation equipment. Off-site agricultural crops are primarily rice fields, as well as wheat, alfalfa, and other row and grain crops. Off-site lands east of the project site also include nonnative annual grassland.

The project site is located within the boundaries of the Natomas Basin Habitat Conservation Plan (NBHCP) area (see Exhibit 3.13-1), which is a multispecies conservation program to preserve, restore, and enhance habitat in the Natomas Basin while allowing urban development to proceed according to local land use plans. Designated NBHCP habitat reserve areas are located directly south and west of the project site, which would result in preservation of portions of the existing undeveloped open space and agricultural lands south and west of the project site.

Although lands surrounding the project site are primarily undeveloped agricultural lands, there are multiple planned or approved development projects in the region (i.e., residential, retail, commercial, light industrial, parks, and open space), including the Metro Air Park (adjacent to the Sacramento International Airport) to the southwest, the Greenbriar Development Project to the south, and the Placer Vineyards Specific Plan and Rio Linda/Elverta Specific Plan to the east (see Exhibit 2-3 in Chapter 2, “Project Description”). Directly south of the project site is the proposed Natomas Joint Vision area (Joint Vision), which is undergoing preliminary planning by the City and County of Sacramento. If developed, these projects will affect the regional visual resource setting. However, because these development projects (with the exception of Joint Vision, which does not yet have a proposed land use plan) are not directly visible to or from the project site, they are not discussed further in this DEIR analysis.

VISUAL CHARACTER OF THE SURROUNDING AREA (FROM THE PROJECT SITE)

The visual character of the lands visible from each side of the project site is described below, and representative photographs of off-site visual resources are provided in Exhibits 3.16-2c through 3.16-2f, as referenced below. The key for the viewpoints for each representative photograph is provided in Exhibit 3.16-1.

North – The lands bordering the project site on the north (for both the western and eastern portions of the project site) are rice fields with scattered structures that typically would be found in agricultural settings, such as drainage canals, equipment storage facilities, sheds, and irrigation equipment. Foreground and middleground views to the north from the project site are open/unobstructed views of rice fields with some scattered structures that typically would be found in agricultural settings, such as drainage canals, equipment storage facilities, sheds, irrigation equipment, and single-family dwellings, as well as trees and SR 99/70. Distant background views to the north include the Sutter Buttes, which are an isolated cluster of small volcanic mountain peaks that rise abruptly from the valley floor. See Exhibit 3.16-2c for a representative photograph of views to the north of the project site.

South - The lands bordering the project site on the south are primarily rice fields, with an area of nonnative annual grassland and emergent marsh south of the southeastern corner of the project site. There are scattered structures that typically would be found in agricultural settings, such as drainage canals, equipment storage facilities, sheds, irrigation equipment, and single-family dwellings. Views to the south from the project site are open/unobstructed views of rice fields or grassland in the foreground, some structures, roadways (SR 99/70), power lines and trees in the middleground views, and distant background views of the city of Sacramento skyline (directly south) and the Sacramento International Airport (southwest). As stated above, lands south of the project site are within the NBHCP habitat reserve area, located primarily along the Sacramento River, so portions of the existing undeveloped agricultural lands to the south would be preserved. See Exhibits 3.16-2b through 3.16-2d for representative photographs of views to the south of the project site.

East – Views from the project site to the east would be partially obstructed by the levee (approximately 10–15 feet high) on which Natomas Road is located. The lands bordering the project site on the east are somewhat more developed than the lands bordering the other sides of the project site, and the land directly east of the project site is mostly nonnative annual grassland. However, views to the east are still primarily agricultural in nature. Directly adjacent to Natomas Road is the Pleasant Grove Creek Canal, an abandoned railroad line, and the Union Pacific Railroad line, which are visible from Natomas Road and the eastern portion of the project site. Foreground views to the east would also include power lines, agricultural structures, single-family dwellings, railroad cars and rail equipment, and agricultural fields. Middleground views to the east would include agricultural fields and structures, single-family dwellings, commercial/industrial uses, and trees. Distant background views to the east include the Sierra Nevada and trees. However, the Sierra Nevada is not readily visible in the background and is not a prominent component of views to the east from the project site. See Exhibits 3.16-2d and 3.16-2e for representative photographs of views to the east of the project site.

West - The lands bordering the project site on the west are in agricultural use, primarily rice fields, and include wheat, alfalfa, and other row and grain crops, with scattered structures that typically would be found in

agricultural settings, such as drainage canals, equipment storage facilities, sheds, irrigation equipment, and single-family dwellings. Views to the west from the project site are unobstructed views of flat agricultural lands in the foreground; some structures, roadways, power lines, and trees in the middleground views; and distant background views of trees along the Sacramento River. As stated above, lands west of the project site are within the NBHCP habitat reserve area, located primarily along the Sacramento River, so portions of the existing undeveloped agricultural lands to the west would be preserved. See Exhibits 3.16-2a and 3.16-2f for representative photographs of views to the west of the project site. Although not visible during the site visit, the Sutter Buttes usually are visible in the background to the northwest.

VISUAL CHARACTER OF THE PROJECT SITE

The project site is a generally flat, low-lying alluvial plain; elevation varies from approximately 15 feet above mean sea level at the west end of the site to 37 feet above mean sea level at the east end of the site. As shown in the aerial view of the project site in Exhibit 3.16-1 and in Exhibit 3.13-3, the project site is primarily in agricultural use, with the majority being rice fields. The project site includes approximately 5,203 acres of active rice fields and approximately 863 acres of fallow rice fields. There are also approximately 242 acres of upland cropland present in the project area (wheat and other grain crops, safflower, and alfalfa), approximately 827 acres of nonnative annual grassland, and approximately 27 acres of irrigated grassland managed primarily for hay production.

The project site includes an extensive network of canals and ditches that are part of a complex agricultural supply and drainage system. The canals and ditches range from temporary features, generally less than 5 feet wide and 1 foot deep, to permanent drainage features up to 30 feet wide and several feet deep. Most of the ditches on the project site are unvegetated, except for relatively narrow strips of wetland-type vegetation at the ordinary high water. The Natomas East Main Drainage Canal is located immediately east of the project site. The larger permanent drainage ditches mapped during the wetland delineation are shown in Exhibit 3.13-6.

The project site includes approximately 381 acres of land (5% of the site) mapped as developed or disturbed, which includes structures typically found in agricultural settings, such as equipment storage facilities, sheds, single-family dwellings, and irrigation canals and equipment, as well as a number of industrial/commercial facilities. These facilities are located primarily along Pacific Avenue and Natomas Road and include the 50-acre Sysco Corporation warehouse and distribution center, a Holt Tractor manufacturing facility, and an approximately 30-acre area occupied by A&N Auto Repair and AR Readymix. The industrial facilities located on-site range in age, condition, and level of maintenance. A&N Auto Repair is characterized by a one-story building in fair to poor condition that is not well maintained. Automobiles in various stages of disrepair can be seen from the property edge. The Holt Tractor manufacturing facility and AR Readymix are in fair condition but are characterized by heavy equipment and, in the case of AR Readymix, materials stockpiles. The Sysco Corporation facility, on the other hand, is in good condition and is well maintained and landscaped.

Refer also to Section 3.13, “Biological Resources,” for a more detailed description of biological habitat types and wildlife at the project site.

RD 1000 RURAL HISTORIC LANDSCAPE DISTRICT

As described in Section 3.15, “Cultural Resources,” the project site is located within Reclamation District 1000 (RD 1000), which includes flood control structures completed in the 1920s. The originally constructed features included levees and exterior drainage canals, an interior drainage canal system, nine pumping plants, a series of levee and interior roads, and unpaved rights-of-way between the farm fields. RD 1000 has been evaluated and identified as eligible for inclusion in the National Register of Historic Places (NRHP) as a Rural Historic Landscape District. The district retains much of its historic integrity, including location design, setting, materials, workmanship, feeling, and association. The contributing elements to the district include the drainage system, road system, and large-scale land use patterns. The noncontributing elements include parts of the drainage system;

parts of the road system; some large-scale land use patterns; some land uses, vegetation, boundary demarcations, buildings, and other structures, such as those more closely associated with agriculture than reclamation; municipal structures; commercial structures; and electric power lines. Refer to Section 3.15, “Cultural Resources,” for a more detailed description of this eligible Rural Historic Landscape District and the contributing elements.

VIEWS OF AND FROM THE PROJECT SITE

Views of and from the project site are unconstrained because of the site’s relatively flat topography and few visual obstructions on or surrounding the project site. The project site is most visible from SR 99/70, which provides the most common views because drivers on SR 99/70 outnumber any other group that may see the site from surrounding agricultural, commercial, or rural residential lands. The project site is also visible from the public roadways that border and cross the project site, including Powerline Road on the west, Riego Road through the southern portion of the project site, Pacific Avenue and Sankey Road in the northern portion of the project site, and Natomas Road along the eastern boundary of the site. Although the project site is visible from the vantage of agricultural lands, isolated farmsteads or rural residences, and commercial buildings, these views are seen exclusively from limited numbers of privately owned properties. Therefore, because the roadways provide the most common views of the project site, views of and from the project area are described from these roadways.

Views from SR 99/70

Motorists on SR 99/70 have unobstructed views of the project site from the Sacramento/Sutter County line to north of Sankey Road (Exhibits 3.16-2a and 3.16-2g). Foreground views of the project site along SR 99/70 include rice fields with some scattered structures that typically are found in agricultural settings, such as drainage canals, equipment storage facilities, sheds, irrigation equipment, and single-family dwellings, as well as trees and SR 99/70. The middleground views include continued rice fields and other row and grain crops, as well as farm structures, rural residences, and industrial buildings. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

Views from Powerline Road

Motorists on Powerline Road have unobstructed views of the project site from the Sacramento/Sutter County line to Riego Road (Exhibit 3.16-2h). Typical foreground views of the project site along Powerline Road include rice fields, drainage canals, and power lines. The middleground views include continued rice fields, as well as farm structures, rural residences, and industrial buildings. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

Views from Natomas Road

Motorists on Natomas Road have unobstructed views of the project site from the Sacramento/Sutter County line to north of Sankey Road (Exhibits 3.16-2i and 3.16-2j). Natomas Road is often referred to as “Levee Road” because the roadway is located on an elevated levee (approximately 10–15 feet high). Therefore, this road provides an elevated vantage point in viewing the project site to the west and off-site lands to the east. Typical foreground views of the project site along Natomas Road include nonnative annual grasslands, disturbed areas, rice fields, drainage canals, power lines, industrial/commercial buildings, and rural residences. The middleground views include continued nonnative annual grasslands, rice fields, and other row and grain crops, as well as farm structures, rural residences, industrial/commercial buildings, railroad tracks, and train cars. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

Views from Riego Road

Motorists on Riego Road have unobstructed views of the project site between Powerline Road on the west and Natomas Road on the east (Exhibits 3.16-2k and 3.16-2l). Foreground views of the project site along Riego Road include rice fields, other row and grain crops, nonnative annual grassland, SR 99/70, farm structures, a small airstrip, and rural residences. The middleground views include continued rice fields, other row and grain crops, nonnative annual grassland, SR 99/70, as well as farm structures, rural residences, and industrial buildings. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

Views from Pacific Avenue

Motorists on Pacific Avenue have unobstructed views of the project site between Riego Road on the south and Sankey Road on the north (Exhibits 3.16-2m and 3.16-2n). Foreground views of the project site along Pacific Avenue include row and grain crops, rice fields, nonnative annual grassland, rural residences, and commercial and industrial buildings. The middleground views include continued row and grain crops and rice fields, as well as farm structures, rural residences, and industrial buildings. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

Views from Sankey Road

Motorists on Sankey Road have unobstructed views of the project site between SR 99/70 and Natomas Road (Exhibit 3.16-2o). Foreground views of the project site along Sankey Road include rice fields, nonnative annual grassland, power lines, and commercial and industrial buildings. The middleground views include continued rice fields and nonnative annual grassland, as well as farm structures, rural residences, roadways, and railroad cars. The background views include the Sacramento skyline on the south, the Sutter Buttes on the north, trees along the Sacramento River on the west, and the Sierra Nevada on the east.

VISUAL CHARACTER OF THE ALIGNMENTS FOR OFF-SITE UTILITY IMPROVEMENTS

The off-site elements of the proposed project would extend from the project site in Sutter County into unincorporated areas of Sutter, Placer, and Sacramento Counties as underground facilities located primarily in existing road rights-of-way (as shown in Chapter 2). The visual character for each of the alignments for the proposed off-site utilities is described below.

Waterlines and Pumping Stations – As shown in Exhibit 2-8, the proposed water lines and alternative waterlines would be located under Powerline Road and Sankey Road north and west of the project site. The proposed pumping station and alternate diversion station would be located adjacent to the Natomas Cross Canal (located northwest of the project site) and adjacent to the Sacramento River (located west of the project site), respectively. The visual character of this area is dominated by rice fields, canals, and farm structures, as well as emergent marsh and riparian vegetation near the Sacramento River and the Natomas Cross Canal. Refer to the description of the visual character of surrounding areas to the north, as well as the description of views from Powerline Road and from Sankey Road, above.

RD 1000 Canal – As shown in Exhibit 2-6, the two proposed RD 1000 canals would extend south from the project site along SR 99/70, then east along Elverta Road, and west along an existing canal located south of Riego Road, out to the Sacramento River. A proposed pumping station would be located adjacent to the Sacramento River (southwest of the project site). The visual character of this area is dominated by rice fields, other row and grain crops, canals, and farm structures, as well as riparian vegetation near the Sacramento River. Please refer to the description the visual character of surrounding areas to the west and south, as well as the description of views from Powerline Road, above.

Natural Gas Extension – As shown in 2-12, the natural gas pipeline extension is proposed to be located under Riego Road between the project site and Baseline Road in Placer County. The visual character along Riego Road is dominated by rice fields, other row and grain crops, nonnative grassland, canals, farm structures, rural residences, and commercial/industrial buildings, as well as riparian vegetation near the Sacramento River. Refer to the description of views from Riego Road, above.

Sewer Force Main - As shown in Exhibit 2-10, a sewer force main is proposed to be located under existing roadways, including Pleasant Grove Road and Rio Linda Boulevard, which run south from Riego Road (east of the project site) into the unincorporated town of Rio Linda. In contrast to the visual character of the project site, which is dominated by rice fields, the visual character along this alignment is also agricultural and includes undeveloped areas and nonnative grassland, but it also has more rural residential and commercial development, as well as increasing development as the alignment nears Rio Linda.

Potential Communication Facilities – As shown in Exhibit 2-12, the potential communication facilities would run northeast from the project site via Sankey Road and Pleasant Grove Road. The visual character of this area is dominated by rice fields, other row crops and grains, canals, and farm structures, as well as rural residential and commercial buildings. Refer to the description of the visual character of surrounding areas to the north, as well as the description of views from Sankey Road, above.

3.16.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

The visual impact analysis is based on a field visit conducted by EDAW on July 17, 2008, and a review of maps and aerial photographs. The proposed project was reviewed for its overall visual impacts using the standards of quality, consistency, and symmetry typically used for a visual assessment. Analysis of the project project's impacts was based on an evaluation of the changes to the existing visual resources that would result from project implementation. In making a determination of the extent and implications of the visual changes, consideration was given to:

- ▶ specific changes in the visual composition, character, and specifically valued qualities of the affected environment;
- ▶ the visual context of the affected environment;
- ▶ the extent to which the affected environment contained places or features that have been designated in plans and policies for protection or special consideration; and
- ▶ the numbers of viewers, their activities, and the extent to which these activities are related to the aesthetic qualities affected by the project-related changes.

Information regarding the visual and architectural characteristics of the proposed project is based on the project description provided in Chapter 2, "Project Description," of this DEIR and additional information pertaining to the project's design and aesthetic character provided in the Sutter Pointe Specific Plan (see Appendix A of the specific plan, "Design Guidelines"). The specific plan identifies various design principles that would be followed during implementation of the proposed project. Examples of these principles, which address the form, appearance, and visual effects of the project, include:

- ▶ sustainable design measures that conserve energy and water resources while creating a diverse and healthy living community;

- ▶ streetscapes that enhance the pedestrian environment, reduce noise, improve and maintain visual quality, and provide vehicular capacity and efficiency;
- ▶ landscaping that creates visual continuity and helps define neighborhoods, employment villages, and activity centers;
- ▶ open space buffers and landscaped setbacks that establish a physical and visual separation between incompatible land uses to screen light, sound, odor, and other potential nuisances to residents; and
- ▶ lighting themes and fixtures that contribute to a high-quality and attractive community image, while maintaining safety and energy efficiency.

It is assumed that visual changes would be proportional to the amount of development on the project site, with gradual increases in the rate as development progresses. Off-site elements would extend into Placer and Sacramento Counties and are related to the provision of utilities to the project site. With the exception of small booster pump stations or equipment cabinets (which are typically neutral in color and screened), these elements would be placed underground in existing rights-of-way and would not be visible once completed. Off-site elements would not involve construction of new urban uses and thus would not result in significant visual and aesthetic changes in the physical environment in these areas.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A visual resources impact is considered significant if implementation of the proposed project would do any of the following:

- ▶ have a substantial adverse effect on a scenic vista;
- ▶ substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▶ substantially degrade the existing visual character or quality of the site and its surroundings; or
- ▶ create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

IMPACT ANALYSIS

Program-Level Impacts and Mitigation Measures

IMPACT 3.16-1 *Alteration of a Scenic Vista. Implementation of the proposed project would not result in the degradation of the visual quality of a scenic vista.*

On-Site Elements

A scenic vista is generally considered a view of an area that has remarkable scenery or of a resource that is endemic to the area. The project site itself does not provide any aesthetic resources that would be considered a scenic vista, and the site is a common viewshed in the region. The agricultural lands and rural residences that make up the project site do not provide scenery of a remarkable character. Because the project site has been developed for agricultural production and other uses (e.g., rural residences), it does not provide views of the indigenous natural landscape. Although the current land uses provide views of an agricultural landscape that is representative of the project region, the project site does contain resources that are exemplary of the agricultural history of the area.

Background views to motorists traveling on SR 99/70, Powerline Road, Riego Road, Pacific Avenue, Sankey Road, Natomas Road, and other nearby roadways and to residents of approximately 20 rural residences and mobile homes on the eastern boundary of the project site include the city of Sacramento skyline to the south, the Sutter Buttes to the north, the Sacramento River to the west, and the Sierra Nevada range to the east. Currently, views of the Sutter Buttes, Sierra Nevada, Coast Ranges, and the city of Sacramento skyline are visible only on a clear day. Views of the Sacramento River from these roadways and the project site are marked by riparian woodlands that include mature trees and shrubs along the banks of the river; the river itself is not visible. In addition, because of the distance between the project site and the surrounding mountain ranges, the city of Sacramento skyline, and the Sacramento River, these features are not a prominent component of background views for motorists and existing residents in this area and would not qualify as a scenic vista.

Because the proposed project would not have a substantial adverse effect on a scenic vista, this impact is **direct** and **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements and force mains are related to the provision of utilities to the project site. These elements would be placed underground in existing rights-of-way and would not be visible once completed. Off-site elements would not involve construction of new urban uses (e.g., residential, commercial, or industrial land uses) that would degrade the visual quality of a scenic vista in Sutter, Placer or Sacramento County. **Direct** impacts are **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT 3.16-2	Damage to Scenic Resources within a State Scenic Highway. <i>Implementation of the proposed project would not damage scenic resources and is not visible from a state-designated scenic highway.</i>

On-Site Elements

A scenic resource is generally a resource, landmark, or area that has been noted for its outstanding scenic qualities and is thereby protected because of those qualities. A scenic resource within a state scenic highway is a resource that is noted for its outstanding scenic qualities and is visible from a state-designated scenic highway. No such scenic resources have been identified on the project site. There are no officially recognized scenic roadways in Sutter County. The designated scenic highway segment closest to the project site is a portion of SR 160 south of the city of Sacramento, approximately 30 miles away, and the project site is not visible from the scenic highway segment. Therefore, impacts related to damage to scenic resources within a state scenic highway are **direct** and **less than significant**. **No indirect** impacts would occur.

Off-Site Elements

No scenic resources have been identified in the vicinity of the off-site infrastructure elements. The off-site infrastructure elements would be placed underground in existing rights-of-way and would not be visible once completed. They would not involve construction of new urban uses (e.g., residential, commercial, or industrial land uses) that would result in damage to scenic resources within a state scenic highway in Sutter, Placer or Sacramento County. **No direct** or **indirect** impacts would occur.

Mitigation Measures

No mitigation measures are required.

IMPACT **Degradation of Visual Character.** *Project implementation would substantially alter the visual character of the*
3.16-3 *project site through conversion of agricultural land to developed urban uses.*

On-Site Elements

Currently, the project site consists of predominantly agricultural uses with limited industrial facilities. Views of and from the project site are unconstrained because of the site's relatively flat topography and few visual obstructions on or surrounding the project site, and the project site consists of a common agricultural viewshed found in many locations in Sutter County. Implementation of the proposed project would include development of residential, commercial, office, and industrial land uses and other public facilities such as schools and parks.

The conversion from agricultural uses to urban development would result in a substantial alteration of the visual character of the project area. The altered visual condition of the project site after development would be visible primarily to motorists traveling on SR 99/70, Powerline Road, Riego Road, Pacific Avenue, Sankey Road, and Natomas Road; employees at the Sysco Corporation, Holt Tractor manufacturing facility, and AR Readymix located on Pacific Avenue; existing rural residences and mobile homes on the eastern boundary of the project site south of Sankey Road and west of Natomas Road; and scattered rural residences in agricultural lands to the northeast, east, and southeast. The project site is most visible from SR 99/70, which provides the most common views because drivers on SR 99/70 outnumber any other group that may see the site from surrounding agricultural, commercial, or rural residential lands.

Where the project site is visible from SR 99/70, Powerline Road, Riego Road, Pacific Avenue, Sankey Road, and Natomas Road, the project site and vicinity consist of a common agricultural viewshed found in many locations in Sutter County, as well as areas in Placer and Sacramento Counties. After development of the project site, visual conditions in the project area would be similar to existing views of urban settings found elsewhere in the project vicinity. Nearby planned or approved developments include the Metro Air Park and Greenbriar Specific Plan to the southwest and the Placer Vineyards Specific Plan and Rio Linda/Elverta Specific Plan to the east. However, these projects are separated by some distance from the site by agricultural uses (Exhibit 2-3 in Chapter 2, "Project Description"). Implementation of design, architectural, development, and maintenance standards in the Sutter Pointe Specific Plan (see Appendix A of the specific plan, "Design Guidelines"), as approved by the County, would ensure that the general visual quality and character of development on the project site would be consistent with (or perhaps exceed) viewer expectations for similar urban environments. However, views of the project site from surrounding roadways would be substantially altered as agricultural land is replaced by urban development, which many travelers on these roadway segments may perceive as a substantial degradation of the visual character or quality of the site.

Development on the project site would be visible from on-site businesses; existing rural residences and mobile homes on the eastern boundary of the project site; and scattered rural residences in agricultural lands to the northeast, east, and southeast. Therefore, views from these businesses and homes would be altered by project development; project features would constitute prominent foreground views and potentially block distant views. Implementation of design, architectural, development, and maintenance standards in the Sutter Pointe Specific Plan Appendix A would ensure that the general visual quality and character of development on the project site would be consistent with viewer expectations for similar urban environments. Because of the limited distance from these homes and the nature of the project (i.e., conversion of agricultural land to urban development), implementing the project would result in a significant alteration of the visual character as seen from on-site businesses and rural residences and would translate to a substantial degradation of visual character.

Reasonable people may consider the conversion of agricultural land to urban development on this scale (7,528 acres) a loss of an aesthetically pleasing and valuable viewshed. Agricultural lands can be considered a valuable aesthetic resource that is representative of the visual character of much of Sutter County. In general, people enjoy views of vast expanses of undeveloped agricultural land over urban development.

In addition, reasonable people may differ as to the aesthetic value of the agricultural lands on the project site and whether development of urban uses on the project site would constitute a substantial degradation of the existing visual character or quality of the site and its surroundings. However, given the large scale of this urban development and the rural nature of its setting, the impacts on visual resources from project implementation are **direct** and **significant**. **No indirect** impacts would occur.

Off-Site Elements

Off-site infrastructure elements that could potentially alter visual character include widening the East Drainage Channel and constructing flood control/drainage facilities, a raw water turnout, a raw water booster pump station, raw water transmission pipelines, sewer force mains, and dry utilities, including natural gas, communications, and cable television service infrastructure.

The canal located along SR 99/70 is approximately 15 feet wide at the bottom and would be widened 10 more feet. Exhibit 2-6 in Chapter 2, “Project Description,” shows a disturbance corridor plus a 50-foot-wide corridor outside of that for a temporary construction easement. The reach of the canal along the north side of Elverta Road is only 10 feet wide at the bottom and would need to be expanded 15 feet to match the total proposed 25-foot width of the upstream channel along SR 99/70. Both channel reaches would be widened on the side of the channel opposite the road, and the modifications to the canals would not be visible to motorists on SR 99/70 or Elverta Road. Views of the channel from these roadways would remain similar to current views.

Off-site flood control/drainage facilities would be necessary to mitigate the Sankey Gap overflow (see Exhibit 2-6 in Chapter 2, “Project Description”). Components of the flood control/drainage facilities would include levees, weirs, basins, and other drainage features. Other properties in the vicinity of the proposed project provide flood control storage and include elements similar to those proposed for the project; therefore, proposed flood control/drainage facilities would be common elements of views of the area and would not substantially alter the general landscape.

A raw water turnout and booster pump station would be located at the Natomas Central Mutual Water Company’s (NCMWC’s) existing Bennett Pumping Plant, which is situated along the south bank of the Natomas Cross Canal approximately 1.2 miles upstream of its confluence with the Sacramento River. A new raw water turnout located on the landside of the levee at the head works of the NCMWC’s existing highline ditch system would deliver water to the raw water booster pump station. NCMWC would construct the raw water booster pump station and raw water turnout; therefore, the appearance of these structures after construction would be based on NCMWC standards. Typically, such features are small, low profile, neutral in color, and screened.

The raw water transmission pipelines, sewer force mains, and dry utilities, including natural gas, communications, and cable television service infrastructure, are related to the provision of utilities to the project site. These elements would be placed underground in existing rights-of-way and would not be visible once completed. These elements would not involve construction of new urban uses (e.g., residential, commercial, or industrial land uses) that result in a substantial alteration of the visual character in Sutter Placer or Sacramento County. **No direct** or **indirect** impacts would occur from construction of these off-site infrastructure elements.

Because the widening of the East Drainage Channel would not be visible to motorists on SR 99/70 or Elverta Road, and because flood control/drainage facilities would appear similar to the existing features in the vicinity of the project site, these off-site elements would not substantially alter the visual character of the project site and its surroundings. This impact is **direct** and **less than significant**. **No indirect** impacts would occur.

Mitigation Measures

On-Site Elements

No feasible mitigation measures are available.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Because of the scale and location of the project site, there is no feasible mitigation available to fully reduce the significant aesthetic resource impacts associated with the conversion of a large expanse of agricultural land to urban development to a less-than-significant level. Although the specific plan would include design, architectural, development, and maintenance standards to ensure that urban development on the project site remains within certain aesthetic guidelines as approved by the County, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Therefore, this impact is **significant and unavoidable**.

IMPACT Temporary Degradation of Visual Character for Developed Project Land Uses during Construction.
3.16-4 *The presence and movement of heavy construction equipment and staging areas could temporarily degrade the existing visual character and/or quality of the project site and surrounding area.*

On-Site and Off-Site Elements

The presence and movement of heavy construction equipment and staging areas could temporarily degrade the existing visual character and/or quality of the project site and surrounding area. Project implementation would involve four phases of similar types of construction over a 20- to 30-year phased buildout period. During this time, adjacent project development, including sensitive land uses, such as residential housing, schools, and parks, would be occupied while construction is occurring in a different phase. Other viewers of the construction activities and staging areas on the project site would include motorists traveling on SR 99/70, Powerline Road, Riego Road, Pacific Avenue, Sankey Road, and Natomas Road; employees at the Sysco Corporation, Holt Tractor manufacturing facility, and AR Readymix located on Pacific Avenue; existing rural residences and mobile homes on the eastern boundary of the project site south of Sankey Road and west of Natomas Road; and scattered rural residences in agricultural lands to the northeast, east, and southeast. In addition, construction of the off-site elements would be visible from the existing and proposed land uses on the project site and scattered rural residences and local roadways immediately adjacent to these elements.

Construction activities would require the use of various types of equipment, such as scrapers, graders, dozers, and trucks. This equipment would be similar to that used in other developments in the vicinity of the proposed project.

Project construction would involve the temporary use of fenced staging areas for construction equipment and materials. Although these staging areas would be located in disturbed areas, construction equipment and materials would be visible to motorists on the roadways listed above, employees at existing businesses, existing and developed project land uses on the project site, and scattered rural residences in the vicinity of the project site. Thus, construction staging areas would temporarily degrade the existing visual character of the project site in the vicinity of developed areas. This impact is **direct** and **significant**. **No indirect** impacts would occur.

Mitigation Measure 3.16-4: Screen Construction Staging Areas.

On-Site Elements

The project applicant(s) for all project phases shall locate staging and material storage areas as far away from sensitive land uses (e.g., residential areas, schools, parks) and/or nearby roadways as feasible. Staging and material storage areas shall be approved by the County before the approval of grading plans and building permits for all project phases and shall be screened from adjacent occupied land uses in earlier development phases to the

maximum extent practicable. Screens may include berms or fences. The screen design shall be approved by the County to further reduce visual effects to the extent possible.

Implementation: The project applicant(s) and/or construction contractor(s) of all project phases.

Timing: Before approval of grading plans and building permits and during construction for all project phases.

Enforcement: Sutter County Community Services Department and Sutter County Public Works Department.

Off-Site Elements

The project applicant(s) for all project phases shall implement Mitigation Measure 3.16-4, “Screen Construction Staging Areas,” for all staging areas that would be located within 500 feet of a residence. Otherwise, implementation of Mitigation Measure 3.16-4 shall not be required for construction of the off-site elements.

Significance after Mitigation

Implementation of Mitigation Measure 3.16-4 would reduce significant impacts associated with temporary visual-quality degradation for developed land uses from concurrent construction staging areas by providing visual screening. However, because screening may not always be feasible (i.e., projects covering a large area or tall buildings), this temporary impact is **significant and unavoidable**.

IMPACT 3.16-5 *New Light and Glare. Project implementation would require lighting of new development, which could inadvertently cause increased light and glare.*

On-Site Elements

Light associated with urban development can result in spillover lighting and glare effects. Spillover lighting is artificial lighting that spills over onto adjacent properties and could cause an annoyance to neighboring residents by disturbing sleep patterns. Glare is intense light that shines directly, or is reflected off a surface, into a person’s eyes. Use of building materials such as reflective glass and polished surfaces can cause glare. During daylight hours, the amount of glare depends on the intensity and direction of sunlight. Glare is particularly acute at sunrise and sunset because of the low angle of the sun in the sky.

Currently, the project site consists of predominantly agricultural uses with limited industrial facilities. Residential land uses and on-site industrial development are limited and are not a substantial source of light or glare. Implementation of the proposed project would require lighting for roadways; commercial, office, and industrial buildings; parking lots; residences; and other public facilities, such as schools and parks. In addition, nighttime lighting or the presence of reflective surfaces on buildings in the commercial, office, and industrial areas (e.g., reflective window glazing) may result in light and glare shining onto motorists on SR 99/70, Powerline Road, Natomas Road, Riego Road, Pacific Avenue, and Sankey Road and on existing and proposed residences in the vicinity of these land uses (see Exhibit 2-4 in Chapter 2, “Project Description”). Nighttime lighting associated with proposed commercial, office, and industrial development in the southwest portion of the project site west of SR 99/70 could potentially result in light and glare effects for future residents living in the Natomas Joint Vision area that would be south of the project site’s southern boundary; however, development has yet to be proposed, and the sites are separated by the NBHCP preservation areas. Light and glare created by the proposed project would not affect other developments proposed in Sutter, Placer or Sacramento County because the proposed project is separated by some distance from these communities and would not be visible (see Exhibit 2-3 in Chapter 2, “Project Description”). However, because of the scale of the proposed project and because the proposed project would introduce a substantial quantity of light into a rural landscape, overall light and glare effects are **significant and direct**. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements and force mains are related to the provision of utilities to the project site. These elements would be placed underground in existing rights-of-way and would not be visible once completed. Off-site elements would not involve construction of new urban uses (e.g., residential, commercial, or industrial land uses) that would create new light and glare in Sutter, Placer or Sacramento County. **No direct or indirect** impacts would occur.

Mitigation Measure 3.16-5: Establish and Require Conformance to Lighting Standards and Prepare and Implement a Lighting Plan.

On-Site Elements

To reduce impacts associated with light and glare, the project applicant(s) for all project phases shall conform to the following guidelines:

- ▶ Shield or screen lighting fixtures to direct the light downward and prevent light spill on adjacent properties.
- ▶ Place and direct flood or area lighting needed for construction activities or for nighttime sporting activities to not disturb adjacent residential areas and passing motorists.
- ▶ Prohibit the use of harsh mercury vapor, low-pressure sodium, or fluorescent bulbs for public lighting in residential neighborhoods.
- ▶ Prohibit light fixtures that are of unusually high intensity or brightness or that blink or flash;
- ▶ Use appropriate building materials, lighting, and signage in the office/commercial areas to prevent light and glare from adversely affecting motorists on nearby roadways.
- ▶ Design exterior lighting as an integral part of the building and landscape design in the Sutter Pointe Specific Plan area. Lighting fixtures shall be architecturally consistent with the overall site design.
- ▶ Establish standards for outdoor lighting to reduce high-intensity nighttime lighting and glare as part of the Sutter Pointe Specific Plan design guidelines/standards. Consideration shall be given to design features, namely directional shielding for street lighting, parking lot lighting, and other significant light sources, that will reduce effects of nighttime lighting. In addition, consideration shall be given to the use of automatic shutoffs or motion sensors for lighting features to further reduce excess nighttime light. All nighttime lighting shall be shielded to prevent the light from shining off of the surface intended to be illuminated.

A lighting plan shall be submitted to the County for review and approval which shall include the above elements. The lighting plan may be submitted concurrently with other improvement plans, and shall be submitted before the installation of any lighting or the approval of building permits for all phases. The project applicant(s) of all future phases shall implement the approved lighting plan.

Implementation: The project applicant(s) and/or construction contractor(s) of all project phases.

Timing: Before approval of building permits for all project phases.

Enforcement: Sutter County Community Services Department and Sutter County Public Works Department.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.16-5 would reduce significant impacts associated with effects from new sources of light and glare to a **less-than-significant** level by establishing lighting standards and preparing and implementing a lighting plan.

IMPACT 3.16-6 *New Skyglow Effects. The proposed project would require lighting of new development that would result in increased skyglow effects, effectively obscuring views of stars, constellations, and other features of the night sky.*

On-Site Elements

Skyglow is artificial lighting from urbanized uses that alters the rural landscape and, in sufficient quantity, lights up the nighttime sky, thus reducing the visibility of astronomical features.

Currently, the project site consists of predominantly agricultural uses with limited industrial facilities. Residential land uses and on-site industrial development are limited and are not a substantial source of light. Therefore, these areas generate no substantial sources of skyglow into the night sky. However, a substantial increase in the amount of nighttime light would result from the development of the project with urban land uses, potentially obscuring views of the stars, constellations, and other features of the night sky and potentially affecting nearby motorists and existing and future residents. Because the proposed project would introduce a substantial quantity of nighttime light into a rural landscape, overall skyglow effects would be a **significant** and **direct** impact. **No indirect** impacts would occur.

Off-Site Elements

The off-site infrastructure elements are related to the provision of utilities to the project site. These elements would be placed underground in existing rights-of-way and would not be readily visible once completed. Off-site elements would not involve construction of new urban uses (e.g., residential, commercial, or industrial land uses) that would create new skyglow effects in Sutter, Placer or Sacramento County. **No direct** or **indirect** impacts would occur.

Mitigation Measures: Implement Mitigation Measure 3.16-5.

Off-Site Elements

No mitigation measures are required.

Significance after Mitigation

Implementation of Mitigation Measure 3.16-5 would partially reduce significant impacts associated with effects from skyglow. However, because of the scale and location of the project site, screening or shielding light fixtures to direct light downward or the use of low-pressure sodium or other lighting would not reduce the effects of new skyglow on the night sky to a less-than-significant level. Therefore, impacts are **significant and unavoidable**.

Additional Detailed Analysis of On-Site Elements – Impacts and Mitigation Measures

IMPACT 3.16-7 *Alteration of a Scenic Vista. Phase 1 and Phase A would not result in the degradation of the visual quality of a scenic vista.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-1 for further discussion of this impact.

IMPACT 3.16-8 *Damage to Scenic Resources within a State Scenic Highway. Phase 1 and Phase A would not damage scenic resources and is not visible from a state-designated scenic highway.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-2 for further discussion of this impact.

IMPACT 3.16-9 *Degradation of Visual Character. Phase 1 and Phase A would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-3 for further discussion of this impact.

Because of the scale and location of the project site, there is no feasible mitigation available to fully reduce the significant aesthetic resource impacts associated with the conversion of a large expanse of agricultural land to urban development to a less-than-significant level. Although the specific plan would include design, architectural, development, and maintenance standards to ensure that urban development on the project site remains within certain aesthetic guidelines as approved by the County, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to urban development. Therefore, this impact is **significant and unavoidable**.

IMPACT 3.16-10 *Temporary Degradation of Visual Character for Developed Project Land Uses during Construction. The presence and movement of heavy construction equipment and staging areas in Phase 1 and Phase A could temporarily degrade the existing visual character and/or quality of the project site and surrounding area.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-4 for further discussion of this impact.

Implementation of Mitigation Measure 3.16-4 would reduce significant impacts associated with temporary visual-quality degradation for developed land uses from concurrent construction staging areas by providing visual screening. However, because screening may not always be feasible (i.e., projects covering a large area or tall buildings), this temporary impact is **significant and unavoidable**.

IMPACT 3.16-11 *New Light and Glare. Phase 1 and Phase A would require lighting of new development, which could inadvertently cause increased light and glare.*

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-5 for further discussion of this impact.

Implementation of Mitigation Measure 3.16-5 would reduce significant impacts associated with effects from new sources of light and glare to a **less-than-significant** level by establishing lighting standards and preparing and implementing a lighting plan.

IMPAT *New Skyglow Effects. Phase 1 and Phase A would require lighting of new development that could*
3.16-12 *inadvertently cause increased skyglow effects, effectively obscuring views of stars, constellations, and other*
 features of the night sky.

Impacts would be the same under Phase 1 and Phase A as under the program (entire project site) level analysis. Refer to Impact 3.16-6 for further discussion of this impact.

Implementation of Mitigation Measure 3.16-5 above would partially reduce significant impacts associated with effects from skyglow. However, because of the scale and location of the project site, screening or shielding light fixtures to direct light downward or the use of low-pressure sodium or other lighting would not reduce the effects of new skyglow on the night sky to a less-than-significant level. Therefore, impacts are **significant and unavoidable**.

3.16.4 RESIDUAL SIGNIFICANT IMPACTS

Residually significant visual impacts would remain from permanent degradation of visual character, temporary degradation of visual character during construction, and new skyglow effects on the night sky because no feasible mitigation measures are available to reduce these impacts to a less-than-significant level. These impacts are significant and unavoidable.

3.17 CLIMATE CHANGE

Emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The proper context for addressing this issue in an EIR is as a discussion of cumulative impacts, because although the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; to affect rainfall and snowfall, leading to changes in water supply; to affect habitat, leading to adverse effects on biological resources; and to result in other effects.

Therefore, the cumulative global climate change analysis presented in this section of the DEIR includes two subsections: 3.17.1 and 3.17.2. In Subsection 3.17.1, the projected GHG emissions from the proposed project are analyzed with respect to their potential to contribute to global climate change. In Subsection 3.17.2, the potential effects of global climate change are identified based on available scientific data, and their potential effects on the proposed project are evaluated to the extent possible based on the quality of the data. *Consequently, the format of this subsection is somewhat different from the other sections in Chapter 3.*

This section concludes with an evaluation of the potential effect of global climate change on the magnitude of impacts in the other 16 topic areas discussed throughout this DEIR.

3.17.1 GREENHOUSE GAS EMISSIONS AND CONTRIBUTION TO GLOBAL CLIMATE CHANGE

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a proposed project's contribution to anticipated adverse future conditions, a lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the proposed project *and* other projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether “the proposed project’s *incremental* effects are cumulatively considerable” and thus significant in and of themselves. The cumulative project list for this issue (climate change) comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe, and no project alone would reasonably be expected to contribute to a noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context for and a process for developing an enforceable statewide cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs, even relatively small (on a global basis) additions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant.

This section presents a discussion of existing climate conditions, the current state of climate change science, and GHG emissions sources in California; a summary of applicable regulations; and a description of potential impacts of the proposed project related to climate change.

ENVIRONMENTAL SETTING

Certain gases in the earth’s atmosphere, classified as GHGs, play a critical role in determining the earth’s surface temperature. Solar radiation enters the earth’s atmosphere from space. A portion of the radiation is absorbed by the earth’s surface, and a smaller portion of this radiation is reflected back toward space. The absorbed radiation is then emitted from the earth, not as high-frequency solar radiation, but as lower frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits radiation at lower frequencies (longer wavelengths). Most solar radiation passes through GHGs; however, infrared radiation is selectively absorbed by GHGs. As a result,

infrared radiation released from the earth that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the “greenhouse effect,” is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would be unable to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated compounds. Human-caused emissions of these GHGs that exceed natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth’s climate, known as global climate change. It is extremely unlikely that global climate change over the past 50 years can be explained without the contribution from human activities (Intergovernmental Panel on Climate Change [IPCC] 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years) and contribute to global climate change, thereby indirectly affecting ecological systems worldwide. GHGs persist in the atmosphere for long enough periods to be dispersed around the globe. The exact lifetime of any particular GHG molecule depends on multiple variables and cannot be identified; however, it is understood that more CO₂ is currently emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 54% is sequestered through uptake by the oceans, forest regrowth in the Northern Hemisphere, and other terrestrial sinks (or reservoirs) within a year, whereas the remaining 46% of human-caused CO₂ emissions remains stored in the atmosphere (Seinfeld and Pandis 1998). Vegetation and the ocean absorb CO₂ through photosynthesis and dissolution, respectively, two of the most common processes of CO₂ sequestration.

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say that the quantity is enormous, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature or to global or local climates or a microclimate.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Air Resources Board [ARB] 2008a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (California Energy Commission [CEC] 2006a). Emissions of CO₂ are byproducts of fossil fuel combustion.

California is the 12th to 16th largest emitter of CO₂ in the world (CEC 2006a). It produced 484 million metric tons (MMT) of CO₂ equivalent (CO₂e) in 2004 (ARB 2008a). CO₂e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, depends largely on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, “Calculation References,” of the *General Reporting Protocol of the California Climate Action Registry* (CCAR) (2008), 1 ton of CH₄ contributes the same amount to the greenhouse effect as approximately 23 tons of CO₂, and 1 ton of N₂O contributes the same amount as approximately 310 tons of CO₂. Therefore, CH₄ and N₂O are much more potent GHGs than CO₂. CH₄ results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) associated largely with agricultural practices and landfills. Relatively small levels of N₂O are generated by internal combustion engines. Expressing emissions in CO₂e takes all GHG emissions that contribute to the greenhouse effect and converts them to a single unit, equivalent to the effect that would occur if only CO₂ were being emitted.

Combustion of fossil fuels in the transportation sector was the single largest source of California’s GHG emissions in 2004, accounting for 41% of total GHG emissions in the state (CEC 2006a). This sector was

followed by the electric power sector (including both in-state and out-of-state sources) (22%) and the industrial sector (21%) (CEC 2006a).

Climate change has the potential to affect environmental conditions in California through a variety of mechanisms. One is sea level rise. Worldwide, sea level rose approximately 7 inches during the last century (CEC 2006b), and it is predicted to rise an additional 7–22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2007). However, the Delta Vision Blue Ribbon Task Force, appointed by Governor Arnold Schwarzenegger in 2007, has recommended that the state plan for a scenario of 16 inches of sea level rise by 2050 and 55 inches by 2100 (ARB 2008a). Sea level rise could result in increased coastal flooding, saltwater intrusion (especially a concern in the low-lying Sacramento–San Joaquin Delta [Delta], where pumps delivering potable water could be threatened), and disruption of wetlands (CEC 2006b). Population displacement and economic disruption could occur in some low-lying populated areas throughout the Central Valley and Delta inundated by sea level rise.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable habitat conditions are no longer available. Additional concerns associated with climate change are a reduction in the snowpack, leading to less overall water storage in the mountains (the largest “reservoir” in the state), and the earlier melting of this snowpack each spring and at a faster rate. Increased risk of wildfire caused by changes in rainfall patterns and plant communities is also a major concern for California.

REGULATORY BACKGROUND

Federal Plans, Policies, Regulations, and Laws

The U.S. Supreme Court ruled on April 2, 2007, that CO₂ is an air pollutant as defined under the Clean Air Act (CAA) and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate emissions of GHGs. However, at the time this DEIR was written, no federal regulations or policies regarding GHG emissions were applicable to the proposed project.

State Plans, Policies, Regulations, and Laws

Various statewide and local initiatives to reduce California’s contribution to GHG emissions have raised awareness that even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required the California ARB to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California’s existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR Section 1900, 1961) and adoption of Section 1961.1 (13 CCR Section 1961.1) require automobile manufacturers, beginning with the 2009 model year, to meet

fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons). Emissions limits are reduced further for each model year through 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961, as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.* [456 F.Supp.2d 1150, 1172 [E.D. Cal. 2006]]). The suit in the U.S. District Court for the Eastern District of California contended that California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies.

In January 2007, the judge hearing the case accepted a request from the California Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al., v. Environmental Protection Agency, et al.*, the primary issue in question was whether the CAA authorizes EPA to regulate CO₂ emissions. EPA contended that the CAA does not authorize regulation of CO₂ emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO₂. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the CAA and that EPA is granted authority to regulate CO₂ (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the U.S. District Court for the eastern District Court rejected the automakers' claim by finding that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of federal law. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209(b) waiver in 2005. Since that time, EPA has failed to act in granting California authorization to implement the standards. Governor Schwarzenegger and Attorney General Edmund G. Brown Jr. filed suit against EPA for the delay. EPA denied California's request for the waiver to implement AB 1493 in late December 2007. The State of California has filed suit against EPA for its decision to deny the CAA waiver.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the snowpack in the Sierra Nevada, exacerbate California's air quality problems, and potentially cause a rise in sea level. To address those concerns, the executive order established total GHG emission targets. Specifically, emissions must be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The executive order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team, made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006; California Health and Safety Code Sections 38500–38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions

and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. EDAW compared statewide population and employment projections for 2020 to the 1990 emissions levels. As discussed in more detail in the impact analysis below, this calculation found that California would need to reduce GHG emissions by at least 25% to 30% (compared with current emissions levels) on a per-capita basis to attain AB 32's 2020 goals.

California Climate Action Registry

The CCAR was established in 2001 by Senate Bill (SB) 1771 and SB 527 (Chapter 1018, Statutes of 2000, and Chapter 769, Statutes of 2001, respectively) as a nonprofit voluntary registry for GHG emissions. The purpose of the CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol (CCAR 2008) and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle natural gas-fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40% of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10% by 2020. This order also directs ARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; Public Resources Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the state Resources Agency, to prepare, develop, and transmit to ARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA, by July 1, 2009. The Resources Agency is required to certify and adopt those guidelines by January 1, 2010. SB 97 also removes, both retroactively and prospectively, the legitimacy of litigation alleging inadequate CEQA analysis of effects of GHG emissions in the environmental

review of projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E). This provision will be repealed by operation of law on January 1, 2010; at that time, any such projects that remain unapproved will no longer be protected against litigation claims of failure to adequately address climate change issues. In the future, this bill will only protect a handful of public agencies from CEQA challenges on certain types of projects, and only for a few years' time.

In June 2008, OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, and water usage and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible (OPR 2008).

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020. Governor Schwarzenegger plans to propose legislative language that will codify the new higher standard (Office of the Governor 2008).

During the 2007 year, Pacific Gas and Electric Company (PG&E), the electric utility that serves Sutter County, procured enough renewable energy to meet 13.1% of its electricity supply. PG&E is on pace to reach the 20% target by 2010 (PG&E 2008).

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

SB 375 applies to the MPO in which the proposed project is located, the Sacramento Area Council of Governments (SACOG). SACOG's regional planning efforts, which preceded SB 375, are discussed further below.

Climate Change Scoping Plan

On December 11, 2008 ARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (ARB 2008b). The Scoping Plan contains the main strategies California will implement to reduce CO₂e emissions by 169 MMT, or approximately 30%, from the state's projected 2020 emissions level of 596 MMT of CO₂e under a business-as-usual scenario. (This is a reduction of 42 MMT CO₂e, or almost 10%, from 2002–2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.) The Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- ▶ improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO₂e),
- ▶ the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- ▶ energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e), and
- ▶ a renewable portfolio standard for electricity production (21.3 MMT CO₂e).

ARB has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions; however, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate assignment to local government operations is to be determined (ARB 2008b).

With regard to local land use planning, the Scoping Plan expects a reduction of approximately 5.0 MMT CO₂e from local land use changes associated with implementation of SB 375, discussed above. Also noteworthy is the fact that the Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

Attributing Greenhouse Gas Emissions and Land Use Linkages

Land use decisions and development projects are not recorded as an independent emissions sector in the state's GHG inventory. Rather, land use development projects draw from multiple emissions sectors (e.g., transportation, electricity, and waste). In other words, direct and indirect GHG emissions that are generated on-site or off-site, respectively, can be attributed to the operation of a land use development project. The people who would reside in and the visitors to a development would drive vehicles and generate GHGs that are accounted for in the transportation sector. Electricity consumed at buildings within a project site would indirectly cause GHGs to be emitted at a utility provider. These stationary-source GHG emissions associated with the operation of the utility would be closely controlled and regulated under AB 32 and SB 1368.

Transportation-related GHG emissions are a function of two parameters: emissions control technology and vehicle miles traveled (VMT). AB 1493 and Executive Order S-1-07 address emissions control technology, but not VMT. Since 1990, VMT per capita in California has been increasing at a faster rate than the state's population. Consequently, GHG emissions from increased VMT have outpaced the emissions reductions associated with improved vehicle emissions controls. SB 375, through its linkages of land use and transportation funding, addresses the need and provides incentive for VMT reductions.

State of California Energy Action Plan

California Energy Commission (CEC), the California Power Authority (CPA), and the California Public Utilities Commission (CPUC) have adopted an “Energy Action Plan” (EAP) that sets forth a commitment to achieve joint goals for California’s energy future through specific actions. The second EAP (EAP II) describes a coordinated implementation plan for state energy policies that have been expressed through the Governor’s Orders, public positions, instructions to agencies, legislative direction and other energy related policies. (CEC et al., EAP II <http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF> [as of September 23, 2008].) The overarching goal of the EAP II is for California’s energy to be adequate, technologically advanced, affordable, and environmentally-sound. One of the key actions identified by the EAP II with respect to renewable energy and GHG emission reductions is to implement a cost-effective program to achieve the 3,000 megawatts (MW) goal of the Governor’s “Million Solar Roof’s initiative.” Another key action identified by the EAP is to establish a program to encourage solar hot water heating.

