FINAL
ENVIRONMENTAL ASSESSMENT

YOCHA DEHE
FEE-TO-TRUST AND HOUSING PROJECT

OCTOBER 2012

LEAD AGENCY:

U.S. Department of the Interior
Bureau of Indian Affairs
Pacific Region Office
2800 Cottage Way, Room W-2820
Sacramento, CA 95825-1846

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TABLE OF CONTENTS

YOCHA DEHE FEE-TO-TRUST AND HOUSING PROJECT
FINAL ENVIRONMENTAL ASSESSMENT

LIST OF TABLES

LIST OF FIGURES

APPENDICES

SECTION 1.0

INTRODUCTION

SECTION 1.0
INTRODUCTION

1.1 INTRODUCTION

This Final Environmental Assessment (EA) has been prepared for the United States (U.S.) Bureau of Indian Affairs (BIA) to support an application from the Yocha Dehe Wintun Nation (hereafter, "Tribe") for land to be placed into federal trust (Proposed Action). The BIA is the federal agency that is charged with reviewing and approving tribal applications to take land into federal trust status. The land proposed for trust acquisition, which is currently owned in fee by the Tribe, consists of approximately 853± acres in Yolo County, California (project site). The Yolo County assessor's parcel numbers (APNs) for the project site are shown in **Table 1-1**. For ease of reference, these parcels are referred to throughout this EA by the designated parcel numbers 1 through 15. As a result of the Proposed Action, the Tribe would be able to provide new and expanded Tribal community/governmental facilities and services to its members in the areas of Tribal housing, education, cultural preservation/education as well as related water/wastewater facilities and supporting infrastructure, while enabling most of the land to remain in agricultural production (Proposed Project). The BIA will use this EA to determine if the Proposed Action would result in significant effects to the environment.

TABLE 1-1
PROJECT SITE PARCELS

Tribal Property Name	Common/ Previous Name	APN	Designated Parcel Number	Area (Acres)
Chalom	Davis	060-030-016	1	55.92
		060-030-017	2	92.14
Sekarrobeh Leyo	Yates	060-030-001	3	17.69
		060-030-008	4	26.32
		060-030-009	5	16.02
Kisi		060-020-018	6	17.82
		060-020-019	7	19.76
	Farnham	060-020-020	8	153.70
	Burnett	048-230-001	9	316.41
		047-020-001	10	113.09
	Vieu	060-010-001	11	4.49
		060-013-001	12	2.30
		060-014-001	13	1.55
		060-020-011	14	10.41
		060-020-014	15	5.28
			Total Area:	**852.90 Acres**

NOTE: "APN" = Assessor's Parcel Number
SOURCE: Yolo County Assessor: (Butler, 2010)

This document has been completed in accordance with the requirements set forth in the National Environmental Policy Act (NEPA) of 1969 [42 United States Code (USC) §4321 et seq.], the Council on Environmental Quality (CEQ) Guidelines for Implementing NEPA, and the BIA's NEPA Handbook [59 Indian Affairs Manual (IAM) 3-H]. **Section 2.0** of this EA provides a detailed description of the Proposed Project and project alternatives. **Section 3.0** provides a description of the existing environmental conditions on and in the vicinity of the project site. **Section 4.0** provides an analysis of the potential environmental consequences associated with the Proposed Project and project alternatives. This EA also includes a discussion of impact avoidance and mitigation measures for the Proposed Project (**Section 5.0**). Consistent with the requirements of NEPA, the BIA will review and analyze the environmental consequences associated with the Proposed Action and Proposed Project, and either determine that a Finding of No Significant Impact (FONSI) is appropriate, or request that an Environmental Impact Statement (EIS) be prepared.

1.2 LOCATION AND SETTING

The project site is located adjacent to the Tribe's existing reservation on State Route 16 (SR-16) near the town of Brooks in the Capay Valley. Regional access is provided by Interstate 505 (I-505), which runs in a general north-south direction approximately 14 miles east of the project site and by Interstate 5 (I-5), which runs in a general north-south direction approximately 25 miles east of the project site.

The project site is in an unincorporated area of Yolo County and occurs in Section 34, Township 10 North, Range 3 West and Section 3, Township 11 North, Range 3 West on the "Guinda, California" and "Brooks, California" U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangles, respectively. **Figure 1-1** shows the regional location of the project site. **Figure 1-2** shows the project site and vicinity (refer to **Figure 2-1** for parcel numbers).