The California Solar Initiative (CSI): California has set a goal to create 3,000 MW of new solar produced electricity by 2017. This Initiative is administered by the CPUC. On March 2, 2006, the CPUC opened a proceeding to develop rules and procedures for the Initiative and to continue considering policies for the development of cost-effective, clean, and reliable distributed generation of energy. On August 21, 2006, the Governor signed Senate Bill 1 (SB 1), which directs the Energy Commission to implement the Solar Initiative program within certain budget limits and specific requirements. CPUC rulemaking is currently in progress to reconcile its decisions with SB 1. Current incentives under the Initiative provide upfront, capacity-based payment for new solar systems. This incentive system changed in 2007, however, into performance-based payments. (Go Solar California, The California Solar Initiative <<http://www.gosolarcalifornia.ca.gov/csi/index.html>> [as of September 23, 2008].)

Title 24 Update: Title 24 is revised on a three-year cycle. The next update will be in 2008. It is widely recognized that Updates for the Title 24 Building standards will be an effective method by which the State may reduce GHG emissions. For example, the EAP II (described above) directs the CEC to adopt new building standards for implementation in 2008 that include cost-effective demand response technologies and the integration of photovoltaic systems. (CEC, 2008 Update to the Building Energy Efficiency Standards, 2008 Standards Background and Objectives <<http://www.energy.ca.gov/title24/2008standards/background.html>> [as of September 23, 2008].) Similarly, Executive Order 2-3-05, the Climate Action Initiative, identifies Title 24 Building Standards as an explicit strategy in a menu of actions that will be necessary to meet the goals of the Climate Action Initiative.

Regional and Local Plans, Policies, Regulations, and Ordinances

Metropolitan Transportation Plan and Sacramento Blueprint

Sutter County is a member of SACOG, which covers a six-county area. SACOG adopted a metropolitan transportation plan (MTP) for 2035 to provide a regional vision for all modes of surface transportation and a guide for regional transportation investments. The MTP uses federal and state funds for programs designed to meet goals such as clean air; for designing communities to encourage local pedestrian, bicycle, and transit travel; and for improvements to main routes that serve longer distance travel around the region (specifically freeways, rail lines, and major roadways and streets that serve regional traffic).

In December 2004 the SACOG Board of Directors adopted the Preferred Blueprint Scenario, a bold vision for growth through the year 2050 that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. As part of the MTP, the Preferred Blueprint Scenario provides an example of how land use and transportation choices might be integrated within the region, built upon the principles of smart growth. These principles include promoting a wide range of housing products, reinvesting in already developed areas, protecting natural resource areas from urbanization, and providing alternative

transportation choices. To a large degree, local governments in the Sacramento region are using Blueprint smart-growth principles in built projects, plans, and general plans.

3.7.2 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

This section describes the proposed project's construction-related (temporary, short-term) and operation-related (long-term) emissions of GHGs and whether they would result in a cumulatively considerable contribution to global climate change. The discussion includes the criteria for determining the level of significance of effects and describes the methods and assumptions used to conduct the analysis. The analyses of temporary short-term and permanent long-term emissions of GHGs associated with implementation of the Sutter Pointe Specific Plan contained in this DEIR is considered on a cumulative basis.

THRESHOLDS OF SIGNIFICANCE

No air district or other regulatory agency in California, including the Feather River Air Quality Management District (FRAQMD), the Sacramento Metropolitan Air Quality Management District, or the Placer County Air Pollution Control District, has identified a significance threshold for GHG emissions generated by a proposed project, or a uniform methodology for analyzing impacts related to GHG emissions or global climate change. By adopting AB 32 and SB 97, however, the State of California has established GHG reduction targets (in AB 32) and has determined that GHG emissions, as they relate to global climate change, are a source of adverse environmental impacts in California that should be addressed under CEQA (in SB 97). (See the descriptions of AB 32 and SB 97 provided above under "Regulatory Background.") Although AB 32 did not amend CEQA, the legislation does include language identifying the various environmental problems in California caused by global climate change (Health and Safety Code, Section 38501[a]). SB 97, in contrast, did amend CEQA to require OPR to prepare revisions to the State CEQA Guidelines addressing the mitigation of GHGs or their consequences.

As an interim step toward development of required guidelines, OPR recently released a technical advisory recommending, among other things, that CEQA documents consider the impacts of GHGs, quantify the emissions where feasible, and develop measures to mitigate impacts when significant (OPR 2008). It is noted that GHGs are a global issue caused by development and burning of fossil fuels around the world, and no single project would measurably affect climate change. For the purposes of this EIR, it is most appropriate to discuss climate change as a cumulative impact, because GHG emissions from multiple past, present, and reasonably foreseeable projects throughout the world result in a cumulative impact, global climate change. OPR acknowledges that CEQA places the burden of determining impact significance on the lead agency but also suggests that ARB develop thresholds that can be used by local agencies. ARB released on October 24, 2008, its "Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act" (ARB 2008c). As connoted by the title, this is only a preliminary draft, and it includes a number of conceptual proposals. ARB developed concepts for industrial projects and for residential/commercial projects. In both cases, the thresholds are largely tied to standards or criteria that have not yet been developed and/or adopted, such as ARB performance standards for construction-related emissions, transportation, water use, and waste, and GHG reduction targets to be adopted by ARB pursuant to SB 375. The draft proposal also references meeting CEC Tier II energy efficiency standards (35% more energy efficient than 2007 Title 24 standards), and not exceeding an as yet-to-be-determined mass emissions threshold. Because this guidance is conceptual, relies on standards that still need to be developed, and is subject to change, it does not provide a usable threshold for consideration in this EIR.

In addition to quantifying and disclosing the mass level of GHG emissions associated with the proposed project, as recommended by OPR (2008), this analysis also attempts to present those mass emission levels in a framework that demonstrates their connection to the reduction goals of AB 32. To meet the GHG emissions targets of AB 32, California would need to generate lower levels of GHG emissions in the future than current levels. It is also

recognized, however, that for most projects no simple metric is available to determine whether a single project would conflict with the goals of AB 32.

Although the text of AB 32 focuses on major stationary and area sources of GHG emissions (see Section 38505[i] of the Health and Safety Code), the primary objective of AB 32 is to reduce California's contribution to climate change by reducing California's total annual quantity of GHG emissions. The impact that GHG emissions have on global climate change does not depend on whether they are generated by stationary, mobile, or area sources, or whether they are generated in one region or another. As a mandate, AB 32 demonstrates California's commitment to reducing GHG emissions and the state's associated contribution to climate change, without intending to limit population or economic growth within the state. Thus, to achieve the goals of AB 32, which are tied to mass GHG emission levels of a specific benchmark year (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population (per person) and/or per level of economic activity (e.g., per job) than its current rate. Furthermore, to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than it achieved in 1990. (The goal—to achieve 1990 quantities of GHG emissions by 2020—will need to be accomplished despite 30 years of population and economic growth beyond 1990.) For this reason, land uses need to be GHG “efficient” to attain AB 32 goals while accommodating population and job growth..

For disclosure purposes, the efficiency metric discussed in this analysis is annual GHG emissions per service population (SP), or annual GHG/SP, where SP is the number of residents accommodated by the project plus the number of jobs supported by the project. The benchmark for this metric is estimated to be approximately 4.3 metric tons CO₂e/SP/year. This benchmark was developed and estimated based on future expected growth in the state's population and economy and the 2020 mass emissions reduction target mandated by AB 32; assumptions were also made about which emissions sectors of the statewide GHG inventory are affected by land use planning and development design decisions. For instance, GHG emissions produced by the forestry sector are not accounted for in this metric because the proposed project would not result in the removal or addition of forests or state forestland. Also, GHG emissions produced by the cement industry are not included because it is anticipated that GHG emissions associated with cement production will be regulated directly through industry-specific rules or a cap-and-trade program (ARB 2008b). These and other detailed assumptions and calculations used to estimate this benchmark are presented in Appendix F of this DEIR.

Additionally, disclosing an efficiency-based metric in this analysis is consistent with the discussion in ARB's Scoping Plan (ARB 2008b) of the GHG efficiency that must be achieved to attain the mandated reductions in mass annual GHG emission levels. However, although the Scoping Plan discusses efficiency in terms of (imperial) tons per person, it does not explicitly discuss ways to account for projected growth in the state's population or projected growth in the state's economy. Moreover, the metric of mass GHG emissions per capita would not be useful for understanding the efficiency of nonresidential land uses (e.g., commercial, industrial, educational).

Because the CO₂e/SP/year metric accounts for future population growth, future economic growth, and mass emission targets, future land use development projects that would not be more GHG efficient than “business as usual” would conflict with the spirit of AB 32 policy. Although disclosing the proposed project's estimated CO₂e/SP/year metric is important, this metric is not appropriate for making a significance determination herein, for several reasons that are discussed in the impact analysis below. Instead, for the proposed project, the following significance threshold was used:

- ▶ A qualitative analysis has been employed to determine whether the GHG emissions associated with the proposed project would be cumulatively considerable (significant). This impact discussion will address the question of whether land uses developed under the proposed Specific Plan would achieve a 30% reduction in GHG emissions compared to business-as-usual emission levels projected for 2020.

One of the primary challenges to establishing a reasonable threshold and determining impacts (and mitigation) relates to enactment of AB 32 and other GHG-reduction legislations. As previously described, much of this

legislation requires ARB and others to establish standards that relate to energy efficiency, carbon levels in fuels, smokestack emissions, and so on. These standards are in the development process but may be a few to several years away from implementation. The project, however, would also be in development for several years or decades, and during its lifetime would be subject to these as-yet undeveloped thresholds. There is a lag time between enactment of these legislative fixes and the regulations that will implement them. As a consequence, local governmental agencies are left to struggle with trying to discern the extent to which their decisions can and will influence GHG emissions, versus what still-to-be-developed regulations will achieve. For instance, a local lead agency can base a threshold on generation of emissions below some business-as-usual target, but there is no way of knowing whether regulations will largely result in reductions that hit the target, or whether local agencies will need to impose additional measures.

IMPACT ANALYSIS

IMPACT 3.17-1 *Generation of Temporary, Short-Term Construction-Related GHG Emissions. Project-related construction activities associated with development of the proposed project would result in increased generation of GHGs. These emissions would be temporary and short-term and would decline over time as new regulations are developed that address medium- and heavy-duty on-road vehicles and off-road equipment under the mandate of AB 32. However, based on current technology and measured against current standards, project-related construction emissions of GHGs are expected to be substantial and would contribute considerably to cumulative construction-related GHG emissions.*

Heavy-duty off-road equipment, materials transport, and worker commutes during construction of the proposed project would result in exhaust emissions of GHGs. Exact project-specific data (e.g., construction equipment types and number requirements) were not available at the time of this analysis (particularly for development that would occur after implementation of Phase 1 and Phase A).

GHG emissions generated by construction would be primarily in the form of CO₂. Although emissions of other GHGs, such as CH₄ and N₂O, are important with respect to global climate change, the emission levels of these other GHGs from off-road and on-road vehicles used during construction are relatively small compared with CO₂ emissions, even when factoring in the relatively larger global warming potential of CH₄ and N₂O.

To best characterize the levels of construction-related emissions that would likely be generated during development of on-site land uses for all phases of development, maximum annual emissions associated with a peak construction year for Phase 1 and Phase A were modeled using the ARB-approved URBEMIS 2007, Version 9.2.4, computer program (Rimpo and Associates 2008). For the sake of this program-level analysis, the maximum annual emissions level during Phase 1 and Phase A of project construction was modeled because details about the duration and intensity of subsequent phases are not known at this time. Also, the URBEMIS model does not account for reductions in CO₂ emission rates that would affect future construction activity due to the regulatory environment that is expected to evolve under AB 32. Modeling (of Phase 1 and Phase A) was conducted using the same assumptions for estimating construction-generated emissions of criteria air pollutants, which are listed in the discussion under Impact 3.4-1 of Section 3.4, “Air Quality.”

GHG emissions would also be generated by activities associated with construction of the approximately 5.5-mile sewer force main that would connect the project site to the Sacramento Regional County Sanitation District system. To best characterize the construction-related emissions levels that would likely occur during installation of this linear infrastructure, construction emissions were estimated using the Road Construction Emissions Model, Version 6.2 (Sacramento Metropolitan Air Quality Management District 2008). A summary of the GHG emissions generated during the worst-case construction year is presented in Table 3.17-1.

Table 3.17-1 Summary of Modeled Maximum Annual Construction Emissions of Greenhouse Gases¹	
Source	Annual Mass CO ₂ Emissions (metric tons) ¹
Construction Emissions, Maximum Annual	
On-Site Land Uses (Year 2011) ²	35,607
Sewer Force Main Connection to the Sacramento Regional County Sanitation District System (Year 2010 or 2011)	74
Total Maximum Annual Construction Emissions	35,681
Notes: CO ₂ = carbon dioxide. See Appendix F of this DEIR for detailed model input, assumptions, and threshold calculations. ¹ The values presented do not include the full life cycle of GHG emissions that would occur over the production/transport of materials used during construction of the proposed project and the end of life of the materials and processes that would occur as an indirect result of the proposed project. Estimating the GHG emissions associated with these processes would be speculative and would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting project-related GHG emissions. Indirect emissions associated with in-state energy production and solid waste would be regulated under AB 32 directly at the source or facility that would handle these processes. The emissions associated with off-site facilities in California would be closely controlled, reported, capped, and traded under AB 32 and California ARB programs. Therefore, it is assumed that GHG emissions associated with these life-cycle stages would be consistent with AB 32 requirements. ² Construction emissions were modeled with the URBEMIS 2007 computer model using the same assumptions and input parameters to estimate criteria air pollutant emissions in Section 3.4, "Air Quality." The URBEMIS 2007 model does not account for CO ₂ emissions associated with the production of concrete or other building materials used in project construction. It also does not estimate GHG emissions other than CO ₂ , though these levels are expected to be nominal in comparison to the estimated CO ₂ levels. Source: Modeling conducted by EDAW in 2008	

As shown in Table 3.17-1, estimated GHG emissions from construction would be approximately 35,681 metric tons of CO₂ during the projected peak construction year. This peak year is approximately 25% of the total construction activity that would occur for Phase 1 and Phase A. The quantities of construction-generated emissions associated with subsequent phases of development under the proposed project are anticipated to be similar, relative to the size of each phase and the duration of its construction period; however, construction during subsequent phases of development may be less GHG-intensive due to future regulations that evolve under the mandate of AB 32 that affect construction activity, directly or indirectly. For instance, ARB's Scoping Plan identifies the need to expand efficiency strategies and low carbon fuels for heavy-duty and off-road vehicles (ARB 2008b).

Because of the intensity and duration of construction activities, and the lack of available mitigation measures to abate GHG emissions from heavy-duty construction equipment exhaust and on-road hauling emissions, the construction emissions associated with the Sutter Pointe Specific Plan would make an incremental contribution to GHGs that cause climate change. One context in which to consider the order of magnitude of construction-generated GHG emissions is that stationary-source facilities (i.e., stationary, continuous sources of GHG emissions) that generate more than 25,000 metric tons of CO₂ per year are mandated to report GHG emissions to ARB under AB 32. Construction associated with the proposed Sutter Pointe Specific Plan would exceed that level. This information is presented for informational purposes, and ARB's reporting level of 25,000 metric tons is not intended as a numeric threshold. Rather, the intention is to disclose construction-generated GHG emissions in a statewide context. However, given that the emissions exceed the reporting level, they would be considerable.

Construction-generated emissions would be temporary and short-term; they would not continue on an ongoing basis year after year throughout the operational life of the development, as is the case with large stationary-source facilities. However, construction of the proposed project would take several years if not decades. In addition, the regulatory environment that continues to evolve under the mandate of AB 32 will reduce some of the emissions

from construction activity. ARB's Scoping Plan does not directly discuss GHG emissions generated by construction activity; however, it does recommend measures for improving the efficiency of medium- and heavy-duty on-road vehicles (1.4 MMT CO₂e) and expended efficiency strategies for off-road vehicles (e.g., forklifts, bulldozers). In addition, existing programs for air quality improvement in California, including the *Diesel Risk Reduction Plan* and the *2007 State Implementation Plan*, will result in the accelerated phase-in of cleaner technology for virtually all of California's diesel engine fleets, including construction equipment (ARB 2008b). Measures implemented under these plans are likely to result in future fleets of construction equipment that are more GHG-efficient than existing fleets. For these reasons, levels of GHG emissions associated with construction activity are expected to decrease over time as new regulations are developed under the mandate of AB 32.

Although the construction-generated emissions would be temporary and short-term, and although an expected new regime of regulations will come into place under AB 32 and existing regulatory efforts will help reduce GHG emissions generated by construction activity throughout the state, given the information available today, the proposed project would result in a cumulatively considerable incremental contribution to this **significant** cumulative impact related to generation of GHG emissions.

Mitigation Measure: Implement Mitigation Measure 3.4-1.

Significance after Mitigation

Implementing Mitigation Measure 3.4-1 (see Chapter 3.4, "Air Quality") would reduce construction vehicle emissions to the degree feasible, by requiring use of certain engines, following specific criteria, and other requirements. By reducing emissions of criteria air pollutants, GHG emissions also would be reduced. However, these reductions would not be sufficient to fully reduce the construction-generated GHGs to the extent that they would not be cumulatively considerable. The regulatory changes that are likely under AB 32 and other legislation may result in additional, more substantial reductions in emissions through the use of low carbon fuels or off-road engine standards. No other feasible mitigation measures are available at the time of writing this DEIR. Because of the uncertainty with respect to GHG reductions from regulations that have not yet been developed, and because the GHGs generated by project-related construction activities are considerable, the proposed project's incremental contribution would be cumulatively considerable and **significant and unavoidable**.

IMPACT Increased Long-Term Operational GHG Emissions. *Operation of the proposed project over the long term would result in increased generation of GHGs, which would contribute considerably to cumulative GHG emissions.*

3.17-2

GHG emissions would be generated throughout the operational life of the proposed Sutter Pointe Specific Plan, and supporting off-site program elements. Operational emissions would be generated by area, mobile, and stationary sources. Area-source emissions would be associated with activities such as combustion of natural gas for space and water heating, maintenance of landscaping and grounds, waste disposal, and other sources. Mobile-source emissions of GHGs would include project-generated vehicle trips for residents, employees, and visitors. In addition, increases in stationary-source emissions could occur at off-site utility providers from electricity generation that would supply power to the proposed land uses.

GHG emissions generated by the proposed project would be primarily in the form of CO₂. Although emissions of other GHGs, such as CH₄ and N₂O, are important with respect to global climate change, the emissions levels of these other GHGs from the sources considered for this project are relatively small compared with CO₂ emissions, even when factoring in the relatively larger global warming potential of CH₄ and N₂O.

Emissions factors and calculation methods for GHGs from development projects have not been formally adopted for use by the state, FRAQMD, or any other air district. Direct operational CO₂ emissions were calculated using URBEMIS 2007, Version 9.2.4 (Rimpo and Associates 2008). Indirect operational emissions associated with electricity consumption were estimated according to methodologies of the CCAR's *General Reporting Protocol*

(CCAR 2008). Indirect operational emissions associated with water consumption were estimated using information provided by the CEC (CEC 2005) as well as CCAR's *General Reporting Protocol* (CCAR 2008). Operation of the off-site infrastructure improvements are essentially accounted for in these estimations of indirect operational emissions associated with water consumption. A summary of the GHG emissions estimated for Phase 1 and Phase A is presented in Table 3.17-2. For the sake of this program-level analysis, the annual operational emissions level of development under Phase 1 and Phase A was modeled because operational GHG emissions of subsequent phases are less predictable at the time of writing this DEIR. Future GHG emission rates for area and mobile sources are not yet developed because regulations continue to evolve under the mandate of AB 32. The URBEMIS model, as well as other GHG estimation protocol, do not yet account for the impact reductions of the future regulatory environment and future technological improvements that result in GHG efficiencies. Thus, this analysis uses the emissions estimates modeled for Phase 1 and Phase A as a proxy for evaluating GHG emissions associated with operation of the entire Sutter Pointe Specific Plan.

Table 3.17-2 Summary of Modeled Operational Emissions of Greenhouse Gases for Phase 1 and Phase A ¹	
Source	Annual Mass CO ₂ e Emissions (metric tons) ¹
Operational Emissions (Year 2020) ²	
Area-Source	36,470
Mobile-Source	223,859
Indirect Operational Emissions Associated with Electricity Generation ³	84,113
Indirect Operational Emissions Associated with Water Consumption ⁴	3,971
Total Operational Emissions (Direct and Indirect) ⁵	348,414
GHG Efficiency Metrics	
Residential Population accommodated by Phase 1 and Phase A	20,514
Employment (jobs) accommodated by Phase 1 and Phase A	14,432
Service Population accommodated by Phase 1 and Phase A	34,946
CO ₂ e/SP/year (to occur over lifetime of Phase 1 and Phase A operations)	10.0 metric tons/SP/year
CO ₂ e/SP/year that reflect statewide AB 32 targets ⁶	4.3 metric tons/SP/year
Notes: AB = Assembly bill; CO ₂ e/SP/year = carbon dioxide equivalent per service population per year; GHG = greenhouse gases; SP = service population. See Appendix F of this DEIR for detailed model input, assumptions, and threshold calculations.	
¹ The values presented do not include the full life cycle of GHG emissions that would occur over the production/transport of materials used during the operational life of the proposed project, solid waste (projected to be 33,177 annual tons for Phase 1 and Phase A) that would be generated over the life of the project, and the end of life of the materials and processes that would occur as an indirect result of the proposed project. Estimating the GHG emissions associated with these processes would be speculative and would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting operational GHG emissions. Furthermore, indirect emissions associated with in-state energy production and generation of solid waste would be regulated under AB 32 directly at the source or facility that would handle these processes. The emissions associated with off-site facilities in California would be closely controlled, reported, capped, and traded under AB 32 and California ARB programs, as recommended by ARB's Scoping Plan (ARB 2008b). Therefore, it is assumed that GHG emissions associated with these life-cycle stages would be consistent with AB 32 requirements.	
² Direct operational emissions were modeled using the URBEMIS 2007 computer model, based on trip generation rates obtained from the traffic analysis, as well as the same assumptions and input parameters used to estimate criteria air pollutant emissions in Section 3.4, "Air Quality." Year 2020 is the earliest year when full buildout of Phase 1 and Phase A could occur. URBEMIS also does not estimate GHG emissions other than CO ₂ emissions, although these levels are expected to be nominal in comparison to the estimated CO ₂ levels.	
³ Indirect operational CO ₂ e emissions associated with electricity consumption were estimated using the methodologies of the <i>California</i>	

Table 3.17-2
Summary of Modeled Operational Emissions of Greenhouse Gases for Phase 1 and Phase A ¹

Climate Action Registry General Reporting Protocol, Version 3.0 (CCAR 2008).

- ⁴ Electricity consumption associated with the consumption of water, including the conveyance, distribution, and treatment of that water, was estimated using the projected water demand of 8,442 acre-feet per year discussed in Section 3.10, "Public Utilities," and the average energy intensity for Northern California of 3,950 kilowatt-hours per million gallons associated with this consumption provided by the CEC (CEC 2005). Then the indirect operational CO₂e emissions associated with *this* electricity consumption were estimated using the methodologies of the *California Climate Action Registry General Reporting Protocol, Version 3.0 (CCAR 2008)*. This emissions estimate includes those GHG emissions associated with operating the sewer force main connection to the Sacramento Regional County Sanitation District system.
- ⁵ Actual values for these parameters are expected to be lower for multiple reasons, which are discussed in detail in the impact analysis.
- ⁶ This benchmark is based on projected increases in the state's population and employment levels and reductions targets established by AB 32.

Source: Modeling conducted by EDAW in 2008

As shown in Table 3.17-2, estimated GHG emissions associated with operation of the land uses proposed under Phase 1 and Phase A would total approximately 348,414 metric tons annually. At full buildout Phase 1 and Phase A would accommodate approximately 20,514 residents and support approximately 14,432 jobs. When estimated CO₂e emissions are normalized with respect to the SP metric, the average annual efficiency rate of Phase 1 and Phase A operations would be 10.0 metric tons CO₂e/SP/year. However, in many respects this value is representative of Phase 1 and Phase A's GHG efficiency under a business-as-usual scenario and is considerably higher than what would likely occur.

First, the level of mobile-source emissions, which was estimated to be 64% of the total operational emissions, is overstated because it is based on the VMT estimated by the traffic study, which is conservative. The total VMT estimated by the traffic study includes all trips associated with the proposed project, including trips that originate or terminate outside the project area. Many of these are trips that would occur with or without the proposed project, but in order to be conservative, the traffic study attributes all of them to the proposed project's land uses. Moreover, the estimated level of mobile-source emissions also includes some emissions associated with trips that would merely replace trips that already take place elsewhere in the Sacramento region. For instance, the VMT estimate includes mobile-source emissions associated with workers who would commute to the project site from outside the area, even though these trips would be replacing the workers' existing commutes to other locations. This point is particularly pertinent to the proposed mix of land use types, because the proposed project includes a large regional employment center that is out of proportion with the amount of housing proposed and thus would draw in worker commute trips from outside areas. The location of a large regional employment center in this location is consistent with the SACOG Blueprint, which is intended to reduce overall VMT and GHG emissions in the region.

Furthermore, the VMT estimate does not account for all of the trip reduction features that are part of the project design. The project includes a number of "smart growth" concepts, including a mix of uses configured for convenient bike and pedestrian access, an extensive network of bike and pedestrian connections and integration of transit infrastructure. By the same token, it can only go so far in balancing land uses while remaining consistent with the direction from the SACOG Blueprint and Measure M to create a large regional employment center in this location – which results in a disproportionately high number of jobs within the project. This increases VMT compared to a fully integrated land use plan that has a balanced jobs-housing ratio. The transportation model used in the traffic analysis functions at a regional scale, so the nuances of the proposed project are not necessarily reflected in the estimate of net VMT. In addition, the emissions rates used to estimate mobile-source GHG emissions do not account for GHG reductions that would result from the Low Carbon Fuel Standard, which was adopted as a discrete early-action measure of AB 32, or the Clean Air Act waiver that California is seeking from EPA that would allow the state to adopt more stringent fuel efficiency standards for passenger vehicles and light trucks (AB 1493).

With regard to the second largest category of operational GHG emissions shown in Table 3.17-2, indirect GHG emissions related to the consumption of fossil fuel-based electricity, these estimated emissions do not account for reductions that will result from future regulatory changes under AB 32. The estimate of these emissions is not discounted to reflect the alternative-energy mandate of SB 107, which requires PG&E and other electric utilities to provide at least 20% of its electricity supply from renewable sources by 2010 and 30% by 2020; this mandate would be fully implemented before any new development under Phase 1 and Phase A of the proposed project would become operational. Because PG&E is still procuring enough renewable energy to meet this goal, the estimated rate of GHG emissions from electricity is expected to decrease between now and 2010. In addition, SB 1368 requires more stringent emissions performance standards for new power plants, both in-state and out-of-state, that will supply electricity to California consumers. Thus, implementation of SB 1368 will also reduce GHG emissions associated with electricity consumption. Rates of energy consumption will be further reduced with implementation of the 2010 Green Building Regulations, which will replace Title 24 building standards with more stringent, energy-efficiency requirements.

Further reductions are also expected from other regulatory measures that will be developed under the mandate of AB 32, as identified and recommended in ARB's Scoping Plan (ARB 2008b). In general, the Scoping Plan focuses on achieving the state's GHG reduction goals with regulations that improve the efficiency of motor vehicles and the production (and consumption) of electricity. Thus, even with the implementation of no project-specific mitigation, the rate of GHG emissions from development under the proposed project is projected to decrease in subsequent years as the regulatory environment progresses under AB 32. Additionally, new technology improvements may become available or the feasibility of existing technologies may improve. Nonetheless, a complete picture of the future regulatory environment is unknown at this time. GHG reduction measures promulgated under the AB 32 mandate may not be sufficient to cause future development to achieve a ARB's recommended 30% reduction from business-as-usual emissions levels projected for 2020 (as discussed in the Scoping Plan).

Also worth consideration is that, for the moment, the total annual GHG emissions level associated with operation of Phase 1 and Phase A would exceed 25,000 metric tons of CO₂ per year throughout the operational life if the proposed project, which is the mandatory reporting level for stationary sources as part of implementation of AB 32. In comparison to this reporting level, the amount of operational GHG emissions of the proposed project would be considered substantial.

Because the total GHG emissions associated with project operations would be considered substantial, and due to the uncertainty about whether the future regulations developed through implementation of AB 32 would cause operational emissions to be 30% lower than business-as-usual emission levels, the proposed project would result in a cumulatively considerable contribution to a **significant** cumulative impact related to long-term operational generation of GHGs.

Mitigation Measure: Implement Mitigation Measure 3.4-2.

Mitigation Measure 3.17-1: Implement Additional Measures to Reduce GHG Emissions.

For each increment of new development within the project site requiring a discretionary approval (e.g., proposed tentative subdivision map, conditional use permit), the County shall impose mitigation measures that reduce GHG emissions to the extent feasible and to the extent appropriate with respect to the state's progress at the time toward meeting GHG emissions reductions required by the California Global Warming Solutions Act of 2006 (AB 32).

The County shall require feasible reduction measures that, in combination with existing and future regulatory measures developed under AB 32, will reduce GHG emissions associated with the operation of developments and supporting infrastructure that are part of the proposed project by 30% from business-as-usual emissions levels projected for 2020, if it is feasible to do so.

For each increment of new development, the County shall submit to the developer a list of potentially feasible GHG reduction measures to be considered in the development design. The County's list of potentially feasible GHG reduction measures shall reflect the current state of the regulatory environment, which will continuously evolve under the mandate of AB 32. The developer shall then submit to the County a mitigation report that contains an analysis demonstrating which GHG reduction measures are feasible and the associated reduction in GHG emissions. The report shall also demonstrate why measures not selected are considered infeasible. The County must review and approve the mitigation report for the applicable increment of development to receive its discretionary approval. In determining what sorts of measures should appropriately be imposed by a local government under the circumstances, the County shall consider the following factors:

- ▶ the extent to which rates of GHG emissions generated by motor vehicles traveling to, from, and within the project site are projected to decrease over time as a result of regulations, policies, and/or plans that have already been adopted or may be adopted in the future by ARB or other public agency pursuant to AB 32, or by EPA;
- ▶ the extent to which mobile-source GHG emissions, which at the time of writing this EIR comprise a substantial portion of the state's GHG inventory, can also be reduced through design measures that result in trip reductions and reductions in trip length;
- ▶ the extent to which GHG emissions emitted by the mix of power generation operated by PG&E, the electrical utility that will serve the project site, are projected to decrease pursuant to the Renewables Portfolio Standard required by SB 1078 and SB 107, as well as any future regulations, policies, and/or plans adopted by the federal and state governments that reduce GHG emissions from power generation;
- ▶ the extent to which replacement of CCR Title 24 with the California Green Building Standards Code or other similar requirements will result in new buildings being more energy efficient and consequently more GHG efficient;
- ▶ the extent to which any stationary sources of GHG emissions that would be operated on a proposed land use (e.g., industrial) are already subject to regulations, policies, and/or plans that reduce GHG emissions, particularly any future regulations that will be developed as part of ARB's implementation of AB 32, or other pertinent regulations on stationary sources that have the indirect effect of reducing GHG emissions;
- ▶ the extent to which the feasibility of existing GHG reduction technologies may change in the future, and to which innovation in GHG reduction technologies will continue, effecting cost-benefit analyses that determine economic feasibility; and
- ▶ whether the total costs of proposed mitigation for GHG emissions, together with other mitigation measures required for the proposed development, are so great that a reasonably prudent property owner would not proceed with the project in the face of such costs.

In considering how much, and what kind of, mitigation is necessary in light of these factors, the County shall consider the following list of options, though the list is not intended to be exhaustive, as GHG reduction strategies and their respective feasibility are likely to evolve over time. These measures are derived from multiple sources including the Mitigation Measure Summary in Appendix B of the California Air Pollution Control Officer's Association (CAPCOA) white paper, CEQA & Climate Change (CAPCOA 2008), and the California Attorney General's Office (2008).

Energy Efficiency

- ▶ Include clean alternative energy features to promote energy self-sufficiency (e.g., photovoltaic cells, solar thermal electricity systems, small wind turbines).

- ▶ Design buildings to meet CEC Tier II requirements (e.g., exceeding the requirements of the Title 24 (as of 2007) by 35%).
- ▶ Site buildings to take advantage of shade and prevailing winds and design landscaping and sun screens to reduce energy use.
- ▶ Install efficient lighting in all buildings (including residential). Also install lighting control systems, where practical. Use daylight as an integral part of lighting systems in all buildings.
- ▶ Install light-colored “cool” pavements, and strategically located shade trees along all bicycle and pedestrian routes.

Water Conservation and Efficiency

- ▶ With the exception of ornamental shade trees, use water-efficient landscapes with native, drought-resistant species in all public area and commercial landscaping. Use water-efficient turf in parks and other turf-dependant spaces.
- ▶ Install the infrastructure to use reclaimed water for landscape irrigation and/or washing cars.
- ▶ Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
- ▶ Design buildings and lots to be water-efficient. Only install water-efficient fixtures and appliances.
- ▶ Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff. Prohibit businesses from using pressure washers for cleaning driveways, parking lots, sidewalks, and street surfaces. These restrictions should be included in the Covenants, Conditions, and Restrictions of the community.
- ▶ Provide education about water conservation and available programs and incentives.
- ▶ In order to reduce stormwater runoff, which typically bogs down wastewater treatment systems and increases their energy consumption, construct driveways to single family detached residences and parking lots and driveways of multi-family residential uses with pervious surfaces. Possible designs include Hollywood drives (two concrete strips with vegetation or aggregate in between) and/or the use of porous concrete, porous asphalt, turf blocks, or pervious pavers.

Solid Waste Measures

- ▶ Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- ▶ Provide interior and exterior storage areas for recyclables and green waste at all buildings.
- ▶ Provide adequate recycling containers in public areas, including parks, school grounds, golf courses, and pedestrian zones in areas of mixed-use development.
- ▶ Provide education and publicity about reducing waste and available recycling services.

Transportation and Motor Vehicles

- ▶ Promote ride sharing programs and employment centers (e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading zones and waiting areas for ride share vehicles, and providing a web site or message board for coordinating ride sharing).
- ▶ Provide the necessary facilities and infrastructure in all land use types to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).
- ▶ At industrial and commercial land uses, all forklifts, “yard trucks,” or vehicles that are predominately used on-site at non-residential land uses shall be electric-powered or powered by biofuels (such as biodiesel [B100]) that are produced from waste products, or shall use other technologies that do not rely on direct fossil fuel consumption.

Golf Course Design and Operations

- ▶ Incorporate best management practices into the design and operation of any golf courses developed under the proposed project. Such practices include but are not limited to the use of low-maintenance grass, electric landscaping equipment and golf carts, electric-powered golf carts, bicycle rentals for patrons, use of drought-tolerant native plants, water-efficient irrigation systems and devices such as soil moisture-based irrigation controls, biodegradable golf tees, and development of a water conservation plan. Attain the review and approval of the full design and golf course operations plan from the Environmental Institute for Golf or a like-organization to be selected by the Sutter County Community Services Department.

Implementation: The project applicant(s) of all project phases.

Timing: Before approval of final maps and building permits for all projects and development phases.

Enforcement: Feather River Air Quality Management District and/or Sutter County.

Significance after Mitigation

By acknowledging that the regulatory environment will continue to progress and that new GHG reduction technologies will continue to be innovated over time, Mitigation Measure 3.17-1 requires the implementation of project-specific mitigation measures that are appropriate and feasible during each phase or increment of project development. Although Mitigation Measure 3.17-1 would require the implementation of all feasible GHG reduction measures known at this time, it is unknown at the time of writing this DEIR whether the selected project-specific measures during each project phase, in combination with the GHG reductions realized from the regulatory environment that exists at that time, would result in a 30% reduction from business-as-usual emission levels projected for 2020.

As the preceding discussion suggests, much of the difficulty in achieving a 30% reduction in GHG emissions through measures imposed by the County reflects the reality that the vast majority of GHG emissions associated with the project are attributable to the combustion of fossil fuels, either in motor vehicles or in electricity-generating power plants. The state, it is clear, must make significant strides in changing the make-up of transportation fuels and power plant fuels if it is to achieve compliance with AB 32. Based on the Scoping Plan adopted by ARB on December 11, 2008, however, it is reasonable to expect that the state should be able to make such strides through regulations and policies adopted pursuant to AB 32. Given the long period of time needed for build-out of Sutter Pointe, these regulations and policies should be effective in reducing GHG emissions from vehicles and power plants during the period of time in which the County approves the vast majority of project-level development entitlements needed for development pursuant to, and consistent with, the Specific Plan. As these regulations and policies gradually become effective, the task of achieving a 30%

emissions reduction compared with “business as usual” should become comparatively easier. However, the precise level of reductions is difficult to calculate for all phases of development, and therefore would be speculative at this time. As a precaution, this EIR concludes that the proposed project’s incremental contribution to long-term operational GHG emissions is cumulatively considerable and **significant and unavoidable**.

3.17.2 IMPACTS ON THE PROPOSED PROJECT RELATED TO GLOBAL CLIMATE CHANGE

INTRODUCTION

This section analyzes the potential impact of global climate change on the proposed project (e.g., effects of increased sea levels, reduced snow pack). Because the potential impacts of global warming have only recently been realized, firm data, commonly accepted thresholds for significance, and firm conclusions are not available. This section therefore draws from a range of studies that analyze global and regional patterns and trends. To increase the data set of information about theoretical regional changes, some of the studies relied on analyze climate for the entire Central Valley, including both the Sacramento and San Joaquin Valleys.

Since there are no formally accepted methodologies, a lead agency must use its best efforts to find out and disclose all that it reasonably can about the potential adverse environmental effects of the proposed project or on the proposed project. However, the analysis cannot rely on speculation. Speculation that is based on unspecified and uncertain future effects that cannot reasonably be evaluated cannot result in verifiable analyses. Furthermore, such analysis could mislead the decision makers and the public. As indicated in the CEQA Guidelines, “If after a thorough investigation, an agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.” (State CEQA Guidelines Section 15145.)

The following analysis is based on available information and projections applicable to estimating the types of effects that may occur. While some effects of global climate change are reasonably foreseeable, the extent to which many of these effects would manifest themselves and the potential of other effects to occur, remain speculative. In the interests of fully informing the decision makers, many of the potential effects that are subject to a high degree of speculation are discussed in the following evaluation, despite that it would be too speculative to draw a conclusion as to their significance. The discussion herein focuses on the potential effects of climate change on the proposed project, rather than the potential of the proposed project to contribute to global climate change.

Although there is a strong scientific consensus that global warming/global climate change is occurring and is greatly influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of global climate change. Scientists have identified several ways in which global climate change could alter the physical environment in California (Kiparsky and Gleick 2005, Roos 2005, California Department of Water Resources 2006). These include:

- ▶ increased average temperatures;
- ▶ modifications to the timing, amount, and form (rain versus snow) of precipitation;
- ▶ changes in the timing and amount of runoff;
- ▶ reduced water supply;
- ▶ deterioration of water quality; and
- ▶ elevated sea level.

The changes listed above may translate into a variety of other issues and concerns, such as:

- ▶ reduced agricultural production as a result of changing temperatures and precipitation patterns;
- ▶ changes in the composition, health, and distribution of terrestrial and aquatic ecosystems;
- ▶ reduced hydroelectric energy production caused by changes in the timing and volume of runoff; and

- ▶ reduced availability of energy because of greater demands associated with increased temperatures.

However, this evaluation of the effects of global climate change on the proposed project does not address energy supply for the following reasons:

- ▶ There are many potentially wide-ranging direct and indirect effects of global climate change, such as potential reductions in hydroelectric energy production. These reductions could result from changes in the timing and volume of runoff that would cause reductions in the generation of electricity. However it is too speculative to determine that these potential changes will affect the proposed project because they are both geographically remote and the impact on overall energy supply and markets is unknown. Also, potential changes may be addressed or corrected by other entities (e.g., energy providers increasing generation capacity to meet the increased demand that is not specifically associated with the proposed project; greater development and use of alternative energy sources such as solar to offset capacity losses); and
- ▶ The specific measures that would be implemented to address more wide-ranging direct and indirect effects of global climate change cannot be reasonably projected at this time.

This analysis does not suggest that the proposed project would see no effect related to energy supply. Rather, any effects would be the same at the project site, as elsewhere in the county, region, state, nation, and world, and would not result in specific unique impacts at the project site.

This analysis focuses on the effects of global climate change that might have a direct, reasonably foreseeable effect on physical conditions at the project site. Therefore, this analysis gives greatest consideration to climate-change data with more consistency in projections of future conditions, and thus a probability for a greater likelihood of occurring within a reasonable time frame (i.e., approximately 100 years).

CHARACTERIZATION OF CLIMATE CHANGE

This section summarizes the current scientific perspective of climate change and associated effects, particularly those that could affect the proposed project. Information is provided for each effect of climate change considered in this document, consisting of:

- ▶ increased temperature;
- ▶ precipitation volume, type, and intensity;
- ▶ runoff volume and timing;
- ▶ water supply;
- ▶ sea level rise;
- ▶ water quality changes; and
- ▶ agricultural changes.

For each climate change effect there is a discussion of:

- ▶ status of current scientific information and data about past trends;
- ▶ projected future changes and the accuracy and variability of modeling results, including identification of results presumed too speculative for conclusive analysis; and
- ▶ potential for the environmental effects of climate change to affect the proposed project, based both on the certainty or uncertainty of modeling results and on the physical nature of the effect.

This information is used in this section to consider and evaluate potential environmental effects of future climate change on the proposed project.

Information Sources

Information on the current state of the science surrounding climate change was derived from research papers, technical memoranda, literature summaries, and studies, including the following:

- ▶ United Nations Intergovernmental Panel on Climate Change documents *Climate Change 2001: The Scientific Basis* (IPCC 2001a); *Climate Change 2001: Synthesis Report* (IPCC 2001b); and *Climate Change 2007: The Physical Basis. Summary for Policymakers* (IPCC 2007);
- ▶ *California Water Plan Update 2005* (Bulletin 160-05) (DWR 2005a) and accompanying papers *Climate Change and California Water Resources: A Survey and Summary of the Literature* (Kiparsky and Gleick 2005) and “Accounting for Climate Change” (Roos 2005);
- ▶ *Progress on Incorporating Climate Change into Planning and Management of California’s Water Resources, Technical Memorandum Report* (DWR 2006); and
- ▶ Published reports on aspects of climate change and associated effects (see Chapter 7, “References,” of this DEIR for a listing of all information sources cited in this section).

Background

Theories about climate change and global warming existed as early as the late 1800s. It was not until the later 1900s that understanding of the Earth’s atmosphere had advanced to the point where many atmospheric and climate scientists began to accept that the Earth’s climate is changing (IPCC 2001a, 2001b; DWR 2006).

In recent years, the scientific consensus has broadened to consider increasing concentrations of greenhouse gases, attributable to anthropogenic (human) activities, as a primary cause of global climate change. The United Nations IPCC predicts that changes in the Earth’s climate will continue through the 21st century and that the rate of change may increase significantly in the future because of the growing population and associated increase in human activity (IPCC 2001b, 2007). Recent studies confirm the existence of climate change, and emphasize the occurrence of impacts in the next 20–50 years (Backlund, Janetos, and Schimel 2008), but the scope and rate of change remains uncertain.

In recent years, the issue of global climate change has had an increasing role in scientific and policy debates over multiple environmental topics such as land use planning, transportation planning, energy production, habitat and species conservation, use of ocean resources, and agricultural production. Of particular concern are the existing and potential future effects of global climate change on hydrologic systems and water management (e.g., domestic water supply, agricultural water supplies, flood control, water quality). There is evidence that global climate change has already had an effect on California’s hydrologic system. For example, historical data indicate a trend toward declining volumes of spring and summer runoff from the Sierra Nevada.

California water planners and managers have been among the first groups in the nation to realize the potential implications of statewide and regional climate change (rather than global-scale changes) on the reliability and safety of their systems. Research and analysis on climate risks facing California water resources began in the early 1980s, and by the end of that decade, state agencies such as the CEC had prepared the first assessments of state greenhouse gas emissions and possible impacts on a wide range of sectors. The California Water Plan (Bulletin 160) first addressed climate change in 1993 (DWR 1993). More recently, DWR and the Public Interest Energy Research program of CEC expanded and refined the analysis of climate change effects in California in the 2005 update of the California Water Plan, which explores a wide range of climate impacts and risks, including risks to water resources (Kiparsky and Gleick 2005, Roos 2005). The 2005 update also describes efforts that should be taken to quantitatively evaluate climate change effects for the next Water Plan update (DWR 2005a). DWR has also followed up on these issues with a technical memorandum report that specifically discusses progress on

modeling climate change in the state, characterizes the effects of climate change, and incorporates climate change into planning and management of California's water resources (DWR 2006).

Climate Change and Potential Effects on the Environment

Variability in Regional Modeling of Climate Change

Much of the available trend data, modeling, and projections related to climate change are on a global scale. Climate change projections often rely on general circulation models (GCMs). These models develop large-scale scenarios of changing climate parameters, usually comparing scenarios with different concentrations of greenhouse gases in the atmosphere. This information is typically not specific enough to make accurate regional assessments. As a result, more effort has recently been put into reducing the scale and increasing the resolution of climate models through various techniques such as "downscaling" or integrating regional models into the global models (Kiparsky and Gleick 2005, Roos 2005, DWR 2006). However, the level of uncertainty related to regional climate change is generally higher than that related to global projections because these current methodologies add uncertainty.

Variability in the results of climate change modeling is largely based on which global climate model is used, what inputs are selected for the model (world population increases and greenhouse gas emissions), and how the model is downscaled to provide region-specific data. For example, in DWR's report *Progress on Incorporating Climate Change into Management of California's Water Resources, Technical Memorandum Report* (DWR 2006), four scenarios projecting regional climate change were selected, consisting of combinations of two different global climate models and two different emissions scenarios. These four scenarios provide temperature results ranging from weak warming to relatively strong warming, and precipitation results ranging from modest reductions to weak increases (DWR 2006).

It should be remembered that results of climate change modeling, particularly for regional models, are not specific, quantified predictions. There is a lot of uncertainty about the magnitude of climate change that will occur during this century. It is unlikely that this level of uncertainty will be resolved in the foreseeable future (Dettinger 2005a). Therefore, effects on the environment anticipated under various climate change models should be considered as general projections of potential future conditions, with actual environmental effects likely falling within the range of results provided by a variety of model outputs.

Temperature

An increase in average annual temperatures, by itself, would have little effect on the proposed project other than adjustments in project operations in response to warmer temperatures, such as increased evapotranspiration rates affecting both lake areas and landscaped areas, resulting in an increased irrigation demand, and potentially greater overall energy consumption to meet air conditioning needs.

Although an increase in annual average temperature is a reasonably foreseeable effect of future climate change, this environmental change alone would have little effect on the proposed project.

Status and Trends

The Earth's climate has had periods of cooling and warming in the past. Significant periods of cooling have been marked by massive accumulations of sea- and land-based ice extending from the Earth's poles to as far as the middle latitudes. Periods of cooling have also been marked by lower sea levels because of the accumulation of water as ice and the cooling and contraction of the Earth's oceans. Periods of warming caused recession of the ice toward the poles, warming and thermal expansion of the Earth's oceans, and rise in sea levels (DWR 2006, IPCC 2007).

The potential for human-induced changes in the Earth's temperature has been tied to increased concentrations of greenhouse gases in the atmosphere, caused primarily by the production and burning of fossil fuels. The primary gases of concern are carbon dioxide, methane, and nitrous oxide (IPCC 2001a, 2001b, 2007). Average temperatures in the Northern Hemisphere appear to have been relatively stable from about the year 1000 to the mid-1800s, based on temperature proxy records from tree rings, corals, ice cores, and historical observations (IPCC 2001a). However, there is a level of uncertainty related to proxy temperature records, especially those extending far back into the past.

The IPCC stated that the Earth's climate has warmed since the preindustrial era and that it is very likely that at least some of this change is attributable to the activities of humans (IPCC 2007). Global average near-surface air temperatures and ocean surface temperatures increased by $0.74^{\circ}\text{C} \pm 0.18^{\circ}\text{C}$ ($1.33^{\circ}\text{F} \pm 0.32^{\circ}\text{F}$) during the 20th century (IPCC 2007).

Temperature measurements, apparent trends in reduced snowpack and earlier runoff, and other evidence such as changes in the timing of blooming plants indicate that temperatures in California and elsewhere in the western United States have increased during the past century (National Oceanic and Atmospheric Administration 2005, Mote et al. 2005, Cayan et al. 2001).

Projections

Modeling results from GCMs are consistent in predicting increases in temperatures globally with increasing concentrations of atmospheric greenhouse gases resulting from human activity. As discussed above, climate change projections can be developed on a regional basis using techniques to downscale from the results of global models (although increased uncertainty results from the downscaling). One relatively large group of model projections for California that was recently examined provides a temperature rise of about 2.5 to 9°C (4.5 to 16.2°F) for Northern California by 2100. An analysis of the distribution of the projections generally showed a central tendency at about 3°C (5.4°F) of rise for 2050, and about 5°C (9°F) for 2100 (Dettinger 2005b).

Snyder et al. (2002) produced one of the most refined scale temperature and precipitation estimates to date. Resulting temperature increases for a scenario of doubled carbon dioxide concentrations are 1.4 to 3.8°C (2.5 to 6.8°F) throughout California. This is consistent with the global increases predicted by the IPCC (2001b, 2007). In a regional model of the western United States, Kim et al. (2002) projected a climate warming of around 3 to 4°C (5.4 to 7.2°F). Of note in both studies is the projection of uneven distribution of temperature increases. For example, regional climate models show that the warming effects are greatest in the Sierra Nevada, with implications for snowpack and snowmelt (Kim et al. 2002, Snyder et al. 2002).

Effect on the Proposed Project

Based on the results of a variety of regional climate models, it is reasonably foreseeable that some increase in annual average temperatures will occur in California, and at the project site, during the next 100 years. Although a temperature increase is expected, the amount and timing of the increase is uncertain. In general, predictions put an increase in the range of 3 to 5°C (5.4 to 9°F) over the next 50–100 years (Kim et al. 2002, Snyder et al. 2002, Dettinger 2005b).

An increase in average annual temperatures, by itself, would have little effect on the proposed project other than adjustments in project operations in response to warmer temperatures, such as increased evapotranspiration rates affecting both lake areas and landscaped areas, resulting in an increased irrigation demand, and potentially greater overall energy consumption to meet air conditioning needs.

Effects related to water supply and energy consumption are discussed separately below. Potential outcomes of increased temperature on a global and regional scale, such as changes in precipitation and runoff, also have a potential to substantially affect physical conditions at the project site. These topic areas are also discussed below.

Therefore, although an increase in annual average temperature is a reasonably foreseeable effect of future climate change, this environmental change alone would have little effect on the proposed project, as explained further below.

Precipitation

Climate change can affect precipitation in a variety of ways, such as by changing the following:

- ▶ overall amount of precipitation,
- ▶ type of precipitation (rain versus snow), and
- ▶ timing and intensity of precipitation events.

Each of these issue areas is discussed below.

Amount of Precipitation

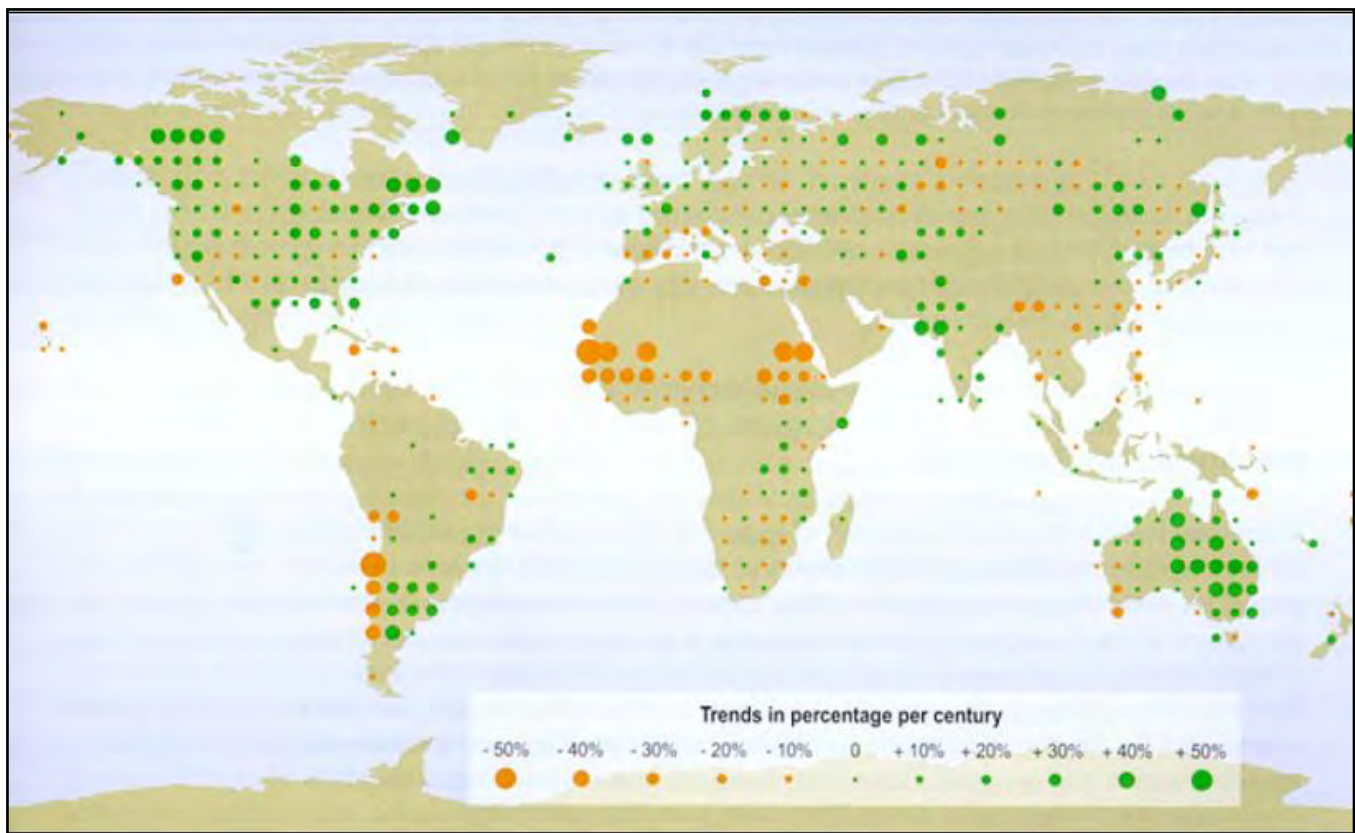
Although global climate change models generally predict an increase in overall precipitation on a worldwide scale, regional models applied to California predict both increases and decreases in annual precipitation. Given the uncertainty associated with projecting the amount of annual precipitation, any conclusion regarding significance of potential effects of climate change on precipitation volumes as they relate to reasonably foreseeable direct effects on physical conditions at the proposed project site would be too speculative to be meaningful.

Status and Trends

Worldwide precipitation is reported to have increased about 2% since 1900. While global average precipitation has been observed to increase, changes in precipitation over the past century vary in different parts of the world. Some areas have experienced increased precipitation while other areas have experienced a decline (Exhibit 3.17-1) (IPCC 2001b, 2007; NOAA 2005). An analysis of trends in total annual precipitation in the western United States by the National Weather Service's Climate Prediction Center provides evidence that annual precipitation has increased in much of California, the Colorado River Basin, and elsewhere in the West since the mid-1960s (DWR 2006). In another study evaluating trends in annual November through March precipitation for the western United States and southwest Canada, the data indicate that for most of California and the Southwest there was increasing precipitation during the periods of 1930–1997 and 1950–1997 (Mote et al. 2005).

Former State Climatologist James Goodridge compiled an extensive collection of longer-term precipitation records from throughout California. These data sets were used to evaluate whether there has been a changing trend in precipitation in the state over the past century (DWR 2006). Long-term runoff records in selected watersheds in the state were also examined. Based on a linear regression of the data, the long-term historical trend for statewide average annual precipitation appears to be relatively flat (no increase or decrease) over the entire record. However, an upward trend in precipitation during the latter portion of the record has been noted, but is not conclusive.

When these same precipitation data are sorted into three regions—northern, central, and southern California—trends show that precipitation in the northern portion of the state appears to have increased slightly from 1890 to 2002, and precipitation in the central and southern portions of the state show slightly decreasing trends. All changes were in the range of 1–3 inches annually (DWR 2006). Thus although existing data indicate some level of change in precipitation trends in California, more analysis is likely needed to determine whether changes in California's regional annual precipitation totals have occurred as the result of climate change or other factors (DWR 2006).



Source: Adapted by EDAW from IPCC 2001

Global Precipitation Trend for 1900–2000

Exhibit 3.17-1

Projections

The IPCC predicts that increasing global surface temperatures are very likely to result in changes in precipitation. Global average precipitation is expected to increase during the 21st century as the result of climate change, based on global climate models for a wide range of greenhouse gas emission scenarios. However, global climate models are generally not well suited for predicting regional changes in precipitation because of the large scale of global projections relative to the small scale of regionally important factors that affect precipitation (e.g., maritime influences, effects of mountain ranges) (IPCC 2001a, 2007).

Therefore, while precipitation is generally expected to increase on a global scale as a result of climate change, significant regional variations in precipitation trends can be expected. Some recent regional modeling efforts conducted for the western United States indicate that overall precipitation will increase (Kim et al. 2002, Snyder et al. 2002), but considerable uncertainty remains because of differences among larger-scale GCMs. Where precipitation is projected to increase in California, the increases are mostly in northern California (Kim et al. 2002, Snyder et al. 2002) and in the winter months.

Various California climate models provide mixed results regarding changes in total annual precipitation in the state through the end of this century. Models predicting the greatest amount of warming generally predict moderate decreases in precipitation, while models projecting smaller increases in temperature tend to predict moderate increases in precipitation (Dettinger 2005b). In addition, an IPCC review of multiple global GCMs indicates that fewer than 66% of the models evaluated agree on whether annual precipitation would increase or decrease for much of the State's area. Therefore, no conclusion on an increase or decrease can be provided (IPCC 2007). Considerable uncertainties about the precise effects of climate change on California (and more

specifically Sacramento River hydrology and water resources will remain until there is more precise and consistent information about how precipitation patterns, timing, and intensity will change

Effect on the Proposed Project

Although global climate change models generally predict an increase in overall precipitation on a worldwide scale, there is no such consistency among the results of regional models applied to California. Based on the models used and the input assumptions, both increases and decreases in annual precipitation are projected. There is also variability in the results for different parts of the state. Given the uncertainty associated with projecting the amount of annual precipitation, any conclusion regarding significance of potential effects of climate change on precipitation volumes as they relate to reasonably foreseeable direct effects on physical conditions at the proposed project site would be too speculative to be meaningful.

Snowpack

Magnitude and timing of increased water runoff related to changes in snowpack conditions are uncertain, and the exact impact on the proposed project is speculative. Based on the uncertainty of projected changes it is not feasible or useful to mitigate anticipated changes in current planning.

Status and Trends

California's annual snowpack, on average, has the greatest accumulations from November through the end of March. The snowpack typically melts from April through July. Snowmelt provides significant quantities of water to streams and reservoirs for several months after the annual storm season has ended. The length and timing of each year's period of snowpack accumulation and melting varies based on temperature and precipitation conditions (DWR 2006).

California's snowpack is important to the state's annual water supply because of its volume and the time of year that it typically melts. Average runoff from melting snowpack is usually about 20% of the state's total annual natural runoff and roughly 35% of the state's total usable annual surface water supply. The state's snowpack is estimated to contribute an average of about 15 million acre-feet (maf) of runoff each year, about 14 maf of which is estimated to flow into the Central Valley. In comparison, total reservoir capacity serving the Central Valley is about 24.5 maf in watersheds with significant annual accumulations of snow (DWR 2005b).

California's reservoir managers (including State Water Project [SWP] and Central Valley Project [CVP] facilities) use snowmelt to help fill reservoirs once the threat of large winter and early spring storms and related flooding risks have passed. These systems include water management infrastructure within the Sacramento River watershed, where additional water is stored in reservoirs and used to help meet downstream water demands after flows from snowmelt begin to recede. Some of the annual runoff collected in California's reservoirs is held from one year to the next because California's annual precipitation and snowpack can vary significantly from year to year. There may also be decade-scale variation in precipitation over the Sierra Nevada (Freeman 2002), and possibly other parts of California. Carryover storage can help meet water demand in years when precipitation and runoff is low.

Because the importance of the Sierra snowpack is tied to both the volume of water it holds and the timing of water releases (spring and early summer), simply assessing the amount of precipitation that falls as snow does not convey the full value of the snowpack and the potential effects of climate change on water supply. Measurements of the amount of Sierra runoff occurring from April to July are a better indicator of the combined interaction between the volume of the snowpack and the time of year that it melts.

Changes in patterns of runoff reveal declining water storage in the form of snowpack. Between 1906 and 2005, the total water year runoff in the Sacramento Valley rivers (including the Sacramento, Feather, Yuba, and American Rivers) has remained about the same (DWR 2006). However, runoff volume for April–July has

declined from approximately 43% of total water-year runoff to approximately 34% of total water year runoff (i.e., has declined about 9% as compared to total year runoff). These values represent “unimpaired” runoff, meaning that the effects of runoff detention in reservoirs are removed. These data indicate that although overall precipitation volumes (represented by runoff amounts) showed no change, more runoff occurred as a result of rain during the winter months, and less runoff could be attributed to the melting of accumulated snowpack during the spring and early summer. These trends suggest less accumulation of snowpack and earlier runoff of snow melt.

Projections

As early as the mid-1980s and early 1990s, regional hydrologic modeling of global warming impacts has suggested with increasing confidence that higher temperatures will affect the timing and magnitude of snowmelt and runoff in California (Gleick 1986, 1997; Lettenmaier and Gan 1990; Lettenmaier and Sheer 1991; Nash and Gleick 1991a, 1991b; Hamlet and Lettenmaier 1999). Over the past two decades, this has been one of the most persistent and well-established findings on the impacts of climate change for water resources in the United States and elsewhere, and it continues to be the major conclusion of regional water assessments (Knowles and Cayan 2002, Barnett et al. in prep.).

By delaying runoff during the winter months when precipitation is greatest, snow accumulation in the Sierra Nevada acts as a massive natural reservoir for California. Despite uncertainties about how increased concentrations of greenhouse gases may affect precipitation, there is very high confidence that higher temperatures will lead to dramatic changes in the dynamics of snowfall and snowmelt in watersheds with substantially more snowfall (Kiparsky and Gleick 2005, DWR 2006). An analysis of the impact of rising temperatures on snowpack conducted by DWR (2006) shows that a 3°C (5.4°F) rise in average annual temperature would likely cause snowlines to rise approximately 1,500 feet. This would result in an annual loss of approximately 5 maf of water storage in snowpack. Simulations conducted by N. Knowles and D. R. Cayan (Knowles and Cayan 2002) project a loss in April snowpack in the Sierra Nevada of approximately 5% with a 0.6°C (1.1°F) increase in average annual temperature, an approximately 33% loss with a 1.6°C (3.4°F) rise, and an approximately 50% loss in April snowpack with a 2.1°C (4.9°F) average annual temperature rise. Loss of snowpack was projected to be greater in the northern Sierra Nevada and the Cascades than in the southern Sierra Nevada because of the greater proportion of land at the low and mid-elevations in the northern ranges. With a temperature increase of 2.1°C, the northern Sierra Nevada and the Cascades were projected to lose 66% of their April snowpack, while the southern Sierra Nevada was projected to lose 43% of its April snowpack (Knowles and Cayan 2002).

Future predictions confirm that not only will snowpack form a smaller portion of overall precipitation but it will also melt and runoff earlier in the year in the Sacramento watershed and its constituent sub-basins (Gleick and Chalecki 1999). This change will occur as overall precipitation will likely increase slightly. These two trends will most likely cause reduced summer flows in the Sacramento River, reduced summer soil moisture and increased winter flows and flood potential. Higher snowlines will cause a greater proportion of winter runoff and earlier snowmelt times will lengthen the duration of peak winter flows and flood potential.

Effect on the Proposed Project

Based on the results of a variety of regional climate models and literature, it is reasonably foreseeable that snowpack will be reduced and/or will melt earlier or more rapidly in watersheds that feed the Sacramento River. The project site is on the floor of the Sacramento Valley and receives snow very rarely. Consequently, changes in snowfall patterns would not directly affect precipitation at the project site.

However, changes in snowpack could affect the proposed project indirectly by altering the timing and volume of runoff that eventually feeds into the project site and into waterways supplying water to the proposed project. The runoff sources can be divided into two categories: (1) direct rainfall-fed surface runoff accumulating in channels; and (2) released water from upstream reservoirs that is conveyed by the channels and will be utilized for groundwater recharge. The first source, direct surface runoff, will vary with large-scale regional changes in precipitation patterns. Because much of the naturally occurring runoff in the vicinity of the project site originates as

rainfall rather than snowfall (much of the Sacramento River watershed occurs in the Valley itself and thus below the snowline), changes to the timing and magnitude of naturally occurring rainfall patterns will follow regional changes associated with climate change in the central and northern Sierra Nevada. The second source, released and/or purchased waters stored in upstream reservoirs, will largely depend on regional annual average precipitation accumulations. The management of upstream reservoirs may need to be altered to account for seasonal variations in precipitation type and intensity. However, the total water volumes stored in upstream reservoirs is largely tied to regional trends of annual average precipitation amounts. The predicted shift towards greater precipitation with a larger proportion of rainfall relative to snow will require greater upstream management in reservoirs and other flood control devices to maintain the current level of flood protection. Given the complex system of upstream water management the impact of predicted climate changes on the proposed project is speculative, but flood potential will probably increase if water management strategies remain the same. However, given that the magnitude and timing of the increase in winter runoff and the associated changes in reservoir use that may occur, the exact impact on the proposed project is speculative. No mitigation is proposed.

Variability, Storms, and Extreme Events

Given the uncertainty associated with projecting the type and extent of changes in climatic variability and the speculative nature of predicting incidents of extreme weather events, this potential climate change effect is not considered to have a reasonably foreseeable direct effect on physical conditions at the project site.

Status and Trends

Variability and extreme weather events are a natural part of any climatic system. The extent of climatic stability or variability is dependent in large part on the time frame examined. Climatic conditions may be characterized as relatively stable over periods of hundreds or thousands of years, but within that time frame there may be severe droughts or flood events that vary widely beyond the overall average condition. Paleoclimatic evidence from tree rings, buried stumps, and lakebed sediment cores suggests that in California the past 200 years have been relatively wet and relatively constant when compared with older records (DWR 2006). These older records reveal greater variability than the historical record, in particular in the form of severe and prolonged droughts, but are not likely to be as reliable as more recent records. Most identified climatic averages and extremes for California are based on the historical climate record since 1900, and cannot be considered fully representative of past or future conditions (DWR 2006).

Extreme weather events are expected to be one of the more important indicators of climate change. Phenomena such as the El Niño/Southern Oscillation, which is the strongest natural interannual climate fluctuation, affect the entire global climate system and the economies and societies of many regions and nations. Direct effects of this climate fluctuation occur in California. The El Niño/Southern Oscillation for example, strongly influences storms and precipitation patterns. It is unclear how increases in global average temperatures associated with global warming might affect the El Niño cycles. However, the strong El Niños of 1982–83 and 1997–98 and associated flood events, along with the more frequent occurrences of El Niños in the past few decades, have forced researchers to try to better understand how human-induced climate change may affect interannual climate variability (Trenberth and Hoar 1996, Timmermann et al. 1999).

In addition to possible long-term changes in precipitation trends, increased variability of annual precipitation is a possible outcome of climate change. Based on a statistical analysis of California precipitation records, there appears to be an upward trend in the variability of precipitation over the 20th century, with variability values at the end of the century about 75% larger than at the beginning of the century. This indicates that there tended to be more extreme wet and dry years at the end of the century than there were at the beginning of the century (DWR 2006). However, as stated above, paleoclimatic evidence suggests that weather patterns in California have been relatively constant over the last 200 years, which identifies the variable weather patterns toward the latter part of this period as more pronounced. As identified previously in the “Amount of Precipitation” discussion, there has been little change in the average amount of annual precipitation in California over the last 100 years. Therefore,

the increased variability between wet and dry years in recent decades appears to oscillate around the same annual average established over a longer time frame.

Projections

While variability is not well modeled in large-scale GCMs, some modeling studies suggest that the variability of the hydrologic cycle increases when mean precipitation increases, possibly accompanied by more intense local storms and changes in runoff patterns (DWR 2006). However, the results of another long-standing model point to an increase in incidents of drought, resulting from a combination of increased temperature and evaporation along with decreased precipitation (DWR 2006). Based on the first model mentioned, this decrease in precipitation would lead to reduced variability in hydrologic cycles.

A study that analyzed 20 GCMs currently in use worldwide suggests that the West Coast may be less affected by extreme droughts than other areas; instead, the region would experience increased average annual rainfall (Meehl et al. 2000). A separate study that reviewed several GCM scenarios showed increased risk of large storms and flood events for California (Miller, Kim, and Dettinger 1999). Conflicting conclusions about climatic variability and the nature of extreme weather events (e.g., droughts, severe storms, or both) support the need for additional studies with models featuring higher spatial resolution (Kiparsky and Gleick 2005, DWR 2006).

Effect on the Proposed Project

Although various climate change models predict some increase in variability of weather patterns and an increasing incidence of extreme weather events, there is no consistency among the model results, with some predicting increased incidents of droughts and others predicting increased frequency of severe storm events. Given the uncertainty associated with projecting the type and extent of changes in climatic variability and the speculative nature of predicting incidents of extreme weather events, the effect on the project site of changing patterns of storms and other extreme weather remains unclear.

Runoff

Given the uncertainty associated with projecting changes in runoff patterns in water bodies at and upstream of the project site, this potential climate change effect is too speculative to reasonably draw a conclusion regarding the significance of foreseeable direct effects on physical conditions at the project site.

Status and Trends

Runoff is directly affected by changes in precipitation and snowpack (see discussions above). Changes in both the amount of runoff and in seasonality of the hydrologic cycle have the potential to greatly affect the heavily managed water systems of the western United States.

As described in the previous discussion of snowpack, data indicate that although overall precipitation volumes (represented by runoff amounts) showed no change, more runoff occurred as a result of rain during the winter months, and less runoff could be attributed to the melting of accumulated snowpack during the spring and early summer (DWR 2006).

Projections

Detailed estimates of changes in runoff as a result of climate change have been produced for California using regional hydrologic models. With input of anticipated, hypothetical, and/or historical changes in temperature and precipitation into models that include realistic small-scale hydrology, modelers have consistently seen substantial changes in the timing and magnitude, which can be attributed to runoff resulting from projected changes in climatic variables (Kiparsky and Gleick 2005). Model results indicate that as temperatures rise, a declining proportion of total precipitation falls as snow, more winter runoff occurs, and remaining snow melts sooner and faster in spring

(Miller, Kim, and Dettinger 1999, Knowles and Cayan 2002, Gleick and Chalecki 1999). In some basins, spring peak runoff may increase; in others, runoff volumes may shift to earlier in the spring and winter months (Kiparsky and Gleick 2005, DWR 2006). If snowpack declines, it is also possible that the incidence or severity of flood events resulting from “rain on snow” conditions could also decline.

As indicated above, hydrology in the lower reaches of the Sacramento Valley is highly dependent on the interaction between Sierra Nevada snowpack, runoff, and management of reservoirs. Potential changes made to the amount of reservoir space retained for flood storage, retained annual carryover volumes, and other reservoir management factors in response to altered Sierra runoff patterns could substantially alter how those runoff patterns are experienced in downstream in the vicinity of the project site. It is also possible that as climate change continues to progress over the next 50–100 years, new water storage projects (e.g., on-stream or off-stream storage reservoirs, expanding capacity at existing reservoirs) may be put in place to capture additional Sierra runoff. Additional storage capacity could assist in buffering runoff patterns in the lower river reaches from altered flow regimes in higher elevations.

Effect on the Proposed Project

Although various climate change models consistently predict reduced spring/summer runoff in the Sierra Nevada as a result of altered snowpack conditions, there is a great deal of uncertainty regarding how these changes would affect runoff patterns in the Sacramento Valley. Potential modifications in management regimes of existing reservoirs, such as reducing retained annual carryover volumes to increase space available for flood storage, could buffer the Sacramento River and adjacent land uses from changes to runoff patterns at higher elevations. The potential for creation of new water storage capacity, such as on- or off-stream storage reservoirs or expanding capacity at existing reservoirs could also reduce the effects of altered runoff patterns. Given the integrated nature of the water system in California, even increased storage capacity in southern California could benefit the region by allowing reservoirs in northern California to hold less water for domestic or agriculture use and retain more capacity for flood control. Given the uncertainty associated with projecting changes in runoff patterns in water bodies at and upstream of the project site (the Sacramento River watershed is approximately 27,000 square miles, most of which occurs upstream of the project site, and contains numerous sub-basins, see also Section 3.7 “Hydrology and Water Quality”) this potential climate change effect is too speculative to reasonably draw a conclusion regarding the significance of foreseeable direct effects on physical conditions at the project site.

Sea Level

Status and Trends

One of the major areas of concern related to global climate change is rising sea level. Worldwide average sea level appears to have risen about 0.4 to 0.7 foot over the past century based on data collected from tide gauges around the globe, coupled with satellite measurements taken over approximately the last 15 years (IPCC 2007). Various gauge stations along the coast of California show an increase similar to the global trends. Data specific to the San Francisco tide gauge near the Golden Gate Bridge shows that the 19-year mean tide level (the mean tide level based on 19-year data sets) has increased by approximately 0.5 foot over the past 100 years (Exhibit 3.17-2). Rising average sea level over the past century has been attributed primarily to warming of the world’s oceans and the related thermal expansion of ocean waters, and the addition of water to the world’s oceans from the melting of land-based polar ice. Some researchers have attributed most of the worldwide rise to thermal expansion of water, although there is some uncertainty about the relative contributions of each cause (Munk 2002).

Effect on the Proposed Project

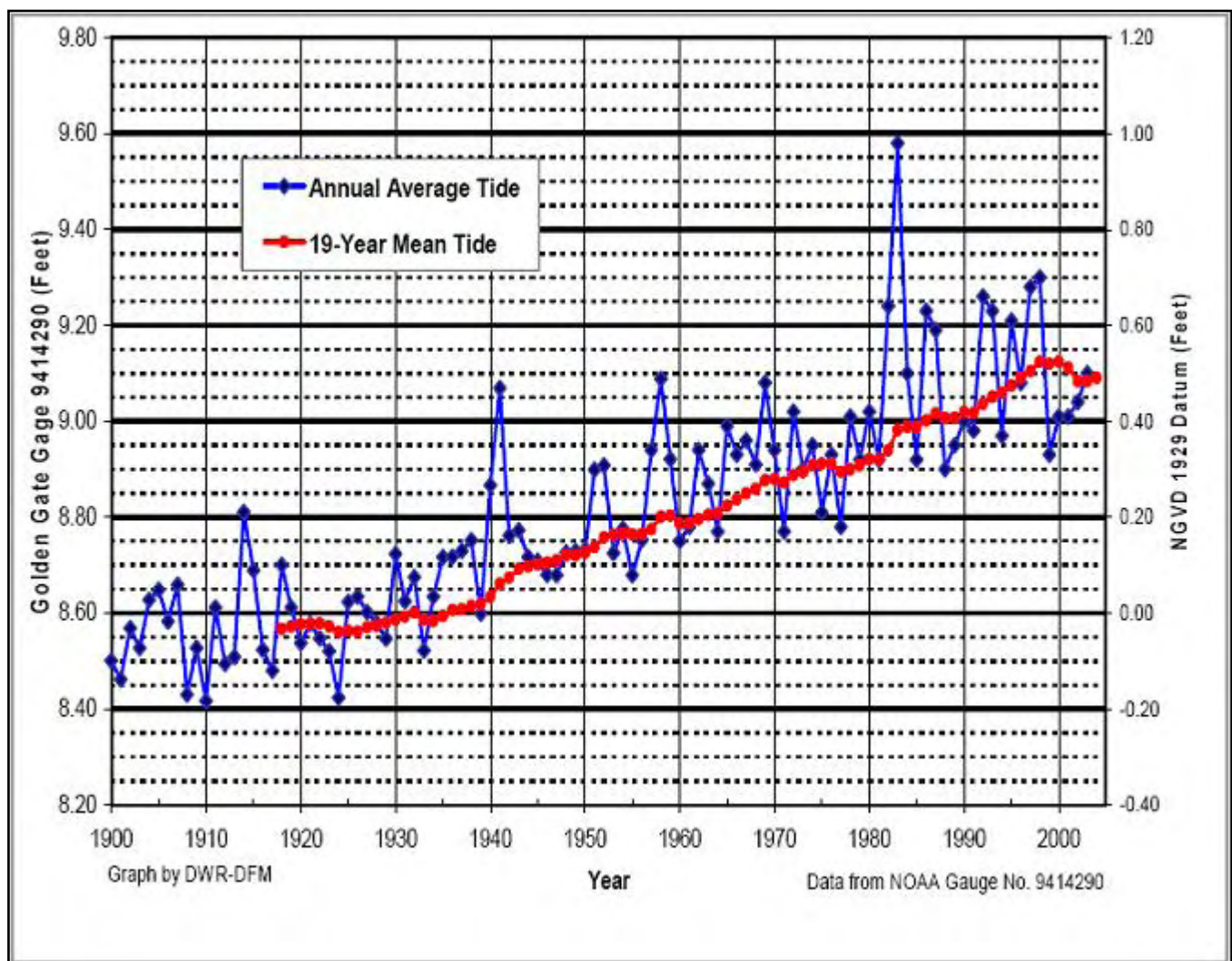
Projections

Various global climate change models have projected a rise in worldwide average sea level of 0.3 to 2.9 feet by 2100 (IPCC 2001a). Updated model results provided by the IPCC in 2007 put the range at 0.6–1.9 feet by 2099

(IPCC 2007). The ranges are narrower than in the Third Assessment Report (IPCC 2001a) mainly because of improved information about some uncertainties in the projected contributors to sea level rise (IPCC 2007).

Although these projections are on a global scale, the rate of relative sea level rise experienced at many locations along California's coast is consistent with the worldwide average rate of rise observed over the past century. Therefore, it is reasonable to expect that changes in worldwide average sea level through this century will also be experienced by California's coast (DWR 2006).

For California's water supply, the largest effect of sea level rise would likely be in the Delta (DWR 2005). Increased intrusion of salt water from the ocean to the Delta could degrade the quality of the fresh water that is pumped out of the Delta for municipal, industrial and agricultural purposes. This could lead to increased releases of water from upstream reservoirs or reduced pumping from the Delta to maintain compliance with Delta water quality standards. Increased demand for stored surface water could affect other surface water supplies within the Sacramento River watershed, however until specific demands occur the effect on regional supplies remains speculative.



Source: Adapted by EDAW from DWR 2006

Graph of Annual Average Relative Sea Level and the 19-Year Running Average Sea Level at the Golden Gate Tide Gauge, California, 1900–2003

Exhibit 3.17-2

A consistent rise in sea level has been recorded worldwide over the last 100 years. Recorded rises in sea level along the California coast correlate well with the worldwide data. Based on the results of various global climate change models, sea level rise is expected to continue. Based on the consistency in past trends, the consistency of future projections, and the correlation between data collected globally and data specific to California, it is reasonably foreseeable that some amount of sea level rise will occur along the California coast over the next 100 years. Although sea level rise is expected to occur, the amount and timing of the increase is uncertain. Predictions published by the IPCC in 2007 indicate an increase in elevation in the range at 0.6–1.9 feet by 2099 (IPCC 2007).

While climate change induced sea level rise is reasonably certain, it will not have a direct effect on the project site. The project site elevation, as depicted on USGS topographic maps, ranges from approximately 25 to 30 feet above sea level. Projected sea-water rise associated with global climate change is in the range of 0.6–1.9 feet by the year 2099 (IPCC 2007). Even if sea levels rose 1.9 feet and began to back up through the Delta into the lower reaches of the Sacramento the project would be situated well above lands affected by the change in water elevation. Because the project site is sufficiently elevated above sea level, a climate change–related rise in sea level does not have the potential to affect the performance of the flood protection elements of the project, and therefore there would be no impact.

Water Supply

There is uncertainty with respect to impacts of climate change on future water availability in California, in terms of whether and where effects will occur, and the timing and severity of any such potential effect. Conclusions regarding significance would therefore be speculative.

Status and Trends

Several recent studies have shown that existing water supply systems are sensitive to climate change (Wood 1997). Potential impacts of climate change on water supply and availability could directly and indirectly affect a wide range of institutional, economic, and societal factors (Gleick 1997). Residential, industrial, and agricultural land uses all are affected by the cost and security of water supply. Much uncertainty remains, however, with respect to the overall impact of global climate change on future water supplies. For example, models that predict drier conditions (i.e., parallel climate model [PCM]) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows (Brekke et al. 2004). Both projections are equally probable based on which model is chosen for the analyses (Ibid.). Much uncertainty also exists with respect to how climate change will affect future demand on water supply (DWR 2006). Still, changes in water supply are expected to occur and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky and Gleick 2005; see also Cayan et al. 2006).

Little work has been performed on the effects of climate change on specific groundwater basins or groundwater recharge characteristics (Kiparsky and Gleick 2005). Changes in rainfall and changes in the timing of the groundwater recharge season would result in changes in recharge. Warmer temperatures could increase the period where water is on the ground by reducing soil freeze. Conversely, warmer temperatures could lead to higher evaporation or shorter rainfall seasons, which could mean that soil deficits would persist for longer time periods, shortening recharge seasons. Warmer, wetter winters would increase the amount of runoff available for groundwater recharge. This additional winter runoff, however, would be occurring at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity. Reductions in spring runoff and higher evapotranspiration, on the other hand, could reduce the amount of water available for recharge. However, the specific extent to which various meteorological conditions will change and the impact of that change on groundwater are both unknown. A reduced snowpack, coupled with increased rainfall, could require a change in the operating procedures for California's existing dams and conveyance facilities (Kiparsky and Gleick 2005).

Projections

DWR's *Progress on Incorporating Climate Change into Management of California's Water Resources, Technical Memorandum Report* (2006) focused on climate change impacts on CVP and SWP operations and on the Delta. The results of that analysis suggest several impacts of climate change on overall CVP and SWP operations and deliveries. In three of the four climate scenarios simulated, CVP reservoirs north of the Delta experienced shortages during droughts. DWR (2006) recommends that future studies examine operational changes that could avoid these shortages. At present, DWR concludes, it is not clear whether such operational changes would be insignificant or substantial. Changes in annual average CVP deliveries south of the Delta ranged from increases of about 2.5% for the wetter scenario to decreases of up to 10% for drier scenarios. Future studies will have to address how shortages north of the Delta could affect CVP deliveries south of the Delta. Carryover storage (i.e., water from one year stored into the next year) for the CVP was negatively affected in the drier scenarios and beneficially affected (slightly increased) in the wetter scenario.

The modeling conducted by Gleick and Chalecki (1999) on the Sacramento River basin strongly suggests that annual levels of water moving through the Sacramento River watershed would increase. While annual volumes of water would increase, summer flows would decrease as a result of projected reductions in snowpack and earlier seasonal melting. Absent any intervention this would result in lower summer surface water flows and higher winter flows. Groundwater recharge may be adversely impacted by lower summer flows, without a commensurate increase because winter recharge rates are already at maximum. Upstream water management structures such as reservoirs could mitigate this by retaining greater winter flows to be released during the summer, thus making for a more constant level of surface water in the Sacramento. The need for adaptive changes in water management infrastructure use suggested by Gleick and Chalecki is confirmed by more recent research.

Tanaka et al. (2006) explored the ability of California's water supply system to adapt to long-term climatic and demographic changes using the California Value Integrated Network (CALVIN), a statewide economic-engineering optimization model of water supply management. The results show agricultural water users in the Central Valley are the most sensitive to climate change, particularly under the driest and warmest scenario (i.e., PCM 2100) predicting a 37% reduction of Central Valley agricultural water deliveries and a rise in Central Valley water scarcity costs by \$1.7 billion. Although the results of the study are only preliminary, they suggest that California's water supply system appears "physically capable of adapting to significant changes in climate and population, albeit at a significant cost" (Tanaka et al. 2006). Such adaptation would entail changes in California's groundwater storage capacity, water transfers, and adoption of new technology.

VanRheenen et al. (2004) studied the potential effects of climate change on the hydrology and water resources of the Sacramento-San Joaquin River Basin using five PCM scenarios. The study concluded that most mitigation alternatives examined satisfied only 87 to 96% of environmental targets in the Sacramento system, and less than 80% in the San Joaquin system. Therefore, system infrastructure modifications and improvements could be necessary to accommodate the volumetric and temporal shifts in flows predicted to occur with future climates in the Sacramento-San Joaquin River basins.

Zhu et al. (2005) studied climate warming impacts on water availability derived from modeled climate and warming streamflow estimates for six index California basins and distributed statewide temperature shift and precipitations changes for 12 climate scenarios. The index basins provide broad information for spatial estimates of the overall response of California's water supply and the potential range of impacts. The results identify a statewide trend of increased winter and spring runoff and decreased summer runoff, as previously indicated by Gleick and Chalecki (1999). Approximate changes in water availability are estimated for each scenario, though without operations modeling. Even most scenarios with increased precipitation result in a decrease in available water. This result is due to the inability of current storage systems to catch increased winter streamflow to offset reduced summer runoff.

Medellin et al. (2006) used the CALVIN model under a high emissions "worst case" scenario, called a dry-warming scenario. The study found that climate change would reduce water deliveries by 17% in 2050.

The reduction in deliveries was not equally distributed, however, between urban and agricultural areas. Agricultural areas would see their water deliveries drop by 24% while urban areas would only see a reduction of 1%. There was also a geographic difference: urban scarcity was almost absent outside of southern California.

In 2003, CEC's Public Interest Energy Research (PIER) program established the California Climate Change Center (CCCC) to conduct climate change research relevant to the state. Executive Order S-3-05 called for the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued climate change on certain sectors of California's economy. CalEPA entrusted PIER and its CCCC to lead this effort. The climate change analysis contained in its first biennial science report concluded that major changes in water management and allocation systems could be required in order to adapt to the change. As less winter precipitation falls as snow, and more as rain, water managers would have to balance the need to construct reservoirs for water supply with the need to maintain reservoir storage for winter flood control. Additional storage could be developed, but at high environmental and economic costs.

Lund et al. (2003) examined the effects of a range of climate warming estimates on the long-term performance and management of California's water system. The study estimated changes in California's water availability, including effects of forecasted changes in 2100 urban and agricultural water demands using a modified version of the CALVIN model. The main conclusions are summarized as follows:

- ▶ A broad range of climate warming scenarios show significant increase in wet season flows and significant decreases in spring snowmelt. The magnitude of climate change effects on water supplies is comparable to water demand increases from population growth in 21st century.
- ▶ California's water system would be able to adapt to the severe population growth and climate change modeled. This adaptation would be costly, but it would not threaten the fundamental prosperity of the state, although it could have major impacts on the agricultural sector. The water management costs represent only a small proportion of California's current economy.
- ▶ Under the driest climate warming scenarios, Central Valley agricultural users could be especially vulnerable to climate change. Wetter hydrologies could increase water availability for these users. The agricultural community would not be compensated for much of its loss under the dry scenario. The balance of climate change effects on agricultural yield and water use is unclear. While higher temperatures could increase evapotranspiration, longer growing seasons and higher carbon dioxide concentrations could increase crop yield.
- ▶ Population growth is expected to be more problematic than climate change in Southern California. Population growth, conveyance limits on imports, and high economic value of water in Southern California, could lead to high use of wastewater reuse and substantial use of seawater desalination along the coast. Due to the integrated nature of water management and competition for water resources this could impact water supply in the Sacramento region.
- ▶ Under some wet warming climate scenarios, flooding problems could be substantial. In certain cases, major expansions of downstream floodways and alterations in floodplain land use could become desirable.
- ▶ California's water system could economically adapt to all the climate warming scenarios examined in the study. New technologies for water supply, treatment, and water use efficiency, implementation of water transfers and conjunctive use, coordinated operation of reservoirs, improved flow forecasting, and the cooperation of local regional, state and federal government can help California adapt to population growth and global climate change. However, if these strategies are implemented, the costs of water management are expected to be high and there is likely to be less "slack" in the system compared to current operations and expectations.

Effect on the Proposed Project

As described by the projections above, overall, climate change is expected to have a greater effect in Southern California and on agricultural users than urban users in the Central Valley, which includes both the San Joaquin and Sacramento Valleys. For example, for 2020 conditions, where optimization is allowed (i.e., using the CALVIN model), scarcity is not expected to be an issue in the Sacramento Valley for both urban and agricultural users, and generally not an issue for urban users in the San Joaquin and Tulare Basins. Rather, most water scarcity will be felt by agricultural users in Southern California. However, it is expected that Southern California urban users, especially Coachella urban users, will also experience some scarcity. By the year 2050, urban water scarcity there will be almost no water scarcity north of the Tehachapi Mountains, although agricultural water scarcity could increase in the Sacramento Valley to about 2% (Medellin et al. 2006; see also Tanaka et al. 2006 and Lund et al. 2003 for further discussion of global climate change impacts on agricultural uses).

Based on the conclusions of current literature regarding California's ability to adapt to global climate change, it is reasonably expected that over time the state's water system will be modified to be able to address the projected climate changes, e.g., under dry and/or warm climate scenarios (DWR 2006). Although coping with climate change effects on California's water supply could come at a considerable cost, based on a thorough investigation of the issue, it is reasonably expected that statewide implementation of some, if not several, of the wide variety of adaptation measures available to the state, will likely enable California's water system to reliably meet future water demands. For example, traditional water supply reservoir operations may be used, in conjunction with other adaptive actions, to offset the impacts of global warming on water supply (Medellin et al. 2006; see also Tanaka et al. 2006 and Lund et al. 2003). Other adaptive measures include better urban and agricultural water use efficiency practices, conjunctive use of surface and ground waters, desalination, and water markets and portfolios (Medellin et al. 2006; see also Lund et al. 2003, Tanaka et al. 2006). More costly statewide adaptation measures could include construction of new reservoirs and enhancements to the state's levee system (CEC 2003). As described by Medellin et al. 2006, with adaptation to the climate, the water deliveries to urban centers are expected to decrease by only 1%, with Southern California shouldering the brunt of this decrease.

The project proposes a conjunctive use water supply program that would use both groundwater from the North American Subbasin and surface water supplied by Natomas Central Mutual Water Company (NCMWC) to meet the water supply demands at buildout. Three water supply programs have been identified as options for providing water to the project site: the Proposed Water Supply Program, Alternate "A" Revised Water Supply Program, and Alternate "B" Winter Diversion Water Supply Program (see Section 3.9, "Water Supply"). Under all three water supply programs, groundwater would provide water supplies to initial phases of development until surface water entitlements have been approved. As development on the project site occurs, and as the surface water element is phased in, the groundwater element would transition from a year-round supply to principally a peak flow augmentation of water supply to meet the demands of the proposed project during summer peak demand periods.

Groundwater for the proposed project would be supplied from wells pumping from the North American Subbasin. The Sacramento County IGSM and North American River IGSM models simulated Existing Conditions Baseline and 2030 Future Conditions Baseline scenarios. For both the Existing Conditions Baseline and 2030 Future Condition, the simulated surface water diversions are highest in normal years and lowest in wet years, and simulated groundwater pumping is lowest during wet years and highest during dry years. Current groundwater pumping in the Natomas Basin is somewhat less than the average annual rate of groundwater recharge. The Existing Conditions Baseline showed a small positive change in groundwater storage during the simulation period, which indicates that groundwater levels were stable to slightly rising.

The 2030 Future Condition demonstrates that, on a subbasin scale, there would be a transition from groundwater to surface water to meet future water demands. Future groundwater pumping in the Natomas Basin is less than the current average annual pumping rate and also less than the average annual rate of groundwater recharge. The 2030 Future Condition showed a larger positive change in storage during the simulation period.

NCMWC holds six water right licenses and one permit to divert water from the Sacramento River, Natomas Cross Canal, and interior drainage system within its service area. During normal years, NCMWC is permitted to divert up to 120,200 acre-feet per year (afy) under its existing water rights and its recently renewed Settlement Contract with the U.S. Bureau of Reclamation (Reclamation). This amount includes 98,200 afy of Base Supply, which can be diverted from April through October, and 22,000 afy of Central Valley Project (CVP) Project Water, which is available during July and August. Project Water includes surface water from the Sacramento River as a result of the contract rights pursuant to the Settlement Agreement with Reclamation for water rights from the CVP. The Base Supply is also affected by the Settlement Contract, as it defines and limits the monthly and annual maximum diversion amounts.

Water diversions under the Settlement Contract provide an enhanced entitlement to divert during dry years. The maximum reduction in NCMWC's diversions during any critically dry year is 25% of both Base Supplies and Project Water. Annual water deliveries from Reclamation are determined on the basis of natural inflow to Shasta Lake (the Shasta Index). In a normal year when there is ample water in the CVP system, NCMWC receives 100% of its Settlement Contract entitlement (120,200 afy). During a critically dry year, NCMWC receives no less than 75% of its normal year entitlement, or 90,150 afy.

As discussed in Section 3.9, "Water Supply," NCMWC has surface water supplies available to meet projected water demands in normal and critically-dry years (see Table 3.9-15). The surface water supply would be capable of meeting the project demands under the Proposed Water Supply Program, and the Alternate "B" Winter Diversion Water Supply Program. The Base Supply may be diverted from the Sacramento River for irrigation purposes only. The CVP Project Water, by contract, is currently limited to use for irrigation during the growing season (April through October), and the Settlement Contract does not currently allow water diverted to be used for M&I purposes within the proposed project area. In addition, Alternate "A" Revised Water Supply Program and Alternate "B" Winter Diversion Water Supply Program would require changes to the place of use to include the entire project site. Although approval by the SWRCB and Reclamation would be required to modify the purpose of use to allow M&I service under NCMWC's water right licenses, there is reasonably certain as a physical matter that the surface water supplies in question could be delivered to the project site in the amounts needed to serve it at buildout.

Alternate "B" Winter Diversion Water Supply Program would be the acquisition of a new water right for diversion of 6,000 afy from the SWRCB for approximately 5,496 afy of surface water during normal years and 4,182 afy of surface water during dry years from the Sacramento River during winter (October 1 – March 31). Overall, the primary effect of Alternate "B" Winter Diversion Water Supply Program would be to shift the time of year when diversion takes place, rather than shifting the overall quantity of diversion from the Sacramento River. Rather than all water diversions occurring during the irrigation season, less water would be diverted at that time of year and the pattern would be shifted to allow some diversion to occur during the wet season (October-March).

California could potentially experience an increased number of single dry, multiple dry, and critically dry years as a result of global climate change. There is a great deal of uncertainty about impacts of climate change on future water availability in California, in terms of whether and where effects will occur and what the timing and severity of any such potential effect will be. This uncertainty makes it impossible to draw a meaningful conclusion about significance without substantial speculation. However, the change in groundwater storage is positive under existing and future conditions. This indicates that groundwater levels in the Natomas Basin are predicted to rise even with the proposed project. The groundwater supply anticipated for the project appears to be sustainable on a permanent basis, and the amount of groundwater withdrawn by the project and other foreseeable groundwater users in the future would be less than the amounts of natural replenishment. As described above, NCMWC water supplies are considered reliable, there is reasonable certainty that surface water would be available, even considering the potential impacts on California's water supplies that may be caused by global climate change.

In addition, the project's entitlements to supplies of surface water are unlikely to be affected by global climate change because, as indicated by preliminary results from DWR (2006), impacts of climate change on water supply would be largely reflected in reduced exports south of the Delta, while existing Delta water-quality

requirements would continue to be satisfied. It is therefore reasonable to consider that global climate change may have relatively less effect on the project's water supply because the project's supplies of surface water are based on existing surface-water entitlements and contract entitlements for in-basin use above the Delta.

WATER QUALITY

The effects of climate change on water quality could be alleviated by, exacerbated by, or overwhelmed by effects directly related to localized human actions. Given the uncertainty associated with projecting the type and extent of changes in water quality attributable to climate change, including trying to project human activities that could cause global warming, this potential climate change effect is too speculative to draw a conclusion regarding the significance of any direct effect on physical conditions at the project site.

Status and Trends

Water quality depends on a wide range of interacting variables, such as water temperatures, flows, runoff rates and timing, waste discharge loads, and the ability of watersheds to assimilate wastes and pollutants. Surface water quality in the region has experienced substantial adverse affects from human activities, including contaminant inputs from urban, industrial, and agricultural sources; and increased temperature from removal of shading vegetation. Historic activities such as gold mining in the nineteenth century created long-term impacts on regional water quality by contributing massive quantities of silt, minerals, and, notably, mercury that has settled into river bottom sediments.

Projections

Climate change could alter numerous water quality parameters in a variety of ways. Higher winter flows could reduce pollutant concentrations (through dilution) or increase erosion of land surfaces and stream channels, leading to higher sediment, chemical, and nutrient loads in rivers (DWR 2006). Increases in water flows could also decrease chemical reactions in streams and lakes, reduce the flushing time for contaminants, and increase export of pollutants to coastal areas (Jacoby 1990, Mulholland et al. 1997, Schindler 1997). Decreased summer flows can exacerbate increases in temperature, increase the concentration of pollutants, increase flushing times, and increase salinity (Schindler 1997, Mulholland et al. 1997). Decreased surface-water flows can also reduce nonpoint-source runoff (Mulholland et al. 1997). Increased water temperatures can enhance the toxicity of metals in aquatic ecosystems (Moore et al. 1997). Increases in water temperature alone are often likely to lead to adverse changes in water quality, even in the absence of changes in precipitation (Kiparsky and Gleick 2005).

A review of potential impacts of climate change on water quality concludes that significant changes in water quality are known to occur as a direct result of short-term changes in climate (Murdoch, Baron and Miller 2000). The review notes that water quality in ecological transition zones and areas of natural climate extremes is vulnerable to climate changes that increase temperatures or change the variability of precipitation. However, it is also argued that changes in land and resource use will have comparable or even greater impacts on water quality than changes in temperature and precipitation. A separate study concluded that changes in land use resulting from climatic changes, together with technical and regulatory actions to protect water quality, can be critical to future water conditions (Kiparsky and Gleick 2005). The net effect on water quality for rivers, lakes, and groundwater in the future is dependent not just on how climatic conditions might change, but also on a wide range of other human actions and management decisions. The most recent studies identify the likelihood that decreased runoff will interact with higher stream temperatures to exacerbate decreases in water quality (Backlund et. al. 2008:8).

Effect on the Proposed Project

Although there are various ways in which climate change could affect water quality, effects could be positive or negative depending on a variety of conditions. In addition, current water quality conditions in regional surface waters depend in large part on human activities, and this would continue into the future. The effects of climate change on water quality could be alleviated by, exacerbated by, or overwhelmed by effects directly related to

localized human actions. Given the uncertainty associated with projecting the type and extent of changes in water quality attributable to climate change, including trying to project human activities, this potential climate change effect is too speculative to draw a conclusion regarding the significance of any direct effect on physical conditions at the project site.

Agriculture

Climate change may reduce the agricultural suitability of lands purchased as mitigations, thus reducing efficacy of actions proposed under the project. However, while effects may occur, adaptation is also expected to allow farmers and ranchers to minimize any potential negative effect on agricultural incomes. Because the potential effects of global climate change on agricultural production are highly speculative at this time, it is not possible to reach a conclusion regarding significance.

Status and Trends

Numerous studies indicate that climate change may have a profound effect on agriculture in California. The different climate change forecasting models predict a variety of direct and indirect effects to the sector's agronomic and economic conditions (Tanaka et al. 2006; Howitt, Tauber, and Pienaar 2003). The degree to which climate change will affect agriculture depends on a variety of factors. While there remains uncertainty about what form of climate change will occur in California, the majority of research on the subject has focused on the likelihood that a climate warming pattern will occur (DWR 2006, Lund et al. 2003). While both dry-warm or wet-warm forms of climate warming would affect Californian agriculture, dry-warm climate scenarios are expected to be the most problematic (Tanaka et al. 2006). Dry-warm climate scenarios are expected to affect agriculture at both statewide and regional scales, with the most pronounced effects occurring in the Central Valley (Zhu et al. 2006).

Potential effects include reductions in water supply and water supply reliability, increased evapotranspiration, changes in growing season, and altered crop choices (DWR 2006). As discussed in the previous sections, substantial changes may occur in terms of water supply. As a primary consumer of surface and ground water, the agricultural sector will be faced with significant challenges in the event of supply reductions. Higher levels of evapotranspiration would result from the increased temperatures and decreased humidity of a dry-warm climate scenario (Hidalgo, Cayan, and Dettinger 2005). In turn, evapotranspiration would cause increases in water demand, salt accumulation on plants, soil salinity, and additional water use for reducing saline soils (DWR 2006). Such effects could reduce productivity and create adverse economic repercussions for farmers and ranchers in the State (DWR 2006). Changes to the growing season and altered crop choices may negatively or positively affect productivity, water supply, and profitability, depending on the adaptations farmers choose (Tanaka et al. 2006). For example, the viability and profitability of different crops may change as a result of altered climate, thus changing land use patterns and water demands associated with cover crops, and total revenues.

Projections

Tanaka et al. (2006) demonstrates that agricultural water supplies in the Central Valley are expected to be affected by climate change. In the driest, warmest climate scenario (PCM2100), Central Valley water users would be adversely affected and agricultural water deliveries could be expected to decrease by approximately 24% and water scarcity costs would be \$1.7 billion. (Tanaka et al. 2006).

Water scarcity is expected to increase due to both the effects of global climate change and by the effects of population growth and associated increased water consumption. One model (CALVIN) used a dry and warm form of climate change and 2050 population projections. This model determined that water scarcity north of the Tehachapi Mountains (San Joaquin and Sacramento Valleys) was demonstrated to be predominately driven by climate change effects. (Tanaka et al. 2006, Zhu et al. 2006.)

A 15% increase in land fallowing is expected to occur under a dry and warm climate scenario. Land fallowing would reduce agricultural productivity and affect the agricultural economy as well as the rural support economies. Financial implications for individual farm owners would depend on whether compensation was provided for land becoming fallow (Howitt, Tauber, and Pienaar 2003; Tanaka et al. 2006).