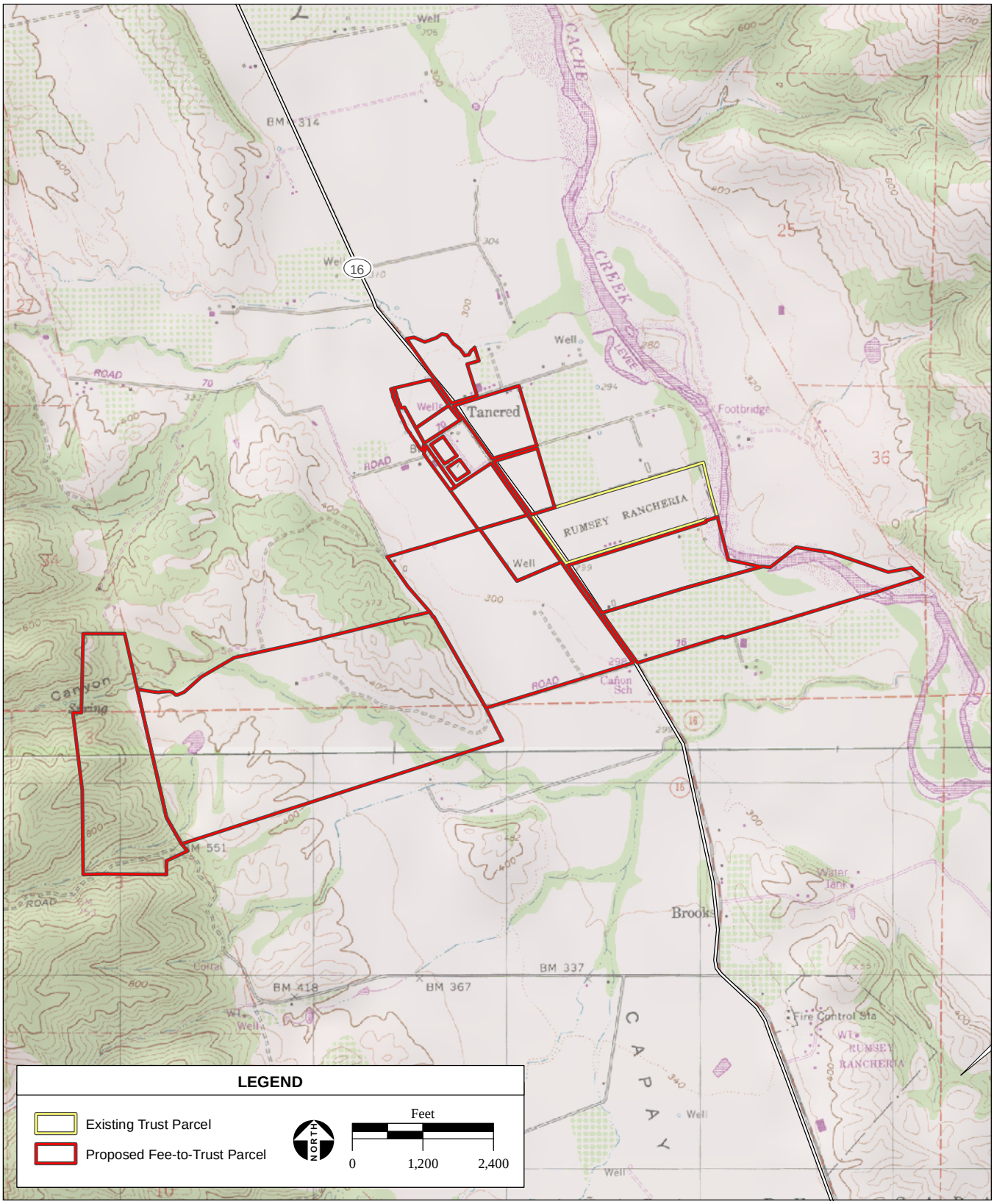
The project site is bordered on the north by agricultural land and riparian forest, on the east by agricultural land, riparian forest, and Cache Creek, and on the south and west by agricultural land, riparian forest, and oak savannah. Surrounding land uses consist of agricultural fields, low-density rural residences and the Canon School, a nationally registered historic place located near the southeast corner of Parcel 7. Tribal housing, a Tribal community center, and a recreation area are located adjacent to the project site on existing trust land (**Section 3.0**).

The project site contains orchards, agricultural fields, and five single-family residences. One of the residences is currently occupied (on Parcel 9) and another has been recently restored by the Tribe (on Parcel 1). All but two of the 15 project parcels currently zoned for agriculture by Yolo County are in Williamson Act contracts (C. Lee, pers. comm., 2010). To date,

SOURCE: ESRI Data, 2007; AES 2012

Yocha Dehe Fee-to-Trust and Housing Project / 209530 ■

Figure 1-1
Regional Location



SOURCE: "Brooks, CA" USGS 7.5 Minute Topographic Quadrangle, T2W & 3W, R10N, Unsectioned Area of Cañada De Capay, Mt. Diablo Baseline & Meridian; AES, 2012

Figure 1-2
Site and Vicinity

non-renewal notices have been filed for all of the project parcels currently under Williamson Act contracts (C. Lee pers.comm., 2011).

1.3 PURPOSE AND NEED

The Tribe's purpose for taking the 853± acres of land into trust is to provide housing and expanded governmental, educational, and cultural facilities/services under the direct control of the Tribal government to accommodate the Tribe's current members and anticipated growth. The proposed expansion of the Tribe's reservation would ensure that the Tribe can continue to provide housing for its existing and future members and the space necessary to conduct the governmental, educational, and cultural functions of Tribal government. The proposed trust land is planned for vital Tribal functions including language and cultural programs, educational services, community events, as well as Tribal government and administration. An essential benefit of the proposed expansion of trust land would be sufficient space to allow for the development of a wastewater treatment facility to serve existing and proposed housing, educational, cultural, and related facilities. The proposed wastewater treatment plant would replace the current septic system that serves existing housing and governmental facilities on existing trust land. The Proposed Action would allow the Tribe to maintain its agricultural operations under full Tribal governance for the majority of the land proposed to be taken into trust; this would thereby allow the Tribe to continue to build economic self sufficiency and diversity.

The Tribe, which consists of 63 members governed by a council of five members led by a Tribal Chairperson, currently provides housing for each of its adult members on the existing reservation. Approximately 25 Tribal members will reach adulthood in the coming years and will require housing for their expanding families. The existing 63± acre reservation at Puhkum Road (formerly County Road 75A) is largely developed with the exception of a stormwater detention area, is located within a floodplain, and is insufficient to meet the Tribe's housing needs in the near future. The Tribe's school, community center, and governmental space are also currently significantly confined on the existing 63± acre reservation and are insufficient to meet the Tribe's current needs and projected growth. Temporary trailers are currently being used to provide much needed office space for the Tribal government.

The Proposed Action and developments would allow the Tribe to provide necessary housing for its members, to relocate and expand its school to the new trust land and allow Tribal governmental operations to thereby expand into the space used today by the Tribe's school, Yocha Dehe Wintun Academy, on existing trust land to the north of Parcel 1. The proposed wastewater treatment plant would allow the Tribe to discontinue the use of septic tanks and would produce recycled wastewater suitable for irrigation of crops on expanded trust land. The areas that are not proposed for the development of Tribal housing, Tribal school, and cultural/education facilities would remain in agricultural production.

The proposed trust land acquisition would protect the Tribe's heritage and would provide the opportunity to enhance public awareness of the Tribe's history and contribution to the Capay Valley, which is the Tribe's traditional homeland. Under the Proposed Action, the Tribal government would be able to fully exercise its sovereignty over its own future growth while helping to largely preserve the rural/agricultural character of the Capay Valley consistent with surrounding land uses.

1.4 OVERVIEW OF THE ENVIRONMENTAL PROCESS

~~The~~ An EA ~~will be~~was released for a 30-day public comment period on June 15, 2011. Comments ~~will be considered by the BIA~~were received, responses prepared, revisions to the EA were made and a Final EA was issued to support a Finding of No Significant Impact (~~and either a~~ FONSI~~) will be prepared, or additional environmental analysis will be conducted~~. After the NEPA process is complete, the BIA may issue a determination on the Tribe's fee-to-trust application.

1.5 ENVIRONMENTAL ISSUES ADDRESSED

In accordance with NEPA, and based on a review of the 853± acre project site, the following environmental issue areas are evaluated in this Final EA:

- Land Resources;
- Water Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Socioeconomic Conditions / Environmental Justice;
- Transportation and Circulation;
- Land Use;
- Public Services;
- Noise;
- Hazardous Materials; and
- Visual Resources.

1.6 REGULATORY REQUIREMENTS AND APPROVALS

The following direct and indirect federal actions may occur as a result of the Proposed Action:

- Transfer of land into federal trust status for the Tribe by the Secretary of the Interior;
- Apply for a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity in compliance with the U.S. Environmental Protection Agency (EPA); and
- Consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Federal Endangered Species Act (FESA), if endangered species may be impacted by the Proposed Action.
- Consultation with the Tribal Historic Preservation Office (THPO) under Section 106 of the National Historic Preservation Act (NHPA), if historic properties may be impacted by the project.

SECTION 2.0

PROPOSED PROJECT AND ALTERNATIVES

SECTION 2.0

PROPOSED PROJECT AND ALTERNATIVES

The Proposed Project and project alternatives are described in this section. This section also summarizes the protective measures and Best Management Practices (BMPs) incorporated into the project to reduce potential adverse impacts to environmental resources. The project alternatives evaluated in this Environmental Assessment (EA) consist of:

- Alternative A – 853± acre trust land acquisition and development of 25 residences for Tribal members, plus a new Tribal school, up to three cultural/education facilities, a domestic water storage tank, wastewater treatment plant, and supporting uses (Proposed Project);
- Alternative B – 751± acre trust land acquisition and the same development as presented under Alternative A; and
- Alternative C – No federal action or proposed development.

A summary of project components under Alternatives A and B is provided in **Table 2-1** below.

TABLE 2-1
SUMMARY OF PROJECT ALTERNATIVES A AND B

Project Components	Alternative	
	A	B
Land Taken into Trust	853± acres	751± acres
Residential Development	25 units	25 units
Education and Cultural Development Uses	1 Tribal School; Up to 3 Cultural/Education Facilities	1 Tribal School; Up to 3 Cultural/Education Facilities
Water Source	Onsite wells	Onsite wells
Domestic Water Storage Tank	Onsite storage tank	Onsite storage tank
Wastewater Treatment	Onsite WWTP	Onsite WWTP

SOURCE: AES, 2011

2.1 ALTERNATIVE A – PROPOSED PROJECT

Alternative A consists of two main components: (1) the placement of 15 parcels that total approximately 853± acres into trust; and (2) the construction of 25 residences, up to three cultural/education facilities, one Tribal school, one domestic water storage tank, one wastewater treatment plant and supporting infrastructure. Alternative A is described in more detail below.