Most year 2100 models indicate increased market water transfers from agriculture to urban users (Tanaka et al. 2006). Sector productivity could be maintained if water transfers were balanced with irrigation efficiency improvements.

Though a dry-warm climate scenario would reduce agricultural water deliveries (24% statewide and 26% in the San Joaquin Valley), models demonstrate that agricultural income will only be reduced by 6% and irrigated lands will only be reduced by 15%. It is expected that farmers will adopt changes in crop mix, cropping systems, and irrigation technology. These adaptations are likely to reduce the effect of reduced water deliveries on agriculture (Tanaka et al. 2006).

Increased evapotranspiration rates could have a considerable effect on agricultural water demand in the State (DWR 2006). The International Panel on Climate Change expects a 3 degree Celsius increase in temperature over the next century (IPCC 2007). Research demonstrates that such an increase in temperature will likely result in a 5% increase in plant transpiration, assuming no change in solar radiation (cloudiness) levels and other related variables including wind, humidity, and minimum temperature (Hidalgo, Cayan, and Dettinger 2005). Therefore, evapotranspiration alone could create a 5% increase in agricultural water consumption over the next 100 years or a 0.5% increase per decade. Projected increases in carbon dioxide concentrations are expected to increase plant growth by up to 20% and in turn lead to increased evapotranspiration (Long et al. 2004). A caveat to this is that increased atmospheric carbon dioxide concentrations may work to decrease plant stomatal transpiration rates and thus reduce overall evapotranspiration rates (Ibid).

Effect on the Proposed Project

The proposed project would not contain any agricultural uses. For this reason it could be assumed that future climate change impacts on agriculture would not be relevant to the proposed project. However, because the proposed project would convert agricultural land, the impacts of climate change on agriculture remain relevant. Project participation in the Natomas Basin Habitat Conservation Plan (NBHCP) fee mitigation program would help safeguard agricultural productivity in farmlands in addition to protecting other open space. These lands would be protected as a public good in perpetuity and would also provide habitat and foraging for species of concern. How climate change affects the agricultural operations on the protected land is therefore a matter of public concern.

Climate change may affect lands purchased for the NBHCP mitigation by reducing the suitability of purchased lands for particular agricultural uses, thus reducing efficacy of actions proposed under the project. However, while effects may occur, adaptation is also expected that will allow farmers and ranchers to minimize any potential negative effect on agricultural incomes. Adoption of new cropping systems and improved irrigation techniques are expected to allow agriculture to continue in the region. In this contingency water scarcity could also encourage farmers to shift crops away from water intensive crops such as rice on lands that would be purchased for mitigation purposes for special status species such as giant garter snake, with a commensurate impact on project mitigation for this species. However, because future water supply conditions remain speculative it would require conjecture to determine the extent of future crop shifts and thus impacts on giant garter snake. Because the potential effects of global climate change on agricultural production are highly speculative at this time, it is not possible to reach a conclusion regarding significance for agricultural uses either.

Conclusion

Seven general categories of potential effects of climate change were evaluated in this section:

- ▶ increased temperature;
- ▶ precipitation volume, type, and intensity;
- ▶ runoff volume and timing;
- ▶ water supply;
- ▶ sea level rise;
- ▶ water quality; and
- ▶ agriculture.

This analysis concludes that (1) either the climate change effect would not have the potential to substantially affect the project site, or (2) because of significant uncertainty in projecting future conditions related to the climate change effect, it would be too speculative to reach a conclusion regarding the significance of any reasonably foreseeable direct effect on physical conditions at the proposed project site.

4 ALTERNATIVES TO THE PROPOSED PROJECT

CEQA requires that an EIR describe and analyze the relative environmental effects of alternatives to the proposed project and evaluate their comparative impacts and merits. The EIR must consider a range of reasonable alternatives that can feasibly attain most of the basic objectives of the proposed project, and alternatives that would avoid or substantially lessen one or more of the significant effects of the proposed project. Alternatives that would impede to some degree the attainment of the project objectives or would be more costly may also be considered. The environmentally superior alternative must be identified among the alternatives considered.

The alternatives analysis must identify the potential alternatives and include sufficient information about each one to allow meaningful evaluation, analysis, and comparison with the proposed project. The discussion must focus on potentially feasible alternatives that can avoid or substantially reduce the significant effects of the proposed project. However, if an alternative is not feasible, or if it does not provide an opportunity to avoid or substantially reduce environmental effects, the alternative need not be analyzed in detail. If this is the case, the reasons for limiting the analysis will be identified by this EIR.

Qualitative and quantitative measures of alternative feasibility may include site suitability, economic viability, availability of infrastructure, general plan consistency, consistency or conflict with other plans or regulatory limitations, jurisdictional boundaries, and whether the applicant can reasonably acquire, control, or otherwise have access to the alternative site. Similarly, if an alternative would cause one or more significant effects in addition to those that would be caused by the project, the significant effects of the alternative must still be discussed, but in less detail than the analysis of the project.

As required by CEQA, the alternatives analysis must always include evaluation of the “no project” alternative. “No project” is defined as no action with respect to the proposed project. The “no project” alternative may also consider what could reasonably occur on the project site if existing development trends continue, to the degree that current or proposed general plans, zoning, infrastructure, services, or other relevant conditions allow.

The following sections describe the process used to select alternatives for evaluation in this chapter. The sections identify the alternatives to the proposed project that were considered but that were not subjected to detailed analysis (as noted above, reasons will be given), as well as the alternatives to the proposed project that were analyzed in detail. The alternatives considered in this chapter are listed below.

Alternatives Not Addressed In Detail

- ▶ Off-Site Alternative
- ▶ 2002 South Sutter County Specific Plan
- ▶ 2007 Draft Specific Plan

Alternatives Addressed In Detail

- ▶ No Project/Existing General Plan Alternative
- ▶ Sacramento Area Council of Governments (SACOG) Blueprint Preferred Scenario
- ▶ Reduced Intensity Development
- ▶ Permanent On-Site Sankey Gap Overflow Storage

4.1 SELECTION OF ALTERNATIVES

Alternatives to the proposed project were selected for evaluation in this DEIR based on the criteria set forth in the State CEQA Guidelines (Section 15126.6). These criteria include (1) ability of the alternative to attain most of the basic objectives of the project, (2) potential feasibility of the alternative, and (3) ability of the alternative to avoid

or substantially reduce one or more of the significant environmental effects of the project. These criteria are discussed in more detail below.

4.1.1 ABILITY OF THE ALTERNATIVE TO ATTAIN MOST PROJECT OBJECTIVES

Potential alternatives to the proposed project were evaluated with respect to the general objectives of the project as discussed here and in Chapter 1, “Introduction” of this DEIR.

For the purpose of alternatives analysis under CEQA, project objectives may not be defined so narrowly that the range of alternatives is unduly constrained. The alternatives that have been analyzed in the DEIR span a range of potential urban development schemes for the project site, including a reduced project that includes an approximately 25% reduction in the amount of urban development under consideration, and a SACOG Blueprint alternative which considers a reduced project site and number of residences.

The proposed Sutter Pointe Specific Plan sets forth specific objectives for the proposed project that may have a bearing on the selection and evaluation of alternatives. These objectives are listed below:

- ▶ **Objective 1:** Create a major employment center in south Sutter County that serves both Sutter County and the greater Sacramento region and generates tax revenue to Sutter County.
- ▶ **Objective 2:** Accommodate projected regional growth in a location adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers.
- ▶ **Objective 3:** Provide a complementary and supportive array of land uses that enables development of a community featuring employment centers, homes, shopping, schools, recreation, cultural and worship facilities, and public services.
- ▶ **Objective 4:** Provide a range of housing choices for all family types.
- ▶ **Objective 5:** Promote a mixed-use community composed of neighborhoods and activity centers.
- ▶ **Objective 6:** Provide for development of needed regional service facilities, such as a hospital/medical center and/or community college.
- ▶ **Objective 7:** Establish a system of multimodal transportation facilities that connects to the regional transportation system, including pedestrian and bicycle trails and future bus rapid transit.
- ▶ **Objective 8:** Create an efficient internal street system that connects residents to employment, commercial and civic centers, schools, and recreational and community facilities.
- ▶ **Objective 9:** Locate neighborhood parks adjacent to schools, and establish joint use of park and school sites.
- ▶ **Objective 10:** Provide usable recreation facilities that also act as transition zones between employment areas and adjacent residential neighborhoods, including dual-use recreation and drainage facilities.
- ▶ **Objective 11:** Comply with the Natomas Basin Habitat Conservation Plan (NBHCP), Sacramento Area Flood Control Agency flood control plans and other regional resource conservation and safety plans.
- ▶ **Objective 12:** Provide connectivity between individual habitat reserves and between reserves and surrounding agricultural lands.

- ▶ **Objective 13:** Promote a balance in the type and phasing of land uses that supports a strong tax base and generates financial resources to pay for public services and infrastructure without financial burden to existing Sutter County residents.
- ▶ **Objective 14:** Maintain flexibility to adapt and adjust to changing economic and market conditions.
- ▶ **Objective 15:** Support incorporation of the Specific Plan area as a city at the optimal time in the future.
- ▶ **Objective 16:** Develop a project that complies with the Measure M advisory initiative as approved by Sutter County voters in 2004 (refer to Section 3.1 Land Use for a detailed description of Measure M).

4.1.2 FEASIBILITY OF THE ALTERNATIVES

Alternatives to the proposed project were evaluated with respect to the “rule of reason” and general feasibility criteria suggested by the State CEQA Guidelines Section 15126.6 as follows:

“The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making.”

Criteria included the suitability of the site or alternative site; the economic viability of the alternative; the availability of infrastructure; the consistency of the alternative with general plan designations, zoning or other plans, or regulatory limitations; the effect of applicable jurisdictional boundaries; and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site, including consideration of whether or not the site is already owned by the project applicant(s).

4.1.3 AVOIDANCE OR SUBSTANTIAL REDUCTION OF SIGNIFICANT EFFECTS

The evaluation of alternatives must also take into account the potential of the alternative to avoid or substantially lessen any of the significant effects of the proposed project, as identified in Chapters 3.1 through 3.17 of this DEIR. The potential environmental effects of the proposed project are summarized in Chapter 2, “Summary.”

4.2 ALTERNATIVES NOT CONSIDERED IN DETAIL

This section provides a comparative analysis of the three alternatives to the proposed project that were removed from further consideration and analysis: the Off-site Alternative, the 2002 South Sutter County Specific Plan, and the 2007 Draft Specific Plan. Each of these alternatives is described briefly below, along with a discussion of why these alternatives were not carried forward for full analysis.

4.2.1 OFF-SITE ALTERNATIVE

In many EIRs, an off-site alternative is evaluated to consider the possibility of avoiding significant location-related impacts and provide a greater range of possible alternatives to consider in the decision-making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the project, and would also avoid or substantially lessen any of the environmental effects of the project (CEQA Guidelines Section 15126.6[a]).

Objectives of the proposed project, as they apply to this alternative, include the following:

- ▶ creating a major employment center in south Sutter County;
- ▶ complying with the Natomas Basin Habitat Conservation Plan (NBHCP), Sacramento Area Flood Control Agency (SAFCA) flood control plans, and other regional resource conservation and safety plans; and
- ▶ accommodating regional growth in a new mixed-use community adjacent to existing and planned infrastructure, services, and transportation corridors.

The project site is the most reasonable location in south Sutter County to provide urban development that would support a major employment center and residential community because it is located near downtown Sacramento, Metro Air Park, and Sacramento International Airport and surrounds the existing alignment of SR 99/70 and the proposed alignment of future Placer Parkway. The appropriateness of the area for development is reflected in the long-standing Industrial/Commercial Reserve (I/C) General Plan designation for the area. The adjacent Natomas Joint Vision area in Sacramento County (See Project Description, Exhibit 2-3) is considered the most reasonable and feasible location for a potential off-site alternative because it is also located within close proximity of jobs and housing in Sacramento and near the airport, it is an area that supports new growth and development, and it is covered by the NBHCP and anticipated within SAFCA flood control plans.

Development of the Natomas Joint Vision area, located south of the site on comparable acreage, is currently being comprehensively planned by the City and County of Sacramento. Approximately 300 acres of undeveloped property within the Natomas Joint Vision area are currently owned by the Measure M Group. Although it may be possible for the applicant to acquire a property of a similar size or acquire an aggregate of properties that could accommodate the proposed land use within the Natomas Joint Vision area, given the timing of the application and the status of development in the area it is not reasonable to consider that the applicant would be successful in obtaining such a property. In addition, a primary objective of the proposed project is to create a new employment center in Sutter County. The Natomas Joint Vision Area and other sites which might be closer to the existing urban core are located in Sacramento County.

Further, the project's impacts correlate strongly to its size and to the types of impacts typical of any large scale development in the greater Sacramento region. Sites capable of accommodating a project of this size are either in agriculture or habitat, or a combination of the two. Air basins in the region already do not attain ozone and other relevant standards, thus development would exacerbate nonattainment, as traffic from a project of this size is typically substantial. A project of this magnitude would result in similar impacts anywhere it would be developed in the region. An alternative site could potentially reduce impacts associated with the relative distance of this site from other existing development, such as if it were next to the developed urban core of the city of Sacramento (reduced vehicle miles traveled, for instance), but as stated above, there are no such properties available. In addition, there are no other project sites of any size in the region (including within the Natomas Joint Vision area) that are proximate to an urban core and already included within an incidental take permit for endangered species, which removes a major impediment to development. The NBHCP has been upheld through court challenge, and establishes a multi-species conservation program to minimize and mitigate the expected loss of habitat resulting from planned development. The purpose of the HCP is to promote biological conservation in conjunction with economic and urban development within the permit area.

There is not a known site that could accommodate a development similar to the proposed project (in size) that is not already being pursued for development by other property owners, and that already has coverage under the NBHCP. Furthermore, there are not sufficient properties available that when combined could provide sufficient area for the proposed land uses.

More fundamentally, however, the Sutter County Board of Supervisors long ago identified the project area as being appropriate for further development by placing an Industrial/Commercial Reserve (I/C) general plan designation on the property. Public support for this general determination was expressed in November 2004 with

the passage of Measure M, an advisory ballot measure proposing a strategic plan for the south Sutter County area. As passed by the voters, Measure M recommended that project site development be limited to the Industrial-Commercial Reserve area, be subject to specified development caps, and adhere to the following requirements:

- ▶ At least 3,600 acres would be provided for commercial and industrial parks to create new jobs in Sutter County as a condition of having residential units approved.
- ▶ At least 1,000 acres would be provided for schools, parks, open space, libraries, retail areas, and other community facilities paid for by the development.
- ▶ No more than 2,900 acres would be available for residential construction on land protected, at a minimum, from a 100-year flood event.
- ▶ All necessary road, bridge, water, drainage, sewer and other improvements would be paid for by the development.
- ▶ Ongoing law enforcement, fire, library, and other public services would be paid for by the development, without reducing current service levels.

Given the long-standing Sutter County policy commitment to development of the Industrial-Commercial Reserve area and the additional endorsement of development in the area by a majority of Sutter County voters in November 2006, the development of a Specific Plan for the project area is such a fundamental project objective that it is impossible that an off-site alternative could be a “feasible” means of meeting the objective. The Board of Supervisors, in 1996, determined that the project area should develop with Industrial and Commercial uses. In November 2006, the voters endorsed the concept of adding residential development to the mix, subject to strict qualifications. In light of this history, it is appropriate that Sutter County limit its consideration to alternatives that in some manner would advance the detailed site planning and zoning for the property.

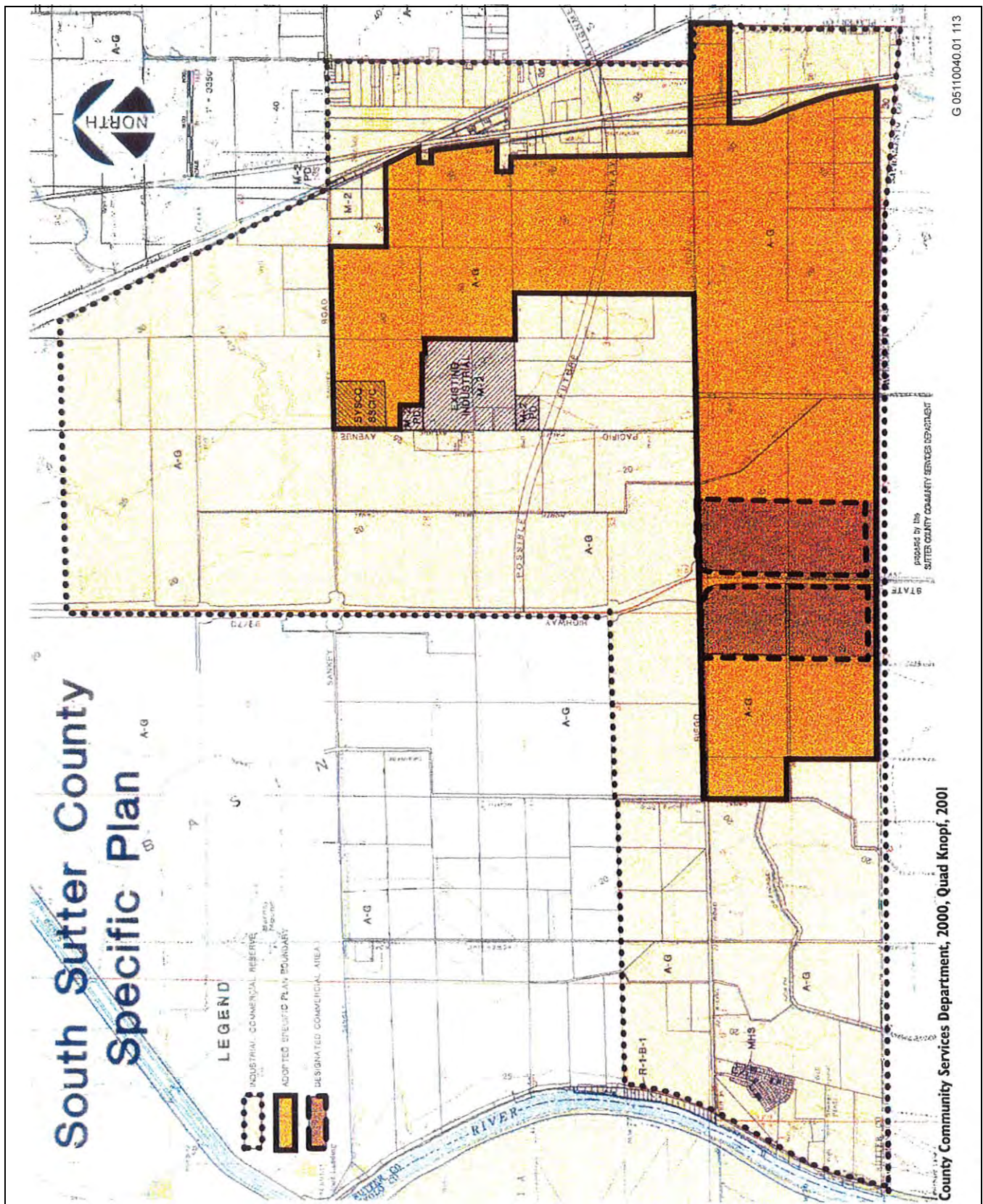
For all of these reasons, an off-site alternative would not be a feasible project for the applicant to implement. This alternative has been rejected from further consideration.

4.2.2 2002 SOUTH SUTTER COUNTY SPECIFIC PLAN ALTERNATIVE

In 2002, Sutter County adopted the South Sutter County Specific Plan for the project site. The 2002 Specific Plan included approximately 3,500 acres of commercial and industrial development, implementing the County’s 1996 General Plan Industrial/Commercial Reserve designation. Approximately 2,975 acres were designated for industrial uses, and approximately 525 acres (on both sides of SR 99/70) were designated for commercial use. Exhibit 4-1 illustrates the 2002 Specific Plan land use diagram.

The 2002 Specific Plan Alternative included widening of SR 99/70 to six lanes from the project site southward into Sacramento County, and widening Riego Road to eight lanes within the project site (six lanes in nearby areas of Placer County to Watt Avenue). Internal circulation included roads up to eight lanes wide. Placer Parkway would also be constructed in this alternative.

The 2002 Specific Plan’s development would have initially relied upon individual groundwater wells, with a community system (served by well water) constructed as the plan was built out. Wastewater treatment would have been constructed on 25 acres of the project site, with about 1,400 acres west of the project site used for land disposal, and discharge to the Sacramento River at Riego Road during winter months. Stormwater drainage was proposed to use RD 1000 facilities and the Sankey Basin, with improvements proposed to RD 1000 facilities and to the North Main Canal.



Source Quad Knopf 2001

2002 Specific Plan Land Use Diagram

Exhibit 4-1

The 2002 South Sutter County Specific Plan alternative has been rejected from further consideration because the needed infrastructure and public services improvements are not clearly defined. In fact, the 2002 Specific Plan was rejected by the courts because it did not adequately define the location of a proposed wastewater treatment plant, and because the required funding for infrastructure improvements would not be expected to be generated by the proposed commercial and industrial development. One of the key objectives of the proposed project is to promote balanced land uses to provide the resources to support infrastructure improvements (Objective 13). Although project objectives 1, 2, 11, and 12 may be met by the 2002 South Sutter County Specific Plan alternative, this alternative does not meet Objective 13, nor does it fulfill the criteria of Measure M, the voter-approved advisory measure on land use in South Sutter County (Objective 16).

The 2002 South Sutter County Specific Plan, as compared to the No Project Alternative, provided a specific approach for implementing the existing General Plan designation for the project site and surrounding area, including development of a site-specific 3,500-acre area. As required by Section 15126.6(e)(2) of the CEQA Guidelines, this EIR also considers the No Project/Existing General Plan Alternative, which would include buildout of the existing General Plan. The No Project/Existing General Plan Alternative does not define a specific location for development; rather, it would allow development of commercial and industrial uses on a total of 3,500 acres that could be spread out without a development pattern over a larger 9,500-acre area. Furthermore, the No Project Alternative does not define the specific infrastructure and other improvements that would be required to support the 3,500 acres of commercial and industrial development.

4.2.3 2007 DRAFT SPECIFIC PLAN ALTERNATIVE

In 2007, the Measure M Group prepared a land use plan for the project site, building on an earlier 2006 Draft Specific Plan. The 2007 Draft Specific Plan updated the 2006 Draft Specific Plan to include mixed-use activity centers and provisions for encouraging mixed use, higher roadway connectivity on the project site, and more specific information regarding community facilities. The 2007 Draft Specific Plan (Exhibit 4-2) proposes approximately 17,500 dwelling units and 50,185,000 non-residential square feet for the project site, as compared to 17,500 dwelling units and 49,706,000 non-residential square feet under the proposed project. The 2007 Draft Specific Plan proposes development of 2,789 acres of residential use, whereas the proposed project includes 2,899 acres of residential use. The 2007 Draft Specific Plan also featured 288 acres of developed parkland, whereas the proposed project includes 311 acres. The 2007 Draft Specific Plan would develop the amount of acreage as the proposed project.

In addition to employment and residential villages identified in the 2006 Draft Specific Plan, the 2007 Draft Specific Plan identifies the proposed mixed-use town center, and three proposed mixed-use commercial and employment villages that are also a part of the proposed project. In the 2007 Draft Specific Plan, the Public Facilities Overlay is replaced with land use designations for neighborhood parks, open spaces, schools, and industrial drainage basins. Additional east-west roadways are also proposed throughout the project site to improve roadway connectivity. The 2007 Draft Specific Plan was considered by the County, and as such was also the basis for the project description circulated with the Notice of Preparation for the proposed project. Comments received from county departments and the public through the NOP process were used to assist in the design of the proposed project.

Objectives of the proposed project that are not met by the 2007 Draft Specific Plan include the following:

- ▶ providing a range of housing choices for all family types;
- ▶ promoting a mixed-use community composed of neighborhoods and activity centers;
- ▶ providing usable recreation facilities that also act as transition zones between employment areas and adjacent residential neighborhoods, including dual-use recreation and drainage facilities; and
- ▶ maintaining flexibility to adapt and adjust to changing economic and market conditions.

Although the 2007 Draft Specific Plan provides for a similar level of job creation and residential development as the proposed project, it provides less developed acreage of residential uses and parks. The 2007 Draft Specific Plan does not provide the desired range of housing choices for all family types, nor the desired amount of usable recreation facilities described in the project objectives. Furthermore, the 2007 Draft Specific Plan provides less opportunity and flexibility to promote mixed-use development relative to the proposed project, as provisions to encourage mixed-use near the SR 99/70 /Riego Road interchange and in the West, North, and East Activity Centers contained in the proposed project are not identified in the 2007 Draft Specific Plan. For these reasons, the 2007 Draft Specific Plan does not meet several of the basic project objectives, and has been rejected from further consideration.

4.3 ALTERNATIVES CONSIDERED IN DETAIL

This section provides a comparative analysis of the four alternatives to the proposed project that were selected for detailed analysis: the No Project/Existing General Plan, SACOG Blueprint Preferred Scenario, Reduced Intensity Development, and Permanent On-Site Sankey Gap Overflow Storage. The relative environmental effects of the alternatives in comparison to the proposed project are identified in Table 4-1.

4.3.1 NO PROJECT/EXISTING GENERAL PLAN ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) states that a discussion of the “No Project” alternative must consider “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans.” This alternative considers potential impacts if the proposed project was not approved, and development proceeded based on the adopted Sutter County General Plan and the NBHCP. Although Measure M (and the SACOG Blueprint, for that matter) present land use concepts for the project site, these concepts are advisory in nature. (The conceptual land use plan included in the SACOG Blueprint Scenario for South Sutter County is examined in detail as an alternative in Section 4.3.2.)

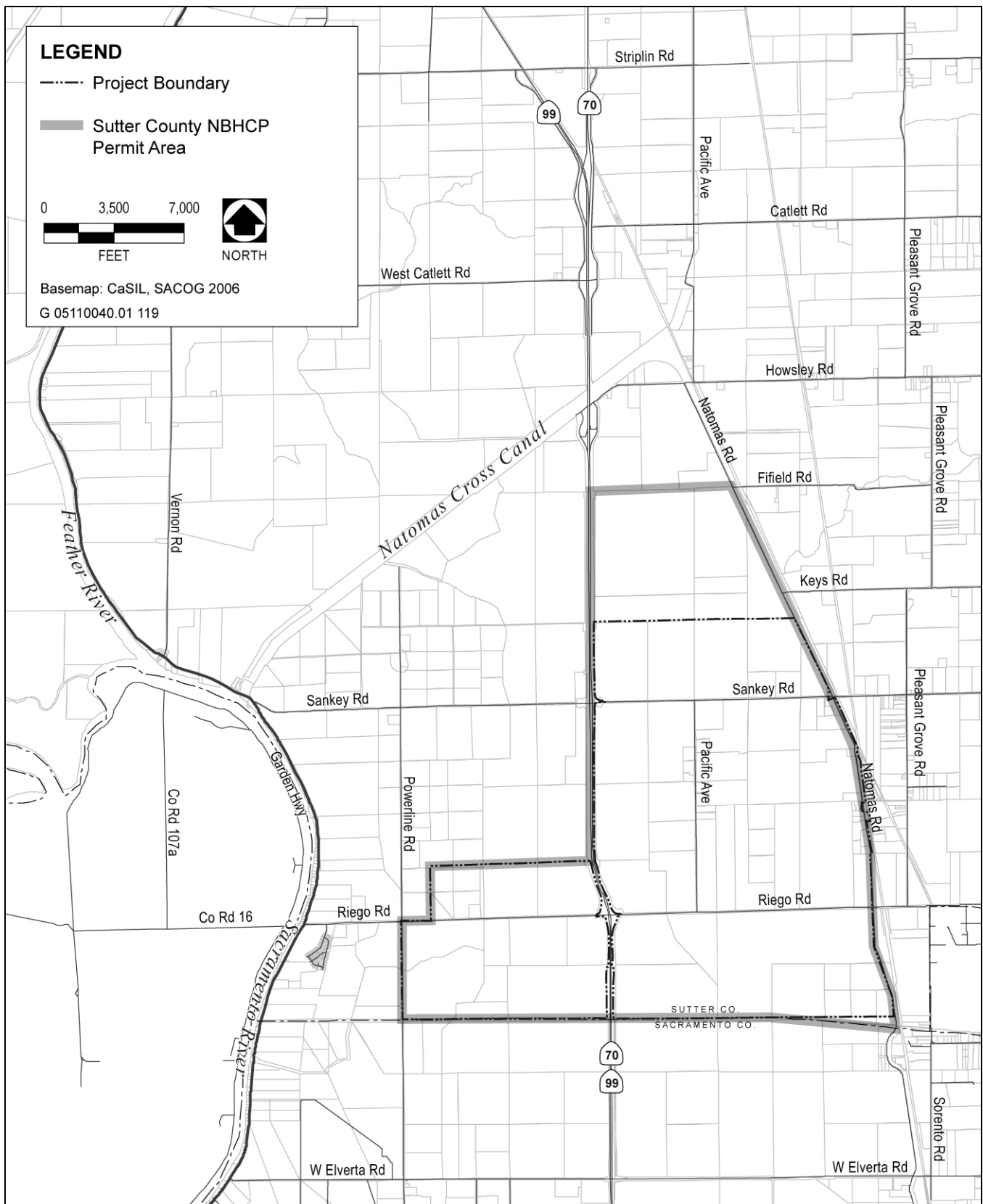
The Sutter County General Plan designates the project site as Commercial/Industrial Reserve. This designation is applied to an approximately 9,500-acre area (10,500 acres were originally designated) in the southern portion of Sutter County. The description of the Industrial/Commercial Reserve in the General Plan specifies that up to 3,500 acres of land within the 9,500 acre Industrial/Commercial Reserve area may be developed with industrial and commercial uses (at a ratio of 85% industrial to 15% commercial). New commercial or industrial development that results in less than 3,500 acres in commercial and industrial use in the Industrial/Commercial Reserve would be required to obtain rezoning to the South Sutter County Industrial/Commercial district (SSCI/C), and conduct technical studies. Development that would result in more than 3,500 acres of industrial and commercial use would require a general plan amendment.

The existing zoning for the project site includes areas of General Agricultural (AG), General Industrial (M2), and General Industrial-Planned Development (M2-PD). The AG district was established to provide areas for general farming, low-density uses, open spaces, limited retail service uses pursuant to use permit approved by the Planning Commission. The M2 District was established to provide areas for a full range of industrial, manufacturing and related uses to expand the economic base, and provide employment opportunities. The -PD combining district is used in conjunction with an underlying district designation, and was established to provide for more creative and efficient site designs. Although no portions of the project site have been zoned SSCI/C, this zoning designation would be consistent with the current General Plan designation and is intended to be requested as a rezone by individual applicants for commercial and/or industrial development consistent with the General Plan.

The NBHCP authorizes takes associated with development of 7,467 acres of land in south Sutter County with urban uses. The permit area of the NBHCP is illustrated on Exhibit 4-3, and it includes the project site, as well as land to the north and west of the project site. Although a portion of the Industrial/Commercial Reserve area as designated by the General Plan is located outside of the NBHCP permit area, it is assumed that any development taking place in the Industrial/Commercial Reserve area would occur within the NBHCP permit area in order to obtain coverage under the NBHCP.



Source: EDAW 2007



Source: City of Sacramento 2003, Adapted by EDAW 2008

NBHCP Permit Area

Exhibit 4-3

If the proposed project is not approved by Sutter County, it is possible that other proposals for urban development of a portion or portions of the project site would be put forward. For the purpose of this alternative, it is assumed that a total of 3,500 acres of commercial and industrial development would occur on the project site or in the immediate vicinity in conformance with the existing General Plan. As specified in the General Plan, the expectation is that zoning would be updated to the SSCI/C district as projects are proposed. Buildout of the existing General Plan would result in development of a total of 3,500 acres of industrial and commercial uses, leaving the balance of the project site (approximately 4,000 acres) in ongoing agricultural use. This alternative would include all improvements to the roadway network identified in the Sutter County General Plan, including widening SR 99/70 to six lanes in the project vicinity, widening Riego Road to four or six lanes, and widening Sankey Road to four or six lanes. Other specific infrastructure improvements are not included in this alternative. Furthermore, the manner in which the 3,500 acres of industrial and commercial development would be sited and developed within the 9,500-acre area is not specified. The development could occur in a manner which would permit individual wells and septic systems, and electric, natural gas, and other utility needs to be met on a project-by-project, discontinuous basis that would promote urban sprawl.

This alternative could potentially meet several of the project objectives, including objectives to create a major employment center, to accommodate projected growth in a location adjacent to existing infrastructure and services, and to provide for development of needed regional service facilities. (Objectives 1, 2, and 6.) However, this alternative allows for only commercial and industrial development, which precludes meeting other project objectives. Without a residential component, this alternative would not meet objective 3 (array of uses to enable development of a community), 4 (provide a range of housing types), 5 (provide a mixed-use community), or 15 (support future incorporation as a city). Most importantly, Objective 16 (compliance with Measure M) would not be met by this alternative.

An analysis by issue area of the potential environmental impacts of the No Project/Existing General Plan Alternative, as compared to the proposed project, is provided below.

4.3.1.1 LAND USE

The proposed project would require approval of a general plan amendment and rezoning by the County that would ensure that development of the proposed land uses on the project site would be consistent with the Sutter County General Plan and zoning ordinance. The proposed project would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County Local Agency Formation Commission (LAFCO) Guidelines for reorganization of the Community Service Area (CSA) and Sacramento Regional County Sanitation District (SRCSD) boundaries associated with the project site. The proposed project would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport Comprehensive Airport Land Use Plan (CALUP). The proposed project would not result in conflict with the SACOG Preferred Blueprint Scenario. The proposed project would include construction of housing and job-generating uses consistent with the advisory Measure M, passed by the voters of Sutter County in 2004. The proposed project would not conflict with the NBHCP's habitat preservation goals. Therefore, the proposed project would not result in any significant impacts related to land use planning.

No general plan amendments would be required by the No Project/Existing General Plan Alternative, although individual development projects would require rezoning to SSCI or SSCC, as specified in the General Plan. The General Plan specifies that up to 3,500 acres could be rezoned to SSCI and SSCC (at an 85% to 15% ratio). The General Plan currently allows for industrial and commercial uses, and the existing zoning permits agricultural and industrial uses on various portions of the project site. The No Project/Existing General Plan Alternative does not necessarily include CSA boundary realignments for service provision. The No Project/Existing General Plan Alternative would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP. This alternative would not reflect land uses contemplated in the SACOG Preferred Blueprint Scenario. The Blueprint Scenario suggests inclusion of 8,500 housing units on about 1,870 acres, 3,470 acres of industrial development, and 290 acres of commercial uses, as well as 1,790 acres of "urban reserve,"

while the No Project/Existing General Plan Alternative would include only 3,500 acres of industrial and commercial uses. The No Project/Existing General Plan Alternative would not be consistent with the thresholds provided in the advisory Measure M, because fewer than 3,600 acres of industrial and commercial development would occur, and no parks or recreation areas would be provided. Because the 3,500 acres of development would be spread out throughout the 9,500-acre Industrial/Commercial Reserve area, the No Project/Existing General Plan Alternative would result in a scattered, low density development pattern that would promote urban sprawl.

Neither the proposed project nor the No Project/Existing General Plan Alternative would divide an established community. Impacts related to conflict with any applicable land use plan, policy, or regulation would be less-than-significant for both the proposed project and this alternative. Because this alternative would not comply with the advisory Measure M, would result in a substantial difference from the SACOG Blueprint Preferred Scenario, and would promote urban sprawl, land use impacts would be greater for this alternative compared to the proposed project [*Greater*].

4.3.1.2 POPULATION, HOUSING, AND EMPLOYMENT

The proposed project would draw from the existing construction labor force for the Sacramento region, and so would not temporarily increase employment and housing demand during construction. The proposed project would result in construction of 17,500 housing units on approximately 2,899 acres, with a total of 7,528 acres developed with urban uses. It would also create affordable housing at a rate of 5% of the total units produced (for a total of 875 units), with 3,000 units of housing for seniors.

The No Project/Existing General Plan Alternative would result in less construction than the proposed project (3,500 acres instead of 7,528 acres), and so could also draw from the existing construction labor force for the Sacramento region; this alternative would also not be expected to cause a temporary increase in employment and housing demand during construction. No housing units would be constructed in the No Project/Existing General Plan Alternative, so no housing for affordable to low- and moderate- income households would be created, and 3,000 units of housing for seniors would not be constructed in this alternative. Because the No Project/Existing General Plan Alternative would create no residential housing, this alternative would create a jobs/housing imbalance, and impacts related to population, employment, and housing would be greater in the No Project/Existing General Plan Alternative relative to the proposed project [*Greater*].

4.3.1.3 TRANSPORTATION AND CIRCULATION

The proposed project would contribute to unacceptable roadway operations on the regional, Caltrans, Sutter County, Sacramento County, and Placer County roadway networks and intersections. Transportation mitigation measures associated with the proposed project would have impacts related to traffic conditions in other jurisdictions and to the physical environment. The proposed project would increase demand for public transit and non-motorized travel. Although the increased demand would be met by increased transit service and non-motorized travel choices provided by the project, this would still be a significant and unavoidable impact.

The No Project/Existing General Plan Alternative would include the construction of industrial and commercial land uses on a footprint smaller than that of the proposed project (3,500 acres for the No Project/Existing General Plan Alternative compared to 7,528 acres for the proposed project). Major roadway improvements in this alternative would be limited to those identified in the existing Sutter County General Plan: widening of SR 70/99 to a six lane freeway, widening of Sankey Road to four or six lanes, and widening of Riego Road to four or six lanes.

The No Project/Existing General Plan Alternative would result in the construction of a slightly smaller acreage of job-generating uses (3,500 acres) than the proposed project (3,631 acres). No residential units would be built on the project site in this alternative, which would reduce the number of trips required by residents compared to the proposed project. However, the number and distance of automobile trips that would be required by employees of

on-site businesses would be higher in this alternative than in the proposed project based on the absence of on-site residential housing.

Because this alternative would result in less development on the project site than with the proposed project, resulting in substantially fewer vehicle trips per day, overall traffic impacts are considered less for this alternative as compared to the proposed project. However, circulation and level of service may not be substantially better than development under the proposed project. *[Less]*.

4.3.1.4 AIR QUALITY

The proposed project would result in significant and unavoidable short-term construction-related and long-term operational emissions of criteria air pollutants and precursors. Long-term mobile source emissions of carbon monoxide (CO) from the proposed project would represent a less-than-significant impact. Impacts to sensitive receptors from exposure to toxic air contaminants (TACs) and odors would be significant and unavoidable under the proposed project.

The No Project/Existing General Plan Alternative would result in the construction of 3,500 acres of industrial and commercial uses, along with planned expansions of roadways on the project site. Because the area developed would be reduced from 7,528 to 3,500 acres, the air quality impacts related to construction of the No Project/Existing General Plan Alternative would be expected to be less than for the proposed project. A smaller area would be devoted to urban use in the No Project/Existing General Plan Alternative relative to the proposed project (3,500 acres compared to 7,528 acres), and so long-term operation impacts would also be expected to be lower than with the proposed project. Because the No Project/Existing General Plan Alternative would not include construction of residential units on the project site, employees working on the industrial and commercial areas in the No Project/Existing General Plan Alternative would be expected to commute longer distances relative to employees in the proposed project. Direct air quality impacts from mobile sources would be lower in the No Project/Existing General Plan Alternative relative to the proposed project because of lack of residential trips and the smaller area devoted to job-generating land uses. However, construction of 3,500 acres of urban development would still result in substantial emissions of criteria air pollutants, and because the air basin is in nonattainment for many criteria pollutants, the No Project/Existing General Plan Alternative would not reduce any of the significant and unavoidable impacts of the proposed project to a less-than-significant level. Overall air quality impacts are considered to be similar for this alternative as compared to the proposed project. *[Similar]*.

4.3.1.5 NOISE

The proposed project would result in exposure of noise-sensitive land uses to noise from Sacramento International Airport, including exposure of residential uses to excessive single-event noise from Sacramento International Airport operations. Although the No Project/Existing General Plan Alternative could potentially result in the development of transient-lodging facilities (hotels) that would be exposed to noise from the airport, this impact would be reduced for the No Project/Existing General Plan Alternative because no residential uses would be developed on the project site. The proposed project would also result in impacts related to exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations; this impact would be reduced with the No Project/Existing General Plan Alternative, since only industrial and commercial land uses would be located on the eastern portion of the project site, near the rail line. The proposed project would cause construction-related noise, and exposure of sensitive receptors to new noise generators and traffic noise. These noise impacts for the proposed project are considered less than significant with implementation of mitigation, and impacts of the No Project/Existing General Plan Alternative would also be less than significant. The proposed project would also include exposure of residences to noise from existing agricultural and industrial activities; since the No Project/Existing General Plan Alternative would not include residential development, this impact would be less with this alternative.

The proposed project would result in significant and unavoidable impacts related to increased traffic noise to offsite areas. These impacts would be reduced under the No Project/Existing General Plan Alternative, since the area of land developed with urban uses would be less with the No Project/Existing General Plan Alternative. This would result in fewer vehicle trips. However, it is likely that the off-site noise increases would still be substantial, given the relatively large increases associated with the project.

The No Project/Existing General Plan Alternative would result in less noise impacts than the proposed project because there would be no development of residential uses (and fewer sensitive receptors), fewer vehicle trips per day, and it would result in lesser increases in traffic noise levels; therefore, this alternative would result in less noise impacts than the proposed project [*Less*].

4.3.1.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The proposed project would result in significant impacts from construction-related erosion, expansive soils, liquefaction, and unknown, potentially unique paleontological resources. However, all impacts for the proposed project would be reduced to less-than-significant levels after implementation of mitigation.

Under the No Project/Existing General Plan Alternative there would be less overall development (3,500 acres compared to 7,528 acres in the proposed project); but the same impacts would still occur, and would occur to the same degree. Therefore, the No Project/Existing General Plan Alternative would not reduce or avoid any significant impacts related to this issue area. [*Similar*].

4.3.1.7 HYDROLOGY AND WATER QUALITY

The proposed project and the No Project/Existing General Plan Alternative would both result in significant impacts related to temporary construction-related and water quality effects, increased risk of flooding from increased stormwater runoff, and degradation of water quality from urban runoff. These impacts would be less than significant after mitigation for the proposed project, and would be the same for this alternative. Similarly, because groundwater modeling has shown that under cumulative conditions including the proposed project, depletion of groundwater supplies and interference with groundwater would be less-than-significant impacts, this alternative, which would have lower water demands and less impervious area than the proposed project, would also have less-than-significant impacts. Groundwater quality testing at the project site indicates the presence of contaminants at levels in excess of water quality standards. These contaminants could affect municipal and industrial (M&I) water uses at the site, which would be a similar impact under the both proposed project and the No Project/Existing General Plan Alternative.

The project site is located within a 100-year floodplain as currently defined by FEMA, and also includes an area located within the 200-year floodplain as defined on the draft “Best Available Maps” provided by the Department of Water Resources (DWR) in 2008. Impacts related to development of urban uses in the 100-year floodplain would be less than significant after mitigation for the proposed project. Under the 200-year flood requirements promulgated by SB 5, the proposed project assumes that the Sacramento Area Flood Control Agency (SAFCA) would implement actions to prevent flooding in the region through the Sankey Gap, thus also providing 200-year flood protection for the project site. However, SAFCA currently has no plans to perform that work; therefore, under the proposed project, the applicants themselves would undertake the necessary 200-year flood protection actions if SAFCA did not. For the No Project/Existing General Plan Alternative, because development would occur in a scattered manner without a Specific Plan in any number of individual small projects, it is unlikely that any one applicant would have the means to provide the 200-year flood protection if SAFCA did not. Therefore, impacts related to hazards from a 200-year flood under the No Project/Existing General Plan Alternative are considered greater than under the proposed project and potentially significant and unavoidable. Therefore, the No Project/Existing General Plan Alternative would result in greater hydrology and water quality impacts (from the 200-year flood hazard) relative to the proposed project [*Greater*].

4.3.1.8 PUBLIC SERVICES

The proposed project would result in significant impacts on public services related to temporary obstruction of roadways during construction and the provision of adequate water pressure for fire flow. These impacts would be reduced to less-than-significant levels after implementation of mitigation. The proposed project would provide increased fire protection, police protection, library facilities, judicial services, public health services, mental health services, social services, and school facilities and services commensurate with the increase in residents and employees through payment of impact fees, service fees, and taxes as suggested by Measure M. The No Project/Existing General Plan Alternative would provide increased fire and police protection, but would not generate impact fees to fund judicial services, public health services, mental health services, social services, and school facilities. Because that funding would not be generated, there is a potential that public services could fall below service level thresholds established by the County.

Because the proposed project would result in less than significant public services impacts, the No Project/Existing General Plan Alternative would not reduce or avoid any significant impacts related to this issue. However, the lack of residential development in this alternative would mean that impact fees to fund judicial services, public health services, mental health services, social services, and school facilities would not be collected, which could result in a decrease in the level of service. Overall impacts on public services associated with this alternative are therefore considered greater as compared to the impacts of the proposed project [*Greater*].

4.3.1.8 WATER SUPPLY

The proposed project would create demand for water supply, which would be met through use of groundwater sources and modification of existing surface water entitlements. Water Supply impacts are either considered less than significant, or would be rendered less than significant by implementation of mitigation measures. Curtailment of development on the project site if adequate water supplies were not available would result in significant and unavoidable impacts to transportation and circulation, air quality, noise, agricultural resources, parks and open space, and visual resources.

Because the proposed project would result in less than significant water supply impacts (with the exception of curtailment), the No Project/Existing General Plan Alternative would not reduce or avoid any significant impacts related to this issue. However, the No Project/Existing General Plan Alternative would result in less demand for water supply because of the lack of residential development and the reduction in job-generating use. No existing year-round surface water rights are available at the project site, so the No Project/Existing General Plan Alternative is assumed to rely entirely on groundwater for the M&I water supply required by this alternative. The proposed project's 3,631 acres of employment-generating land uses are estimated to produce a water demand of 9,050 acre feet per year (AFY). The No Project/Existing General Plan Alternative would include 3,500 acres of employment generating land uses, and so would be expected to generate a similar or slightly lower water demand. The proposed project would use 12,128 AFY of groundwater annually by 2030 in the proposed water supply program, without significant impacts related to groundwater pumpage rate and interference with groundwater recharge, so reliance upon groundwater for the entire water supply in this alternative is considered feasible. Therefore, overall water supply impacts associated with this alternative are considered similar to those under the proposed project [*Similar*].

4.3.1.10 PUBLIC UTILITIES

The proposed project would create demand for water and wastewater conveyance infrastructure, wastewater treatment, solid waste disposal capacity, electricity, natural gas, and communications. The proposed project's direct significant impact related to wastewater treatment would be reduced to a less-than-significant level following implementation of mitigation. However, because the proposed project would contribute to the need for future expansion of the Sacramento Regional County Sanitation District's (SRCSD) Wastewater Treatment Plant, the proposed project would contribute indirectly to the significant and unavoidable impacts identified in the

certified *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan Final Environmental Impact Report* (SRCSD 2004) (SCH # 2002052004). Other public utilities impacts are either considered less than significant, or would be rendered less than significant following implementation of mitigation measures.

The No Project/Existing General Plan Alternative would result in less overall demand for water and wastewater conveyance infrastructure, wastewater treatment, solid waste disposal capacity, electricity, natural gas, and communications because of the reduction in residential development and job-generating uses. Because this alternative would include scattered, discontinuous development of approximately 3,500 acres anywhere within the 9,500-acre Industrial/Commercial Reserve area, specific projects would be expected to rely on individual water wells and septic systems. With no connection to SRCSD, the contribution to indirect significant and unavoidable impacts associated with the SRCSD Wastewater Treatment Plant would not occur in this alternative. This alternative would therefore result the fewer public utilities impacts as compared to the proposed project. *[Less]*.

4.3.1.11 AGRICULTURAL RESOURCES

The proposed project would result in a significant and unavoidable impact related to conversion of important farmland to nonagricultural urban uses. There would be no impact related to cancellation of Williamson Act contracts, and a potentially significant and unavoidable impact from disruption of existing on-site and off-site agricultural operations during construction activities.

Although approximately 4,000 fewer acres of agricultural land would be converted to urban development, this alternative would still result in a significant and unavoidable impact related to conversion of 3,500 acres of farmland to nonagricultural uses, Sutter County considers industrial and most commercial uses to be compatible with neighboring agricultural uses, so the potentially significant and unavoidable impact related to potential conflict (if any) with existing agricultural uses would be reduced to a less-than-significant. The impacts from cancellation of Williamson Act contracts and disruption of existing agricultural operations during construction activities would be similar to the proposed project. *[Less]*.

4.3.1.12 PUBLIC HEALTH AND HAZARDS

Impacts from exposure to on-site hazardous materials during construction, development on a known hazardous materials site, exposure to workers or residents near an airport, public health hazards from mosquitoes attracted by water features, safety hazards related to water features and aircraft, and interference with emergency or evacuation plans, would all represent potentially significant impacts that would be reduce to a less-than-significant level after implementation of mitigation. The proposed project would also have less-than-significant impacts related to proximity to transportation routes and routine transport, use, and disposal of hazardous materials.

The same public health and hazards impacts related to hazardous materials and interference with emergency or evacuation plans would occur in the No Project/Existing General Plan Alternative as compared to the proposed project. Impacts related to public health risks posed by aviation hazards related to on-site water features would be similar; detention and stormwater needs would be similar, and similar mitigation measures would be available. Because no residents would be present on the project site in this alternative, impacts related to increased exposure to mosquitoes from water features and exposure to electrical/magnetic fields would be less than in the proposed project. Because the proposed project would result in less than significant public health and hazards impacts, the No Project/Existing General Plan Alternative would not reduce or avoid any significant impacts. *[Similar]*.

4.3.1.13 BIOLOGICAL RESOURCES

The proposed project would have significant direct impacts from potential loss and degradation of jurisdictional wetlands and other waters of the US or waters of the State and indirect impacts from hydrologic effects such as increased urban runoff and pollutants flowing into watercourses. Impacts on the endangered giant garter snake

and Swainson's hawk, as well as impacts on potential loss and degradation of habitat for special status wildlife and loss or degradation of jurisdictional waters of the US or waters of the State, would also be significant. The proposed project would have a less-than-significant impact related to these resources after mitigation, which generally includes conformance with the measures included in the NBHCP. Compensatory mitigation for wetland impacts would be carried out through mitigation banks and in-lieu mitigation fees.

Because the No Project/Existing General Plan Alternative would include development of a smaller area (3,500 acres as compared to 7,528 acres for the proposed project), fewer biological resources would be adversely affected, although the same direct and indirect potentially significant and unavoidable impacts to wetlands would still occur. However, development of a smaller area would result in a substantially reduced level of biological resource impacts for the No Project/Existing General Plan Alternative relative to the proposed project. The No Project/Existing General Plan Alternative would not rely on the Sacramento River for municipal or industrial surface water supplies, which would avoid the potentially significant and unavoidable impact to special-status fish species. *[Less]*.