2.1.1 LAND TRUST ACTION

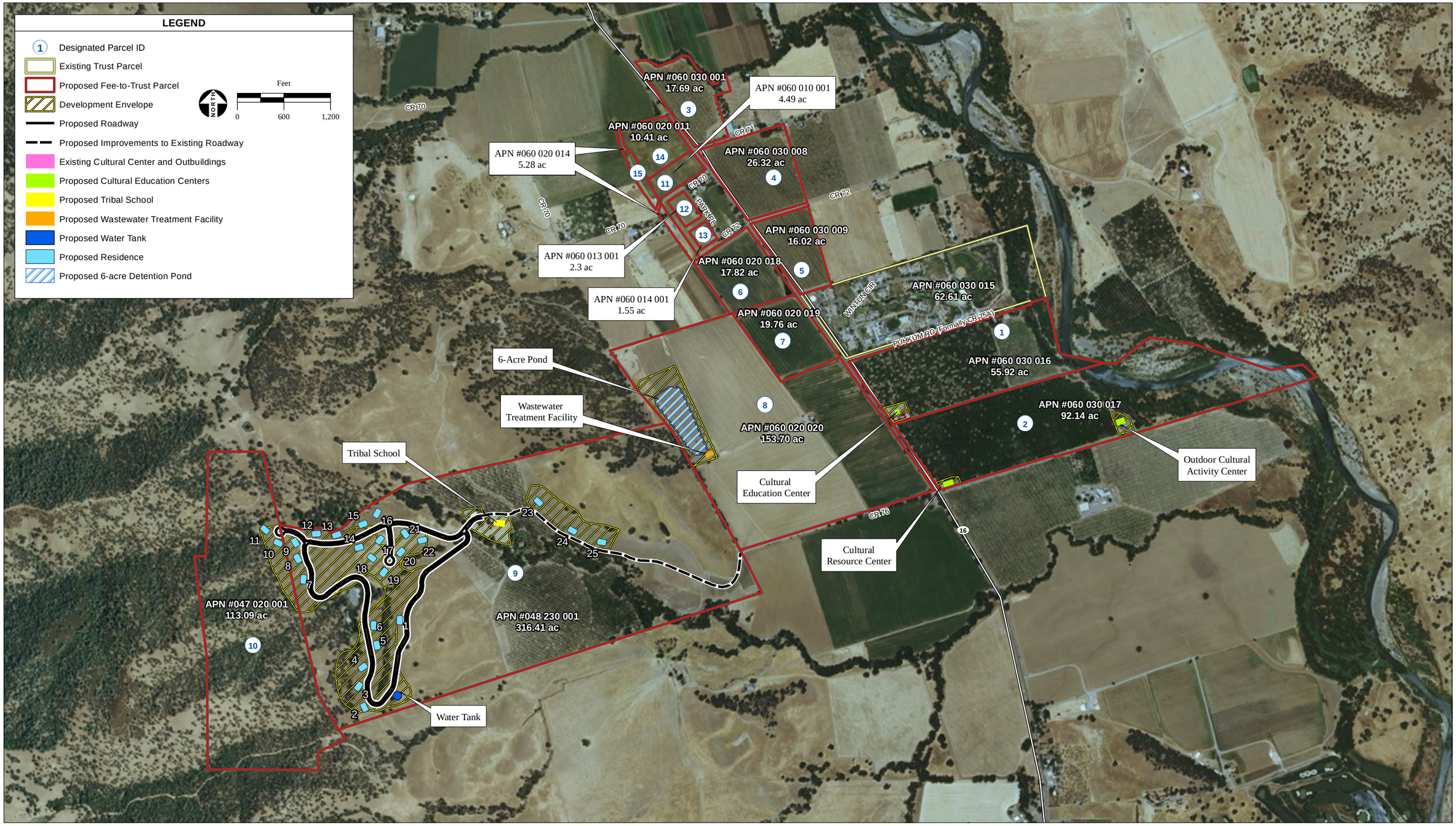
Alternative A consists of the fee simple conveyance of the 853± acre site into federal trust status for the benefit of the Tribe. This trust action would shift civil regulatory jurisdiction over the 853± acres from the State of California (State) and Yolo County (County) to the Tribe. The State and County would continue to exercise criminal jurisdiction under Public Law 280. Federal laws, such as the Clean Water Act (CWA) and the Endangered Species Act (ESA), would continue to apply as they do on other Tribal trust lands.

2.1.2 PROPOSED RESIDENTIAL DEVELOPMENT

Under Alternative A, the Tribe would construct new residences on Parcels 9 and 10 of the project site, supplementing the existing Tribal housing on adjacent existing trust land. The proposed housing would consist of up to 25 residences of varying size between roughly 2,500 to 5,200 square feet per unit; construction of the housing would be phased over time as needed. Additionally, a new domestic well, domestic water storage tank, improved access roads, driveways, and utilities would also be constructed to support the residences and proposed Tribal school on Parcels 9 and 10. An existing stock pond on Parcel 9 would be modified to function for peak flow stormwater detention (**Section 4.1.2**). A site plan identifying the proposed residential community under Alternative A is shown in **Figure 2-1**.

2.1.3 COMMUNITY AND GOVERNMENTAL FACILITIES

The Tribal school (Yocha Dehe Wintun Academy), currently located adjacent to the Tribal Government Center on existing trust land to the north of Parcel 1, would be relocated to Parcel 9 near the proposed residential community and housed in a new facility (**Figure 2-1**). The Proposed Project would facilitate the conversion of existing Yocha Dehe Wintun Academy buildings to Tribal government and operational uses, effectively replacing the existing temporary trailers that currently house some Tribal staff. These newly converted Tribal government and operational buildings would provide for the additional hiring of up to 20 new employees, 5 of which would be school staff, housed at the new Academy site on Parcel 9. This proposed conversion would allow for greater accessibility to and connectivity of the Tribe's government and operational facilities, which would be consolidated on existing trust land directly north of Parcel 1.



SOURCE: Langenour & Meikle, 2011; USDA NAIP Aerial Photograph, 2010; Yolo County GIS, 2009; AES, 2012

Figure 2-1
Proposed Project Site Plan

The development of up to three cultural/education facilities is proposed under the Proposed Project (**Figure 2-1**). During the initial phase of development under the Proposed Project, a former residence and associated outbuildings on Parcel 1 would be modified to house the Cultural Education Center. Parking areas would be developed near the newly converted Cultural Education Center. On Parcel 2, the placement of nonpermanent structures representative of a historic Tribal village would be developed to serve as the Outdoor Cultural Activity Center. Development of the third cultural/education facility may be phased at a later date on Parcel 2. Additional access roads and driveway improvements would be developed to accommodate these cultural/education facilities as needed.

2.1.4 PUBLIC SERVICES

Public services would be provided to the Proposed Project in the same manner as those services are currently provided to the Tribe's existing residential and governmental facilities. Police and security services would be supplied primarily by the Tribal security force and supplemented by local and federal law enforcement as called for under 18 United States Code (U.S.C.) 1162. The Tribe's Yocha Dehe Fire Department (YDFD), which is stationed at the Tribe's Cache Creek Casino Resort (CCCR) property approximately 1.5 miles south from the project site, would provide fire protection and emergency medical services to the Proposed Project. Electric, telephone, and cable services would be extended to the site by local utility companies.

2.1.5 WATER SUPPLY

Water would be supplied to the cultural/education facilities on Parcels 1 and 2 by either the development of one onsite well and storage tank or via connection to the existing well and water storage system on existing trust land, directly north of Parcel 1.

To serve the proposed Tribal housing and Tribal school proposed for Parcels 9 and 10, one new well would be developed within the project site. This well would be located in reasonable proximity to the new developments. The Tribe would install an onsite domestic water storage tank as well as the appropriate water distribution pipelines to the proposed Tribal residences and Tribal school on Parcels 9 and 10. Proposed water facilities are discussed in more detail in **Appendix C**.