4.3.1.14 PARKS AND OPEN SPACE

The proposed project would result in a less-than-significant impact related to increased use of regional park facilities. Under development Phase 1 and Phase A, the insufficiency of proposed project site parkland to meet increased demand is a significant impact that would be reduced to a less-than-significant level after implementation of mitigation. The No Project/Existing General Plan Alternative would not include the development of residential land uses, so an increase in the number of residents would not be expected in this alternative, and therefore no additional parkland would be required. Similarly, with no new residents, there would be no potential deterioration of existing local and regional park facilities. Because the No Project/Existing General Plan Alternative would avoid the significant impact related to sufficiency of on-site parkland, impacts would be lesser as compared to the proposed project *[Less]*.

4.3.1.15 CULTURAL RESOURCES

The proposed project would result in potentially significant cultural resources impacts related to known and unknown prehistoric resources and human remains, which would be reduced to less-than-significant levels after implementation of mitigation. However, the impact related to potential damage or destruction of historic-era resources is potentially significant and unavoidable for the proposed project.

While the No Project/Existing General Plan Alternative would include urban development of a smaller footprint than the proposed project (3,500 acres compared to 7,528 acres for the proposed project), this alternative would result in scattered development over the 9,500-acre Industrial/Commercial Reserve area. The potentially significant and unavoidable impacts related to potential damage or destruction of historic-era resources could be avoided because only about 3,500 acres out of a 9,500-acre Industrial/Commercial Reserve would be developed, therefore the three historic-era sites would not have to be developed. The same mitigation measures would be available to the No Project/Existing General Plan Alternative as to the proposed project. Because the No Project/Existing General Plan Alternative would avoid the potentially significant and unavoidable impact to historic-era resources, this alternative would have lesser impacts than the proposed project. *[Less]*.

4.3.1.16 VISUAL RESOURCES

The proposed project would cause less-than-significant impacts from damage to scenic resources within a State scenic highway, and from new sources of light and glare. Impacts related to permanent alteration of scenic vistas from project operation, degradation of visual character from project operation and during construction, and skyglow effects from project operation would be significant and unavoidable for the proposed project.

The No Project/Existing General Plan Alternative would still result in development of urban uses over a large area (3,500 acres). Because the visual resource impacts are related to the physical size of the urban development proposed for the project, impacts to visual resources would be the same as under the proposed project [*Similar*].

4.3.1.17 CLIMATE CHANGE

The proposed project would result in development of urban uses, including 17,500 dwelling units and about 49.7 million square feet of job-generating uses, on a 7,528-acre site. A variety of strategies would be implemented to reduce GHG emissions, including mixed-use areas, higher density residential areas, transit options, and bicycle and pedestrian infrastructure throughout the proposed project. However, the proposed project's contribution to cumulative GHG emissions would still be significant and unavoidable.

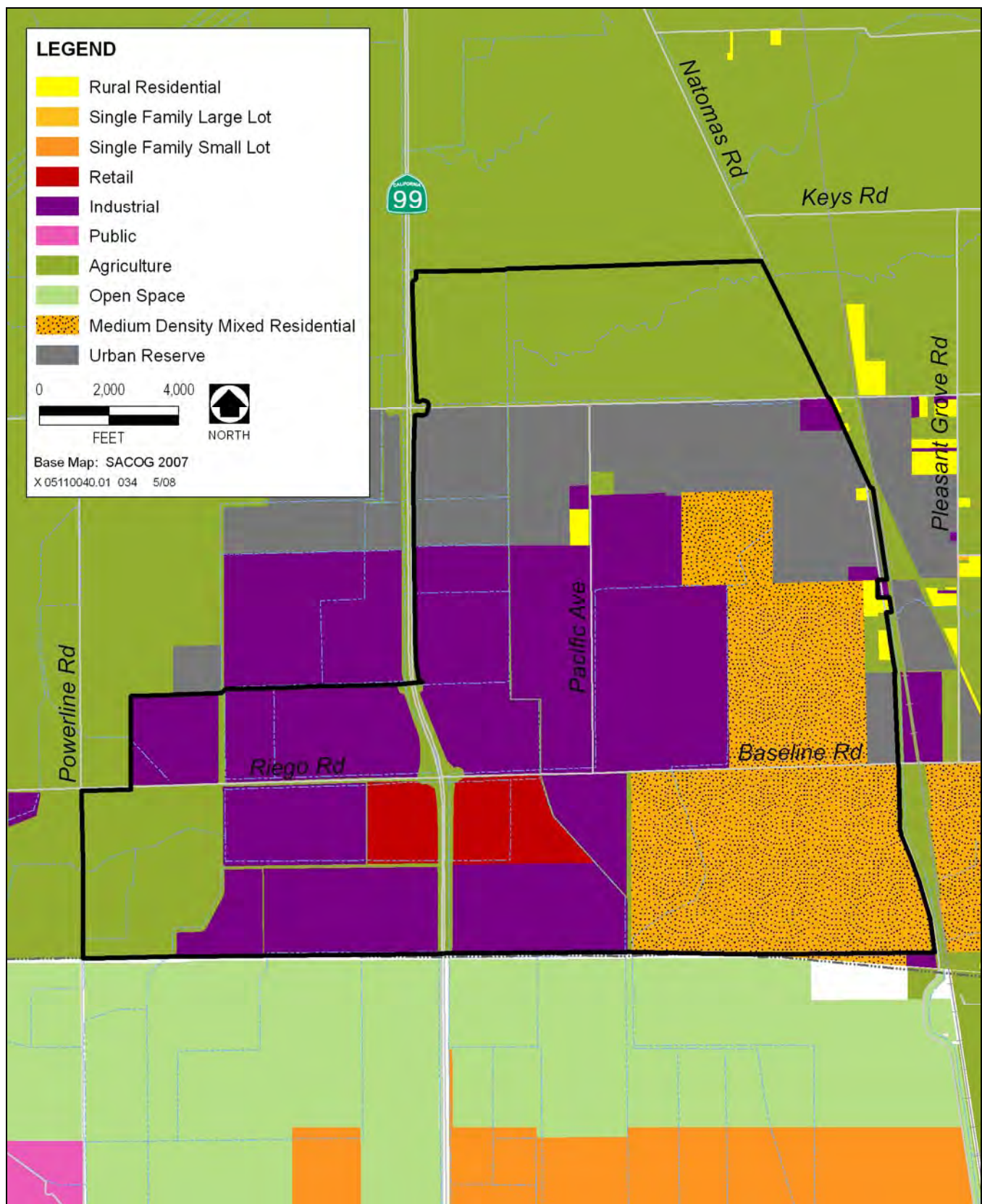
The No Project/Existing General Plan Alternative would include a reduced area of development encompassing about 3,500 acres of industrial and commercial development, compared to 17,500 housing units and 3,631 acres of job-generating uses for the proposed project. This alternative would not include any residential uses, and would include slightly less (3,500 acres compared to 3,631 acres) commercial and industrial development. Because of the lack of residential development and the potential for commercial and industrial uses to be scattered across the project site in the No Project/Existing General Plan Alternative, transit opportunities would be less, reducing the potential for alternative transportation mitigation measures to reduce GHG emissions compared to the proposed project. All employees of the commercial and industrial areas would commute from elsewhere in the region, increasing vehicle miles traveled (VMT) and GHG emissions related to employee commutes relative to the proposed project. Overall VMT and GHG emissions would be expected to be lower for this alternative, however, since no residential trips would be attributed to the project – these impacts would be shifted to other areas of the region, resulting in an increase in VMT and potential indirect impacts greater than those of the proposed project. The No Project/Existing General Plan Alternative would result in reduced direct cumulative GHG emissions impacts with respect to climate change than the proposed project, but indirect cumulative impacts would be expected to increase [*Greater*].

4.3.1.18 IMPACT SUMMARY

The No Project/Existing General Plan Alternative would result in greater impacts than the proposed project in five issue areas, similar impacts in six issue areas, and lesser impacts in six issue areas, (see Table 4-1). Significant unavoidable impacts related to air quality, biological resources, noise, agricultural resources, visual resources, and climate change, would also occur under this alternative. Significant and unavoidable impacts to cultural resources would be avoided in this alternative. In addition, the No Project/Existing General Plan Alternative would include development of job-generating uses without residential development to accommodate the additional employment, resulting in a jobs/housing imbalance. This alternative would result in residential development being displaced to other undeveloped lands within the Sacramento area, potentially increasing the indirect physical environmental effects to levels that would ultimately be the same as under the proposed project.

4.3.2 SACOG BLUEPRINT PREFERRED SCENARIO ALTERNATIVE

This alternative assumes that South Sutter County is developed exactly as suggested by SACOG Blueprint Preferred Scenario. The total land area proposed for development in the Blueprint Preferred Scenario is about 7,420 acres (similar to the 7,528 acre footprint of the proposed project). The Blueprint Alternative would include construction of 8,500 housing units on about 1,870 acres; 3,470 acres of industrial and 290 acres of commercial uses; as well as 1,790 acres of “urban reserve,” with a total of about 20,000 jobs and 8,500 residences. The proposed project would result in construction of more than twice as many housing units (17,500) on nearly double the acreage devoted to residential uses (2,899 acres), and approximately the same acreage of commercial and industrial uses as the Blueprint Alternative. Urban reserve uses have not been identified under the Blueprint Preferred Scenario. Exhibit 4-4 illustrates the Blueprint Preferred Scenario for South Sutter. The South Sutter area defined by SACOG is approximately the same size as the project site, although the conceptual land use map



Source: Adapted by EDAW 2008

SACOG Blueprint Preferred Scenario for South Sutter

Exhibit 4-4

presented in the Blueprint Preferred Scenario does not match the proposed project footprint; instead, it includes areas to the east and west of the project site. This alternative would include future development of Placer Parkway along the current Sankey Road alignment as a limited access freeway, including two interchanges and an overcrossing at Pacific Avenue. The improvements proposed in SACOG's Draft 2035 Regional Metropolitan Transportation Plan are also assumed to be part of the Blueprint Alternative. These improvements include widening SR 99/70 to a six-lane freeway, widening Riego Road to four lanes from SR 70/99 to a point two miles west, widening Riego Road to six lanes from SR 99/70 to the Placer County line, widening Sankey Road to four lanes from SR 99/70 to Pleasant Grove Road, and widening Pacific Avenue to four lanes. SACOG makes clear that the land use designations presented on the Blueprint Preferred Scenario (referred to hereafter as the Blueprint Alternative) are conceptual, and reflect general land use locations in a local area.

The Blueprint Alternative differs from the Existing General Plan in that it includes a different mix of land uses, including a residential component (which the Existing General Plan does not include). The Blueprint Alternative also identifies a specific, albeit conceptually so, layout of the land uses. The SACOG Blueprint and its evolution are explained in detail in Section 3.1, "Land Use."

Although the employment and residential capacities of the proposed project exceed those of the Blueprint Alternative, the proposed project would include numerous features that address the smart growth principles established by the Blueprint Alternative, including the following:

- ▶ **Transportation Choices:** The proposed project includes public transportation and regional transit right-of-way and stations along Riego Road and Sankey Road (future Placer Parkway), and a comprehensive network of pedestrian and bicycle trails is proposed.
- ▶ **Mixed-Use Development:** A mixed-use Town Center is proposed that would accommodate civic, residential, and commercial functions. Five additional multiuse activity centers are proposed. Provisions to allow mixed uses within three of these centers are incorporated within the proposed project.
- ▶ **Compact Development:** Activity centers composed of higher density residential and mixed-use development are proposed near transportation nodes (regional transit stations) and commercial/employment centers.
- ▶ **Housing Choice and Diversity:** A variety of housing types are proposed to better serve the economic diversity of local homebuyers, including apartments, condominiums, single-family detached and attached products, and senior/active adult housing products.
- ▶ **Use of Existing Assets:** Land uses are linked to existing transportation patterns, and the Phase 1 development area is centered around a proposed interchange at Riego Road and SR 99/70, which is being addressed in a separate CEQA document by the California Department of Transportation.
- ▶ **Quality Design:** The proposed project is intended to provide a variety of high-quality neighborhood and town center designs that are appropriate to the scale and use of residential areas, employment districts, and activity centers. Recreational uses and parks are proposed throughout the community and integrated within its design.
- ▶ **Natural Resource Conservation:** The proposed project is located on land previously identified in the Sutter County General Plan for industrial/commercial development, and planned as authorized development in the NBHCP.

The Blueprint Alternative could potentially meet several of the project objectives, including objectives to create a major employment center, to accommodate projected growth in a location adjacent to existing infrastructure and services, to provide for development of needed regional service facilities, and to promote a balance in land uses to support a strong tax base (Objectives 1, 2, 6, and 13.)

The Blueprint alternative does not comply with Measure M, because it does not define at least 1,000 acres of parks, open space, schools, and other public facilities, and because the Blueprint's urban reserve would have to be limited to ensure that the quantity of residential development remained below the 2,900-acre cap specified in Measure M.

The Blueprint Alternative also does not comply with project objective 11, because compliance with NBHCP would require either an amendment of the NBHCP or of the Blueprint development area.

Objective 7 (multimodal transportation facilities) would be better met by the proposed project, since the greater density and intensity of uses in the proposed project would allow for a system with more frequent and varied transit connections than would be possible under the smaller Blueprint scenario. Similarly, objectives 4 (range of housing choices), 5 (mixed-use community), and 11 (compliance with NBHCP, flood safety, resource conservation and safety plans) would be better met by the proposed project. Due to the size of the proposed project, it has the potential to offer a greater variety of mixed-use areas and a greater range of housing choices based on its larger number of units and takes full advantage of the development potential authorized by the NBHCP. An analysis of the potential environmental impacts associated with implementing the Blueprint Alternative is presented below.

4.3.2.1 LAND USE

The proposed project would require approval of a general plan amendment and rezoning by the County that would ensure that development of the proposed land uses on the project site would be consistent with the Sutter County General Plan and zoning ordinance. The proposed project would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County LAFCO Guidelines for reorganization of the CSA and SRCSD boundaries associated with the project site. The proposed project would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP. The proposed project would not result in conflict with the SACOG Preferred Blueprint Scenario. The proposed project would include construction of housing and job-generating uses consistent with the advisory Measure M, passed by the voters of Sutter County in 2004. Therefore, the proposed project would not result in any significant impacts related to land use planning.

The Blueprint Alternative would include residential, commercial, and industrial uses on the project site, and would require approval of a general plan amendment and rezoning by the County to ensure that development of the proposed land uses would be consistent with the Sutter County General Plan and zoning ordinance. The General Plan currently allows for industrial and commercial uses, and the existing zoning permits agricultural and industrial uses on various portions of the project site.

The Blueprint Alternative would include development of urban uses on the project site, and would require realignment of the CSA boundaries associated with service provision on the project site. These changes would be similar to those in the proposed project, and so would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County LAFCO Guidelines for reorganization of the CSA boundaries associated with the project site. Impacts related to the need for general plan amendments, CSA boundary realignment would be similar to the proposed project. The Blueprint Alternative (as illustrated in Exhibit 4-4) would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP, similar to the proposed project.

The Blueprint Alternative was developed based on general information provided by SACOG for the Preferred Blueprint Scenario for South Sutter, and thus would not result in a conflict with the SACOG Preferred Blueprint Scenario.

Neither the proposed project nor the Blueprint Alternative would divide an established community. Impacts related to conflict with any applicable land use plan, policy, or regulation would be less-than-significant for both the proposed project and this alternative.

However, as discussed above, the Blueprint Alternative would not be consistent with all of the provisions of Measure M.

The proposed project site is entirely within the coverage area of the NBHCP. The Blueprint Alternative would include urban reserve and industrial-designated areas that are substantially outside of the coverage area of the NBHCP.

In summary, because the Blueprint Alternative would include the designation of urban uses for substantial areas of land lacking NBHCP coverage, and because it would not comply with the provisions of Measure M, this alternative could result in greater environmental impacts as compared to the proposed project with respect to land use planning [*Greater*].

4.3.2.2 POPULATION, HOUSING, AND EMPLOYMENT

The proposed project would draw from the existing construction labor force for the region, and so would not temporarily increase employment and housing demand during construction. The proposed project would result in construction of 17,500 housing units on approximately 2,899 acres out of a total development area of approximately 7,528 acres. It would also create affordable housing at a rate of 5% of the total units produced (for a total of 875 units), with 3,000 units of housing for seniors.

The Blueprint Alternative would cause a similar or lower rate of construction than the proposed project, and could also draw from the existing regional construction labor force. Therefore, this alternative would not cause a temporary increase in employment and housing demand during construction. Since Sutter County requires that 5% of housing units be affordable to low- or moderate- income households, the 8,500 residential units in the Blueprint Alternative would only include 425 units affordable to low- and moderate- income household, which is 450 fewer units than would be provided under the proposed project. Furthermore, the 3,000 units of housing for seniors would not be constructed in this alternative. The Blueprint Alternative would not substantially increase or decrease impacts related to population, employment, and housing relative to the proposed project [*Similar*].

4.3.2.3 TRANSPORTATION AND CIRCULATION

The proposed project would contribute to unacceptable roadway operations on the regional, Caltrans, Sutter County, Sacramento County, and Placer County roadway networks and intersections. Transportation mitigation measures associated with the proposed project would have impacts related to traffic conditions in other jurisdictions and to the physical environment. The proposed project would increase demand for public transit and non-motorized travel. Although the increased demand would be met by increased transit service and non-motorized travel choices provided by the project, this would still be a significant and unavoidable impact.

The Blueprint Alternative would include the construction of less intense urban uses on a similarly sized development footprint as the proposed project (7,420 acres for the Blueprint Alternative compared to 7,528 for the proposed project). No roadway improvements are specifically identified in the Blueprint Scenario; however, for the purposes of this alternative analysis, the improvements proposed in SACOG's Draft 2035 Regional Metropolitan Transportation Plan are assumed to be part of the Blueprint Alternative, because the MTP is largely based on consistency with SACOG plans. These improvements include widening SR 99/70 to a six-lane freeway, widening Riego Road to four lanes from SR 99/70 to a point two miles west, widening Riego Road to six lanes from SR 99/70 to the Placer County line, widening Sankey Road to four lanes from SR 70/99 to Pleasant Grove Road, and widening Pacific Avenue to four lanes.

Overall traffic impacts under the Blueprint Alternative would similar to the proposed project, and would still result in the same significant and significant and unavoidable impacts as the proposed project [*Similar*].

4.3.2.4 AIR QUALITY

The proposed project would result in significant and unavoidable short-term construction-related and long-term operational emissions of criteria air pollutants and precursors. Long term mobile source emissions of carbon monoxide (CO) from the proposed project would represent a less-than-significant impact. Impacts to sensitive receptors from exposure to toxic air contaminants (TACs) and odors would be significant and unavoidable under the proposed project.

The Blueprint Alternative would include less residential development than the proposed project. Because of these differences, air quality impacts related to construction and operation of the project would be expected to be slightly reduced in this alternative relative to the proposed project. However, the same air quality impacts would occur, and the significance of those impacts would be the same as under the proposed project [*Similar*].

4.3.2.5 NOISE

Both the Blueprint Alternative and the proposed project would result in exposure of noise-sensitive land uses to noise from Sacramento International Airport, including exposure of residential uses to excessive single-event noise from Sacramento International Airport operations. The Blueprint Alternative and the proposed project would both result in impacts related to exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations. The proposed project and the Blueprint Alternative would both cause construction related noise, exposure of residences to noise from existing agricultural and industrial activities, and exposure of sensitive receptors to new noise generators and traffic noise. These noise impacts for the proposed project are considered less than significant with implementation of mitigation, and impacts of the Blueprint Alternative would also be less than significant.

The proposed project would result in significant and unavoidable impacts related from increased traffic noise in off-site areas. These impacts would be similar under the Blueprint Alternative. Implementation of the Blueprint Alternative would not avoid any of the proposed project's significant impacts related to noise. [*Similar*].

4.3.2.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The proposed project would result in significant impacts from construction-related erosion, expansive soils, liquefaction, and unknown, potentially unique paleontological resources. However, all impacts for the proposed project would be reduced to less-than-significant levels after implementation of mitigation.

Under the Blueprint Alternative there would be a similar development footprint (7,420 acres compared to 7,528 acres in the proposed project); therefore, the same geology, soils, and paleontological resources impacts would occur, and the Blueprint Alternative would not reduce or avoid any significant impacts related to this issue area. [*Similar*].

4.3.2.7 HYDROLOGY AND WATER QUALITY

The proposed project and the Blueprint Alternative would both result in significant impacts related to temporary construction-related and water quality effects, increased risk of flooding from increased stormwater runoff, and degradation of water quality from urban runoff. These impacts would be less than significant after mitigation for the proposed project, and the same mitigation measures are assumed to be implemented for the Blueprint Alternative. Similarly, depletion of groundwater supplies and interference with groundwater would be less-than-significant impacts of the proposed project and this alternative, which would have lower water demands (because substantially fewer residential units would be construction) than the proposed project.

Water sources (surface and groundwater) would be expected to be similar under this alternative to the proposed project, and so the same mitigation measures would be available to reduce the impact of contaminated water to a less-than-significant level.

The project site is located within a 100-year floodplain as currently defined by FEMA, and includes areas located within the 200-year floodplain as defined on the draft “Best Available Maps” provided by DWR in 2008. Impacts related to development of urban uses in the 100-year floodplain would be less than significant following mitigation for the proposed project. Under the 200-year flood requirements promulgated by SB 5, the proposed project assumes that the Sacramento Area Flood Control Agency (SAFCA) would implement actions to prevent flooding in the region through the Sankey Gap, thus also providing 200-year flood protection for the project site. However, SAFCA currently has no plans to perform that work; therefore, under the proposed project, the applicants themselves would undertake the necessary 200-year flood protection actions if SAFCA did not. For the Blueprint Alternative, there is no guarantee that any one applicant would have the means to provide the 200-year flood protection if SAFCA did not. Therefore, impacts related to hazards from a 200-year flood under the Blueprint Alternative are considered greater than under the proposed project and potentially significant and unavoidable. *[Greater]*.

4.3.2.8 PUBLIC SERVICES

The proposed project would result in significant impacts on public services related to temporary obstruction of roadways during construction and the provision of adequate water pressure for fire flow. These impacts would be reduced to less-than-significant levels after implementation of mitigation. The proposed project and the Blueprint Alternative would both provide increased fire protection, police protection, library facilities, judicial services, public health services, mental health services, social services, and school facilities and services commensurate with the increase in residents and employees through payment of impact fees, service fees, and taxes as suggested by Measure M. Therefore, overall impacts on public services associated with the Blueprint Alternative are considered similar to the impacts of the proposed project *[Similar]*.

4.3.2.9 WATER SUPPLY

The proposed project would create demand for water supply, which would be met through use of groundwater sources and modification of existing surface water entitlements. Water Supply impacts from the proposed project are either considered less than significant, or are significant but would be rendered less than significant by implementation of mitigation measures. Curtailment of development on the project site if adequate water supplies were not available would result in significant and unavoidable impacts to transportation and circulation, air quality, noise, agricultural resources, parks and open space, and visual resources.

Because of the reduced density of residential housing of the Blueprint Alternative, the demand for water supply would be reduced; however, because a large amount of development would still occur, the impacts related to water supply would be the same as the proposed project (less than significant, or would be significant but would be rendered less than significant by implementation of mitigation measures). Therefore, overall water supply impacts associated with this alternative are considered similar to those of the proposed project *[Similar]*.

4.3.2.10 PUBLIC UTILITIES

The proposed project would create demand for water and wastewater conveyance infrastructure, wastewater treatment, solid waste disposal capacity, electricity, natural gas, and communications. The impact on wastewater treatment under the proposed project would be reduced to a less-than-significant level following implementation of mitigation, but wastewater treatment through SRCSD would result in indirect, significant-and-unavoidable impacts related to SRCSD’s expanded treatment capacity. Other public utilities impacts are either considered less than significant, or are significant but would be rendered less than significant by implementation of mitigation measures.

Development of the Blueprint Alternative would require provision of wastewater treatment facilities on a scale of development and acreage similar to the proposed project. The proposed project has considered a variety of wastewater treatment options, and other alternatives to SRCSD connection were found to be infeasible for regulatory, cost, or other reasons. The Blueprint Alternative would therefore also be expected to seek connection to SRCSD. Therefore, the Blueprint Alternative would not reduce or avoid any significant impacts related to this issue, and overall utility impacts associated with this alternative are considered similar to the proposed project [Similar].

4.3.2.11 AGRICULTURAL RESOURCES

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to nonagricultural urban uses, and conflict with existing agricultural uses. There would be no impact related to cancellation of Williamson Act contracts, and a less-than-significant impact from disruption of existing agricultural operations during construction activities after mitigation.

Agricultural resources impacts would be similar under the Blueprint Alternative: a total of about 7,420 acres would be developed for urban uses, as compared to 7,528 acres in the proposed project, and therefore area of potential conflict with existing agricultural uses would be similar. Because of the similar developed footprint, the area required for off-site drainage is also expected to be similar (this area would be 300 to 800 acres for the proposed project). The impacts from cancellation of Williamson Act contracts (none) and disruption of existing agricultural operations during construction activities would be similar to the proposed project. Because a similar area would be developed for urban use, the impacts associated agricultural resources would be similar to those of the proposed project [Similar].

4.3.2.12 PUBLIC HEALTH AND HAZARDS

Impacts from exposure to on-site hazardous materials during construction, development on a known hazardous materials site, exposure to workers or residents near an airport, public health hazards from mosquitoes attracted by water features, safety hazards related to water features and aircraft, and interference with emergency or evacuation plans, would all represent potentially significant impacts that would be reduced to a less-than-significant level after implementation of mitigation. The proposed project would also have less-than-significant impacts related to proximity to transportation routes and routine transport, use, and disposal of hazardous materials.

The Blueprint Alternative would include a similar area of development (about 7,420 acres for the Blueprint Alternative, as compared to 7,528 acres for the proposed project). Although less residential housing would be developed under this alternative, a substantial amount of development would still occur, and the same public health and hazards impacts would occur the Blueprint Alternative as under the proposed project. Therefore, this alternative would not reduce or avoid any significant impacts under this issue topic. [Similar].

4.3.2.13 BIOLOGICAL RESOURCES

Impacts on the endangered giant garter snake and Swainson's hawk, potential loss and degradation of habitat for special status wildlife, and potential loss or degradation of jurisdictional wetlands and other waters of the US or waters of the State, would be significant, but would be reduced to a less-than-significant level after implementation of mitigation, which generally includes conformance with the measures included in the NBHCP. Compensatory mitigation for wetland impacts would be carried out through mitigation banks and in-lieu mitigation fees.

The Blueprint Alternative would include development of a similar area (7,420 acres compared to 7,528 acres for the proposed project), and therefore the same impacts to biological resources would occur as under the proposed project. However, under this alternative, a substantially larger urban area would be developed outside the NBCHP

and therefore would not be covered by the HCP's Incidental Take Permit. Therefore, biological resources impacts under the Blueprint Alternative have the potential to be greater than the proposed project [*Greater*].

4.3.2.14 PARKS AND OPEN SPACE

The proposed project would result in less-than-significant impacts related to increased use of regional park facilities, but would result in a significant impact related to insufficiency of on-site parkland under development Phase 1 and Phase A. The Blueprint Alternative does not include specific information concerning provision of parks and open space uses; therefore it is unknown whether this alternative would meet the Quimby Act dedication standard of 5 acres per 1,000 residents. Therefore, this alternative may not reduce to avoid the significant impact of the proposed project. [*Similar*].

4.3.2.15 CULTURAL RESOURCES

The proposed project would result in potentially significant cultural resources impacts related to known and unknown prehistoric resources and human remains, which would be reduce to less-than-significant levels after implementation of mitigation. However, the impact related to potential damage or destruction of historic-era resources is potentially significant and unavoidable for the proposed project.

The conceptual land use plan of the Blueprint Alternative does not include the areas where the potential historic-era resources are located. Therefore, the Blueprint Alternative would avoid the proposed project's potentially significant and unavoidable impact related to potential damage or destruction of historic-era resources, resulting in a lesser impact under this issue topic. [*Less*].

4.3.2.16 VISUAL RESOURCES

The proposed project would cause less-than-significant impacts from damage to scenic resources within a State scenic highway, and from new sources of light and glare. Impacts related to permanent alteration of scenic vistas from project operation, degradation of visual character from project operation and during construction, and skyglow effects from project operation would be significant and unavoidable for the proposed project.

The Blueprint Alternative would result in development of urban uses of substantial magnitude over an area similar to the proposed project, which would result in the same significant impacts to visual resources as those of the proposed project. [*Similar*].

4.3.2.17 CLIMATE CHANGE

The proposed project would result in development of urban uses, including 17,500 dwelling units and about 49.7 million square feet of job-generating uses, on a 7,528-acre site. A variety of strategies would be implemented to reduce GHG emissions, including mixed-use areas, higher density residential areas, transit options, and bicycle and pedestrian infrastructure throughout the proposed project. However, the proposed project's contribution to cumulative GHG emissions would still be significant and unavoidable.

The Blueprint Alternative would include development at a comparatively lower density than the proposed project: the Blueprint Alternative would include about 20,000 jobs and 8,500 housing units on about 7,420 acres, compared to 17,500 housing units and up to 67,360 jobs for the proposed project. Because of the lower residential and employment density in the Blueprint Alternative, transit opportunities would be relatively less. The Blueprint Alternative also does not include mixed-use areas, and the per capita VMT would be higher for the Blueprint than for the proposed project, leading to increased GHG emissions. The Blueprint alternative would result in greater impacts with respect to climate change than the proposed project [*Greater*].

4.3.2.18 IMPACT SUMMARY

The Blueprint Alternative would result in greater impacts than the proposed project in three issue areas, similar impacts in 12 issue areas, and lesser impacts in one issue area, (see Table 4-1). Significant unavoidable impacts related to air quality, noise, agricultural resources, visual resources, and climate change, would also occur under this alternative; however, this alternative would contribute to each of these impacts (with the exception of climate change and agricultural resources) to a lesser extent than the proposed project. Significant and unavoidable impacts to cultural resources would be reduced in this alternative. In addition, urban development which would otherwise have been accommodated within the project site with the higher proposed density/intensity of the proposed project may be displaced to other undeveloped lands within the Sacramento area, potentially increasing the indirect physical environmental effects of the project.

4.3.3 REDUCED INTENSITY DEVELOPMENT ALTERNATIVE

This alternative consists of a 25% reduction in proposed development on the same footprint as the proposed project. The 25% reduction would be applied to all land use categories that result in either residential units or non-residential square footage. This alternative would provide for approximately 13,125 dwelling units and 37.3 million non-residential square feet on the project site. (The proposed project accommodates 17,500 dwelling units and 49.7 million square feet of non-residential land use.) This alternative would include future development of Placer Parkway along the current Sankey Road alignment as a limited access freeway, including two interchanges and an overcrossing at Pacific Avenue.

The Reduced Intensity Development Alternative has the potential to be consistent with several project objectives, such as creation of a major employment center, providing a variety of land uses and housing choices, and compliance with resource and safety plans (Objectives 1, 3, 4, and 11).

However, the density and intensity development in this alternative would be reduced to such a low level that the project would not be able to achieve the provision of regional service facilities (Objective 6). For the same reason, implementation of multimodal transportation would not be viable for the project site and Objective 7 could not be met. Because of the reduced population and employment base, this alternative would not create a tax base to generate financial resources to pay for public service and infrastructure without burden to existing residents, so Objective 8 could not be met. These same financial considerations would also prevent this alternative from meeting Objective 15, which is to support the incorporation of the proposed project as an independent city at the optimal time in the future.

4.3.3.1 LAND USE

Both the proposed project and the Reduced Intensity Development Alternative would require approval of a general plan amendment and rezoning by the County that would ensure that development of the proposed land uses on the project site would be consistent with the Sutter County General Plan and zoning ordinance. The proposed project and this alternative would both generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County LAFCO Guidelines for reorganization of the CSA and SRCSD boundaries associated with the project site. Neither the proposed project nor this alternative would place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP. The proposed project and the Reduced Intensity Development Alternative would not result in conflict with the SACOG Preferred Blueprint Scenario. The proposed project and this alternative would both include construction of housing and job-generating uses consistent with the advisory Measure M, passed by the voters of Sutter County in 2004. Therefore, neither the proposed project nor the Reduced Intensity Development Alternative would result in any significant impacts related to land use planning.

The Reduced Intensity Development would include the same assortment of land use designations covering the same developed areas as the proposed project, and so land use impacts would be unchanged [*Similar*].

4.3.3.2 POPULATION, HOUSING, AND EMPLOYMENT

The proposed project would result in construction of 17,500 housing units on approximately 2,899 acres out of a total development area of approximately 7,528 acres. It would also create affordable housing at a rate of 5% of the total units produced (for a total of 875 units) with 3,000 units of housing for seniors.

The Reduced Intensity Development Alternative would result in a similar or smaller rate of construction than the proposed project, and could also draw from the existing construction labor force for the region. Therefore, this alternative would not cause a temporary increase in employment and housing demand during construction. Since Sutter County requires that 5% of housing units be affordable to low- or moderate- income households, the 13,125 residential units in the Reduced Intensity Development Alternative would include 656 units affordable to low- and moderate- income household, 219 fewer than the proposed project, and only 2,250 units of housing for seniors would be required under this alternative. Because the Reduced Development Intensity Alternative would create fewer affordable units, and fewer units of senior housing, impacts related to population, employment, and housing would be greater in the Reduced Development Alternative relative to the proposed project [*Greater*].

4.3.3.3 TRANSPORTATION AND CIRCULATION

The proposed project would contribute to unacceptable roadway operations on the regional, Caltrans, Sutter County, Sacramento County, and Placer County roadway networks and intersections. Transportation mitigation measures associated with the proposed project would have impacts related to traffic conditions in other jurisdictions and to the physical environment. The proposed project would increase demand for public transit and non-motorized travel. Although the increased demand would be met by increased transit service and non-motorized travel choices provided by the project, this would still be a significant and unavoidable impact.

The Reduced Intensity Development Alternative would include the construction of less intense urban uses covering the same development footprint as the proposed project. The Reduced Intensity Development Alternative would include all of the land uses of the proposed project, with development densities and intensities reduced by 25% across the board. This would result in 13,125 residences and about 50,520 jobs. Based on this less intensive use, roadway and intersection level-of-service impacts would generally be reduced. Similarly, the impacts related to increased demand for transit service and non-motorized travel choices would be reduced based on the lower intensity of uses, since higher density environments place more people and employment locations in closer proximity to one another, making these alternative transportation modes more economically and technically feasible.

Although this alternative would result in a decrease in development on the project site resulting in an overall decrease in vehicle trips per day, the magnitude of the traffic increase would still be substantial. Overall traffic impacts are considered similar for this alternative because it would still contribute to unacceptable roadway operations on roadway networks and intersections, as in the proposed project. Although this alternative would have reduced alternative transportation and non-motorized travel choices relative to the proposed project, the impact would still be significant and unavoidable, because a lower density project would be able to provide fewer alternative transportation and non-motorized travel choices [*Similar*].

4.3.3.4 AIR QUALITY

The proposed project would result in significant and unavoidable short-term construction-related and long-term operational emissions of criteria air pollutants and precursors. Long term mobile source emissions of carbon monoxide (CO) from the proposed project would represent less-than-significant impacts. Impacts to sensitive receptors from exposure to toxic air contaminants (TACs) and odors would be significant and unavoidable under the proposed project.

The Reduced Intensity Development Alternative would result in the construction of less intensive land uses on the same footprint as the proposed project. Because the same area would be developed with less intensive uses, the air quality impacts related to construction of the Reduced Intensity Development Alternative would be expected to be less than those of the proposed project. Based on the reduced density and intensity, long-term operation impacts would also be expected to be lower compared to the proposed project. Air quality impacts from mobile sources would be lower in the Reduced Development Intensity Alternative relative to the proposed project because of reduced employment-related and residential trips.

However, given that the air basin is in nonattainment for a number of criteria air pollutants, the impacts would still be significant, and implementation of the Reduced Intensity Development Alternative would not reduce any of the significant and unavoidable impacts of the proposed project to a less-than-significant level. For this reason, overall air quality impacts are considered similar for this alternative as compared to the proposed project *[Similar]*.

4.3.3.5 NOISE

Both the Reduced Intensity Development Alternative and the proposed project would result in exposure of noise-sensitive land uses to noise from Sacramento International Airport, including exposure of residential uses to excessive single-event noise from Sacramento International Airport operations. The proposed project and this alternative would both result in impacts related to exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations. The proposed project and this alternative would also both cause construction related noise, exposure of residences to noise from existing agricultural and industrial activities, and exposure of sensitive receptors to new noise generators and traffic noise. These noise impacts for the proposed project are considered less than significant with implementation of mitigation, and impacts of the Reduced Intensity Development Alternative would also be less than significant.

The proposed project would result in significant and unavoidable impacts related to increased traffic noise in offsite areas. These impacts would be reduced under the Reduced Intensity Development Alternative based on the reduction in uses, but given the magnitude of expected noise increases from offsite traffic, even this reduced development alternative would be expected to result in significant impacts. Because this alternative would not avoid significant noise impacts, the Reduced Intensity Development Alternative would result in similar noise impacts than the proposed project *[Similar]*.

4.3.3.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The proposed project would result in significant impacts from construction-related erosion impacts, impacts related to expansive soils, liquefaction, and unknown, potentially unique paleontological resources. However, all impacts for the proposed project would be reduced to less-than-significant levels after implementation of mitigation.

Under the Reduced Intensity Development Alternative, the developed acreage would be unchanged; therefore, geology, soils, and paleontological resource impacts would be the same as the proposed project, and the Reduced Intensity Development Alternative would not reduce or avoid any significant impacts related to this issue area. *[Similar]*.

4.3.3.7 HYDROLOGY AND WATER QUALITY

The proposed project and the Reduced Intensity Development Alternative would both result in significant impacts related to temporary construction-related and water quality effects, increased risk of flooding from increased stormwater runoff, and degradation of water quality from urban runoff. These impacts would be less than significant after mitigation for the proposed project, and for this alternative. Similarly, depletion of groundwater

supplies and interference with groundwater would be less-than-significant impacts of the proposed project and this alternative, which would have lower water demands and less impervious area than the proposed project.

Water sources (surface and groundwater) would be expected to be similar under this alternative to the proposed project, and so the same mitigation measures would be available to reduce the impact of contaminated water to a less-than-significant level.

The project site is located within a 100-year floodplain as currently defined by FEMA, and includes areas located within the 200-year floodplain as defined on the draft “Best Available Maps” provided by DWR in 2008. Impacts related to development of urban uses in the 100-year floodplain would be less than significant following mitigation for the proposed project. Under the 200-year flood requirements promulgated by SB 5, the proposed project assumes that the Sacramento Area Flood Control Agency (SAFCA) would implement actions to prevent flooding in the region through the Sankey Gap, thus also providing 200-year flood protection for the project site. However, SAFCA currently has no plans to perform that work; therefore, under the proposed project, the applicants themselves would undertake the necessary 200-year flood protection actions if SAFCA did not. For the Reduced Intensity Development Alternative, there is no guarantee that any one applicant would have the means to provide the 200-year flood protection if SAFCA did not. Therefore, impacts related to hazards from a 200-year flood under the Blueprint Alternative are considered greater than under the proposed project and potentially significant and unavoidable. *[Greater]*.

4.3.3.8 PUBLIC SERVICES

The proposed project would result in significant impacts on public services related to temporary obstruction of roadways during construction and the provision of adequate water pressure for fire flow. These impacts would be reduced to less than significant after implementation of mitigation. The proposed project would provide increased fire protection, police protection, library facilities, judicial services, public health services, mental health services, social services, and school facilities and services commensurate with the increase in residents and employees through payment of impact fees, service fees, and taxes. However, the amount of development on the project site would be reduced to such a degree that there would be no guarantee the payment of impact fees, service fees, and taxes would be sufficient to fund the required increases in fire protection, police protection, library facilities, judicial services, public health services, mental health services, social services, and school facilities and services. Therefore, overall impacts on public services associated with this alternative are considered greater than the impacts of the proposed project *[Greater]*.

4.3.3.9 WATER SUPPLY

The proposed project would create demand for water supply, which would be met through use of groundwater sources and modification of existing surface water entitlements. Water Supply impacts are either considered less than significant, or are significant but would be rendered less than significant by implementation of mitigation measures. Curtailment of development on the project site if adequate water supplies were not available would result in significant and unavoidable impacts to transportation and circulation, air quality, noise, agricultural resources, parks and open space, and visual resources.

Because of the reduced density and intensity of this alternative, it is assumed that a water supply program similar to the proposed project would be feasible.

The Reduced Intensity Development Alternative would result in less demand for water supply because of the reduction in residential development and job-generating use. However, this alternative would still result in a large amount of development over a large acreage, and therefore the same significant water supply impacts would occur as under the proposed project. *[Similar]*.

4.3.3.10 PUBLIC UTILITIES

The proposed project would create demand for water and wastewater conveyance infrastructure, wastewater treatment, solid waste disposal capacity, electricity, natural gas, and communications. The significant impact on wastewater treatment would be reduced to a less-than-significant impact following mitigation, but wastewater treatment through SRCSD would result in indirect, significant-and-unavoidable impacts related to SRCSD's expanded treatment capacity. Other public utilities impacts are either considered less than significant, or would be rendered less than significant by implementation of mitigation measures.

Although the Reduced Intensity Development Alternative would result in slightly reduced demand for water and wastewater conveyance infrastructure electrical, natural gas, and communications infrastructure, this impact would still result in the same significant utilities impacts as the proposed project. *[Similar]*.

4.3.3.11 AGRICULTURAL RESOURCES

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to nonagricultural urban uses, and conflict with existing agricultural uses. There would be no impact related to cancellation of Williamson Act contracts, and a potentially significant and unavoidable impact from disruption of existing agricultural operations during construction activities.

Impacts would be similar under the Reduced Intensity Development Alternative, since the same development footprint would be affected as in the proposed project. Because the same footprint would be developed for urban use, the impacts associated with this topic area would be similar to those under the proposed project *[Similar]*.

4.3.3.12 PUBLIC HEALTH AND HAZARDS

Significant impacts under the proposed project would be less than significant after implementation of mitigation, including impacts from exposure to on-site hazardous materials during construction, development on a known hazardous materials site, exposure to workers or residents near an airport, public health hazards from mosquitoes attracted by water features, safety hazards related to water features and aircraft, and interference with emergency or evacuation plans. The proposed project would also have less-than-significant impacts related to proximity to transportation routes and routine transport, use, and disposal of hazardous materials.

The Reduced Intensity Development Alternative would include an identical development footprint. Because the Reduced Intensity Development Alternative would place 25% less residential development along the Natomas Levee Road on the eastern boundary of the project site, there would be slightly less potential for exposure of residents to electrical and magnetic fields. Similarly, a reduction in population would reduce the potential for increased exposure to mosquitoes related to the project water features. However, the same less than significant and significant impacts would occur under this alternative as under the proposed project *[Similar]*.

4.3.3.13 BIOLOGICAL RESOURCES

Impacts on the endangered giant garter snake and Swainson's hawk, potential loss and degradation of habitat for special status wildlife, and potential loss or degradation of jurisdictional wetlands and other waters of the US or waters of the State would also be significant. The proposed project would have a less-than-significant impact related to these resources after mitigation, which generally includes conformance with the measures included in the NBHCP. Compensatory mitigation for wetland impacts would be carried out through mitigation banks and in-lieu mitigation fees.

The Reduced Intensity Development Alternative would include development of an identical project footprint and therefore the Reduced Intensity Development Alternative would not reduce or avoid any significant or significant and unavoidable impacts of the proposed project *[Similar]*.

4.3.3.14 PARKS AND OPEN SPACE

The proposed project would result in a less-than-significant impact related to increased use of regional park facilities, but a significant impact related to insufficiency of on-site parkland from increased population. The number of residential units (and hence population) would be lower in the Reduced Intensity Development Alternative relative to the proposed project, and therefore parkland demand would be less. This alternative would reduce the proposed project's significant impact related to insufficiency of parkland. *[Less]*.

4.3.3.15 CULTURAL RESOURCES

The proposed project would result in potentially significant cultural resources impacts related to known and unknown prehistoric resources and human remains, which would be reduced to less-than-significant levels after implementation of mitigation. However, the impact related to potential damage or destruction of historic-era resources is potentially significant and unavoidable for the proposed project.

The Reduced Intensity Development Alternative would include urban development on an identical footprint to the proposed project, and therefore the Reduced Intensity Development Alternative would not reduce or avoid any significant impacts under this issue topic based on the similar development footprint, so impacts would be similar under this alternative *[Similar]*.

4.3.3.16 VISUAL RESOURCES

The proposed project would cause less-than-significant impacts from damage to scenic resources within a State scenic highway, and from new sources of light and glare. Impacts related to permanent alteration of scenic vistas from project operation, degradation of visual character from project operation and during construction, and skyglow effects from project operation would be significant and unavoidable for the proposed project.

The Reduced Intensity Development Alternative would result in development of urban uses over the same footprint as the proposed project. Because the project's impacts to visual resources are due primarily to the physical size of the development proposed, and this alternative would still entail a large amount of construction, impacts to visual resources would be the same as under the proposed project *[Similar]*.

4.3.3.17 CLIMATE CHANGE

The proposed project would result in development of urban uses, including 17,500 dwelling units and about 49.7 million square feet of job-generating uses, on a 7,528 acre site. A variety of strategies would be implemented to reduce GHG emissions, including mixed-use areas, higher density residential areas, transit options, and bicycle and pedestrian infrastructure throughout the proposed project. However, the proposed project's contribution to cumulative GHG emissions would still be significant and unavoidable.

The Reduced Intensity Development Alternative would include development at a comparatively lower density than the proposed project; this alternative would include about 50,520 jobs and 13,125 housing units on the same acreage as the proposed project. Because of the lower residential and employment density in the Reduced Intensity Development Alternative, transit opportunities would be relatively less. With reduced transit options, the per capita VMT would be higher for the Reduced Intensity Development alternative than for the proposed project, leading to increased per capita GHG emissions. Although overall GHG emissions would be lower under this alternative, these emissions would still represent a significant and unavoidable contribution to cumulative GHG emissions. This alternative would result in similar impacts with respect to climate change than the proposed project *[Similar]*.

4.3.3.18 IMPACT SUMMARY

The Reduced Intensity Development Alternative would result in greater impacts than the proposed project in three issue areas, similar impacts in 13 issue areas, and lesser impacts in one issue area, (see Table 4-1). Significant unavoidable impacts related to air quality, noise, agricultural resources, visual resources, cultural resources, and climate change would also occur under this alternative. In addition, urban development which would otherwise have been accommodated within the project site with the higher proposed density/intensity of the proposed project may be displaced to other undeveloped lands within the Sacramento area, potentially increasing the indirect physical environmental effects of the project.

4.3.4 PERMANENT ON-SITE SANKEY GAP OVERFLOW STORAGE ALTERNATIVE

In this alternative, the proposed interim on-site Sankey Gap storage area would be used on a permanent basis for stormwater retention. In the proposed project, shifts of phasing and land use boundaries would be used to ensure that areas designated as Employment 1 – Interim Flood Zone would not be phased for development under Measure M until 200-year flood protection for Sankey Gap flood flows is accomplished. However, in this alternative, the approximately 408 acres designated as Employment 1 – Interim Flood Zone on the proposed project land use diagram would be permanently designated as Industrial Drainage Basin. This alternative would therefore reduce the amount of industrial/commercial square feet within the proposed project by approximately 6.2 million square feet; providing for approximately 17,500 dwelling units and 43.5 million non-residential square feet on the project site. (The proposed project accommodates 17,500 dwelling units and 49.7 million non-residential square feet). This alternative would include future development of Placer Parkway along the current Sankey Road alignment as a limited access freeway, including two interchanges and an overcrossing at Pacific Avenue. Exhibit 4-5 illustrates the Permanent On-Site Sankey Gap Overflow Storage Alternative.

The Permanent On-Site Sankey Gap Overflow Storage Alternative (Sankey Gap Alternative) would be consistent with most of the project objectives, but would not be consistent with Measure M because only about 3,200 acres would be developed for employment uses, as opposed to the 3,600 acres called for in Measure M. In general, this alternative would involve development of urban uses comparable to that of the proposed project, with a reduction in commercial and industrial square footage based on the presence of on-site drainage.

4.3.4.1 LAND USE

The proposed project would require approval of a general plan amendment and rezoning by the County that would ensure that development of the proposed land uses on the project site would be consistent with the Sutter County General Plan and zoning ordinance. The proposed project would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County LAFCO Guidelines for reorganization of the CSA and SRCSD boundaries associated with the project site. The proposed project would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP. The proposed project would not result in conflict with the SACOG Preferred Blueprint Scenario. The proposed project would include construction of housing and job-generating uses consistent with the advisory Measure M, passed by the voters of Sutter County in 2004. The proposed project would not conflict with the NBHCP's habitat preservation goals. Therefore, the proposed project would not result in any significant impacts related to land use planning.



Source: Adapted from EDAW 2008

Permanent On-Site Sankey Gap Overflow Storage Alternative

Exhibit 4-5

The Sankey Gap Alternative would include residential, commercial, and industrial uses on the project site, and would require approval of a general plan amendment and rezoning by the County to ensure that development of the proposed land uses would be consistent with the Sutter County General Plan and zoning ordinance. The General Plan currently allows for industrial and commercial uses, and the existing zoning permits agricultural and industrial uses on various portions of the project site. The Sankey Gap Alternative would include development of urban uses on the project site, and would require realignment of the CSA boundaries associated with service provision on the project site. These changes would be similar to those in the proposed project, and so would generally be consistent with the Cortese-Knox-Hertzberg Act and the Sutter County LAFCO Guidelines for reorganization of the CSA boundaries associated with the project site. The Sankey Gap Alternative (as illustrated in Exhibit 4-5) would not place incompatible land uses in airport safety zones as defined in the Sacramento International Airport CALUP. The Sankey Gap Alternative differs from the proposed project in that it reduces the square footage of commercial and industrial uses on-site, replacing these uses with on-site stormwater detention. This alternative would not result in conflict with the SACOG Preferred Blueprint Scenario. However, the Sankey Gap Alternative would not be consistent with the thresholds provided in the advisory Measure M, passed by the voters of Sutter County in 2004. Because the Sankey Gap alternative would not be consistent with Measure M, this alternative would have greater impacts relative to those of the proposed project [*Greater*].

4.3.4.2 POPULATION, HOUSING, AND EMPLOYMENT

The proposed project would draw from the existing construction labor force for the Sacramento region, and so would not temporarily increase employment and housing demand during construction. The proposed project would result in construction of 17,500 housing units on approximately 2,899 acres out of a total development area of approximately 7,528 acres. The proposed project would create affordable housing at a rate of 5% of the total units produced (for a total of 875 units), with 3,000 units of housing for seniors.

The Sankey Gap Alternative would cause a reduced rate of construction based on its reduction in commercial and industrial square footage (43.5 million square feet, versus 49.7 million square feet in the proposed project). Since this smaller rate of construction could also draw from the existing construction labor force in the region, this alternative would not cause a temporary increase in employment and housing demand during construction. Housing construction would be unchanged from the proposed project, so impacts with respect to creation of affordable housing would be similar. Thus, population, housing, and employment impacts would be similar to the proposed project [*Similar*].

4.3.4.3 TRANSPORTATION AND CIRCULATION

The proposed project would contribute to unacceptable roadway operations on the regional, Caltrans, Sutter County, Sacramento County, and Placer County roadway networks and intersections. Transportation mitigation measures associated with the proposed project would have impacts related to traffic conditions in other jurisdictions and to the natural environment. The proposed project would increase demand for public transit and non-motorized travel. Although the increased demand would be met by increased transit service and non-motorized travel choices provided by the project, this would still be a significant and unavoidable impact.