2.1.6 WASTEWATER TREATMENT AND DISPOSAL

A new wastewater treatment plant (WWTP) would be constructed on Parcel 8 (**Figure 2-1**). The WWTP would be sized to accommodate the Proposed Project in addition to the existing homes and facilities located on trust land adjacent to the project site. The proposed WWTP could effectively be linked to all existing and proposed Tribal housing and community/government buildings within one reliant, connected network of wastewater treatment infrastructure. The tertiary treated wastewater would be recycled for use as agricultural irrigation.

The proposed WWTP and related facilities are discussed in more detail in **Appendix C**. In general terms, wastewater facilities include sewer lift stations, conveyance systems, and a recycled water reservoir (refer to Figure 4-1 of **Appendix C**). The sewer lift stations would be developed on existing trust land and on Parcel 9. The recycled water reservoir would be developed on Parcel 8 in the vicinity of the proposed WWTP site. If the WWTP is linked to existing Tribal housing and community/governmental buildings, an underground pipeline crossing beneath SR-16 likely would be built. Such a pipeline may also cross Parcel 7. The proposed wastewater treatment system would be operated pursuant to U.S. Environmental Protection Agency (EPA) regulations.

2.1.7 ROADWAYS

Existing farm roads would be improved and/or new roads constructed to provide access to the proposed residences and school on Parcels 9 and 10. CR-76, west of SR-16, would be improved and paved. The existing gravel road at the western terminal point of CR-76 would be upgraded, paved, and extended from its current terminus to provide access to the proposed developments on Parcels 9 and 10. As shown on **Figure 2-1**, the road would include a continuous loop, providing access to every residence and the Tribal school. To the extent feasible, this route would utilize existing farm roads, which currently include two low water crossings and a crossing over the top of an existing stock pond impoundment. Crossing of potential Waters of the U.S. would be limited to these three existing crossings; however, the crossing over the top of the impoundment would be paved and the low water crossings would be replaced with span bridges, allowing the natural streams to be restored.

Parcels 12 and 13 currently contain unimproved roads from an antiquated subdivision that was never developed (refer to **Section 3.7**). Once these parcels are taken into trust, the County subdivision entitlements would no longer be in effect as the land would be under the control of the Tribal government. As stated above, Parcels 12 and 13 would not be developed under the Proposed Project and would remain in agricultural production, consistent with surrounding rural land uses.

2.1.8 PROJECT CONSTRUCTION

The project components would be constructed after the 853± acre project site has been placed into federal trust for the Tribe. It is assumed that construction of the project would begin in 2011 and end in 2014; however, the residential development could be phased over several years as new homes are needed. Construction would involve earthwork, placement of concrete foundations, steel and wood structural framing, masonry, electrical and mechanical work, building finishing, and paving, among other construction trades. A worksite safety plan would be prepared for construction. No construction activities would occur on Parcels 3 through 6 and 11 through 15;

these parcels would remain as agricultural lands. All areas on Parcels 1, 2, and 7 through 10 not proposed for development would remain in agricultural use (**Figure 2-1**).

2.1.9 PROTECTIVE MEASURES AND BEST MANAGEMENT PRACTICES

Protective measures and best management practices (BMPs) have been incorporated into the project design to eliminate or substantially reduce environmental impacts from the Proposed Project. These measures and BMPs are discussed below.

Land Resources

- All structures would meet the Tribe's building ordinance, which meets or exceeds California Building Code (CBC) requirements, including seismic standards.
- Non-corrosive materials and/or protective coatings for buried facilities would be used for construction on corrosive soil.

Water Resources

- Areas outside of buildings and roads would be kept as permeable surfaces to the extent practicable; either as vegetation or high infiltration cover, such as mulch, gravel, or turf block. Pedestrian pathways would use a permeable surface where possible, such as crushed aggregate or stone with sufficient permeable joints (areas between stone or brick if used).
- Existing vegetation would be retained where possible.
- Roof downspouts would be directed to splash blocks and not to underground storm drain systems.
- Runoff from rooftops and other impervious areas would be directed to vegetated areas to help treat and infiltrate stormwater prior to leaving the site.
- Runoff from roadways would filter though rock-lined swales and bio-swales.
- Permanent energy dissipaters would be included for drainage outlets.
- Rock rip-rap energy dissipaters would be installed at the point of release of concentrated flow.
- High water-demand plants would be minimized in landscaping plans. Native and drought-tolerant plant species (trees, shrubs, and ground cover) would be emphasized.
- Water-efficient fixtures and appliances would be installed in residences and community and governmental facilities.

Air Quality

The following measures would reduce project-related greenhouse gas emissions associated with climate change:

- Buildings would be sited to take advantage of shade, prevailing winds, and sun screens to the extent feasible to reduce energy use.
- Buildings would be designed to include efficient lighting and lighting control systems.
- Energy efficient heating and cooling systems as well as appliances would be installed in residences and community and governmental facilities.
- Solar or other alternative power systems would be utilized where feasible.

Biological Resources

- Native trees would be preserved to the maximum extent feasible.
- All identified wetland areas would be avoided to the maximum extent feasible.

Public Services

- Structural fire protection would be provided through compliance with Tribal ordinances no less stringent than applicable Uniform Fire Code requirements. The Tribe would ensure that appropriate water supply and pressure is available for emergency fire flows.
- The community and governmental facilities would be equipped with an early detection system that ensures an initial response to any fire alarm (automatic, local, or report). This would rely on automatic sprinkler systems in the occupied areas and smoke detection, along with automatic sprinkler systems, in the areas of the facility that are normally unoccupied, such as storerooms and mechanical areas.

Visual Resources

- Signage for all streets, community and governmental facilities, and the residential community would be subtly incorporated into the landscape.
- Lighting would only occur at street intersections, parking areas, residential areas, and the community and governmental facilities. The lighting would consist of pole-mounted lights, limited to 18 feet tall, with cut-off lenses and down cast illumination to the extent feasible.