The Sankey Gap Alternative would include the construction of a smaller square-footage of commercial and industrial development, along with an equivalent number of housing units, on the same overall development footprint as the proposed project. The Sankey Gap Alternative would reduce the commercial and industrial square footage from 49.7 million to 43.5 million square feet. This reduction would be expected to result in reduced VMT associated with the project, reducing impacts to level-of-service on roadways and intersections. This would also result in less demand for increased transit service and non-motorized travel choices.

Although this alternative would result in a decrease in development on the project site resulting in an overall decrease in vehicle trips per day, the magnitude of the traffic increase would still be considerable. Overall traffic impacts are considered similar for this alternative because it would still contribute to unacceptable roadway operations on roadway networks and intersections, as in the proposed project. [*Similar*].

4.3.4.4 AIR QUALITY

The proposed project would result in significant and unavoidable short-term construction-related and long-term operational emissions of criteria air pollutants and precursors. Long term mobile source emissions of carbon monoxide (CO) from the proposed project would represent a less-than-significant impact. Impacts to sensitive receptors from exposure to toxic air contaminants (TACs) and odors would be significant and unavoidable under the proposed project.

The Sankey Gap Alternative would result in fewer square feet of employment-generating uses, resulting in a minor reduction of impacts related to construction, long-term operation, and long-term mobile source emissions (long-term mobile source emissions are already a less-than-significant impact for the proposed project). Furthermore, the reduction of grading activities from 300 to 800 acres of off-site detention basins would somewhat reduce air emissions related to construction. However, the Sankey Gap Alternative would not reduce any of the significant and unavoidable impacts of the proposed project below the level of significance. Because no impacts would be reduced to a less-than-significant level, impacts are considered to be similar under this alternative [*Similar*].

4.3.4.5 NOISE

Both the Sankey Gap Alternative and the proposed project would result in exposure of noise-sensitive land uses to noise from Sacramento International Airport, including exposure of residential uses to excessive single-event noise from Sacramento International Airport operations. The Sankey Gap Alternative and the proposed project would both result in impacts related to exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations. The proposed project and the Sankey Gap Alternative would both cause construction related noise, exposure of residences to noise from existing agricultural and industrial activities, and exposure of sensitive receptors to new noise generators and traffic noise. These noise impacts for the proposed project are considered less than significant with implementation of mitigation, and impacts of the Sankey Gap Alternative would also be less than significant, since the same mitigation measures would be available and are assumed to be implemented.

The proposed project would result in significant and unavoidable impacts related to increased traffic noise to off-site areas. These impacts would be slightly reduced under the Sankey Gap Alternative based on the reduction in commercial and industrial square footage, but would still result in significant unavoidable noise impacts.

Implementation of the Sankey Gap Alternative would not avoid any significant impacts related to this issue area. The Sankey Gap Alternative would therefore result in similar noise impacts than the proposed project [*Similar*].

4.3.4.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The proposed project would result in significant impacts from construction-related erosion, expansive soils, liquefaction, and unknown, potentially unique paleontological resources. However, all impacts for the proposed project would be reduced to less-than-significant levels after implementation of mitigation.

Under the Sankey Gap Alternative the development footprint would be unchanged, except for the reduction of off-site detention areas (totaling 300 acre) as compared to approximately 800 acres in the proposed project. Therefore, impacts related to erosion from construction and risks from soil hazards would be slightly reduced. However, because construction would still occur over a 7,300-acre area, the same significant impacts would still occur under this alternative. Therefore, the impacts would be similar [*Similar*].

4.3.4.7 HYDROLOGY AND WATER QUALITY

The proposed project and the Sankey Gap Alternative would both result in significant impacts related to temporary construction-related and water quality effects, increased risk of flooding from increased stormwater runoff, and degradation of water quality from urban runoff. These impacts would be less than significant after mitigation for the proposed project, and since the same mitigation measures are available, would also be less than

significant for this alternative. Similarly, depletion of groundwater supplies and interference with groundwater would be less-than-significant impacts of the proposed project and this alternative, which would have slightly lower water demands and slightly less impervious surface area than the proposed project. Water sources (surface and groundwater) would be expected to be similar under this alternative to the proposed project, and so the same mitigation measures would be available to reduce the impact of contaminated water to a less-than-significant level.

The project site is located within a 100-year floodplain as currently defined by FEMA, and also includes an area located within the 200-year floodplain as defined on the draft “Best Available Maps” provided by the Department of Water Resources (DWR) in 2008. The purpose of this alternative is to avoid the proposed project’s significant impact from locating developed structures within the 200-year floodplain, by permanently designating as “Industrial Drainage Basin” the current Employment 1 – Interim Flood Zone on the proposed project land use map. Therefore, this alternative would reduce the hydrology and water quality impacts relative to the proposed project [*Less*].

4.3.4.8 PUBLIC SERVICES

The proposed project would result in significant impacts on public services related to temporary obstruction of roadways during construction and the provision of adequate water pressure for fire flow. These impacts would be reduced to less-than-significant levels after implementation of mitigation. Both the proposed project and the Sankey Gap Alternative would both provide increased fire protection, police protection, library facilities, judicial services, public health services, mental health services, social services, and school facilities and services commensurate with the increase in residents and employees through payment of impact fees, service fees, and taxes.

Because the Sankey Gap Alternative would develop a substantially similar amount of land with similar uses as compared to the proposed project, this alternative would not reduce or avoid any significant impacts related to this issue. Overall impacts on public services associated with this alternative are considered similar to the impacts of the proposed project [*Similar*].

4.3.4.9 WATER SUPPLY

The proposed project would create demand for water supply, which would be met through use of groundwater sources and modification of existing surface water entitlements. Water Supply impacts are either considered less than significant, or are significant but would be rendered less than significant by implementation of mitigation measures. Curtailment of development on the project site if adequate water supplies were not available would result in significant and unavoidable impacts to transportation and circulation, air quality, noise, agricultural resources, parks and open space, and visual resources.

Because of the reduced intensity of this alternative, it is assumed that a similar (but reduced) water supply program to the proposed project would be feasible. Although the Sankey Gap Alternative would result in slightly less demand for water supply because of the reduction in commercial and industrial square footage, the impact would still be significant. Because the Sankey Gap Alternative would not reduce or avoid any significant impacts related to this issue, overall water supply impacts associated with this alternative are considered similar to those of the proposed project [*Similar*].

4.3.4.10 PUBLIC UTILITIES

The proposed project would create demand for water and wastewater conveyance infrastructure, wastewater treatment, solid waste disposal capacity, electricity, natural gas, and communications. The significant impact on wastewater treatment would be reduced to a less-than-significant impact following mitigation, but wastewater treatment through SRCSD would result in indirect, significant-and-unavoidable impacts related to SRCSD’s expanded treatment capacity. Other public utilities impacts are either considered less than significant, or are significant but would be rendered less than significant by implementation of mitigation measures.

Because a similar amount of development would occur in the Sankey Gap Alternative, this alternative would not reduce or avoid any significant impacts of the proposed project. Overall utility impacts would be similar compared to the proposed project [*Similar*].

4.3.4.11 AGRICULTURAL RESOURCES

The proposed project would result in significant and unavoidable impacts related to conversion of important farmland to nonagricultural urban uses, and conflict with existing agricultural uses. There would be no impact related to cancellation of Williamson Act contracts, and a less-than-significant impact from disruption of existing agricultural operations during construction activities after mitigation.

Impacts would be slightly reduced under the Sankey Gap Alternative; the developed footprint would be similar to that of the proposed project, but 300 to 800 acres of off-site detention would not be removed from agricultural use in this alternative. The area of potential conflict with existing agricultural uses would be similar. The impacts from cancellation of Williamson Act contracts and disruption of existing agricultural operations during construction activities would be similar to the proposed project. However, these changes would not reduce the significant agricultural resources impacts to a less-than-significant level. Because no impacts would be reduced beneath the level of significance, impacts are considered similar under this alternative relative to the proposed project. [*Similar*].

4.3.4.12 PUBLIC HEALTH AND HAZARDS

Impacts from exposure to on-site hazardous materials during construction, development on a known hazardous materials site, exposure to workers or residents near an airport, public health hazards from mosquitoes attracted by water features, safety hazards related to water features and aircraft, and interference with emergency or evacuation plans, would all represent potentially significant impacts that would be reduced to a less-than-significant level after implementation of mitigation. The proposed project would also have less-than-significant impacts related to proximity to transportation routes and routine transport, use, and disposal of hazardous materials.

The Sankey Gap Alternative would include a similar area of development. Public health and hazards impacts related to hazardous materials and interference with emergency or evacuation plans would be similar to the proposed project. Impacts related to public health risks posed by mosquitoes and aviation hazards related to on-site water features would be increased because the proximity of the on-site water feature would increase the potential for bird strikes. Detention and stormwater needs for a similarly-sized project would be similar, and similar mitigation measures would be available, but more detention would take place on the project site, in closer proximity to residential uses and sensitive receptors, and to the airport. The potential for exposure of residents to electrical and magnetic fields would be similar under this alternative, because residential uses would be unchanged. The Sankey Gap Alternative would not reduce or avoid any significant public health and hazards impacts, impacts. Under the Sankey Gap Alternative, the potential exposure of residents to mosquitoes and bird strikes could potentially be greater than under the proposed project [*Greater*].

4.3.4.13 BIOLOGICAL RESOURCES

Impacts on the endangered giant garter snake and Swainson's hawk, potential loss and degradation of habitat for special status wildlife, and potential loss or degradation of jurisdictional waters of the US or waters of the State would also be significant. The proposed project would have a less-than-significant impact related to these resources after mitigation, which generally includes conformance with the measures included in the NBHCP. Compensatory mitigation for wetland impacts would be carried out through mitigation banks and in-lieu mitigation fees.

The Sankey Gap Alternative would include development of a similar footprint, although a larger on-site acreage would be devoted to stormwater detention in this alternative, potentially increasing the on-site availability of giant

garter snake habitat. Because the footprint of development would not change, and no significant-and-unavoidable impacts would be avoided, impacts would be similar in this alternative relative to the proposed project [*Similar*].

4.3.4.14 PARKS AND OPEN SPACE

The proposed project would result in less-than-significant impacts related to increased use of regional park facilities, but a significant impact related to insufficiency of parkland to meet increased demand by new residents in development Phase 1 and Phase A. The Sankey Gap Alternative does not include specific information concerning provision of parks and open space uses, but land within the footprint proposed for urban development could be designated for parks and open space at the Quimby Act standard of 5 acres per 1,000 residents. Since the number of residential units (and hence population) would be lower in the Sankey Gap Alternative relative to the proposed project, demand for parkland and increased use of regional park facilities would be lower, thus reducing the significant impact under Phase 1 and Phase A to a less-than-significant level. [*Lesser*].

4.3.4.15 CULTURAL RESOURCES

The proposed project would result in potentially significant cultural resources impacts related to known and unknown prehistoric resources and human remains, which would be reduced to less-than-significant levels after implementation of mitigation. However, the impact related to potential damage or destruction of historic-era resources is potentially significant and unavoidable for the proposed project.

The Sankey Gap Alternative would include urban development of a similar footprint to the proposed project, with the exception that 300 to 800 acres of offsite detention would not be disturbed in this alternative. The same mitigation measures would be available to the Sankey Gap Alternative as to the proposed project. Because this alternative would not reduce or avoid the significant and unavoidable cultural resource impact to historic-era structures of the proposed project, the impacts would be similar. [*Similar*].

4.3.4.16 VISUAL RESOURCES

The proposed project would cause less-than-significant impacts from damage to scenic resources within a State scenic highway, and from new sources of light and glare. Impacts related to permanent alteration of scenic vistas from project operation, degradation of visual character from project operation and during construction, and skyglow effects from project operation would be significant and unavoidable for the proposed project.

The Sankey Gap Alternative would result in development of urban uses on a similar footprint to the proposed property, and impacts to visual resources would be similar for the Sankey Gap Alternative to the proposed project. The Sankey Gap Alternative would not reduce or avoid any significant impacts under this issue topic [*Similar*].

4.3.4.17 CLIMATE CHANGE

The proposed project would result in development of urban uses, including 17,500 dwelling units and about 49.7 million square feet of job-generating uses, on a 7,528 acre site. A variety of strategies would be implemented to reduce GHG emissions, including mixed-use areas, higher density residential areas, transit options, and bicycle and pedestrian infrastructure throughout the proposed project. However, the proposed project's contribution to cumulative GHG emissions would still be significant and unavoidable for the proposed project.

The Sankey Gap Alternative would include a reduction of industrial and commercial square footage from about 49.7 million square feet to about 43.5 million square feet. Because of the lower employment density in the Sankey Gap Alternative, transit opportunities would be relatively less, but a larger proportion of on-site jobs could potentially be filled by on-site residents. Although a more balanced jobs-housing ration would slightly lower the contribution to cumulative GHG emissions under this alternative, the generation of GHGs would still be significant and unavoidable. Since the Sankey Gap alternative would not reduce or avoid any of the proposed project's impacts, the impacts would be similar under this alternative [*Similar*].

4.3.4.18 IMPACT SUMMARY

The Sankey Gap Alternative would result in greater impacts than the proposed project in two issue areas, similar impacts in 13 issue areas, and lesser impacts in two issue areas, (see Table 4-1). Significant unavoidable impacts related to air quality, noise, agricultural resources, visual resources, cultural resources, and climate change would also occur under this alternative; however, this alternative would contribute to each of these impacts to a slightly lesser extent than the proposed project.

4.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/Existing General Plan Alternative would be the Environmentally Superior Alternative as shown in Table 4-1. This alternative provides the greatest opportunity for avoidance and/or substantial reduction in the significant environmental effects of the proposed project. However, without a residential component, this alternative would not meet Objective 3 (array of uses to enable development of a community), Objective 4 (provide a range of housing types), Objective 5 (provide a mixed-use community), or Objective 15 (support future incorporation as a city). Most significant; Objective 16 (compliance with Measure M) would not be met by this alternative.

In the event that the “No Project” Alternative is considered the environmentally superior alternative, the State CEQA Guidelines (15126[d][3]) require the identification of an environmentally superior “build alternative.” Of the build alternatives, the Permanent On-Site Sankey Gap Overflow Storage Alternative would be the Environmentally Superior Alternative as shown in Table 4-6. This alternative provides the greatest opportunity for avoidance and/or substantial reduction in the significant environmental effects of the proposed project.

Table 4-1 Comparison of Significant Environmental Effects of the Alternatives to the Proposed Project				
Environmental Issue Area	No Project/ Existing General Plan and Zoning	SACOG Blueprint Preferred Scenario Alternative	Reduced Intensity Development Alternative	Permanent On-Site Sankey Gap Overflow Storage Alternative
Land Use	Greater	Greater	Similar	Greater
Population, Housing, and Employment	Greater	Similar	Greater	Similar
Transportation and Circulation	Less	Similar	Similar	Similar
Air Quality	Similar	Similar	Similar	Similar
Noise	Less	Similar	Similar	Similar
Geology, Soils, and Paleontological Resources	Similar	Similar	Similar	Similar
Hydrology and Water Quality	Greater	Greater	Greater	Less
Public Services	Greater	Similar	Greater	Similar
Water Supply	Similar	Similar	Similar	Similar
Public Utilities	Less	Similar	Similar	Similar
Agricultural Resources	Similar	Similar	Similar	Similar
Public Health and Hazards	Similar	Similar	Similar	Greater
Biological Resources	Less	Greater	Similar	Similar
Parks and Open Space	Less	Similar	Less	Less
Cultural Resources	Less	Less	Similar	Similar
Visual Resources	Similar	Similar	Similar	Similar
Climate Change	Greater	Greater	Similar	Similar
Source: Data compiled by EDAW in 2008				

5 CUMULATIVE IMPACTS

5.1 INTRODUCTION

This DEIR provides an analysis of overall cumulative impacts of the proposed project taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the Sutter Pointe Specific Plan itself would cause a “cumulatively considerable” (and thus significant) incremental contribution to any such cumulatively significant impacts. (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal.App.4th 98, 120.) In other words, the required analysis intends to first create a broad context in which to assess the proposed project’s incremental contribution to anticipated cumulative impacts, viewed on a geographic scale well beyond the project site itself, and then to determine whether the proposed project’s incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., “cumulatively considerable” in CEQA parlance).

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact occurs from “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this DEIR focuses on significant and potentially significant cumulative impacts. State CEQA Guidelines Section 15130(b), in part, provides the following:

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

5.2 PROJECTS CONTRIBUTING TO POTENTIAL CUMULATIVE IMPACTS

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects (the “list approach”) or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the “plan approach”). For this DEIR, the list approach and the plan approach have been combined to generate the most reliable future projections possible. A list approach is used to define the local project environment and includes projects within Sutter, Sacramento, and Placer Counties. Because the proposed project directly influences and is influenced by regional development activities, the plan approach is also used to allow a cumulative analysis on this regional scale. Projects and plans included in these two approaches are described below.

5.3 CUMULATIVE CONTEXT

Sutter, Sacramento, and Placer Counties as a whole are facing numerous regional issues pertaining to air quality degradation, traffic generation, biological habitat loss, water quality degradation, and other urban related environmental changes. The following discussion provides the cumulative context for each of these counties.

5.3.1 SUTTER COUNTY

Sutter County is situated in the Sacramento Valley, with the southern boundary located approximately 10 miles north of the city of Sacramento. The county comprises 607 square miles of land. It is generally bordered on the west by the Sacramento River, on the east by the Feather and Bear Rivers and Placer County, on the north by Butte County, and on the south by Sacramento County. State Route (SR) 99 extends in a north-south direction through the county and is the primary corridor connecting Sutter County to the region. SR 99 is joined by SR 70 in the southern part of Sutter County, becoming SR 99/70. SR 70 extends north to Marysville and Oroville. SR 20 is the primary east-west connection through the county. (Sutter County 2008.)

The unincorporated area of the county consists of several rural communities including Meridian, adjacent to the western boundary in the north; Sutter, located in the north-central portion of the county abutting the Sutter Buttes; Robbins, located in the southwest between the Sacramento River and the Sutter Bypass along SR 113; and the communities of Rio Oso, Trowbridge, Nicolaus, and East Nicolaus, all clustered near the convergence of the Bear and Feather Rivers in the southeast portion of the county. (Sutter County 2008.)

In addition to the rural communities, Sutter County includes two incorporated cities: Yuba City and Live Oak. Yuba City is the major urban center within the county and is located along the Feather River in the east-central portion of the county where SR 99 and SR 20 intersect. Live Oak is located in the northeast corner of the county north of Yuba City.

Although residential uses are clustered in the cities and rural communities, approximately 8,800 acres of residential uses are scattered throughout the remainder of the county. Most of these residential uses are located in unincorporated areas surrounding Yuba City and Live Oak and outside of the boundaries of the rural communities. Other clusters of residential land use occur along major transportation corridors, such as SR 99 and SR 20, as well as along the Sacramento and Feather Rivers and surrounding the Sutter Buttes. Other smaller concentrations of industrial and public areas are also located throughout the unincorporated county, most often near the concentrations of residential uses mentioned above and outside of the rural communities' boundaries. Small clusters of commercial uses exist outside of the cities and rural communities, but in general, these uses occur either within or immediately surrounding these areas. (SACOG 2007.)

Most of the growth in Sutter County has taken place in Yuba City and Live Oak. Annexations and new development have increased the share of the county's incorporated population from 40% in 1970 to 75% in 2007 (SACOG 2007). The Sacramento Area Council of Government's (SACOG's) Sacramento Region Blueprint anticipates 40,000 households and 60,000 jobs in Sutter County between 2000 and 2050. With regard to the proposed project, the SACOG Blueprint Preferred Scenario anticipates approximately 20,000 jobs and 8,500 households on 7,420 acres in the south Sutter County area. The county has grown from 64,415 people in 1990 to 78,930 people in 2000 (U.S. Census Bureau 2000). The current population of the county as of January 1, 2008, was estimated to be 95,878 persons (California Department of Finance 2008).

5.3.2 SACRAMENTO COUNTY

Sacramento County encompasses approximately 994 square miles and is located in the middle of the 400-mile-long Central Valley. The county is bordered by Contra Costa and San Joaquin Counties on the south, Amador and El Dorado Counties on the east, Placer and Sutter Counties on the north, and Yolo and Solano Counties on the west. Sacramento County extends from the low Sacramento-San Joaquin Delta lands between the Sacramento and San Joaquin Rivers north to about 10 miles beyond the State Capitol and east to the foothills of the Sierra Nevada. The southernmost portion of Sacramento County has direct access to the San Francisco Bay. Sacramento County lies at the geographic center of the region and spans both agricultural land uses as well as the most urbanized areas of the region. Seven incorporated cities—Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento—are located within the boundaries of Sacramento County. (SACOG 2007.)

The highest densities of employment and residential uses are located in the urban core of the city of Sacramento. Outside of this, land uses are predominantly low-density suburban. Two of the three regional employment centers are located in Sacramento County, one in downtown Sacramento, and the two more recent along the U.S. Highway 50 corridor in the cities of Rancho Cordova and Folsom. Land uses north of the American River are primarily suburban residential with concentrations of commercial and employment uses along major transportation routes. (SACOG 2007.)

Growth in Sacramento County is occurring and is projected to occur primarily in the cities of Elk Grove, Folsom, and Rancho Cordova and in the community of Natomas, which are the only remaining areas of the county within the Urban Services Boundary where land is available. According to SACOG's Sacramento Region Blueprint, the unincorporated portion of Sacramento County will grow by nearly 100,000 new jobs and 100,000 new housing units by 2030. Accommodating the projected employment and the new residents will not only require more housing, but will also necessitate additional jobs, stores, human services, transportation system capacity, public facilities, and municipal and countywide services. The county has grown from 1,041,219 people in 1990 to 1,223,499 people in 2000 (U.S. Census Bureau 2000). The current population of the county as of January 1, 2008, was estimated to be 1,424,415 persons (California Department of Finance 2008).

5.3.3 PLACER COUNTY

Placer County encompasses approximately 1,503 square miles. The county is bordered by Sacramento and El Dorado Counties on the south, Douglas County (Nevada) on the east, Yuba County on the north, and Sutter County on the west. The six incorporated cities within Placer County are Auburn, Colfax, Lincoln, Loomis, Rocklin, and Roseville. Residential uses in Placer County range from rural residential areas to medium and high-density dwelling units in urbanized areas. However, most residential development within the county consists of single-family dwellings. Outside of these cities, along eastbound Interstate 80, suburban residential uses are concentrated in the cities of Loomis, Auburn, and Colfax. The predominant land use in these cities is low-density residential, although Auburn has a concentration of employment uses because of its role as the county seat of government. (SACOG 2007.)

Commercial land uses are primarily located in the urbanized portions of the county with most commercial development along Interstate 80. The highest concentrations of commercial uses in urbanized areas are within the cities of Roseville, Rocklin, Auburn, and Loomis. Industrial and heavy commercial uses are scattered in various locations outside the urban boundaries, generally along Interstate 80 near Newcastle, Auburn, Foresthill, and Weimar. (SACOG 2007.)

Placer County's population has historically been located along the Interstate 80 corridor. The majority of the population lives in the suburban southwest portion of the county where residential development has occurred in and around the fast-growing cities of Roseville, Rocklin, and Lincoln. Population and housing growth through 2035 is expected to be highest in the southwestern unincorporated portion of the county (Dry Creek, Curry Creek, Sunset Industrial Area) and the cities of Lincoln, Rocklin, and Roseville. These communities are anticipated to add 209,889 people by 2035, or 77% of the county's new household population. The high population growth will balance the strong job growth projected to occur in the county. The smaller cities of the county, including Auburn, Loomis, and Colfax, are expected to continue at historically slow growth rates as all three cities are close to buildout with no plans for expansion (SACOG 2007). The county has grown from 172,796 people in 1990 to 248,399 people in 2000 (U.S. Census Bureau 2000). The current population of the county as of January 1, 2008, was estimated to be 1,424,415 persons (California Department of Finance 2008).

5.4 GEOGRAPHIC SCOPE

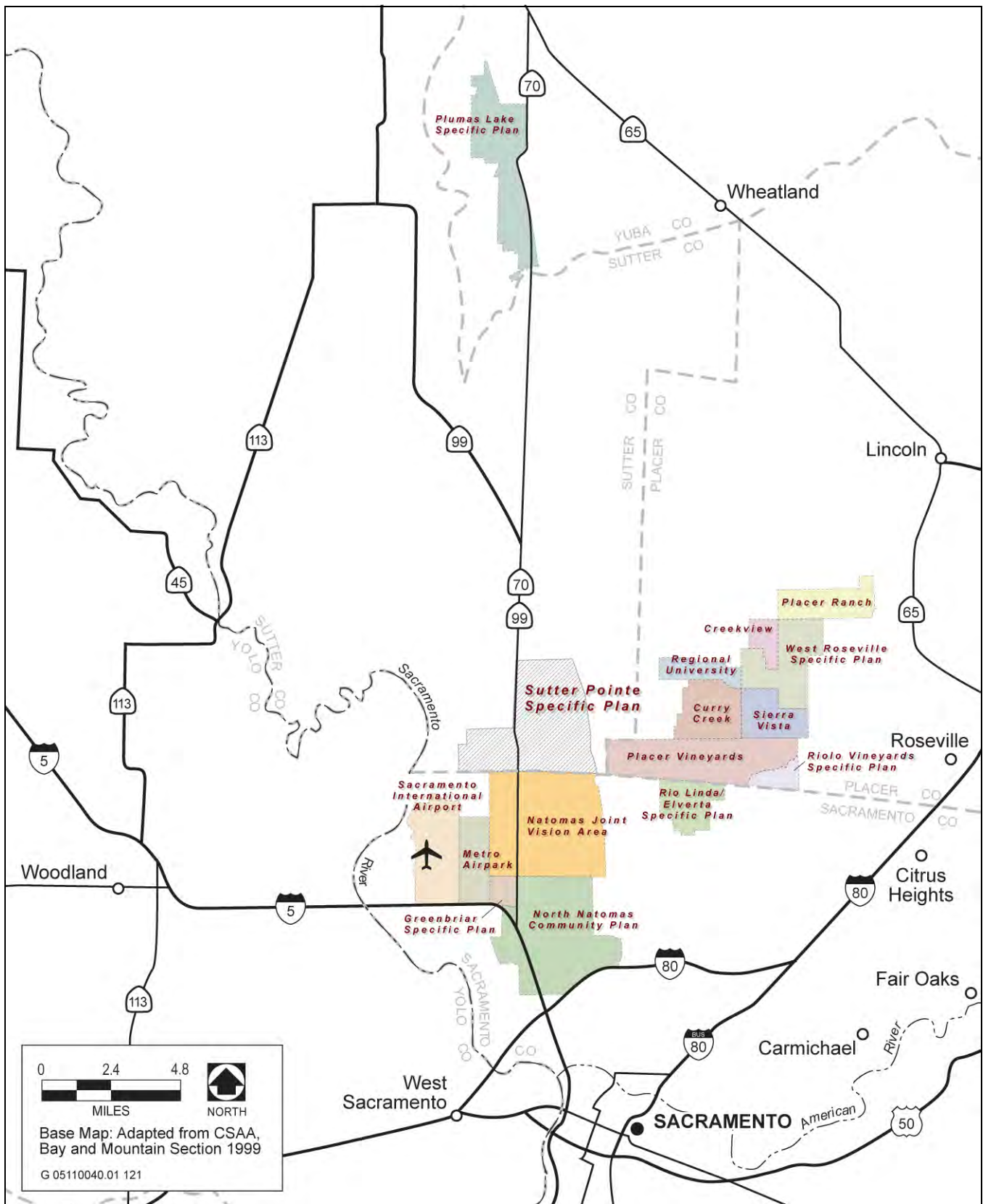
The geographic area that could be affected by the proposed project varies depending on the type of environmental issue being considered. When the effects of the proposed project are considered in combination with those other past, present, and future projects to identify cumulative impacts, the other projects considered may also vary

depending on the type of environmental effects being assessed. The general geographic area associated with different environmental effects of the proposed project defines the boundaries of the area used for compiling the list of projects considered in the cumulative impact analysis. Table 5-1 presents the general geographic areas associated with the different resources addressed in this DEIR.

Table 5-1 Geographic Scope of Cumulative Impacts	
Issue Area	Geographic Area
Land Use	Regional development projected by the SACOG Blueprint and Natomas Basin Habitat Conservation Plan (NBHCP) and local development identified in Sutter, Sacramento, and Placer Counties
Population, Housing, and Employment	Sutter, Sacramento, and Placer Counties
Transportation and Circulation	Regional and local facilities
Air Quality	Sacramento Valley Air Basin and the Feather River Air Quality Management District, Placer County Air Pollution Control District, and Sacramento Metropolitan Air Quality Management District
Noise	Immediate project vicinity where effects are localized
Geology, Soils, and Paleontological Resources	Limited to project site and off-site elements
Hydrology and Water Quality	North American Groundwater Subbasin
Public Services	Local service providers, including the Pleasant Grove Fire Stations 9 and 9-2, Sutter County Sheriff's Department, the Pleasant Grove Joint Union School District, and the East Nicolaus Joint High School District
Water Supply	Natomas Central Mutual Water Company service area and the North American Groundwater Subbasin
Public Utilities	Local area of facilities from service providers needed to serve the project site (south Sutter County, northern Sacramento County, western Placer County)
Agricultural Resources	Sutter County
Public Health and Hazards	Immediate project vicinity
Biological Resources	Sutter, Sacramento, and Placer Counties
Parks and Open Space	Regional and local facilities
Cultural Resources	Project site and off-site elements and Sutter, Sacramento, and Placer Counties
Visual Resources	Sutter, Sacramento, and Placer Counties
Climate Change	Global, regional, and local (project site and vicinity)
Source: Data provided by EDAW in 2008	

5.5 LIST OF RELATED PROJECTS

The list of past, present, and probable future projects used for this cumulative analysis is restricted to those projects that have occurred or are planned to occur in Sutter, Sacramento, and Placer Counties (as defined above). For the purposes of this discussion, these projects that may have a cumulative effect on the resources in the project vicinity will often be referred to as the "related projects." These related projects are identified in Exhibit 5-1 and Table 5-2 and described below. The analysis of cumulative environmental impacts associated with the proposed project addresses the potential incremental impacts of the proposed project in combination with these related projects. The list of projects in Table 5-2 is not intended to be an all-inclusive list of projects in the region, but rather to identify projects approved or planned that have some relation to the proposed project and/or the environmental setting (existing conditions) of the proposed project.



Source: Data provided by Fehr & Peers 2007, adapted by EDAW 2008

Project's Contribution to Potential Cumulative Impacts

Exhibit 5-1

Table 5-2 Related Projects			
Project Name	Acres	Residential Units	Commercial/Industrial Land Uses (acres)
Sacramento County			
North Natomas Community Plan	9,038	33,257	2,195
Metro Air Park ¹	1,983	N/A	1,400
Greenbriar Development Project	577	3,473	27.5
Natomas Panhandle Annexation and Planned Unit Development	1,430	3,075	27
Rio Linda/Elverta Specific Plan	1,744	4,950	19.4
Sutter County			
Sutter Pointe Specific Plan (proposed project)	7,527	17,500	2,181
Placer County			
Placer Ranch Specific Plan	6,796	6,793	677
West Roseville Specific Plan	3,162	8,500	200
Creekview Specific Plan	511.5	2,361	34.4
Regional University and Community Specific Plan	1,157.7	3,232	365
Curry Creek Community Plan ²	2,500	--	--
Sierra Vista Specific Plan	2,175	10,500	255
Placer Vineyards Specific Plan	5,230	14,132	600
Riolo Vineyards Specific Plan	527.5	932	7
Yuba County³			
Plumas Lake Specific Plan	5,200	13,027	474
Total	49,558.7	121,732	8,035.7
¹ No residential land uses are proposed as part of the Metro Air Park. ² The Curry Creek Community Plan area is within a Future Study Area identified by the Placer County General Plan. No land use plan has been developed for this area. ³ Because the Plumas Lake Specific Plan is quite large and would generate a substantial amount of traffic along SR 99/70, which bisects the project site, the Plumas Lake Specific Plan is considered to be a related project. Sources: Sacramento County 2007, City of Sacramento 2005, Placer County 2007, Yuba County 2008			

5.5.1 SACRAMENTO COUNTY

North Natomas Community Plan

Several development projects in the North Natomas Community Plan (NNCP) area that have been approved but are yet to be fully built out have been identified and evaluated by the NNCP and its associated environmental documents. For this reason, the cumulative analysis contained in this DEIR focuses on the overall development anticipated in the North Natomas community as projected by the NNCP. Using this approach, this cumulative assessment provides the most conservative and inclusive analysis of past, present, and potential future projects.

The NNCP area is located in the northwest portion of the city of Sacramento and is part of the greater Natomas Basin. The NNCP area consists of about 7,440 acres in the Sacramento city limits and 1,561 acres in Sacramento County. The southern edge of the community is about 3 miles from downtown Sacramento and the northwestern edge is about 2.5 miles from Sacramento International Airport. The community is bound by Elkhorn Boulevard on the north; Interstate 80 on the south; the Natomas East Main Drainage Canal on the east; and the West Drainage Canal, Fisherman's Lake, and SR 99 on the west. The South Natomas Community Plan area borders North Natomas on the south; the North Sacramento Community Plan area on the east; and unincorporated areas of Sacramento County and the Natomas Joint Vision Area border on the north and west. (City of Sacramento 2008.)

Several development projects have been approved in the NNCP area. Some of these projects are fully built out and occupied at this juncture, whereas others are still in development phases. These projects include Westborough, Cambay West, Natomas Crossing, Natomas Town Center, Panhandle, and Natomas Creek. In addition, three major shopping centers are being proposed in the NNCP area including Natomas Landing, Commerce Station, and Natomas Century.

In 2003, the North Natomas Community Plan area contained 9,980 dwelling units with a population of 24,935 (City of Sacramento 2005). At buildout (year 2016), the NNCP estimates a population of 66,495 in the North Natomas community occupying 33,257 housing units on approximately 9,038 acres. The NNCP area is projected to account for approximately 35% of new housing and 30% of the new jobs in the city of Sacramento at buildout (City of Sacramento 1986, as amended 2002). According to the City of Sacramento, development within the NNCP area as of September 14, 2005 includes approval of 12,162 lots for development of residential, commercial, and industrial land uses; approval of 10,801 building permits; approval of 11,599 single-family residential special permits; and approval of 6,003 multifamily residential special permits (City of Sacramento 2005).

Metro Air Park

In addition to development anticipated within the NNCP area, the Metro Air Park development is ready for construction, located adjacent to Sacramento International Airport and along the westerly edge of the Greenbriar project site. The Metro Air Park totals 1,983 acres and has been approved for development of approximately 1,400 acres of office space, light industrial projects, retail and hotel developments, and a 200-acre golf course on land east of the airport and north of Interstate 5. The project is located in an area that has historically been dominated by agricultural uses. Construction of the Metro Air Park began in September 2003.

Greenbriar Development Project

The Greenbriar project is addressed in the Natomas Joint Vision Plan, described further below. It consists of development of a 577-acre site at the northwest corner of the Interstate 5/SR 99 interchange, between Metro Air Park on the west and the current limits of North Natomas on the east. The Greenbriar project would develop land outside of the area designated for urbanization in the NBHCP.

The proposed land use plan is a predominantly residential development centered on a common water feature (approximately 39 acres). A total of 3,473 residential dwelling units and approximately 27.5 acres of retail and commercial space would be provided on site. In addition, the Greenbriar project includes 55.5 acres of public uses, such as schools and parks (City of Sacramento 2006). The Greenbriar project was approved by the City of Sacramento in May 2008.

Natomas Panhandle Annexation and Planned Unit Development

The Natomas Panhandle Annexation and Planned Unit Development (PUD) project area is located entirely within the City of Sacramento's Sphere of Influence (SOI). The project site is located north of Del Paso Road, south of West Elkhorn Boulevard, west of East Levee Road and Sorento Road, and east of the NNCP area. The project site includes a total of 1,430 acres and is divided into two components. The northern portion of the project site

consists of the area north of Del Paso Road up to Elkhorn Boulevard. It includes 870 acres and is nearly built out with light industrial, warehousing, office, and commercial uses. No specific development is proposed at this time in the northern portion of the project site.

The southern portion of the project site includes 595 acres and consists of the area south of Del Paso Road to Interstate 80. Proposed development on this portion of the site includes 3,075 residential dwelling units on 352 acres; 27 acres of commercial land uses; and 216 acres of parks, open space, and public uses. (City of Sacramento 2007.) The Natomas Panhandle Annexation and PUD is currently pending approval by the City of Sacramento.

Rio Linda/Elverta Specific Plan

The Elverta Specific Plan area includes 1,744 acres in the north-central portion of Sacramento County and approximately 10 miles northeast of downtown Sacramento. The Rio Linda/Elverta Specific Plan includes the development of 881 acres of urban residential land uses and 552 acres of agricultural-residential land uses with an anticipated total number of 4,950 dwelling units. In addition, the Rio Linda/Elverta Specific Plan includes 19.4 acres of commercial and office/professional land uses; and 303 acres of parks, open space, schools, and detention facilities. (Sacramento County 2007a.)

5.5.2 PLACER COUNTY

Placer Ranch Specific Plan

The Placer Ranch Specific Plan area includes 6,796 acres in unincorporated Placer County. At buildout, the Placer Ranch Specific Plan area would consist of 6,793 residential dwelling units; 527 acres of business park and light industrial uses; 150 acres of office professional uses; 99 acres of commercial uses; and 275 acres of parks, open space, and schools. In addition, the project includes a 300-acre branch campus of California State University Sacramento, with an estimated total enrollment of 25,000 students. An EIR is currently being prepared by Placer County for the Placer Ranch Specific Plan.

West Roseville Specific Plan

The West Roseville Specific Plan area includes 3,150 acres in the northwestern-most portion of the city of Roseville. At buildout, the West Roseville Specific Plan area would consist of 8,500 dwelling units, 200 acres of commercial/office development, and 1,200 acres of open space. The West Roseville Specific Plan area is now under construction.

Creekview Specific Plan

The Creekview Specific Plan area includes 511.5 acres in unincorporated Placer County within the City of Roseville's SOI. Although the land use plan has not been finalized, it currently proposes 2,361 dwelling units, 34.4 acres of commercial uses, 222 acres of parks and open space, and 43.4 acres of urban reserves. An EIR is currently being prepared by Placer County for the Creekview Specific Plan.

Regional University and Community Specific Plan

The Regional University and Community Specific Plan area includes approximately 1,157.7 acres located south of Pleasant Grove Creek between Brewer Road and the western boundary of the city of Roseville. The proposed Regional University Specific Plan includes two primary components: a 600-acre university campus and an adjoining 557.5-acre community. In addition to institutional facilities, the campus would include approximately 1,155 residential units for students and faculty, as well as retirement housing. A portion of the campus is planned for a potential private high school that would accommodate 1,200 students and accompanying staff and faculty. The proposed community would be mixed-use with 365 acres of residential land uses and 3,232 residential units of varying densities, and 135 acres of commercial, employment, open space, parks, and public uses including a

kindergarten through sixth grade (K–6) school and a kindergarten through eighth grade (K–8) school. A DEIR has been prepared for this project and is currently available for public review. (Placer County 2007.)

Curry Creek Community Plan

The Curry Creek Community Plan area is within a Future Study Area identified by the Placer County General Plan as an appropriate location for consideration of potential future urban or suburban growth. No land use plan has been developed for the Curry Creek Community Plan.

Sierra Vista Specific Plan

The Sierra Vista Specific Plan area includes 2,175 acres along the western edge of the city of Roseville in unincorporated Placer County and is mostly within the City of Roseville's SOI. At buildout, the Sierra Vista Specific Plan would provide for approximately 10,500 dwelling units; 255 acres of retail and office uses; and 440 acres of parks and open space. An EIR is currently being prepared for the Sierra Vista Specific Plan.

Placer Vineyards Specific Plan

The Placer Vineyards Specific Plan area encompasses approximately 5,230 acres in the southwest corner of Placer County. At buildout, the Placer Vineyards Specific Plan would include 14,132 dwelling units; 274 acres of commercial development; and 1,560 acres of parks, open space, schools, and major roadways. The Placer County Board of Supervisors approved the Placer Vineyards Specific Plan in July 2007 and construction is projected to occur over a 20- to 30-year time frame.

Riolo Vineyards Specific Plan

The Riolo Vineyards Specific Plan includes 527.5 acres in unincorporated Placer County on the north side of PFE Road between Watt Avenue on the west, Walerga Road on the east, and Dry Creek on the north. At buildout, the Riolo Vineyards Specific Plan would include 932 dwelling units; 7 acres of commercial development; and 204 acres of open space, infrastructure, and agricultural uses. An EIR is currently being prepared for the Riolo Vineyards Specific Plan.

5.5.3 YUBA COUNTY

Plumas Lake Specific Plan

Because the Plumas Lake Specific Plan area is large and would generate a substantial amount of traffic along SR 99/70, which bisects the project site, the Plumas Lake Specific Plan area is considered a related project. The Plumas Lake Specific Plan is an approximately 5,200-acre area located in the County of Yuba south of the community of Olivehurst, generally west of the Union Pacific railroad line and SR 70, and extending from the southern boundary of the county to Murphy Road on the north. Buildout of the Plumas Lake Specific Plan would include 13,027 housing units; 474 acres of commercial and industrial land uses; and 1,450 acres of open space, schools, roads, and other uses (Yuba County 2008). The Plumas Lake Specific Plan area is currently under construction.

5.6 REGIONAL PLANNING ENVIRONMENT

Because the proposed project is large and would directly influence and be influenced by regional development activities, the plan approach was used to evaluate cumulative impacts on a regional scale. The regional cumulative analysis area covers the incorporated and unincorporated areas of Sutter County, Sacramento, and Placer Counties. The analysis included an evaluation of the Sutter County General Plan (1996), the Sutter County General Plan Update Technical Background Report (2008), the Sacramento County General Plan (1993), the draft Sacramento County General Plan Update (2007), the Placer County General Plan (1994), the Natomas Joint

Vision Plan, and the NBHCP. A summary of the cumulative planning environment in San Joaquin County and the city of Stockton that is used for the regional cumulative impact analysis is provided below.

5.6.1 SUTTER COUNTY GENERAL PLAN

The Sutter County General Plan, adopted in 1996 and most recently amended on December 19, 2006, includes goals, objectives, and policies for the unincorporated areas of the county. The broad purpose of the County General Plan is to express policies that will guide decisions on future growth, development, and conservation of resources in a manner consistent with the goals and quality of life desired by the county's residents.

5.6.2 SUTTER COUNTY GENERAL PLAN UPDATE

In 2007, Sutter County began a work program to update the 1996 general plan. If the update of the general plan were to be completed and adopted before County approval of the proposed project, the goals and policies of the general plan update would apply to the development of the proposed project. Thus far, the County has completed a number of public meetings related to the update. In February 2008, the County released the General Plan Update Technical Background Report (Sutter County 2008), which is available on the County's Web site. The technical background report includes an assessment of the current conditions, including the County's land use, economy, housing, and circulation systems. This information will be used as the basis for the development of the updated general plan, as well as preparation of the EIR for the plan. The County is currently preparing an EIR for the general plan update that is anticipated to be released for public review in late 2009.

5.6.3 SACRAMENTO COUNTY GENERAL PLAN

The Sacramento County General Plan was adopted in 1993 and provides for growth and development in the unincorporated area through the year 2010. Portions of the County General Plan contain policies for urban development including urban communities and the infrastructure necessary to serve them. Other sections of the County General Plan describe strategies to recognize and preserve areas of open space and natural resources. As a whole, the general plan reflects a balance between the amount and location of land uses in urban areas and those to remain in a rural or natural setting.

The County General Plan identified approximately 23,800 acres of vacant land for residential uses; however, not all of this acreage was developable. Approximately 4,900 acres were located within flood zones, constrained by airport noise contours, or within aggregate resource areas, leaving approximately 18,900 acres of unconstrained vacant residentially zoned land in the county. Additional constraints on these lands included restrictive parcel size and configuration, limited accessibility, lack of appropriate infrastructure, and proximity to wetland habitat. In addition to lands designated for residential development, approximately 1,700 acres of vacant land was zoned for commercial and office uses and approximately 14,000 acres of vacant land were zoned for industrial uses. (Sacramento County 1993.)

5.6.4 SACRAMENTO COUNTY GENERAL PLAN UPDATE

The existing Sacramento County General Plan horizon ends in 2010, and the process to update the County General Plan was initiated in 2002. In June 2007, the County prepared a draft general plan policy document and began conducting an environmental review of the General Plan Update. A Notice of Preparation was prepared and circulated for public review in August 2007 (SCH #2007082086). It is expected that the DEIR for the General Plan Update will be circulated for public review in June 2009 (Sacramento County 2007b).

The General Plan Update will have a planning horizon of 2030, which is consistent with the planning horizon of the SACOG's Sacramento Region Blueprint. The General Plan Update contains objectives and policies that are intended to guide the County toward a more compact urban character by concentrating growth within existing

urbanized areas and strategically-located new growth areas, thereby utilizing land resources as efficiently as possible (Sacramento County 2007c).

5.6.5 PLACER COUNTY GENERAL PLAN

The Placer County General Plan was adopted in 1994 and provides an overall framework for development of the county and protection of its natural and cultural resources. Over the years, Placer County has adopted numerous community plans to provide a more detailed focus on specific geographic areas within the unincorporated county. The goals and policies contained in the community plans are intended to supplement and elaborate on the goals and policies of the Countywide General Plan; they do not supersede them. In the case of the Land Use Diagram, there is no overlap and a community plan land use diagram is the only applicable diagram within a community plan area. (Placer County 1994.)

5.6.6 NATOMAS JOINT VISION PLAN

The Joint Vision Area is a collaborative effort between the City of Sacramento and Sacramento County to develop a conceptual blueprint for the 10,000-acre area of Sacramento County between the northern Sacramento city limits and Sutter County. This area is outside of the County's urban services boundary. The Joint Vision Area is predominately agricultural and open space that abuts existing residential neighborhoods on the south (e.g., North Natomas) and rural development on the east (e.g., Rio Linda). Sacramento International Airport is located in the Joint Vision Area just north of Interstate 5, about 3 miles west of SR 99/70. Because the development potential of the Natomas Joint Vision Area is large and various studies are underway in this area, this DEIR discloses the Joint Vision effort to the extent that future potential cumulative development could occur.

In December 2002, the City Council and County Board of Supervisors entered into a Memorandum of Understanding, which defined a mutually acceptable set of proposed principles that the City and County are prepared to consider when evaluating future land use planning in the Natomas Basin. Generally, the Joint Vision Area is expected to include a mixture of residential densities, non-residential uses, and open space. It is anticipated that a large amount of open space would be dedicated for habitat preservation and farmland retention in this area as part of the eventual development proposal. To date, no land use plans have been proposed or adopted, and all considerations to date have been conceptual.

The ultimate development scenario that would be proposed for the Joint Vision area is not known and likely will not be known within the time this DEIR is being considered. The Joint Vision area is considered as future potential cumulative development, and because there is no development proposal at this time, it is considered separately and less extensively than the cumulative development that is currently planned and proposed (i.e., where specific development proposals have been submitted). The Joint Vision plan would be the subject of extensive CEQA (and NEPA) review and consideration by the City and County, neighboring jurisdictions, regulatory agencies including the California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service, local service providers and Sacramento County Local Agency Formation Commission, and its likely implementation is best described as unknown. (City of Sacramento 2008.)

5.6.7 NATOMAS BASIN HABITAT CONSERVATION PLAN

The 2003 NBHCP (City of Sacramento 2003) was prepared by the City of Sacramento, Sutter County, and the Natomas Basin Conservancy (NBC). It was developed to promote biological conservation in conjunction with economic and urban development in the Natomas Basin. The NBHCP establishes a multispecies conservation program to minimize and mitigate the expected loss of habitat values and incidental take of "covered species" that could result from urban development and operation and maintenance of irrigation and drainage systems. The NBHCP authorizes take associated with 17,500 acres of urban development as follows: 8,050 acres in the city of Sacramento, 7,467 acres in Sutter County, and 1,983 acres in the Metro Air Park in Sacramento County).

NBC receives mitigation fees paid by developers and other NBHCP participants. These funds are used to acquire, establish, enhance, monitor, and manage mitigation lands in perpetuity. As development within the Natomas Basin occurs, and as NBC acquires mitigation lands, site-specific management plans are prepared, adopted, and implemented by NBC to ensure that the objectives of the NBHCP are fulfilled. As of March 2007, roughly 4,200 acres of mitigation property had been acquired in the Natomas Basin.

5.7 CUMULATIVE IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the proposed project, together with the related projects and regional development, for each of the 17 environmental issue areas evaluated in this DEIR. The analysis conforms with Section 15130 of the State CEQA Guidelines, which specifies that the “discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone.”

5.7.1 LAND USE

The residences on the eastern boundary of the project site are not formally or informally known as a community, and therefore implementing the proposed project would not physically divide a community. It therefore also would not contribute to a cumulative impact on this basis.

The proposed project is located in south Sutter County, immediately north of the Sutter/Sacramento County line. Proposed, planned, and approved development in Sacramento and Placer Counties and regional development anticipated by the SACOG Blueprint and the NBHCP must be considered for the purpose of evaluating land use impacts on a cumulative level (Exhibit 5-1). Under cumulative conditions, future projects will increase development and provide additional housing, employment, shopping, and recreational opportunities.

Future growth under cumulative conditions may result in a variety of physical impacts related to consistency with adopted land use plans. Impacts involving adopted land use plans or policies and zoning generally would not combine to result in cumulative impacts. The determination of significance for impacts related to these issues, as described by Appendix G of the State CEQA Guidelines, is whether a project would conflict with any applicable land use plan or policy adopted for the purpose of avoiding or mitigating environmental impacts. Such a conflict is site-specific; it is addressed on a project-by-project basis. Implementing the proposed project would not result in significant land use planning impacts, and the proposed project’s ultimate consistency with adopted local land use plans, policies, and zoning is provided for through entitlements to revise the County General Plan and Zoning Ordinance. Land use inconsistency, by itself, is not considered a significant cumulative effect because it is a land use regulation, not an environmental impact. However, the direct and indirect effects from those plans and policies adopted for the purpose of avoiding or mitigating environmental impacts, can lead to physical environmental impacts, which are considered in the appropriate sections of this DEIR. Because land use impacts would occur on a project-specific basis rather than a cumulative basis, the proposed project would not contribute to cumulatively considerable land use impact.

5.7.2 POPULATION, HOUSING, AND EMPLOYMENT

As discussed in Chapter 3.2, “Population, Housing, and Employment,” population estimates from the County’s General Plan extend only to 2015. Because planned residential growth figures between 2015 and the proposed project’s expected buildout of 15–20 years are not available, it cannot be determined if the proposed project would generate population growth that exceeds estimates for the County as identified in the General Plan, and the project could potentially result in unplanned population growth in the area. Population growth, by itself, is not a significant cumulative effect because it is not an environmental impact. However, the direct and indirect effects of such growth, such as housing and infrastructure needs, can lead to conversion of land to other uses, the impacts of which are considered in the appropriate sections of this DEIR.

JOBS/HOUSING BALANCE

The concept of jobs/housing balance presumes that the environment and quality of life in a given area benefit when the area has a balance between its housing supply and its employment base. In the broadest sense, the balance of jobs and housing in a metropolitan region is defined as provision of an adequate supply of housing to accommodate workers employed in a defined geographic area, such as a community, city, or other subregion. Alternatively, a jobs/housing balance can be defined as adequate provision of employment in a defined area that generates enough local workers to fill the housing supply. The opportunity to live close to the workplace that is afforded by providing housing close to jobs should translate to lower congestion and commute times by eliminating the necessity for long-distance commutes. It also provides increased opportunities to use public transit, or bike or walk to work in lieu of driving. An area that has too many jobs relative to its housing supply is likely (in the absence of offsetting factors) to experience substantial in-commuting, relatively rapid increases in housing prices, and intensified pressure for additional residential development. Conversely, if an area has relatively few jobs in comparison to the number of employed residents, many of the workers are required to commute to jobs outside their area of residence. Commuting results in more traffic congestion, air quality degradation, and noise generation.

The simplest measure of jobs/housing balance is an index based on the ratio of employed residents (which is influenced by the number of homes) to jobs in the area. An index of 1.0 indicates a jobs/housing balance. An index above 1.0 indicates employment growth is outpacing housing growth and, therefore, there are more jobs than employed residents, and may suggest that many employees are commuting in from outside the community. An index below 1.0 indicates housing growth is outpacing employment growth and, therefore, there are more employed residents than jobs and may suggest that many residents are commuting to jobs outside the community. Imbalance is often a result of local land use policies; therefore, long-term job uses and housing in an urban area should eventually equalize with good planning practices, and thus reduce commuting.

Jobs/housing indices are more useful for examining the potential for “self-containment” at the regional level than for determining whether this self-sufficiency actually exists in a given community. Balance involves more than matching numbers of housing units and numbers of jobs. Even if communities have a statistical balance between jobs and housing, they are still very likely to experience in-commuting and out-commuting, given the variety and dispersed nature of employment and residential opportunities elsewhere in the region and the high level of mobility offered by automobiles. Trip-making decisions, including the choice of mode, are based on many factors. In the most rational scenario, mode choice is based on the relative time, cost, and availability of alternative transportation modes. However, mode choice is not simply the result of a rational decision between equally weighed travel tradeoffs. Based on theory and empirical research, perceived cost, household characteristics, and land use also affect mode choice. Additional factors shape the context in which people make trip decisions, including the fact that two-income households usually work in different locations; frequent job turnover reduces the ability to locate with reference to one’s workplace; and factors other than jobs access, such as quality of schools, housing prices, and access to other amenities influence residential location choices as much as or more than proximity to employment. (Atlanta Regional Commission 2002.)

Because the proposed project would provide employment opportunities in Sutter County as well as the greater Sacramento region, the geographic area for this issue is defined as Sutter, Sacramento, and Placer Counties. The jobs/housing balance indices in this analysis were calculated using the SACOG Metropolitan Transportation Plan (MTP) estimated housing and employment projections for these counties. These projections were based on employment, population, and housing growth in specific geographic locations using recent growth trends; planned projects (both adopted and in-process) in each jurisdiction; planning-related issues such as flood control, habitat, and infrastructure; and the long-range planning projects in each location. The jobs/housing indices were determined by dividing the projected number of jobs by the projected number of housing units. (SACOG 2007.)

The Sacramento region has increased the ratio of jobs to housing units since the early 1990s. The ratio of jobs to housing units, however, is lower in Sutter County than in Sacramento, Placer, and Yolo Counties. For every

housing unit in Sutter County there are 20% fewer jobs when compared to the jobs per housing unit ratio in the Sacramento region. The net result of a comparatively lower job to housing ratio indicates that: (1) Sutter County is more likely than some of its neighboring counties to have resident workers with long commutes; (2) there is an imbalance between housing and jobs in the county, with housing outpacing employment growth; and (3) the county has more employed residents than jobs. In 2000, approximately 44% of employed residents in Sutter County commuted to jobs in the Sacramento region. (Sutter County 2008.)

Buildout of the proposed project would include approximately 17,500 new residential units and 57,651 new jobs, meaning there would be 3.29 jobs to one housing unit. The additional employment and higher jobs/housing index are part of an overall economic development strategy to bring additional jobs to this area, consistent with the intent and outcomes of Measure M. In the long term, jobs generated by the proposed project are anticipated to be filled by residents from within the Sacramento region as the jobs/housing index becomes more balanced (Sutter County 2004).

Based on the MTP, the jobs/housing index for Sutter County as a whole was 0.95 in 2005, and is projected to increase to 1.0 (i.e., balanced) in 2035. This index did not include the contribution of jobs and housing units resulting from the proposed project. When combining the proposed project with the MTP's projected jobs/housing index for Sutter County, the resulting index becomes 1.16 by 2035, which indicates the county would be slightly job rich. However, there is typically more than one employee per household, so this ratio may, in fact, represent a relatively balanced condition.

At a more regional level, the jobs/housing index for Sacramento County was 1.34 in 2005 and is projected to decrease to 1.21 in 2035. For Placer County, the jobs/housing index was 1.1 in 2005 and is expected to decrease to 1.08 by 2035. Overall, the jobs/housing index for the Sacramento region (Sutter, Sacramento, and Placer Counties) as a whole is predicted to be 1.15 by 2035. The jobs/housing indices for these counties indicate that planned housing projects, including the proposed project, are expected to provide housing opportunities and improve the current jobs/housing balance to approximately 1.15 jobs to one housing unit by 2035; however, the Sacramento region would remain slightly job rich (above 1 job/household). These indices reflect typical employment per household, and likely represent a relatively balanced condition. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the regional balance between jobs and houses. (SACOG 2007.)

5.7.3 TRANSPORTATION AND CIRCULATION

Please see Section 3.3, "Transportation and Circulation," of this DEIR for the analysis of cumulative traffic impacts.

5.7.4 AIR QUALITY

The project site and off-site elements are located in the Sacramento Valley Air Basin (SVAB). Past development in the SVAB combined with meteorological conditions has resulted in significant cumulative impacts on air quality. As described in Section 3.4, "Air Quality," the SVAB is in nonattainment status for ozone and respirable particulate matter (less than 10 microns in diameter, or PM₁₀).

At the local level, the project site is located within the Feather River Air Quality Management District (FRAQMD). The off-site elements of the proposed project would extend into Placer and Sacramento Counties, which are under the jurisdiction of Placer County Air Pollution Control District (PCAPCD) and Sacramento Metropolitan Air Quality Management District (SMAQMD), respectively.

TEMPORARY, SHORT-TERM CONSTRUCTION IMPACTS

The proposed project and off-site elements would result in significant and unavoidable temporary, short-term construction-related air quality impacts even with implementation of all feasible mitigation measures identified in Section 3.4, “Air Quality.” Project-generated, construction-related emissions would exceed FRAQMD’s significance threshold of 25 pounds per day (lb/day) for reactive organic gases (ROG), 25 lb/day for oxides of nitrogen (NO_x), and 80 lb/day for PM₁₀. The projected total maximum daily construction emissions for the off-site elements would also exceed PCAPCD’s significance threshold of 82 lb/day for ROG, 82 lb/day for NO_x, and 82 lb/day for PM₁₀, and the SMAQMD’s significance threshold of 85 lb/day for NO_x.

Assuming that all related projects would also implement all feasible construction emission control measures consistent with FRAQMD, PCAQMD, and SMAQMD guidelines, construction emissions on some of the related projects may be less than significant, although it is likely that larger projects, such as the Metro Air Park, Greenbriar Development Project, Placer Ranch Specific Plan, and other projects identified in Table 5-1, would result in significant and unavoidable air quality impacts on their own. This impact cannot be more precisely determined because the related projects would develop on their own schedules, some of which are not known. It would, thus, be speculative to try to add together the various projects with their differing and changing schedules. However, given the large scale of development that would occur with the related projects, taken in total and combined with the nonattainment status of the SVAB for ozone and PM₁₀ and other development that would occur in the SVAB, these cumulative projects would result in a cumulatively considerable construction-related air quality impact. Because implementation of the proposed project and off-site elements would result in a significant and unavoidable impact from the generation of ROG, NO_x, and PM₁₀, the proposed project would result in a cumulatively considerable incremental contribution to a significant cumulative impact.

LONG-TERM OPERATIONAL IMPACTS

Operation-related activities of the proposed project would result in project-generated mass emissions of ROG, NO_x, and PM₁₀ that exceed FRAQMD’s respective significance threshold of 25 lb/day, 25 lb/day, and 80 lb/day, respectively. Related projects would similarly contribute to a degree and their relative level of contribution is generally related to their size. Long-term operational emissions from related projects, considered in light of the nonattainment status of the air basin, would be cumulatively significant. Emissions attributable to the proposed project, cumulative development listed on Table 5-1, and emissions from other reasonably foreseeable future projects in SVAB as a whole, would continue to contribute to long-term increases in emissions that would exacerbate existing and projected nonattainment conditions. Thus, the proposed project would result in a cumulatively considerable incremental contribution to a significant cumulative long-term operational air quality impact.

TOXIC AIR CONTAMINANTS

The proposed project, and/or activities related to temporary, short-term construction and long-term operations, could expose nearby sensitive receptors to toxic air contaminant (TAC) emissions. TAC emissions associated with short-term construction activities and stationary sources are site specific and would be less than significant for the proposed project. The proposed on-site commercial and industrial land uses have not yet been identified and could potentially harbor substantial volumes of truck activity (e.g., warehouses, distribution centers) that could potentially be in the proximity of nearby sensitive receptors; thereby exposing these nearby on-site receptors to mobile-source TACs. Project-related impacts associated with on-site mobile source TACs are significant and unavoidable even with implementation of mitigation measures identified in Section 3.4, “Air Quality.” However, on-site mobile sources are site specific; therefore, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact related to on-site mobile source TACs.

Project-related exposure to mobile-source hazardous pollutant emissions from nearby freeways (i.e., SR 99/70) are significant and unavoidable under the proposed project even with implementation of all feasible mitigation

measures identified in Section 3.4, “Air Quality.” Related projects would also develop land uses that would substantially increase traffic on nearby freeways and subsequently increase off-site mobile source TACs. Given the large scale of development that would occur with the related projects, taken in total and combined with the increase in traffic-related pollutant emissions from nearby freeways, the related projects would result in significant and unavoidable cumulative mobile-source TAC impacts. Therefore, the proposed project would result in a cumulatively considerable incremental contribution to a significant cumulative TAC impact related to mobile-source hazardous pollutant emissions from nearby freeways.

CARBON MONOXIDE

As described in Section 3.4, “Air Quality,” implementation of the proposed project would result in less-than-significant local mobile source carbon monoxide (CO)–related air quality impacts. CO emission factors in future years would be lower than current levels due to more stringent vehicle emissions standards and improvements in vehicle emissions technology. Thus, ambient local CO concentrations under cumulative conditions would continue to decline. Therefore, 1- and 8-hour CO concentrations for the future cumulative conditions would not be anticipated to exceed the significance thresholds of 20 parts per million (ppm) and 9 ppm, respectively. Consequently, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to increases in traffic volumes on the local roadway network relative to CO concentrations.

ODOR EMISSIONS

Operation-related activities at the proposed on-site industrial and commercial areas could result in project-generated emissions of odors. Specific uses are not yet known and detailed site and grading plans have not yet been developed; however, these types of uses could entail chemical/fiberglass manufacturing, painting/coating operations (e.g., auto body shops), and fast food restaurants in close proximity to proposed sensitive receptors. Thus, project-generated, on-site operation-related sources could directly expose existing and proposed receptors to emissions of objectionable odors. Implementation of mitigation measures identified in Section 3.4, “Air Quality,” would reduce the exposure of sensitive receptors to odor emissions, but not to a less-than-significant level; therefore, this impact would remain significant and unavoidable. However, odor intensity weakens with distance, and it is expected that odors from the project site, when considered along with potential odors that would be generated by the related projects, would not result in cumulative impacts. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to odor emissions.

5.7.5 NOISE

Project implementation would result in significant increases in noise related to exposure of noise-sensitive land uses to noise from Sacramento International Airport, exposure of noise-sensitive land uses to noise from Union Pacific Railroad operations, construction related noise, exposure of residences to noise from existing agricultural and industrial activities, exposure of sensitive receptors to new noise generators, and increased project-generated traffic noise. Implementation of mitigation measures identified in Section 3.5, “Noise,” would reduce noise impacts to a less-than-significant level with the exception of increases in noise levels off site from project-generated traffic, which are significant and unavoidable.

Construction activities occurring during the daytime hours are exempt from the provisions of the noise ordinance, provided, however, that all construction equipment is required to be fitted with factory-installed muffling devices and maintained in good working order. For the proposed project, it was determined that adherence to these noise regulations alone would be sufficient to avoid significant construction noise impacts. It is similarly anticipated that compliance with these regulations alone would avoid significant construction noise impacts associated with the related projects. Further, as explained in Chapter 3.5, “Noise,” noise levels are not directly additive and attenuate rapidly with distance. Thus, if construction of related projects occurs simultaneously, they would likely

not result in cumulative impacts unless sites are being developed close to one another and expose sensitive receptors to significant noise levels at the same time. Because the proposed project would not result in significant construction noise impacts after implementation of mitigation and because it is not anticipated that the proposed project would combine with any related projects to produce construction noise at sensitive receptors, it would not cause a cumulatively considerable incremental contribution to a cumulative noise impact.

Stationary-source noise (i.e., noise generated by stationary on-site uses) associated with the proposed project and related projects could potentially create noise levels exceeding the applicable noise standards or resulting in annoyance at existing and future noise-sensitive receptors. While the noise from any stationary noise sources associated with the related projects could be controlled at the source (by means of noise walls, enclosures, site planning, and so on), there is no guarantee that all the related projects would include such noise controls as part of their proposals. Hence, significant cumulative noise impacts associated with stationary noise sources could occur under the related projects. However, noise levels are not directly additive and attenuate rapidly with distance. Stationary noise would be localized to those portions of a project site where the noise would be detectable and would not combine with other projects in the region to produce cumulative noise impacts. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a cumulative noise impact related to stationary on-site noise sources.

Traffic noise may extend beyond a project site along existing and proposed off-site roadways and result in significant traffic noise impacts on sensitive uses along these roadways. Relative to existing traffic noise levels within the project site, the increases in traffic noise levels on project-area roadways are predicted to range from 0 to 16 dB L_{dn} , as shown in Table 3.5-19 in Section 3.5, "Noise." Pursuant to the significance criteria defined in Table 3.5-12 in Section 3.5, a substantial increase in traffic noise levels is defined as 1.5 to 5 dB, depending on the preproject traffic noise level. Due to the relatively large change in overall trip generation associated with the proposed project, traffic noise to residents along 19 roadway segments is predicted to exceed the standards of significance. Specifically, completion of the proposed project is predicted to result in a significant increase in traffic noise levels along Sankey, Riego, Base Line, Elverta, Powerline, Natomas, Pacific, East Levee, and Pleasant Grove Roads, and SR 99/70.

Thus, the traffic noise impacts from the proposed project and related projects, taken together, are cumulatively significant. Construction of sound walls and other noise-attenuating features (e.g., berms, dual-pane windows) throughout the region would require a regional program (which does not exist) and may not be feasible to implement. Because it is considered infeasible to sufficiently reduce noise at every existing and proposed sensitive receptor that would be affected, this cumulative traffic noise impact is significant and unavoidable, and the proposed project's incremental contribution to the significant cumulative impact is itself cumulatively considerable (i.e., significant and unavoidable).

5.7.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

GEOLOGY AND SOILS

The project site is not located on any known faults or traces of active faults. Construction under the proposed project would conform to the current California Building Standards Code (CBC), which contains specifications to minimize adverse effects on structures caused by ground shaking from earthquakes and to minimize secondary seismic hazards. Through conformance with the CBC and implementation of site-specific engineering measures developed in compliance with this code, development of the proposed project would not result in exposure of people or structures to substantial adverse effects related to seismic hazards.

The project site is subject to high shrink-swell potential and liquefaction hazards that could adversely affect development. Implementation of mitigation measures contained in Section 3.6, "Geology, Soils, and Paleontological Resources," would reduce these impacts to less-than-significant levels through completion of site-

specific geotechnical studies and implementation of construction and design measures developed in response to the studies, in addition to compliance with the CBC.

Implementation of the various related projects and other projects in the region could expose additional structures and people to seismic and soils hazards. However, each project considered in this cumulative analysis must individually meet building code requirements as well as the requirements of local policies (i.e., grading and erosion control plans), and therefore no additive effect would result and no cumulatively considerable impact related to seismic or soil hazards would occur. Implementation of the proposed project would not create additional facilities under increased risk of hazards and would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to geology and soils.

PALEONTOLOGICAL RESOURCES

A records search of the University of California Museum of Paleontology's Paleontology Collections database in Berkeley, California, did not identify any previously recorded fossil localities within the project site. However, the project site is underlain by Pleistocene-age sediments of the Riverbank, Modesto, and Turlock Lake Formations, which are considered paleontologically sensitive rock units. The fact that vertebrate fossils have been recovered throughout the Sacramento and San Joaquin Valleys in sediments referable to these formations suggests that there is a potential for uncovering additional similar fossil remains during construction-related earthmoving activities at the project site. Mitigation measures are contained in Chapter 3.6, "Geology, Soils, and Paleontological Resources," to reduce impacts on previously undiscovered paleontological resources to less-than-significant levels.

Fossil discoveries resulting from excavation and earth-moving activities associated with development are occurring with increasing frequency throughout the state. However, unique, scientifically-important fossil discoveries are relatively rare, and the likelihood of encountering them is site-specific and is based on the type of specific rock formations found underground. These rock formations vary from location to location. Furthermore, when unique, scientifically-important fossils are encountered by construction activities, the subsequent opportunities for data collection and study generally provide a benefit to the scientific community. Therefore, because of the low probability that any project would encounter unique, scientifically-important fossils, and the benefits that would occur from recovery and further study of those fossils if encountered, development of the related projects and other development in the region are not considered to result in a cumulatively considerable impact related to paleontological resources. Therefore, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact related to paleontological resources.

5.7.7 HYDROLOGY AND WATER QUALITY

SURFACE WATER QUALITY

Construction activities associated with development of the proposed project would create the potential for soil erosion and sedimentation of Reclamation District (RD) 1000 drainage systems and other channels, both within and downstream of the project site. The construction process may also result in accidental release of other pollutants to surface waters. Implementation of mitigation measures contained in Chapter 3.7, "Hydrology and Water Quality," would reduce the potentially significant impact of water quality degradation to on- and potentially off-site drainages to a less-than-significant level. Each of the related projects that would discharge stormwater runoff would be required to comply with National Pollutant Discharge Elimination System (NPDES) discharge permits from the Central Valley Regional Water Quality Control Board (RWQCB), which are designed to prevent significant water quality impacts. Therefore, implementation of the related projects would not result in a cumulative impact, and the proposed project's contribution to the temporary, short-term construction-related water quality impact would not be cumulatively considerable.

Implementation of the proposed project could change the long-term potential for contaminant discharges at the project site, and there is a potential for the proposed project to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash, pesticides, fertilizer). The proposed project would incorporate a Water Quality Maintenance and Monitoring Program (see Chapter 2, “Project Description”) for the control and treatment of urban runoff generated by planned development. This program includes stormwater detention pond facilities and other structural controls designed to function effectively in the removal of urban runoff pollutants, and meet or exceed requirements established by the Central Valley RWQCB. Each related project that would discharge stormwater runoff would also be required to comply with NPDES discharge permits from the Central Valley RWQCB, which are designed to prevent significant water-quality related impacts. Therefore, implementation of the related projects would not result in a cumulative impact, and the proposed project’s contribution to the long-term operation-related water quality impact would not be cumulatively considerable.

GROUNDWATER QUALITY

The proposed project includes an integrated system of stormwater collection, treatment with detention ponds, and pumping of stormwater to RD 1000 facilities (as described in Chapter 2, “Project Description”), in addition to groundwater treatment, to ensure that water quality objectives protective of Basin Plan beneficial uses are met. Implementation of mitigation measures contained in Chapter 3.7, “Hydrology and Water Quality,” would reduce the proposed project’s potential for groundwater quality impacts to a less-than-significant level. The related projects could have potentially significant or significant adverse impacts on groundwater quality, which would result in a cumulative impact. However, the proposed project’s contribution to groundwater quality impacts would not be cumulatively considerable.

FLOOD PROTECTION

The north and central portion of the project site is currently exposed to 100-year flooding hazards from Sankey Gap flood flows, and the western portion of the project site is exposed to hazards from localized flooding. In addition, portions of the project site are within the 200-year flood plain as determined by “Best Available Maps” created by the California Department of Water Resources in accordance with Senate Bill (SB) 5. Implementation of mitigation measures described in Chapter 3.7, “Hydrology and Water Quality,” would reduce the potentially significant impact related to flooding hazards to a less-than-significant level because all proposed project development phases would conform to applicable FEMA, state, and local requirements and regulations regulating flooding and flooding hazards. The project site, except for the Sankey Gap overflow area, would be protected from the 200-year flood event pursuant to SB 5 after 2015. The Sankey Gap overflow area on the project site would be protected by 2025.

Some of the related projects may also result in the placement of structures in areas designated as 100- or 200-year floodplains. However, as with the proposed project, the related projects would be required by law to comply with all applicable state and local regulations regarding flooding and flooding hazards, including protection of residents and workers from 100- and 200-year flood flows. Therefore, implementation of the related projects would not result in a cumulative impact, and the proposed project’s contribution to the impact from 100- and 200-year flood flows would not be cumulatively considerable.

GROUNDWATER RECHARGE

The groundwater supply assessment prepared by Luhdorff & Scalmanini Consulting Engineers (2008) demonstrates that even with the impervious surfaces that would be created by the proposed project, because of the reduction in groundwater pumping as compared to existing agricultural use, the proposed project would have a net positive impact on groundwater recharge. The groundwater supply assessment considered cumulative conditions throughout the North American Subbasin over a 20-year period. Groundwater levels throughout the basin are expected to rise, even with implementation of the related projects, because of the conversion from agricultural irrigation to urban uses. Therefore, implementation of the related projects would not result in a cumulative impact,

and the proposed project's contribution to the impact on groundwater recharge would not be cumulatively considerable.

5.7.8 PUBLIC SERVICES

As indicated in Section 3.8, "Public Services," public services would be provided to the project site by the Pleasant Grove Fire Stations 9 and 9-2, the Sutter County Sheriff's Department, the Pleasant Grove Joint Union School District, the East Nicolaus Joint High School District, and other service providers. Significant project-related impacts associated with the (1) potential to impede the provision of emergency services during construction, (2) adequate water pressure for fire flow, and (3) law enforcement services would be reduced to less-than-significant levels through implementation of the mitigation measure identified in Chapter 3.8, "Public Services."

Future development in Sutter, Sacramento, and Placer Counties would increase the demand for public services. In terms of cumulative impacts, appropriate service providers are responsible for ensuring adequate provision of public services within their jurisdictional boundaries. At this time, it is unknown whether sufficient police, fire, school facilities and other public services are planned to serve the related projects. While some of the related projects include proposals for the construction of service facilities, including schools, others do not. However, it is clear that sufficient police facilities, fire stations, and schools would need to be constructed to serve the related projects. State law provides that payment of school impact fees constitutes adequate CEQA mitigation for all project-specific and cumulative effects relating to adequacy of school facilities as a result of residential development.

Although a cumulative shortage of public services and facilities would not represent a significant environmental impact under CEQA because these are not physical impacts on the environment, such a shortage would lead to the need to develop additional public-services facilities, which could in turn lead to significant construction- and operation-related environmental impacts. It is assumed that the development of the related projects, and/or development of the additional public-services facilities required to serve them, would be preceded by the required CEQA review. However, conducting the required CEQA review of the related projects would not necessarily guarantee that significant environmental effects associated with construction of new fire, police, school facilities, and other public services would not occur. Hence, significant cumulative environmental indirect impacts associated with the development of new fire, police, school facilities, and other public services associated with the related projects could result in a cumulatively considerable impact.

As contemplated by Measure M, the full cost to provide fire protection facilities and services, police protection facilities and services, library facilities, judicial services, public health services, mental health services, and social services to the project site would be paid for by project development, without reducing current service levels in the county. With payment of the state-mandated school impact fees, implementation of the proposed project would also have a less-than-significant impact on school services and facilities. Therefore, the proposed project would not result in cumulatively considerable incremental contribution to a significant cumulative impact related to the development of necessary public services facilities.

5.7.9 WATER SUPPLY

WATER SUPPLY

Presently, there are no public water supply facilities on the project site. The project proposes a conjunctive use water supply program that would use both groundwater and surface water to meet the water supply demands at buildout. Groundwater would be supplied by pumping from the North American Groundwater Subbasin (North American Basin), and surface water would be supplied by Natomas Central Mutual Water Company (NCMWC). Three water supply programs have been identified as options for providing water to the project site:

- ▶ Proposed Water Supply Program
- ▶ Alternate “A” Revised Water Supply Program
- ▶ Alternate “B” Winter Diversion Water Supply Program

Under all three water supply programs, groundwater would provide water supplies to initial phases of development until surface water entitlements (which require a change in purpose of use from agriculture to municipal and industrial [M&I]) have been approved and off-site water facilities have been constructed and are online.

In compliance with SB 610, a water supply assessment (WSA) has been prepared to evaluate the adequacy of existing and future water supplies to meet the water demand created by the proposed project in conjunction with existing and future development (Appendix C). Water demands under the proposed project at buildout as identified in the WSA are 25,199 afy during normal years and 22,048 afy during single-dry and multiple-dry years. Surface water supply under any of the three water supply alternatives would be less than historic use, and surplus surface water would be available after demands of the proposed project have been met (see Table 3.9-15 in Section 3.9, “Water Supply”). The WSA concluded that NCMWC would have sufficient surface water supplies to serve the proposed project while meeting the projected demands of existing customers and other anticipated future water demands within its service area. Because the WSA considers cumulative development, and because it determined that there is adequate water supply to serve this cumulative development, the results of the assessment indicate that the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to available surface water supply.

The groundwater analysis prepared for the proposed project demonstrates that groundwater pumped from the Natomas Basin and the North American Subbasin over the 35-year simulation period is sufficient to meet the demands of the proposed project under any of the identified water supply programs as well as other existing and future planned groundwater uses throughout the Natomas Basin and the North American Subbasin. Overall, the change in groundwater storage is positive under existing and future conditions and for all scenarios. This indicates that groundwater levels in the Natomas Basin are predicted to rise even with the groundwater use by the proposed project, although the rate of increase in the project area would be slightly less due to increased pumping by the proposed project. The groundwater supply anticipated for the proposed project appears to be sustainable on a permanent basis, and the amount of groundwater withdrawn by the proposed project and other foreseeable groundwater users in the future would be less than the amounts of natural replenishment. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant impact related to groundwater supplies.

WATER CONVEYANCE FACILITIES

Presently, there are no public water supply facilities on the project site. A new on-site water system would be constructed and would include transmission and distribution pipelines, aboveground water storage reservoirs, booster pumps, two centralized on-site groundwater treatment plants, and a surface water treatment plant that would deliver treated water to customers on the project site. The on-site water system would be incrementally expanded to meet the demands of the proposed project.

Project implementation would require construction of off-site water conveyance facilities to implement the surface water element of the project. These off-site facilities consist of (1) a raw water turnout and booster pump station would be located at the NCMWC’s existing Bennett Pumping Plant, and (2) a raw water transmission pipeline to convey the water to the project site. The booster pump station and raw water transmission pipeline would be sized to accommodate the planned water supply demands of the proposed project. Implementation of Mitigation Measure 3.9-2 in Section 3.9, “Water Supply,” would reduce potentially significant project-related impacts related to off-site water conveyance facilities to a less-than-significant level by ensuring that sufficient off-site water conveyance infrastructure and facilities would be available to serve all proposed project phases.

It is possible that the proposed project could be served in the future by the Sankey Diversion facility proposed as a component of the *American Basin Fish Screen and Habitat Improvement Project* (American Basin Project). If the Sankey Diversion facility is constructed in the future, the raw water turnout and raw water booster pump station described above would be located at the site of the proposed Sankey Diversion facility. A raw water transmission pipeline would convey water from the Sankey Diversion facility to the project site. Because the Sankey Diversion facility would serve the project and other development within the NCMWC's service area, the environmental impacts of construction this facility are associated with development of the proposed project. As described in the DEIS/DEIR (SCH # 2003092006) for the American Basin Project, all potentially significant and significant environmental impacts would be reduced to a less-than-significant level through implementation of mitigation. Therefore, a cumulative impact from the related projects would not occur, and the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to water conveyance facilities.

5.7.10 PUBLIC UTILITIES

As indicated in Section 3.10, "Public Utilities," the necessary public utilities would be provided to the project site by the Sacramento Regional County Sanitation District (SRCSD), Sacramento Regional Wastewater Treatment Plant (SRWTP), Pacific Gas and Electric Company (PG&E), AT&T, and Comcast. The proposed project would result in less-than-significant impacts associated with increased generation of solid waste and increased demand for electrical, natural gas, communications, and cable television services and infrastructure.

Future development in Sutter, Sacramento, and Placer Counties would increase the demand for utilities in the region. In terms of cumulative impacts, the appropriate service providers are responsible for ensuring adequate provision of public utilities within their jurisdictional boundaries. Therefore, cumulative impacts would not occur.

WASTEWATER CONVEYANCE FACILITIES

The project site is presently not served by the municipal wastewater collection and treatment systems, and the proposed project would require construction of wastewater collection and conveyance facilities. A draft sewer master plan was prepared for the proposed project to address the viability of providing sewer service to the project site and identify on- and off-site facility needs and design. Based on land uses, implementing the proposed project would generate 11.22 million gallons per day (mgd) of average dry-weather flow, and 27.03 mgd of peak wet-weather flow (MacKay & Soms 2008). Proposed on-site wastewater collection trunk lines and all other planned elements of the wastewater system would be sized to accommodate planned wastewater flows.

Flows from the project site would be pumped through two parallel sewer force mains (12 inches and 18 inches in diameter). To serve development for the remaining phases of the proposed project, a third 24-inch force main would be constructed. These force mains would be sized to accommodate planned wastewater flows generated by the proposed project. Flows from these force mains would be pumped to a point of connection with SRCSD's Upper Northwest Interceptor (UNWI). Reaches 1 and 2 of the UNWI will be complete and operational by winter 2010, and Reaches 3 and 4 of the UNWI are scheduled for completion in early 2009.

The environmental impacts of the construction and operation of the UNWI Reaches 1-4 were analyzed in the *Upper Northwest Interceptor Phases 2 and 3 Subsequent Environmental Impact Report*. Project-related facilities were not evaluated the UNWI Subsequent EIR; however, the UNWI facilities are required to serve the proposed project. Because the UNWI Reaches 1-4 must be constructed to serve the proposed project at complete buildout along with other proposed development in the region, development of the project would contribute indirectly to the environmental impacts related to the construction of the UNWI Reaches 1-4. However, these impacts would also occur without development of the proposed project because these wastewater conveyance facilities are required to serve regional development and would be needed whether or not the proposed project is developed. The UNWI facility design would not be altered to serve the proposed project, so the UNWI project is the same without or without the proposed project.

As described in the UNWI Subsequent EIR, construction of these conveyance facilities would result in several environmental impacts, most of which would be reduced to a less-than-significant level through implementation of mitigation by SCRSD. Impacts that would remain significant or potentially significant after implementation of all feasible mitigation (i.e., significant and unavoidable), or for which no feasible mitigation is available to reduce impacts to a less-than-significant level, include air quality emissions of NO_x during construction and exposure of sensitive receptors to noise levels during construction above those allowed in the City of Sacramento and Sacramento County noise ordinances. Therefore, the proposed project and related projects would contribute to the indirect and direct significant impacts associated with the future capacity and construction of wastewater conveyance facilities identified in the UNWI Subsequent EIR that would be needed to serve the proposed project and the related projects. The related projects would result in cumulatively considerable (i.e., significant) impacts associated with increased demand for wastewater conveyance facilities, and the proposed project would result in a cumulatively considerable incremental contribution to this cumulatively significant impact.

WASTEWATER TREATMENT FACILITIES

As described above, it is estimated that the proposed project would generate 11.22 mgd of average dry-weather flow, and 27.03 mgd peak wet-weather flow. These flows would be conveyed and treated at the SRWTP, which receives and treats an average of 131 mgd (as of 2006) and has a permitted dry-weather flow design capacity of 181 mgd (Seyfried, pers. comm., 2008).

The *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* provides for expansion of the SRWTP to 218 mgd, and provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth through the year 2020. According to the 2020 Master Plan EIR, the permitted capacity (181 mgd) of the SRWTP was expected to be reached before 2010. However, flows to the SRWTP have consistently decreased between 2000 and 2006 from 155 mgd to 131 mgd. Based on this data, the SRWTP could potentially provide capacity to future development beyond what was originally anticipated.

The expansion of the SRWTP to 218 mgd was based on growth rates expected to be achieved in the Sacramento County region by 2020. This projected capacity does not specifically include buildout of the proposed project. Note that this total does not represent a buildout population total for SRCSD; rather, it represents the amount of growth expected within SRCSD based on projections. Thus, if new development is approved before 2020, it is assumed that it would not change the rate of growth in the district; rather, it would change the potential location within SRCSD where the growth would occur. Expansion is planned to be phased to provide for sufficient long-term capacity.

Although there is expected to be sufficient SRWTP capacity to accommodate project flows through 2020, there would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for project development occurring after 2020. Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added. The SRWTP site has sufficient land area to accommodate a substantially higher flow than 218 mgd; however, future plans beyond the next 12 years are speculative.

Because there is a relationship between the proposed project and the need for expansion the SRWTP, implementation of the proposed project would contribute indirectly and incrementally to the related impacts. As described in the 2020 Master Plan EIR, construction and operation of the expanded SRWTP would result in several environmental impacts (including impacts on water quality, hydrology, and fisheries), most of which would be reduced to a less-than-significant level through implementation of mitigation. The only significant and unavoidable impact would be from temporary, short-term increases in NO_x during construction of SRWTP facilities. The adequacy of the EIR for the 2020 Master Plan is being litigated. In addition to the impacts identified above, there is a potential that new significant impacts to water quality or other resources could be identified if the EIR for the SRWTP is found inadequate and impacts are re-analyzed. However, it is speculative to draw any such conclusion at this point.

The proposed project and related projects would contribute to the need to expand wastewater treatment capacity at the SRWTP facility; therefore, the proposed project would result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the short-term impact on air quality from expansion of the SRWTP identified in the 2020 Master Plan EIR.

SOLID WASTE

Construction of the proposed project would generate a substantial amount of short-term construction-related debris and waste, operation of the proposed project would incrementally increase generation of solid waste throughout buildout. The Ostrom Road Sanitary Landfill, which would receive project waste, has approximately 41 million cubic yards of capacity remaining and is expected to remain open over the next 50 years (NorCal Waste Systems, Inc. 2006, CIWMB 2007). The project-related impact from increased generation of solid waste is less than significant. Because this landfill would have adequate capacity to serve the project and other development in its service area, implementation of the proposed project and the related projects would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to solid waste.

ELECTRICITY

PG&E is the electrical service provider for Sutter County and would provide electrical service to the proposed project and related projects within its service area. Implementation of the proposed project would increase electrical demands by a total of 763.4 million kilowatt-hours per year in Sutter County. Cumulative development of the related projects would also increase the demand for electricity. PG&E estimates that electrical demands in its service area will increase from 107,929 gigawatt-hours (GWH) in 2008 to 122,336 GWH in 2018, or a 1.3% increase over the 10-year period (California Energy Commission 2007). Currently, PG&E has sufficient energy supplies and distribution facilities to meet anticipated future demands and growth, and related projects and other development in the region are not considered to result in a cumulatively considerable impact related to increased demand for electricity (California Energy Commission 2007, Sutter County 2008). In addition, the energy demands created by the proposed project are not considered substantial in relation to the total amount of energy supplied by PG&E in its service area, and the project-related impact from increased demand for electricity is less than significant. Therefore, the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to increased demand for electricity.

NATURAL GAS

PG&E is the natural gas supplier for Sutter County and would provide natural gas service for the proposed project and related projects within its service area. The proposed project would increase natural gas demands by 8.7 million cubic feet (mcf) per day. In addition, cumulative development of the related projects would increase the demand for natural gas. The total amount of natural gas supplied by PG&E in its northern and central California service area was estimated to be 828,000 million cubic feet per day in 2006, of which the county produced roughly 25 mcf of natural gas. This represents nearly 3% of the total natural gas production in the state (Sutter County 2008). PG&E has indicated that it has adequate natural gas supplies to support the proposed project and related project within its service area, and the project-related impact from increased demand for natural gas is less than significant.

PG&E does not currently have gas service infrastructure on the project site and PG&E proposes to extend off-site natural gas infrastructure from Roseville to the site. Alternatively, if timing allows, PG&E may serve the proposed project from the new Line 407 East pipeline, which is proposed as part of PG&E's Line 406/407 project. A notice of preparation (NOP) (SCH # 2007062091) for the Line 406/407 project was prepared and circulated for public review in June 2007. This natural gas pipeline project would provide greater capacity and service reliability to the existing natural gas transmission and distribution pipeline system, and extend natural gas service to planned residential and commercial developments in Placer, Sutter, and Sacramento Counties. Potential impacts of the PG&E Line 406/407 project identified in the NOP include greenhouse gas emissions from

construction vehicles; potential risks from release of natural gas; disturbance of habitat and special status plant and animal species, specifically the Swainson's hawk, giant garter snake, and valley elderberry longhorn beetle; disturbance of possible archaeological sites; disturbance of unknown paleontological resources; possible exposure of construction crews and the public to hazardous materials used in construction or present in excavated soils; short term effects on agriculture; possible frac-out of water bodies crossed by the pipeline; temporary noise and or ground vibration that would exceed ambient noise levels; and traffic congestion where the pipeline crosses roads through trenching. An EIR is currently being prepared to analyze specific impacts of the proposed pipeline project and identify any required mitigation measures. It is currently unknown whether implementation of the Line 406/407 project would result in any significant and unavoidable impacts. Because the Line 406/407 project would serve the proposed project and other development in the region, the environmental impacts of these facilities are associated with development of the proposed project. Therefore, proposed project and related projects would contribute to potentially significant impacts associated with the future construction of natural gas infrastructure that would be used to serve the proposed project and other development in Sacramento and Placer Counties. Therefore, the proposed project could result in a cumulatively considerable incremental contribution to a significant cumulative impact, if the proposed project were served by the Line 406/407 project and if that project resulted in significant and unavoidable impacts.

COMMUNICATIONS AND CABLE TELEVISION

The proposed project and cumulative development of related projects would increase the demand for communications and cable television service. AT&T would provide communications service and infrastructure to the project site. To provide service to the proposed project, AT&T intends to upgrade an existing exchange building in Pleasant Grove and extend service to the project site via existing overhead pole lines. AT&T would be able to provide the necessary telecommunications services and infrastructure without affecting service to its existing customers.

Comcast would provide cable television service and infrastructure to the project site. Comcast improves or relocates hub sites are generally made as the need arises to meet customer demand (Sutter County 2008). Comcast would extend service to the project site via existing overhead pole lines and would construct a small hub station.

Communications and cable television improvements are anticipated to be equipment modifications in existing facilities, not physical enlargement of existing or development of new facility sites. Because AT&T and Comcast would provide communications and cable television service and associated infrastructure to the project site, the project-related impact from increased demand for communications and cable television services is less than significant. Therefore, related projects and other development in the region are not considered to result in a cumulatively considerable impact related to communications and cable television service, and the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact.

5.7.11 AGRICULTURAL RESOURCES

Agricultural land makes up approximately 83% of Sutter County's 389,439-acre total land area (Sutter County 2008). Among the agricultural lands in Sutter County, the California Department of Conservation Division of Land Resource Protection estimates that the county had 292,256 acres of Important Farmland in 2006, further classified as 165,817 acres of Prime Farmland, 107,194 acres of Farmland of Statewide Importance, and 19,245 acres of Unique Farmland (CDC 2006). There are no Farmlands of Local Importance in Sutter County. Approximately 1,075 acres of Important Farmland is lost each year in the county. In 1996, there were 306,864 acres of Important Farmland. By 2006, the acreage had dropped to 292,256 over the 10-year period. However, agricultural land still makes up approximately 83% of the total area of the county. Modern cultivation and harvesting processes have led to a doubling of productivity on a per acre basis. Therefore, while the number of acres of Important Farmland has decreased, there has not been a decrease in productivity, and agricultural production value has increased by over 25% since 1996 (Sutter County 2008.)

Implementation of the proposed project would permanently convert Important Farmland to nonagricultural, urban uses. The project site consists of approximately 1,866 acres of Prime Farmland and 5,036 acres of Farmland of Statewide Importance, resulting in conversion of approximately 1.1% of Prime Farmland and 2.4% of Farmland of Statewide Importance in Sutter County. The off-site portion of the sewer force main alignment would result in the loss of 1.4 acres of Farmland of Statewide Importance, which would account for an additional loss of approximately 0.001% of the total Farmland of Statewide Importance. Two properties located immediately northeast of the project site and one property to the west of the project site have been identified as potential locations for off-site detention storage. The lands in areas identified for off-site detention storage are designated as Important Farmland. The area of disturbance required for the off-site detention basins is unknown, and the acreage of Important Farmland that may be directly converted to nonagricultural uses cannot be quantified at this time. Construction of detention storage facilities would permanently convert Important Farmland to nonagricultural uses. The total conversion of Important Farmland from implementation of the proposed project and construction of the off-site force mains and detention storage basins would be relatively small in the context of the entire county's agricultural land base and would not likely cause a substantial reduction in total county agricultural production. However, the conversion of agricultural land would contribute to the incremental decline of Important Farmland in the county and result in the irreversible conversion of this agricultural land.

The loss of Important Farmland at the project site is a cumulatively considerable (i.e., significant) impact when considered in connection with the significant cumulative losses that would occur as a result of implementing the proposed project; past farmland conversions; and planned future development proposed in Sutter, Placer, and Sacramento Counties (Table 5-1 and Exhibit 5-1). Nearby planned or approved developments, including the Metro Air Park and Greenbriar Development Project to the southwest and the Placer Vineyards Specific Plan and Rio Linda/Elverta Specific Plan to the east, have converted or have been approved to convert predominantly agriculture areas to an urban setting. Projects within the city of Sacramento and the Metro Air Park would be within the permit area of the NBHCP.

Implementation of Mitigation Measure 3.11-1 in Section 3.11, "Agricultural Resources," would require the project applicant(s) of all project phases to participate in the NBHCP. The associated payment of fees to the NBC by the proposed project within the NBHCP permit area would be used to purchase conservation easements that would result in potential future benefits to agriculture by preventing development of the protected lands. This analysis assumes that the related projects within the NBHCP would also be required to participate in the fee payment program. This measure would substantially lessen the significant cumulative impacts associated with the conversion of Important Farmland because funding conservation easements would assist the public and private sectors in protecting other farmland from the pressures of development. The easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, so the compensation provided by the fee contribution for a project would not be applied exclusively to agricultural lands. Participation in the NBHCP program would partially offset conversions of Important Farmland associated with the proposed project. However, because no new farmland would be made available and the productivity of existing farmland would not be improved as a result of the conservation easements, full compensation for losses of farmland would not be achieved and a net loss of Important Farmland would still occur. Related projects outside of the NBHCP would further convert Important Farmland to urban uses. These related projects would not be required to participate in the NBHCP, and it is unknown whether these related projects would implement appropriate mitigation. Therefore, the impact of the related projects would be cumulatively considerable (i.e., significant), and the proposed project would result in a cumulatively significant incremental contribution to this cumulatively significant and unavoidable impact.

5.7.12 PUBLIC HEALTH AND HAZARDS

The proposed project could result in public health and hazard impacts related to exposure to on-site hazardous materials during construction, development on a known hazardous materials site, exposure to workers or residents near an airport, public health hazards from mosquitoes attracted by water features, safety hazards related to water features and aircraft, and interference with emergency or evacuation plans. However, mitigation measures

identified in Section 3.12, “Public Health and Hazards,” would reduce the project-specific health and safety hazards to less-than-significant levels.

Under cumulative conditions, implementation of the proposed project in conjunction with development of related projects is not anticipated to present a public health hazard to residents. Health and safety impacts associated with the past or current uses of a proposed project site usually occur on a project-by-project basis, rather than in a cumulative nature.

The proposed project and related projects would all involve the storage, use, disposal, and transport of hazardous materials to varying degrees during construction and operation. Impacts from these activities are less than significant under the proposed project because the storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, state, and local laws, regulations, and policies. It is assumed that the project applicants involved with the proposed project and the related projects would implement and comply with these existing hazardous materials laws, regulations, and policies. Therefore, the related projects would not cause a cumulative impact, and the proposed project would not result in a cumulatively considerable incremental contribution to a cumulative impact related to transport of hazardous materials.

5.7.13 BIOLOGICAL RESOURCES

Past development in Sutter, Sacramento, and Placer Counties, ranging from conversions of land to agricultural production more than a hundred years ago, to recent development projects, has resulted in substantial conversions of native habitat to other uses. Although future projects would be expected to mitigate for impacts on threatened and endangered species and other sensitive biological resources that are provided with regulatory protections, many types of habitats and species are provided no protection and it can be expected that a net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that provide value to biological resources will continue.

Project implementation would result in significant impacts related to (1) consistency with the NBHCP, (2) direct and indirect effects on the endangered giant garter snake from removal of habitat and reduction in habitat connectivity; (3) direct and indirect effects on Swainson’s hawk foraging and breeding habitat; and (4) potential loss and degradation of habitat for special-status wildlife, including vernal pool invertebrates, and valley elderberry longhorn beetle, Chinook salmon, steelhead trout, green sturgeon, and burrowing owl, and special-status plants, including Delta tule pea and Sanford’s arrowhead. These project-related impacts would be mitigated to less-than-significant levels with implementation of mitigation measures identified in Section 3.13, “Biological Resources.”

The project site is included within the NBHCP. The NBHCP provides a comprehensive program for the preservation and protection of habitat for threatened and endangered species potentially found on approximately 53,537 acres of undeveloped and agricultural land in northwestern Sacramento County and southern Sutter County. The NBHCP limits total development in the Natomas Basin to 8,050 acres for the city of Sacramento, 7,467 acres for Sutter County and 1,983 acres of Metro Air Park in Sacramento County. The primary component of the conservation strategy for funding habitat reserve acquisition would be the use of mitigation fees to set aside 0.5 acre of habitat land for each acre of development that occurs in the Natomas Basin. Approximately 8,750 acres of land would be acquired or preserved through implementation of the NBHCP. Implementation of NBHCP requirements, in combination with other on-site and off-site mitigation recommended for the proposed project, would provide a comprehensive preservation, conservation, and minimization strategy, which would reduce the severity of the proposed project’s cumulative biological impacts, but not to a level that is less than cumulatively considerable.

The related projects outside of the NNCP area would result in cumulatively significant impacts on special-status species, including Swainson’s hawk and giant garter snake, and sensitive habitats, including wetlands. The undeveloped lands in the Natomas Basin serve as prime habitat for a variety of wildlife and vegetation. The

continued development of these lands will result in the incremental decline in the number and diversity of plant and animal species, including sensitive species, which is a cumulatively considerable impact. Because the proposed project would contribute to this ongoing decline, it would result in a cumulatively considerable incremental contribution to this significant cumulative impact.

Development within the Natomas Joint Vision Plan area, if it were to occur as currently envisioned (but not officially proposed) would result in the conversion of up to 4,683 additional acres of open space land that provides various levels of habitat for Swainson's hawk, giant garter snake, and other species that are currently protected by the NBHCP. This is nearly half the acreage within that Natomas Joint Vision Plan area. Some of the land within this area has already been set aside as a habitat in compliance with the NBHCP. Additional development within the Natomas Joint Vision Plan area would be expected to have adverse impacts on the various species covered by the NBHCP. It is very likely, and expected, that any development within this area would require a new habitat conservation plan, consistent with the federal Endangered Species Act and California Endangered Species Act. It must be recognized that this level of additional development would be expected to have residual environmental impacts on the various species in the area. While the extent of potential mitigation for development within this area is not currently known, there is a potential that cumulatively significant impacts to various species could occur. The proposed project may therefore result in a cumulatively considerable incremental contribution to this potentially significant cumulative impact.

Implementation of the proposed project could result in the placement of fill material into jurisdictional waters of the United States, including wetlands subject to U.S. Army Corps of Engineers (USACE) jurisdiction under the federal Clean Water Act, and the potential loss and degradation of wetland habitats protected under state and local regulations. Fill of any wetlands, including areas that could be determined to be jurisdictional by USACE, DFG, and/or Central Valley RWQCB, is a significant impact because these areas are considered sensitive habitats by DFG, and they provide important ecological functions and values and can support a number of special-status species. It is anticipated that impacts to wetlands on the project site would be partially offset by complying with the NBHCP. In addition, the proposed project would comply with the USACE requirements for no net loss of wetland function and values, and it is assumed that these requirements would be applied to all related projects that may affect wetlands. However, the proposed project and related projects would contribute to the regional loss of jurisdictional waters of the United States. Therefore, the proposed project would result in a cumulatively considerable contribution to a significant cumulative impact related to loss of jurisdictional waters.

5.7.14 PARKS AND OPEN SPACE

Project implementation would result in a potentially significant and unavoidable impact related to increased demand for on-site parks and recreation facilities. The proposed project would meet both the County's parkland dedication requirements 10 acres of parkland per 1,000 residents and the Quimby Act standard of 5 acres per 1,000 residents, and therefore it would satisfy the proposed project's overall park needs. Development of the related projects could result in cumulative impacts related to providing an adequate amount of parks and open space because there is no guarantee that each related project would meet the local jurisdiction's standards for provision of park facilities. Therefore, while the related projects may result in a cumulatively considerable impact, the proposed project would not contribute to such an impact.

Introduction of new residential units and new population from development of the proposed project and related projects would increase the attendance and demand for privately owned and operated regional park facilities located outside the project site. However, fees and revenues for these park facilities would increase along with usage, and this impact would be less-than-significant for the proposed project. New residents would be expected to utilize off-site recreational opportunities such as bicycle trails, campgrounds, boat launch facilities, sports parks, etc. Although it cannot be ascertained with any degree of certainty exactly how many residents and with what frequency would choose to utilize off-site recreational facilities, for purpose of this analysis, it is assumed that revenues from use charges and admission fees of these off-site facilities would increase along with increased usage, supporting increased maintenance. As with the proposed project, increases in use from the related projects

would be expected to result in an increase in fees from park owners and operations and subsequent increases in revenues for park maintenance. As a result, the proposed project and related projects would not contribute to physical deterioration of regional park facilities, and the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to regional park facilities.

5.7.15 CULTURAL RESOURCES

Cultural resources in the project region generally consist of prehistoric sites, historic sites, historic structures, and isolated artifacts. During the 19th and 20th centuries, localized urbanization and intensive agricultural use in the region caused the destruction or disturbance of numerous prehistoric sites, while many structures now considered to be historic were erected. From the latter half of the 20th century to the present, prehistoric and historic structures have been disturbed and destroyed. During this period, the creation and enforcement of various regulations protecting cultural resources have substantially reduced the rate and intensity of these impacts; however, even with these regulations, cultural resources are still degraded or destroyed as cumulative development in the region proceeds.