2.2 ALTERNATIVE B – REDUCED ACREAGE

As with Alternative A, Alternative B would involve placing land into federal trust status for the benefit of the Tribe; however, under Alternative B, Parcels 3 through 6 and 11 through 15 would

be omitted from the trust land acquisition, decreasing the acreage from approximately 853± acres to approximately 751± acres (**Figure 2-2**). As with Alternative A, this trust action would shift civil regulatory jurisdiction over the 751± acres from the State and the County to the Tribe for land held in trust for the Tribe by the federal government.

The proposed development under Alternative B is identical to that proposed under Alternative A including: the construction of 25 residences, up to three cultural/education centers, one Tribal school, one domestic water storage tank, and one WWTP. Public services, water supply, wastewater treatment and disposal, and roadway improvements would all be provided for Alternative B as described for Alternative A. Project construction protective measures and BMPs would be identical to those described for Alternative A.

2.3 ALTERNATIVE C – NO ACTION

Under the No-Action Alternative, neither the 853± acre Alternative A nor the 751± acre Alternative B would be placed into trust for the benefit of the Tribe and these properties would not be developed as identified under Alternatives A and B. The Tribe would retain ownership of the properties in fee title, and jurisdiction would remain with Yolo County.

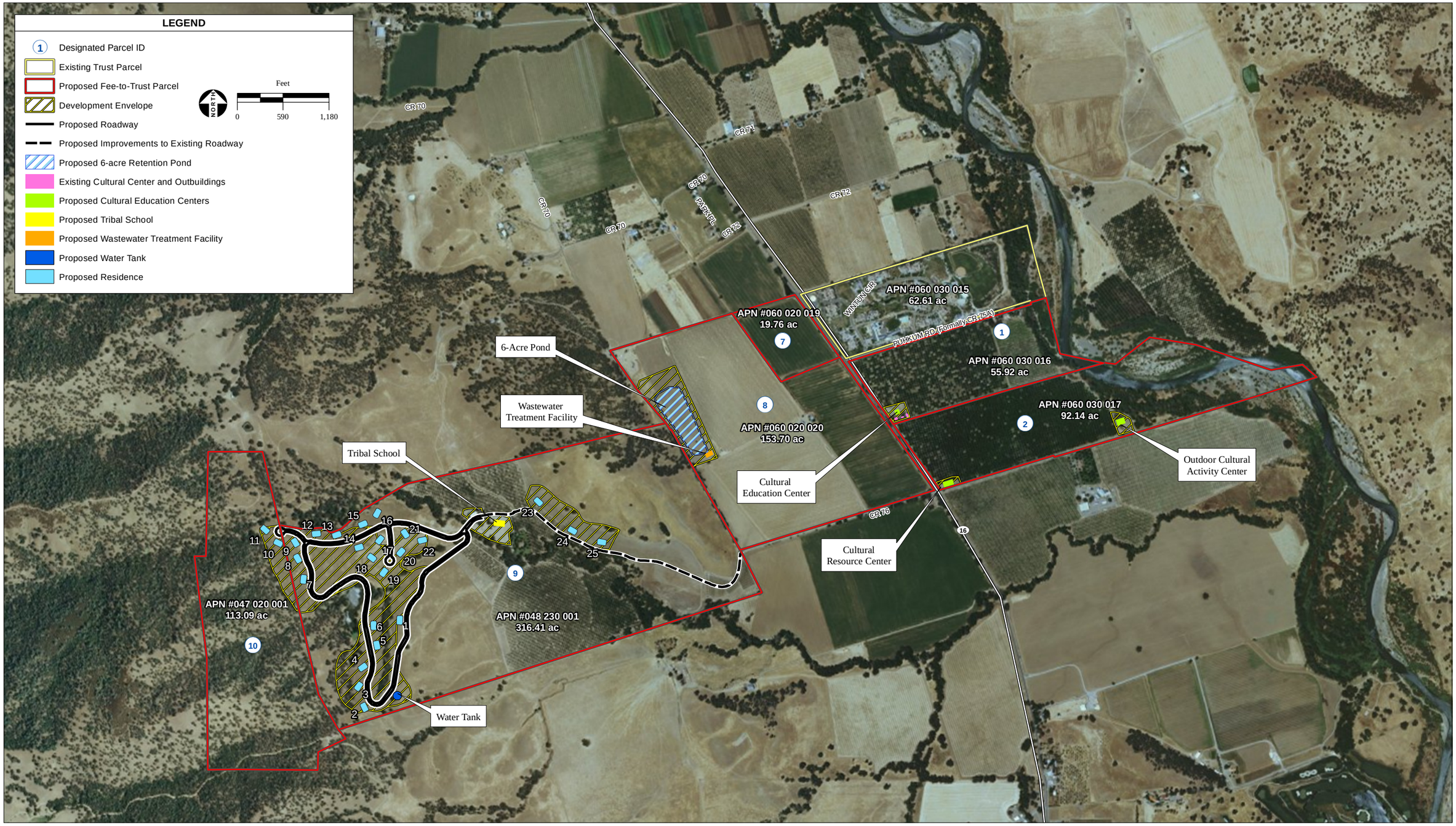
If no additional land is taken into trust for the benefit of the Tribe, then Tribal housing and community facilities would continue to be confined to the existing 63± acre trust parcel. To provide the 25 homes and additional facilities that will be needed to support Tribal members and their families in the coming years, the density of development on the existing trust parcel would increase substantially and would likely include the construction of several multi-level structures. Because there is no space on the existing trust parcel for a WWTP, the Tribe would continue to rely on septic tanks and leach fields for wastewater disposal, and would be unable to utilize recycled water.

Under the current County agricultural zoning designation, only limited cluster housing is authorized on the Tribe's fee land currently proposed for trust. The Tribal housing proposed in the EA is not located on Williamson Act lands, is clustered, is located outside of the view shed of SR-16, and is designed to enable the Tribe to exercise its jurisdiction regarding housing for its own members within its historic homeland. If the land were left under County jurisdiction and even if the County should choose to change the permitted housing authorized under its current zoning in the future, the ability of the Tribe to exercise its sovereignty over its own housing for its Tribal members, which is the purpose and need for taking the land into trust under the Proposed Action, would not be realized and therefore one of the main objectives of the Proposed Action would not be met.

2.4 COMPARISON OF THE PROPOSED PROJECT AND ALTERNATIVES

Alternatives A and B both meet the Tribe's purpose and need objectives of providing a cohesive residential community large enough to accommodate its members and their families. The proposed development, including 25 residences, up to three cultural/education facilities, Tribal school, and supporting uses, is identical for Alternatives A and B. Therefore, for most environmental issues, the potential for impacts would be the same for these two alternatives. Under Alternative A, a larger amount of land would be taken into trust for the benefit of the Tribe than under Alternative B. The maintenance of some agricultural operations on all parcels and exclusive maintenance of agriculture on the northern parcels (not proposed for development) in Alternative A would foster direct Tribal control over their ongoing agricultural enterprises.

As stated in **Section 1.0**, all of the subject parcels except for Parcels 9 and 10 are currently under Williamson Act contracts (Yolo County GIS, 2010; C. Lee pers comm., 2010). Since the majority of the development under the Proposed Project is located on these two parcels (Parcels 9 and 10), potential impacts associated with nonagricultural use of Williamson Act parcels would be minimal for both Alternatives A and B. Approximately six acres on Parcels 1 and 2 would be used for the proposed cultural/education facilities, which are consistent with permitted and conditionally-permitted uses identified in the County's Agricultural Preserve zoning (**Table 2-2**). Further, the estimated development envelopes for the WWTP, recycled water reservoir, and associated infrastructure on Parcels 7 and 8 are small, covering approximately eight acres in total (**Table 2-2**), the majority of which (6 acres) would be for water storage for later agricultural use. As shown in **Table 2-2**, the remaining Parcels 3 through 6 and 11 through 15 would remain in agricultural production. The anticipated total acreage for lands remaining in agricultural production under the Proposed Project equals approximately 754 acres (**Table 2-2**). **Table 2-2** identifies the proposed modified and unmodified land uses for the project parcels under the Proposed Project.



SOURCE: Langenour & Meikle, 2011; USDA NAIP Aerial Photograph, 2010; Yolo County GIS, 2009; AES, 2012

Figure 2-2
Alternative B Site Plan

TABLE 2-2
PROPOSED TRIBAL MODIFIED LAND USES

Parcel Number	Current Land Use (Acreage of Parcel)	Proposed Trust Land Use Classification	Proposed Development Envelope (Acres)	Unchanged Land Use (Acres)
1,2	Orchard (148.06)	Agriculture, Community Facilities	Cultural/Educational Facilities (6)	144.06
3	Agriculture (17.69)	Agriculture	N/A	17.69
4,5,6	Agriculture (60.16)	Agriculture	N/A	60.16
7, 8	Agriculture (173.46)	Agriculture, Wastewater Infrastructure	Wastewater Treatment Plant (2); Recycled Water Reservoir (6)	171.46
9, 10	Grazing Land, Orchard (429.50)	Agriculture, Tribal Housing, Tribal School, Domestic Water Storage	25 Tribal Residences and Domestic Water Storage Tank (80), Tribal School (5)	344.50
11,12 13,14,15	Agriculture (24.03)	Agriculture	N/A	24.03
Total Acreage of Development Envelopes (Approximate)			**99.00**	
Total Acreage of Proposed Trust Parcels 1-15			**852.90**	
Anticipated Acreage Remaining in Agricultural Production			**753.90**	

Source: Yolo County Assessor: (Butler, 2010); (AES, 2011)

Under Alternative C, the Tribe's community/governmental facilities and housing needs would continue to be confined to the existing 63± acre trust parcel. No impacts would occur to the 853± acre project site; however, the development density on the existing trust parcel would be anticipated to increase dramatically to try and meet ongoing and future Tribal needs. This higher density would severely strain or exceed the capacity of the existing trust land to support the growth of the Tribe. For example, under Alternative C, impacts to land use, water resources, and visual resources would be greater than under Alternatives A and B. Alternatives A and B would meet the purpose and need as identified in **Section 1.0**. In contrast, the purpose and need would not be met under Alternative C.

SECTION 3.0

DESCRIPTION OF AFFECTED ENVIRONMENT

SECTION 3.0

DESCRIPTION OF AFFECTED ENVIRONMENT

This section presents relevant information about existing resources and other values that may be affected by the Proposed Project and alternatives. In accordance with the National Environmental Policy Act (NEPA) and the Bureau of Indian Affairs' (BIA) implementing guidelines (59 IAM 3-H), the existing conditions described herein provide the baseline for determining the environmental effects identified in **Section 4.0**. Descriptions include the following resource and issue areas:

- Land Resources
- Water Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Socioeconomic Conditions / Environmental Justice
- Transportation and Circulation
- Land Use
- Public Services
- Noise
- Hazardous Materials
- Visual Resources

3.1 LAND RESOURCES

3.1.1 GEOLOGICAL SETTING

The Capay Valley, including the project site and the property currently held in trust for the Yocha Dehe Wintun Nation (Tribe), is located in the southeastern portion of the North Coast Ranges geomorphic province. Folding and faulting, which created part of the Coast Range, followed by erosion and sedimentation, formed the Capay Valley. The geologic formations of the area consist of cretaceous-age sandstone and shale, overlain by semi-consolidated tertiary sediments, unconsolidated Pleistocene terrace gravels, and recent alluvium (Yolo County, 2010).