Research conducted for the proposed project indicates that the project site contains a number of cultural resources that could potentially be considered historical resources as defined by CEQA or could be by the time the proposed project is completed. No prehistoric resources have been identified within the project site. Historic-era resources within the project site consist of the following:

- ▶ Bridge No. 18C0050,
- ▶ elements of RD 1000 including a segment of Riego Road and the East Drainage Canal,
- ▶ the Natomas East Main Drainage Canal,
- ▶ a scatter of historic debris (CA-SUT-80H),
- ▶ a farm complex (EC-05-22),
- ▶ a barn and associated features (EC-05-23),
- ▶ a demolished barn with associated debris (EC-06-01),
- ▶ a rice storage facility (EC-07-73), and
- ▶ a house, garage, and barn (EC-07-08).

The historic bridge No. 18C0050 has been determined to be ineligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). While RD 1000 has been determined to be eligible for listing on the NRHP or CRHR, impacts from past and future projects have already been mitigated through measures outlined in a Historic Property Treatment Plan prepared by Dames & Moore (1994). The deposit of historic refuse (CA-80H), the farm complex (EC-05-22), and the demolished barn (EC-06-01) were found to be ineligible for listing in the NRHP or CRHR.

Because the three sites containing historic-era buildings/structures (EC-05-23, EC-07-73, and EC-07-08) have yet to be evaluated for significance and are pending the results of further archival research and documentation to complete the evaluation process, it is not possible to determine their significance under CEQA at this time. Implementation of mitigation measures identified in Section 3.15, Cultural Resources,” would partially reduce the potentially significant impact associated with the destruction of the three building/structure complexes, but not to a less-than-significant level. The State CEQA Guidelines (CCR 15126.4 [b][2]) state that a project which causes a substantial adverse change in the significance of an historical resource (such as damaging or destroying the qualities that make it significant) may have a significant effect on the environment. In some circumstances, depending on the significance of the resource, even the requirement for documentation of an historical resource, by way of historical narrative, photographs, or architectural drawings, may not be sufficient to reduce the impact below the level of significance. Therefore, the proposed project would result in a cumulatively considerable incremental contribution to the regional loss of known historic sites, buildings, and structures in the project vicinity.

As-yet-undiscovered subsurface cultural resources might also underlie the project site. Mitigation measures contained in Section 3.15, “Cultural Resources,” would reduce project-related impacts on as-yet-undiscovered cultural resources to less-than-significant levels. However, undiscovered cultural resources may underlie one or more of the other related project sites, and it is unknown whether the related projects would implement appropriate mitigation. Furthermore, even after mitigation is implemented, it may be impossible to avoid the cultural resource, and a substantial adverse change in the significance of the resource (such as damaging or destroying the qualities that make it significant) could result. Therefore, the related projects could result in potentially significant cumulative impacts on undocumented cultural resources within the project vicinity. In this context, the proposed project could result in a cumulatively considerable incremental contribution to a significant cumulative impact.

5.7.16 VISUAL RESOURCES

The project site consists primarily of agricultural land and rural residential uses. Implementation of the proposed project would include development of residential, commercial, office, and industrial land uses and other public facilities such as schools and parks. After development of the project site, visual conditions in the project area would be similar to existing views of urban settings found elsewhere in the project region. Mitigation Measures identified in Section 3.16, “Visual Resources,” would require the proposed project to implement the Sutter Pointe Specific Plan standards for design, architecture, development, and maintenance thereby ensure that the general visual quality and character of development on the project site would be consistent with (or perhaps exceed) viewer expectations for similar urban environments. However, views of the project site from SR 99/70, Powerline Road, Riego Road, Pacific Avenue, Sankey Road, and Natomas Road would be substantially altered as agricultural land is replaced by urban development. Nearby planned or approved developments include the Metro Air Park and Greenbriar Development Project to the southwest and the Placer Vineyards Specific Plan and Rio Linda/Elverta Specific Plan to the east. As development of these projects and other development proceeds in the project region as a whole, substantial changes in visual conditions would continue as open viewsheds are replaced by urban development. Increased urban development would also lead to increased nighttime light and glare in the region and more limited views of the night sky and sky glow effects, and would disrupt the rural nature of the area. The effect of these changes, when considering the related projects, on aesthetic resources from past and planned future projects is a cumulatively significant impact.

Assessment of visual quality is a subjective matter and reasonable people may differ as to the aesthetic value of the agricultural lands on the project site, and whether development of urban uses in the plan area would constitute a substantial degradation of the existing visual character or quality of the site and its surroundings. Given the large scale of this urban development and the rural nature of its setting, the impacts on visual resources from project implementation are significant. Although design, architectural, development, and maintenance standards are included to ensure that urban development in the plan area and region remains within certain aesthetic guidelines, there is no mechanism to allow implementation of the proposed project and the related projects while avoiding the conversion of open space and agricultural use to urban development. Therefore, the change of views in the project region to urban land uses and the associated increase in nighttime light and glare are cumulatively significant and unavoidable impacts. In addition, the incremental contribution of the proposed project to these impacts is cumulatively considerable (i.e., significant in and of itself).

5.7.17 CLIMATE CHANGE

The global climate change analysis is inherently cumulative in nature. Please refer to the analysis of cumulative impacts associated with greenhouse gases and climate change in Section 3.17, “Climate Change,” of this DEIR.

6 OTHER CEQA-REQUIRED ANALYSES

6.1 INTRODUCTION

According to the State CEQA Guidelines (CCR Section 15126.2[d]), an EIR must discuss the growth-inducing impacts of the proposed project. Specifically, CEQA states that the EIR shall:

[d]iscuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- ▶ substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises),
- ▶ a construction effort with substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new temporary employment demand, and/or
- ▶ removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area) or adding development adjacent to undeveloped land.

Growth inducement itself is not an environmental effect, but it may foreseeably lead to environmental effects. These environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

6.2 SUMMARY OF GROWTH PLANNED IN THE SUTTER COUNTY GENERAL PLAN

The Sutter County General Plan (County General Plan), (1996, as amended through December 19, 2006) establishes a 20-year planning horizon and defines the areas that would support urban development. The County General Plan's Land Use Element and land use diagram identify the proposed distribution, location, and extent of planned uses to guide development within the county. Land use designations provide guidelines for the maximum intensity and density of development, such as the number of dwelling units per acre in residential areas and building square footage in nonresidential areas. The County General Plan projected that the total population of the county would be approximately 116,000 people by 2015 based on Sacramento Area Council of Governments' (SACOG's) estimated population projections from 1995 through 2015. The proposed project is not included in these projections.

The County is currently preparing an update to the existing 1996 General Plan. A technical background report, which includes demographic and population projections, has been prepared as part of this update. The technical background report includes growth projections for Sutter County and a number of individual areas, including the

proposed project, between 2007 and 2035. These projections include SACOG and California Department of Finance (DOF) projections for Sutter County as a whole. The recent growth rate in Sutter County was 2.2% between 1990 and 2007. Population projections in the county vary depending on the assumptions used by SACOG and DOF.

SACOG estimates population projections using 2001 base figures, and projects a growth rate of 1.0% for Sutter County between 2007 and 2035. Using this growth rate, the county is expected to have a 2035 population total of approximately 125,597 persons (Sutter County 2008).

In evaluating the projected growth rates, 2007 base figures from DOF were used for Sutter County and the unincorporated area. The DOF estimates population projections based on a 2.9% growth rate, and buildout of the county is expected to have a 2030 population total of approximately 182,401 persons. The DOF does not provide population projections beyond 2030 (Sutter County 2008).

6.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

6.3.1 DENSITY OF DEVELOPMENT

SUTTER COUNTY GENERAL PLAN

The project site is located in unincorporated Sutter County on the northern fringe of existing urban development in the Sacramento metropolitan area. The decision to urbanize the project site and convert it from agriculture was made with adoption of the existing General Plan in 1996. The project site is designated by the County General Plan as Industrial/Commercial Reserve (I/C). The Industrial/Commercial Reserve (I/C) designation identifies approximately 10,500 acres (in 2005, the County reduced the size of the Industrial-Commercial Reserve to 9,500 acres) that are intended to allow large-scale industrial and commercial development in south Sutter County, approximately 7,500 acres of which is intended to be developed as the Sutter Pointe Specific Plan (Specific Plan). Therefore, growth that the proposed project would induce has been evaluated and provided for in the Sutter County General Plan.

MEASURE M

In November 2004, Measure M, an advisory measure regarding a proposed strategic plan for the south Sutter County area, was put before county voters and approved. Measure M suggested that project site development should be located within the Sutter County Industrial-Commercial Reserve and subject to the advisory development caps established by Measure M and integrated within the Natomas Basin Habitat Conservation Plan (NBHCP). Measure M suggested that at least 3,600 acres should be provided for commercial and industrial parks; 1,000 acres should be provided for schools, parks, and other community facilities; and no more than 2,900 acres should be available for residential development with a maximum of 17,500 housing units. The Measure M Group (the applicant for the proposed project) submitted a general plan amendment application in January 2006, which includes proposed amendments to make the County General Plan consistent with the Specific Plan.

SACRAMENTO AREA COUNCIL OF GOVERNMENTS' SACRAMENTO REGION BLUEPRINT

The total land area proposed for development in the Sacramento Area Council of Governments' Preferred Blueprint Scenario (Blueprint) is about 7,420 acres as compared to the 7,528-acre footprint of the proposed project. The Blueprint area defined by SACOG is smaller than the project site, and the conceptual land use map for the south Sutter County area does not match the project footprint; instead, it includes areas east and west of the project site. However, the project site is generally the same size as and largely overlaps the Blueprint area. In fact, the Blueprint area includes lands not covered by the NBHCP, whereas the project site is almost entirely within the boundaries of the NBHCP as an area that may be developed for urban uses. Given that the Blueprint is a large-scale plan, it can be inferred that the project site is generally what has been identified in the Blueprint as "South

Sutter.” This area is identified as a future planned community accommodating the long-term needs of Sutter County and contributing to the Sacramento region. The Blueprint’s land use designation for the project site is illustrated in Exhibit 3.1-1, in Section 3.1, “Land Use.” It should be noted that SACOG has no land use authority. SACOG makes clear that the land use designations presented on the Blueprint are conceptual and reflect general land use locations in a local area.

The project site is the only large area targeted for new urban growth in south Sutter County. The proposed project would include a greater density of residential development and exceed the job projections identified in the Blueprint for the South Sutter area. The Blueprint identifies approximately 20,000 jobs and 8,500 residential units in South Sutter. By contrast, the proposed project accommodates approximately 58,000 jobs and 17,500 units. The additional employment and higher jobs/housing index are part of an overall economic development strategy to bring additional jobs to this area, consistent with the intent of Measure M. In addition, the proposed project reflects the concepts of smart growth, described in the SACOG Blueprint.

Although the proposed project would include a greater density of residential development and exceed the jobs projections identified in the Blueprint for South Sutter, it is generally consistent with the smart growth principles identified in the Blueprint, including transportation choices, housing choice and diversity, compact development, use of existing assets, mixed land uses, and natural resource conservation. The greater density and intensity of uses in the proposed project (relative to the Blueprint Preferred Scenario) would allow for a system of multimodal transportation that includes more frequent and varied transit connections. The proposed project has the potential to offer a greater variety of mixed-use areas and a greater range of housing choices based on its larger number of units and takes full advantage of the development potential authorized by the NBHCP.

NATOMAS BASIN HABITAT CONSERVATION PLAN

The NBHCP establishes a multispecies conservation program to minimize and mitigate the expected loss of habitat resulting from planned development. The purpose of the NBHCP is to promote biological conservation in conjunction with economic and urban development within the permit area. The NBHCP authorizes take associated with 17,500 acres of urban development in southern Sutter County and within the city of Sacramento and Sacramento County (i.e., 8,050 acres for the city of Sacramento, 7,467 acres for Sutter County and 1,983 acres of Metro Air Park in Sacramento County) (City of Sacramento et al. 2003).

The NBHCP authorizes take associated with development of 7,467 acres of land in south Sutter County with urban uses. The permit area of the NBHCP is illustrated in Exhibit 4-3 in Chapter 4, “Alternatives”; it includes the project site, as well as land north and west of the project site. Although the project site is larger than 7,467 acres, the existing industrial acreage is not included in the development calculation for the purpose of NBHCP compliance.

6.3.2 ROADWAY IMPROVEMENTS

Access to the project site would be provided by improved roads along existing roadway alignments in the project vicinity and new roads within the project site itself. The major roads proposed for improvement in the project vicinity are Sankey Road, Riego Road, Powerline Road, Natomas Levee Road, and State Route (SR) 99/70, all of which would serve the proposed project and provide access through the project site to adjacent properties.

Growth at the project site, and as a result of other projects in Sutter, Sacramento, Yuba, and Placer Counties, would result in the need for capacity improvements to existing off-site roadways, including state highways, arterial roadways, and regional intersections. SACOG’s Metropolitan Transportation Plan (MTP) addresses the regional transportation needs for El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties through 2035. The 2035 MTP has several planned roadway improvements in and adjacent to Sutter County, including widening SR 99 to four lanes from Obanion Road to SR 70, widening Riego Road to four lanes from SR 99 to a point two miles west, widening Riego Road to six lanes from SR 99/70 to the Placer County line, widening Sankey Road to

four lanes from Pleasant Grove Road to SR 99/70, and widening Pacific Avenue to four lanes. The MTP improvements to Riego Road, Sankey Road, and Pacific Avenue are contingent on development in the south Sutter County area, which includes the proposed project (Sutter County 2008).

These improvements, which would also serve the project site, were identified as necessary to serve existing traffic and future development anticipated in Sutter, Yolo, Placer, and Sacramento Counties. Roadway improvements are considered growth inducing because they not only would serve the proposed project but would provide access through the project site to adjacent properties. These roadways would enhance access to currently undeveloped areas planned for future development in these counties and could potentially result in conversion of agricultural land and open space to an urban use and thus loss of agricultural land and biological habitat, generation of additional traffic, and creation of air quality and noise impacts.

6.3.3 UTILITIES

No public storm drain facilities currently serve the project site. Development of the proposed project would require that a new urban storm drainage management system be provided to effectively drain the site, control flooding, and provide recreation and water quality benefits. Drainage features such as detention basins, pump stations, drainage pipes, channels, permanent and temporary inlets, and other flood control facilities would be integrated into the ultimate project development at buildout. A network of conveyance pipes, inlets, manholes, and regulating structures would deliver runoff to the aforementioned system components. Off-site improvements consist of widening the East Drainage Channel, which is part of the Reclamation District 1000 (RD 1000) channel system connecting the proposed project to existing pump stations. However, the off-site drainage improvements would not be sized or intended to serve any new development on lands other than the project site and therefore would not be growth inducing.

The proposed project includes a conjunctive use water supply program that would use both groundwater and surface water to meet the water supply demands of the proposed project at buildout. Groundwater would be supplied by groundwater pumping from the Sacramento Valley Groundwater Basin North American Subbasin (North American Subbasin), and surface water would be supplied by Natomas Central Mutual Water Company. For purposes of sizing transmission, treatment, and distribution facilities, the total water supply demand at buildout would be 25,199 acre-feet per year. Groundwater would provide water supplies to Phase 1/A development and a portion of Phase 2/B development (approximately the first 11 years of development) until surface water entitlements have been approved and off-site water facilities have been constructed and are online. As development on the project site occurs, and as the surface water element is phased in, the groundwater element would transition from a year-round supply to principally a wintertime supply to meet the demands of the proposed project. According to the water supply assessment prepared for the proposed project (Appendix C), groundwater supply in the Natomas Basin and the North American Subbasin is sufficient to meet the demands of the proposed project and other existing and future planned groundwater uses that would rely on these basins. In addition, the water supply assessment concluded that, after surface water entitlements have been approved and off-site water facilities have been constructed and are online, surface water supply would be able to meet all the proposed project's water supply demands. Water supply distribution facilities (including wells, treatment facilities, and pipelines) would be constructed specifically to serve the proposed project and would not be connected to any existing water supply system. The groundwater and surface water supply would be equivalent to the estimated demand. Implementing the proposed project would not add capacity available for uses outside the project site or cause capacity to be added to existing water systems; therefore, it would not be growth inducing.

The project site is located in the unincorporated area of Sutter County and is not served by the municipal wastewater collection and treatment systems. Project implementation would result in increased generation of wastewater and construction of wastewater collection and conveyance facilities. The proposed on-site sewer system would be constructed specifically to serve the proposed project and would be sized to accommodate planned project sewer flows. Initially, wastewater generated on the project site would be pumped through two parallel sewer force mains. These two force mains would provide sufficient capacity for the development of Phase

1/A of the proposed project. To serve development for the remaining phases of the proposed project, a third force main would be constructed. The off-site portion of the sewer force mains would extend through areas of agricultural and low-density rural residential land uses (see Exhibit 2-10 in Chapter 2, “Project Description”). Construction of these force mains could potentially remove an obstacle to growth by adding a sewer line through an undeveloped area; however, the sewer force mains would be sized to accommodate the sewer flows of only the proposed project and would not have capacity to serve areas outside the project site. In addition, the off-site sewer force mains are located outside of the NBHCP permit area, which provides an additional constraint to growth (see Section 6.3.7, “Conversion of Adjacent Agricultural Land Uses to Urban Development”).

The two force mains would connect with Sacramento Regional County Sanitation District’s (SRCSD’s) Upper Northwest Interceptor 3 (UNWI 3), which is currently under construction. The UNWI 3 is being constructed by SRCSD and would serve the project site, in addition to other regional development. Construction of the UNWI 3 would result in several environmental impacts, most of which would be reduced to a less-than-significant level through implementation of mitigation by SRCSD. The impacts that would remain significant or potentially significant after implementation of mitigation (i.e., significant and unavoidable) or for which no feasible mitigation is available to reduce impacts are (1) air quality emissions of oxides of nitrogen (NO_x) during construction and (2) exposure of sensitive receptors during construction to noise levels above those allowed by the City of Sacramento and Sacramento County noise ordinances. The UNWI 3 is required to serve regional development and would be required whether or not the proposed project is developed. Because there is a relationship between the proposed project and the need for the UNWI 3, project approval may hasten the occurrence of the related impacts associated with the future construction of wastewater interceptor facilities needed to serve the proposed project and other regional development. Construction of the UNWI 3 required to serve the proposed project would result in capacity to serve other planned regional development and therefore would be growth inducing.

Sutter County is negotiating an agreement with SRCSD to provide sewer service to the project site. Collected wastewater flows from the project site would ultimately be transported to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment and disposal. The SRWTP receives and treats an average of 131 million gallons per day (mgd) (as of 2006) and has a permitted dry-weather flow design capacity of 181 mgd. Flows to the SRWTP would increase over time as the population in the SRCSD service area increases. According to the *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* (2020 Master Plan), the permitted capacity of the SRWTP was expected to be reached before 2010. However, the rate of growth in demand substantially slowed, and flows to the SRWTP have consistently decreased between 2000 and 2006, from 155 mgd to 131 mgd. Based on this trend, the SRWTP could potentially provide capacity to future development beyond what was originally anticipated and there is no threat that permitted capacity will be reached over the next several years. The 2020 Master Plan provides for the expansion of the SRWTP to 218 mgd based on growth rates expected to be achieved in the Sacramento County region by 2020. This flow rate does not represent a buildout population total for SRCSD; rather, it represents the amount of growth expected within the district based on projections. Thus, if new development is approved before 2020, it is assumed that it would not change the rate of growth in the district; rather, it would change the potential location within the SRCSD service area where the growth would occur. Upgrades to the SRWTP would occur without development of the proposed project, are required to serve regional development, and would be needed whether or not the proposed project is developed. Expansion of the SRWTP is planned to be phased to provide for sufficient long-term capacity for regional development. Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added. Because the SRWTP is planned to accommodate growth in the region by 2020, development on the project site that occurs by 2020 would be accommodated by planned SRWTP capacity. The SRWTP site has sufficient land area to accommodate a substantially higher flow than 218 mgd; however, future plans beyond the next 12 years are speculative. The proposed project and regional development would contribute to the need to expand wastewater treatment capacity at the SRWTP facility and therefore would be growth inducing.

6.3.4 CONSTRUCTION-RELATED HOUSING DEMAND

The proposed project involves a substantial construction effort throughout its planning horizon that would bring construction workers to the project site on a daily basis. Because construction workers typically do not change residences each time they are assigned to a new construction site, it is not anticipated that there would be any substantial project-related relocation of construction workers to Sutter County or the Sacramento metropolitan area. In addition, according to the most current labor data available from the U.S. Census Bureau (2005), 3,442 residents in Sutter County, 4,931 residents in Yolo County, 17,851 residents in Placer County, 9,376 residents in El Dorado County, and 37,223 residents in Sacramento County are employed in the construction industry. Construction workers frequently commute long distances to job sites. Therefore, workers from areas like Solano County and the Bay Area would also likely commute to the proposed project and/or the other projects in the area. It can be reasonably concluded that there would be a sufficient number of construction employees in the region to build the proposed project; therefore, implementing the proposed project would not induce growth associated with the need for housing for construction workers.

6.3.5 PUBLIC SERVICES

The proposed project includes construction of three new fire stations, one sheriff's station, library facilities, judicial services, public health services, mental health services, and social services. The timing of construction and staffing of each fire station would be completed in a manner that maintains Sutter County Fire Services response standards, and the project applicant(s) of all project phases would coordinate with the Sutter County Sheriff's Department and other law enforcement agencies with jurisdiction over the site. As contemplated by Measure M, the full cost to provide public services to the project site would be paid for by project development, without reducing current service levels.

The proposed project includes construction of six K–8 schools and one high school. Construction of the first three K–8 schools would be completed during Phase 1/A, and future development would include construction of the remaining three elementary schools and the high school. At project buildout, these schools could accommodate all students generated by the proposed project as well as other students residing in south Sutter County.

Implementing the proposed project would not facilitate additional development with respect to public services (with the exception of schools) because the proposed project would provide or ensure that additional public services would be available to meet project demands, and it would not create additional public service capacity in south Sutter County beyond what would be necessary to serve project development.

6.3.6 JOBS/HOUSING BALANCE

As described in Chapter 5, "Cumulative Impacts," Sutter County has a comparatively low jobs-to-housing ratio and is more likely than some of its neighboring counties to have resident workers with long commutes. There is an imbalance between housing and jobs in the county, with housing outpacing employment growth, and the county has more employed residents than jobs. Buildout of the proposed project would include approximately 17,500 new residential units and 57,651 new jobs, meaning there would be 3.29 jobs per to one housing unit. The additional employment and higher jobs/housing index are part of an overall economic development strategy to bring additional jobs to this area, consistent with the intent of Measure M. In the long term, jobs generated by the proposed project are anticipated to be filled by current residents who are now commuting to jobs outside of Sutter County and by residents within the Sacramento region as the jobs/housing index becomes more balanced; therefore, the proposed project would not be growth inducing (Sutter County 2004).

At the regional level, the jobs/housing index for Sutter, Sacramento, Placer, and Yolo Counties is projected to decrease by 2035. The jobs/housing indices for these counties indicate that planned housing projects, including the proposed project, are expected to provide housing opportunities and improve the current jobs/housing balance to approximately 1.15 jobs to one housing unit by 2035; however, the Sacramento region would remain slightly

job rich. If these workers could not be accommodated by housing units in the region, then new housing units beyond those anticipated in the Sacramento region would be needed to meet the housing demand generated by the proposed jobs. In this respect, implementation of the proposed project would create a housing demand and would be growth inducing (SACOG 2007).

6.3.7 CONVERSION OF ADJACENT AGRICULTURAL LAND USES TO URBAN DEVELOPMENT

Surrounding land use designations are primarily determined by Sutter and Sacramento Counties. Most of the land north, east, and west of the project site is designated Agriculture, 80-acre minimum parcel size (AG-80), and zoned General Agricultural (AG). Lands south of the project site are located outside of Sutter County, within the unincorporated area of Sacramento County, and are governed by the Sacramento County General Plan. This area is designated for Agricultural Cropland and zoned Agriculture with an 80-acre minimum lot size. These land use designations and zoning districts are intended to provide areas for general farming, low-density uses, open spaces, and limited retail service uses by use permit.

Most of the areas north, south, east, and west of the project site are characterized primarily by agricultural uses. The proposed project would include a general plan amendment to change the land use designation for the balance of the Industrial/Commercial Reserve area (north of the project site; illustrated in Exhibit 3.1-3 in Section 3.1, “Land Use”) to Agriculture, 80-acre minimum parcel size (AG-80). This proposed designation would match existing land uses and parcel sizes in this area. The agricultural land north and west of the project site is within the permit area of the NBHCP and operated by the Natomas Basin Conservancy. Immediately south of the project site, implementation of the proposed Natomas Joint Vision project, a cooperative ongoing planning effort of the City and County of Sacramento, would result in future development and a conservation plan.

Nearby planned or approved developments include the Metro Air Park and Greenbriar Specific Plan to the southwest and the Placer Vineyards Specific Plan and Rio Linda/Elverta Specific Plan to the east. However, these projects are some distance from the project site and are separated by agricultural uses. As the proposed project is developed, it would place urban development adjacent to these agricultural lands. Historically, this type of land use pattern has resulted in conflicts between the ongoing agricultural operations and the urban development uses. Further, economic returns from urban development are typically substantially higher than continued agricultural use of land, and encroaching urban uses typically make attractive the conversion of adjacent agricultural land to urban uses. Thus, it could be reasoned that implementing the proposed project would place pressure on agricultural land to convert to urban uses.

Potentially converting agricultural land to an urban use, and thus losing agricultural land, losing biological habitat, generating additional traffic, and creating air and noise impacts, is a potential growth-inducing impact of the proposed project. However, development in this area would require the extension of unplanned infrastructure (water, wastewater, dry utilities, roads), which may or may not be available. Further, because it would require Sacramento County and/or Sutter County to amend their general plans, land use designations, and zoning designations, such a land use conversion is not assured.

Implementing the proposed project would result in large-scale urban development in a predominantly agricultural area. In this context, the proposed project would be growth inducing. However, the NBHCP is a substantial barrier to growth in the Natomas Basin. The NBHCP limits total development in the Natomas Basin to 8,050 acres for the City of Sacramento, 7,467 acres for Sutter County, and 1,983 acres of Metro Air Park in Sacramento County. Approval of future urban development beyond these acreages or outside of the NBHCP’s permit area would constitute a substantial departure from the NBHCP and would trigger a reevaluation of the NBHCP, a new CEQA analysis, potential amendments and/or revisions to the NBHCP and incidental take permits (ITPs), a separate conservation strategy, and the need to obtain a new ITP by the Permittee for that additional development (City of Sacramento et al. 2003). Therefore, the effects of future development beyond the NBHCP permit area and

the potential need for separate ITPs or for a possible amendment of the NBHCP are currently too speculative to evaluate.

6.4 SUMMARY OF GROWTH-INDUCING IMPACTS

Project development would include 17,500 new residential units with an estimated population of 46,900 new residents and would create 57,651 jobs from development of approximately 3,627 acres of commercial and industrial land uses on the project site at full buildout. Overall, the proposed project would be growth inducing because it would involve improving and constructing roadways, which would enhance access to currently undeveloped areas, and it would provide school capacity beyond that needed to serve the proposed project. The impacts associated with this growth are discussed above.

Implementing the proposed project would effectively result in development of a population and employment base that is the size of a city. Although the proposed project includes the provision of commercial and retail services, on-site services would meet only some of the needs of the project population. The additional population associated with the proposed project would spur an increase in demand for goods and services in Sutter County and the Sacramento region, which could result in additional development to satisfy this demand. In this respect, the proposed project would be growth inducing. It would be speculative, however, to try to predict exactly where any such new services would be located. The most logical assumption is that they would be located where the existing Sacramento, Placer, and Yolo Counties' and other surrounding communities' general plans currently anticipate them. The general plans have already undergone environmental review and any new individual projects requiring discretionary approvals would be required to undergo their own environmental review.

Implementing the proposed project would result in large-scale urban development in a predominantly agricultural area and could potentially place pressure on adjacent agricultural lands to convert to urban uses. As explained above, however, the NBHCP is a substantial barrier to growth in the Natomas Basin. Conversion of the project site to urban uses is consistent with the long-term planning for the area. The decision to urbanize the project site and convert it from agriculture to urban uses was made with adoption of the existing General Plan in 1996 and inclusion of the project site in the boundaries of the NBHCP. In summary, much of the growth that the proposed project would induce has been evaluated and provided for in the Sutter County General Plan, NBHCP, and other relevant planning documents.

6.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROPOSED PROJECT

CEQA requires that EIRs for certain categories of projects, including "adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency," address any significant and irreversible environmental changes that would result from the project were implemented (Public Resources Code Section 21100[b][2] and State CEQA Guidelines Section 15126.2[c]). Significant irreversible environmental changes could include conversion or use of substantial amounts of nonrenewable resources during construction, which includes demolition or operation of a project, or the commitment of resources to other uses or to permanent nonuse. Resources that may be considered subject to irreversible change may include materials, land, energy, or state of development/nondevelopment. Consumption, use, or commitment of resources is considered irreversible when it is likely that future generations would be committed to similar uses. Irreversible damage can also result from environmental accidents associated with a project.

The proposed project would involve the irreversible commitment of construction materials and consumption of energy for planned development. Construction materials would include sand and gravel, concrete, asphalt, plastics, and metals, as well as various nonrenewable resources. Use of energy, in the form of natural gas, petroleum products, and electricity, would occur as a result of construction activities and operation of residential, commercial, and industrial land uses. Loss of these resources is considered irreversible because their reuse for some other purpose than the proposed project would be impossible or highly unlikely. Project development would

result in an irreversible commitment of water resources for both potable and nonpotable uses. The proposed project also constitutes an irreversible commitment of the project site as a developed land resource, thereby rendering land use for agricultural, wildlife habitat, or other purposes infeasible. Except to the extent minimized by mitigation measures imposed in this EIR, there would be an irreversible loss of agricultural land and wildlife habitat.

Implementing the proposed project is not anticipated to result in irreversible damage from environmental accidents, such as an accidental spill or explosion of a hazardous material. During project construction and operation, equipment and facilities would use various types of fuel and materials classified as hazardous. However, in the state of California, the storage, transport, and use of hazardous substances are strictly regulated and enforced by various local, regional, and state agencies. The enforcement of these existing regulations is anticipated to preclude irreversible damage from potential project-related environmental accidents.

6.6 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

Section 15226.2(b) of the State CEQA Guidelines requires EIRs to include a discussion of any significant environmental impacts that cannot be avoided if the proposed project is implemented. Chapter 3 of this EIR provides a detailed analysis of all significant and potentially significant environmental impacts related to implementing the proposed project; identifies feasible mitigation measures, where available, that could avoid or reduce these significant and potentially significant impacts; and presents a determination whether these mitigation measures would reduce these impacts to less-than-significant levels. Chapter 5 identifies the significant cumulative impacts resulting from the combined effects of the proposed project and related projects. If a specific impact in either of these sections cannot be fully reduced to a less-than-significant level, it is considered a significant and unavoidable adverse impact.

As described below and listed in Table 6-1, implementing the proposed project would result in significant and unavoidable adverse impacts in seven environmental issue areas, and the proposed project would make a cumulatively considerable incremental contribution to significant cumulative impacts in eight issue areas.

Chapter Name/Issue Area	Program-Level (Entire Proposed Project) Impact Number	Additional Detailed On-Site Analysis Impact Number	Impact Title
Transportation and Circulation	3.3-1	N/A	Unacceptable Operations on the Regional Roadway Network
	3.3-2	3.3-24	Unacceptable Operations on Sutter County Roadways
	3.3-3	3.3-25	Unacceptable Operations on Placer County Roadways
	3.3-4	3.3-26	Unacceptable Operations on Sacramento County Roadways
	3.3-5	3.3-27	Unacceptable Operations on Caltrans Roadways
	3.3-6	3.3-28	Unacceptable Operations at Sutter County Intersections
	3.3-7	3.3-29	Unacceptable Operations at Placer County Intersections
	3.3-8	3.3-30	Unacceptable Operations at Sacramento County Intersections
	3.3-9	N/A	Unacceptable Operations on Caltrans Facilities
	3.3-22	N/A	Impacts of Transportation Mitigation on the Physical Environment

Table 6-1 Summary of Project-Related Significant and Unavoidable Impacts			
Chapter Name/Issue Area	Program-Level (Entire Proposed Project) Impact Number	Additional Detailed On-Site Analysis Impact Number	Impact Title
Air Quality	3.4-1	3.4-6	Generation of Temporary, Short-Term Construction Emissions of ROG, NO _x , and PM ₁₀
	3.4-2	3.4-7	Generation of Long-Term Operational (Regional) Emissions of ROG, NO _x , and PM ₁₀
	3.4-4	3.4-9	Exposure of Sensitive Receptors to Temporary, Short- and Long-Term Emissions of Toxic Air Contaminants
Noise	3.5-9	3.5-19	Increase in Traffic Noise Levels Because of Project Buildout/Phase 1 Development of Project Site
Public Utilities	3.10-1	NA	Increased Demand for Wastewater Conveyance Facilities (Contribution to Impacts from Implementation of the Upper Northwest Interceptor)
	3.10-2	NA	Increased Demand for Wastewater Treatment Plant Facilities (Contribution to Impacts from Implementation of the Sacramento Regional Wastewater Treatment Plant 2020 Master Plan)
Agricultural Resources	3.11-1	3.11-5	Conversion of Important Farmland to Nonagricultural Urban Uses
	3.11-3	3.11-7	Conflict with Existing On- Site and Off-Site Agricultural Operations
Biological Resources	3.13-2	NA	Potential Loss and Degradation of Jurisdictional Wetlands and Other Waters of the United States and Waters of the State
Visual Resources	3.16-3	3.16-9	Degradation of Visual Character
	3.16-4	3.16-10	Temporary Degradation of Visual Character for Developed Project Land Uses during Construction
	3.16-6	3.16-12	New Skyglow Effects
Climate Change	3.17-1	NA	Generation of Temporary, Short-Term Construction-Related GHG Emissions
	3.17-2	NA	Increased Operational GHG Emissions
Notes: NA = no analysis. Source: Data compiled by EDAW in 2008			

TRANSPORTATION AND CIRCULATION

Under existing plus project conditions, implementing the proposed project would contribute to traffic volumes that exceed the capacity of the regional roadway network (Impact 3.3-1), result in an unacceptable level of service (LOS) on Sutter County roadway segments (Impact 3.3-2), result in an unacceptable LOS on Placer County roadway segments (Impact 3.3-3), and result increase traffic on Sacramento County roadway segments that do not meet minimum design standards (Impact 3.3-4). Under existing plus project conditions, the proposed project would contribute to traffic volumes that exacerbate unacceptable LOS conditions on California Department of Transportation (Caltrans) roadway segments (Impact 3.3-5). Participation in funding improvements to these roadway networks (implementation of Mitigation Measures 3.3-1 through 3.3-5) would reduce the significant impacts associated with regional roadways, but the impacts would be significant and unavoidable. These conclusions reflect in part the fact that, even with the installation of proposed improvements, some of these impacts would remain significant because an acceptable LOS would not be achieved. These conclusions also

reflect the reality that successful implementation of some of the proposed improvements would require the cooperation of third-party agencies (Placer and Sacramento Counties, the City of Roseville, and Caltrans) over which Sutter County has no control. For this latter reason, Sutter County is conservatively acknowledging the possibility that, despite its own commitment to work with these other agencies, mutually acceptable accommodation may not be reached. Consistent with State CEQA Guidelines Section 15091, Subdivision (a)(2), however, Sutter County concludes that these other agencies can and should cooperate with Sutter County in implementing the mitigation. In addition, even if all mitigation measures are successfully implemented, there may be short-term significant and unavoidable impacts, in the form of an unacceptable LOS, until the contemplated improvements are in place.

Under existing plus project conditions, implementing the proposed project would increase peak-hour traffic volumes using roadway intersections in Sutter County (Impact 3.3-6), Placer County (Impact 3.3-7), Sacramento County (Impact 3.3-8), and Caltrans facilities (Impact 3.3-9), resulting in unacceptable LOS conditions. Participation in funding intersection improvements in these roadway networks (implementation of Mitigation Measures 3.3-6 through 3.3-9) would reduce the significant impacts associated with regional roadway intersections, but the impacts would be significant and unavoidable. These conclusions reflect the reality that successful implementation of some of the proposed improvements would require the cooperation of third-party agencies (Placer and Sacramento Counties and Caltrans) over which Sutter County has no control. For this latter reason, Sutter County is conservatively acknowledging the possibility that, despite its own commitment to work with these other agencies, mutually acceptable accommodation may not be reached. Consistent with State CEQA Guidelines Section 15091, Subdivision (a)(2), however, Sutter County concludes that these other agencies can and should cooperate with Sutter County in implementing the mitigation. In addition, even if all mitigation measures are successfully implemented, there may be short-term significant and unavoidable impacts, in the form of an unacceptable LOS, until the contemplated improvements are in place.

AIR QUALITY

Section 3.4, “Air Quality,” identifies significant and unavoidable impacts with respect to temporary, short-term (construction) and long-term (operational) emissions of reactive organic gases (ROG), NO_x, and respirable particulate matter (PM₁₀), as follows.

Impacts related to temporary, short-term construction-generated emissions of ROG, NO_x, and PM₁₀ (Impact 3.4-1) are significant and unavoidable because although implementation of mitigation would reduce temporary, short-term, construction-related emissions of ROG, NO_x, and PM₁₀ generated by the proposed project, emissions would still exceed the significance thresholds of each respective air district (refer to Table 3.4-3). Mitigation Measure 3.4-1 requires developing and implementing an air district–endorsed project-level air quality mitigation plan (AQMP) that demonstrates that heavy-duty diesel equipment used in construction would achieve a minimum 20% reduction in NO_x emissions and a 45% reduction in PM₁₀, as compared with statewide average emissions.

Impacts related to long-term operation-related (regional) emissions of ROG, NO_x, and PM₁₀ (Impact 3.4-2) are significant and unavoidable. Mitigation Measure 3.4-2 requires developing and implementing an individual AQMP for each development phase of the proposed project, as prescribed by the Sutter Pointe Master AQMP prepared in June 2008 (as stated in HDR 2008). Each individual AQMP shall prescribe a percent reduction target for emissions of ozone precursors and PM₁₀ as determined by the Feather River Air Quality Management District (FRAQMD) and Sutter County. Individual AQMPs shall outline specific measures that reduce emissions of ozone precursors and PM₁₀. These measures shall include but not be limited to those recommendations suggested by FRAQMD at the time each AQMP is prepared. Although implementation of this mitigation would reduce project-generated, operation-related emissions of ROG, NO_x, and PM₁₀, emissions would still likely exceed FRAQMD’s significance threshold because of the large size of the proposed development; therefore, this impact is significant and unavoidable.

Impacts related to exposure of sensitive receptors to mobile-source hazardous pollutant emissions from nearby freeways (Impact 3.4-4), are potentially significant and unavoidable because of the lack of documented quantifiable emissions reductions associated with mitigation measures. Although a site-specific health risk assessment shall be performed for all sensitive receptors that would be located within setback distances recommended by the California Air Resources Board (Mitigation Measure 3.4-4a), this impact would not necessarily be fully reduced to a level considered less than significant because toxic air contaminant (TAC) exposure levels in areas close to SR 99/70 may continue to be substantially higher than background levels for the region. This conclusion may change as more detailed information becomes available regarding the health risk exposure levels posted by highways relative to background risk levels. However, for purposes of this DEIR, this impact is potentially significant and unavoidable.

Impacts related to exposure of sensitive receptors to on-site mobile-source hazardous pollutant emissions (Impact 3.4-4) are potentially significant and unavoidable because developing and implementing planning and design measures to reduce the potential for TAC exposure from on-site mobile-sources (Mitigation Measure 3.4-4b) would reduce health-related risks associated with on-site mobile-source TACs but not to a less-than-significant level. There is uncertainty associated with on-site commercial land use activities and the proximity of sensitive receptors to such uses, particularly in the mixed-use areas that would be developed under Phase 1/A and subsequent development phases. This conclusion may, therefore, change as more detailed information regarding proposed on-site commercial uses becomes available. However, for purposes of this DEIR, this impact is potentially significant and unavoidable.

Impacts related to exposure of sensitive receptors to emissions of odors (construction and operational) (Impact 3.4-5) are significant and unavoidable. Although Mitigation Measure 3.4-5 requires development and implementation of planning and design measures to reduce potential for adverse exposure to odors, exposure to odors could still occur especially during unfavorable meteorological conditions (e.g., inversion, wind in the direction that directs odors from source towards residents); therefore, this impact is significant and unavoidable.

NOISE

Development of the proposed project would result in increased traffic noise levels in off-site areas because of both Phase 1/A development and full project buildout (Impacts 3.5-8 and 3.5-9). However, there are no feasible mitigation measures available to fully reduce potentially significant impacts associated with increased traffic noise (regulation of sources of traffic noise is not under the control of the lead agency); therefore, Impacts 3.5-9 and 3.5-19 are significant and unavoidable.

PUBLIC UTILITIES

Implementing the proposed project would result in increased wastewater generation (Impact 3.10-1), which would require the construction of sufficient wastewater collection and conveyance infrastructure. Because an adequate wastewater conveyance system would be documented before approval of improvement plans, the impact of increased demand for wastewater conveyance facilities is less than significant. However, implementing the proposed project would contribute to direct and indirect impacts relating to expansion of SRCSD wastewater conveyance facilities, in two issue areas that were identified in the certified *Upper Northwest Interceptor Phases 2 and 3 Subsequent Environmental Impact Report* (UNWI Subsequent EIR):

- ▶ air quality: emissions of NO_x during construction, and
- ▶ noise: exposure of sensitive receptors during construction to noise levels above those allowed in the City of Sacramento and Sacramento County noise ordinances.

Implementation of mitigation measures to reduce impacts is the responsibility of SRCSD; such measures would be implemented in accordance with the UNWI Subsequent EIR. However, these two impacts would be significant and unavoidable after implementation of all feasible mitigation measures.

Implementation of the proposed project would result in increased demand for wastewater treatment plant facilities (Impact 3.10-2). Implementing Mitigation Measure 3.10-2 would ensure that sufficient wastewater treatment capacity is available to all project phases. However, wastewater treatment would be provided by the SRWTP, which has identified the need for expansion of the SRWTP in the 2020 Master Plan approved in 2004. Because implementing the proposed project would contribute to the need to expand the SRWTP facility, it would contribute directly and indirectly to impacts identified in the 2020 Master Plan EIR. Specifically, implementing the proposed project would contribute indirectly and incrementally to the significant and unavoidable impact from temporary, short-term increases in NO_x during construction of SRWTP facilities. Implementation of mitigation measures to reduce air quality impacts associated with SRWTP expansion is the responsibility of SRCSD. Such measures would be implemented in accordance with the certified SRWTP 2020 Master Plan FEIR; however, impacts on air quality associated with construction of SRWTP facilities would be significant and unavoidable after implementation of all feasible mitigation measures.

AGRICULTURAL RESOURCES

Implementation of the proposed project would permanently convert Important Farmland to nonagricultural, urban uses (Impact 3.11-1). Based on the Sutter County Important Farmland map, published by the California Department of Conservation's Division of Land Resource Protection, the project site consists of approximately 1,866 acres of Prime Farmland and 5,036 acres of Farmland of Statewide Importance (Exhibit 3.11-1). In 2006, there were approximately 165,818 acres of Prime Farmland and 207,194 acres of Farmland of Statewide Importance in Sutter County (Table 3.11-3). Implementation of the proposed project would convert approximately 1.1% of Prime Farmland and 2.4% of Farmland of Statewide Importance in Sutter County. To mitigate this conversion, the project applicant(s) of all project phases would be required to participate in the NBHCP through the payment of fees or land dedication (Mitigation Measure 3.11-1). The associated payment of fees would be used to purchase conservation easements that would result in potential future benefits to agriculture by preventing loss of the protected lands. These measures also would lessen significant impacts associated with the conversion of Important Farmland on the project site because funding conservation easements would assist the public and private sectors in protecting other farmland from the pressures of development. The easements are purchased for land exhibiting benefits to wildlife, including a combination of habitat, open space, and agricultural lands, so the compensation provided by the fee contribution for the proposed project would not be applied exclusively to agricultural lands. Therefore, fees contributed to the NBHCP would only partially offset conversions of Important Farmland associated with project implementation. Additionally, no new farmland would be made available, and the productivity of existing farmland would not be improved as a result of implementation of the NBHCP. Therefore, full compensation for losses of Important Farmland would not be achieved; therefore, the impact would be significant and unavoidable.

Implementation of the proposed project would locate urban land uses adjacent to existing agricultural lands, which could impair adjacent agricultural activities, result in land use compatibility conflicts, and potentially result in the ultimate conversion of this land to nonagricultural land uses (Impact 3.11-3). Implementation of Mitigation Measures 3.11-3a and 3.11-3b would establish a buffer zone between the edge of residential or commercial development and adjacent productive agricultural land and require that prospective residents be notified about potential land use conflicts associated with agricultural activities adjacent to the project site. While this would substantially reduce potential conflicts, other than precluding development adjacent to agricultural lands, no other feasible mitigation is available to eliminate potential urban/agricultural interface land use conflicts; therefore, this impact would be significant and unavoidable.

BIOLOGICAL RESOURCES

Implementation of the proposed project could result in the placement of fill material into jurisdictional waters of the United States, including wetlands subject to U.S. Army Corps of Engineers jurisdiction under the federal Clean Water Act, and the potential loss and degradation of wetland habitats protected under state and local regulations. Implementation of Mitigation Measure 3.13-2 would reduce significant direct and indirect impacts, but not to a less-than-significant level. It is unknown whether adequate replacement land to ensure no net loss could be procured if the on-site rice fields were determined to be jurisdictional wetlands, and it not possible at this time to determine what indirect impacts on wetland habitats might occur or whether they could be mitigated to a less-than-significant level. Therefore, impacts related to fill of jurisdictional waters would be significant and unavoidable.

VISUAL RESOURCES

Implementing the proposed project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses (Impact 3.16-3). Implementation of guidelines identified in the Sutter Pointe Specific Plan (see Appendix A of the Specific Plan, “Design Guidelines”) would partially reduce significant impacts related to the degradation of the local viewshed through conversion of undeveloped rural lands (i.e., rural setting) to a large-scale urban development. However, because of the scale and location of the project site, there is no feasible mitigation available to fully reduce visual resource impacts associated with the conversion of a large expanse of agricultural land to urban development. Although design, architectural, development, and maintenance standards are included to ensure that urban development in the project site remains within certain aesthetic guidelines, there is no mechanism to allow implementation of the proposed project while avoiding the conversion of the local viewshed from agricultural to urban development. Therefore, this impact would be significant and unavoidable.

The presence and movement of heavy construction equipment and staging areas would temporarily degrade the existing visual character and/or quality of the project site and surrounding area (Impact 3.16-4). Project implementation would involve four phases of similar types of construction over a 20- to 30-year phased buildout period. During this time, adjacent project development, including sensitive land uses such as housing, schools, and parks, would be occupied while construction is occurring in a different phase. Construction areas would also be visible to motorists and employees of existing businesses. As required by Mitigation Measure 3.16-4, the project applicant(s) of all project phases would locate staging and material storage areas as far away from sensitive land uses (i.e., residential areas, schools, parks) and/or nearby roadways as feasible. Staging and material storage areas must be approved by the County before the approval of grading plans and building permits for all project phases and must be screened from adjacent occupied land uses in earlier development phases to the maximum extent practicable. Implementation of Mitigation Measure 3.16-4 would reduce significant impacts associated with temporary visual quality degradation for developed land uses from concurrent construction staging areas by providing visual screening. However, because screening may not always be feasible (e.g., projects covering a large area or tall buildings), this temporary impact would be significant and unavoidable.

Implementing the proposed project would require lighting of new development that could inadvertently cause increased skyglow effects, effectively obscuring views of stars, constellations, and other features of the night sky (Impact 3.16-6). Implementation of guidelines identified in Appendix A of the Sutter Pointe Specific Plan would partially reduce significant impacts associated with effects from skyglow. However, because of the scale and location of the project site, these lighting guidelines would not fully reduce new skyglow effects to a less-than-significant level. Therefore, project-related skyglow impacts would be significant and unavoidable.

CLIMATE CHANGE

Implementation of the proposed project would result in increased generation of greenhouse gases (GHGs), which could contribute to global climate change. The proposed project would contribute considerably to cumulative

GHG emissions (Impacts 3.17-1 and 3.17-2). Implementation of Mitigation Measures 3.17-1 and 3.17-2 would partially reduce GHG emissions from mobile, area, and indirect sources. For instance, the implementation of on-site renewable energy sources that supply 50% of the project's energy demand would result in a reduction of 42,056 metric tons of carbon dioxide equivalent (CO₂e) per year, thereby increasing the service population (SP)-efficiency to 8.8 metric tons of CO₂e per SP per year, a 12% reduction in GHG-potential. Other measures would result in additional reductions; however, these reductions cannot be fully quantified. A reduction of 57% in project-generated operational GHG emissions would be required to achieve the benchmark of 4.3 metric tons of CO₂e per SP per year, which is likely infeasible because the proposed project could not be constructed with enough development to make it economically viable. Because there are no feasible mitigation measures to fully reduce GHG emissions to a less-than-significant level, this impact would be significant and unavoidable.

CUMULATIVE IMPACTS

As discussed in detail in Chapter 5, "Cumulative Impacts," implementing the proposed project would result in direct and indirect cumulatively considerable incremental contributions to significant cumulative impacts. Those impacts are summarized below.

TRANSPORTATION AND CIRCULATION

- ▶ Increase in daily traffic volumes using Sutter County, Placer County, Sacramento County, and Caltrans roadway segments, resulting in unacceptable LOS conditions.
- ▶ Increase in peak-hour traffic volumes using Sutter County, Placer County, Sacramento County, and Caltrans intersections, resulting in unacceptable LOS conditions.
- ▶ Increased travel on Riego Road from implementation of Mitigation Measure 3.3-10, which may adversely affect traffic operations at the SR 99/70 interchange in the form of increased vehicle queuing and peak-hour spreading.
- ▶ Increased demand for public transit.
- ▶ Increased demand for nonmotorized travel.
- ▶ Redistribution of traffic in the project area and throughout the region as a result of project-related roadway improvements, which may adversely affect future roadway and intersection operations
- ▶ Potential secondary, indirect impacts on the physical environment from construction of proposed roadway improvements.

AIR QUALITY

- ▶ Temporary, short-term construction-related air quality impacts associated with generation of mass emissions of NO_x and PM₁₀,
- ▶ Long-term emissions or criteria air pollutants from operation of the proposed project and related projects,

NOISE

- ▶ Project-related increases in traffic noise levels at on-site receptors that are above the relevant noise thresholds.
- ▶ Project-related increases in traffic noise levels at off-site receptors that are above the relevant noise thresholds.

PUBLIC UTILITIES

- ▶ Contribution to indirect and direct significant impacts associated with the future capacity and construction of wastewater conveyance facilities identified in the UNWI Subsequent EIR that would be needed to serve the proposed project and other regional development.
- ▶ Contribution to the direct significant unavoidable short-term air quality impact associated with the need for expansion of the SRWTP identified in the SRWTP *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan Final Environmental Impact Report*.

AGRICULTURAL RESOURCES

- ▶ Conversion of Important Farmland at the project site to non-agricultural uses.

VISUAL RESOURCES

- ▶ Substantial alteration of the visual character of the project site (degradation of visual character)
- ▶ New nighttime skyglow effects.

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