3.1.2 TOPOGRAPHY

The project site is located within the Cache Creek watershed in the long, relatively flat Capay Valley, which is bordered by low, steep mountains and sharp, deep canyons. The valley floor tips downward to the east, confining Cache Creek primarily to the eastern side of the valley. The topography of the project area consists of flat alluvial valley floor and the adjacent western foothills that range in elevation from 300 feet above mean sea level (amsl) to a maximum of roughly 900 feet amsl (Yolo County, 2010). The topography of the project site consists primarily of flat agricultural lands, but also includes rolling hills in the western portion of the site. **Figure 1-2** depicts the topography of the project site.

3.1.3 SEISMIC CONDITIONS

The project site falls within the Great Valley Fault zone, with the Midland Fault Zone located between the City of Winters and the Coast Range in the southwestern portion of Yolo County. Two mapped faults, Sweitzer and Eisner, pass through the eastern portion of the valley. These faults can be seen on the surface through displacement and landslide expressions. The nearest faults to the site are the Sweitzer Fault located approximately one-half mile northeast, and the west and east traces of the Valley Fault that are estimated to traverse Capay Valley under the alluvium. Neither fault is considered active. The nearest active faults are the Dunnigan Hills Fault 10 miles to the northeast, the Hunting Creek Fault 12 miles to the west, and the Green Valley Fault adjoining the western edge of Lake Berryessa 14 miles to the southwest. **Figure 3-1** shows regionally active faults and their relative distances to the project site.

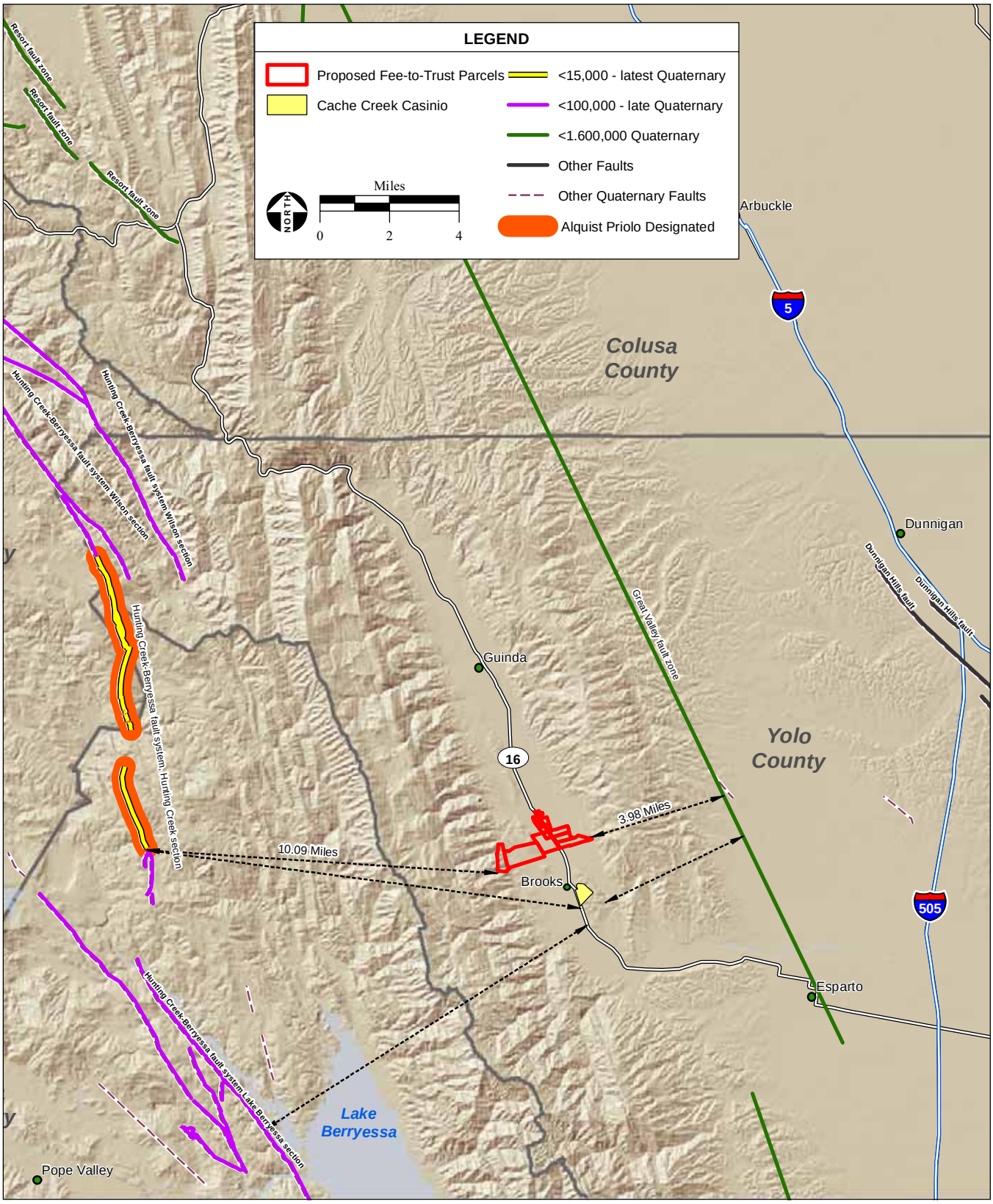
The project site is located within an area of moderate potential shaking intensity, with a Modified Mercalli intensity scale level of VIII. This corresponds to slight damage in specially designed structures and considerable damage in ordinary substantial buildings.

3.1.4 SOIL TYPES AND CHARACTERISTICS

The 15-parcel project site has been divided into five areas: Area A (Parcels 1-2); Area B (Parcels 3-6); Area C (Parcels 7-8); Area D (Parcels 9 and 10); and Area E (Parcels 11-15), for which Soil Resource Reports were prepared and are included as **Appendix A**. The project site contains a total of 10 soil types, which are summarized in **Table 3-1** and depicted on **Figure 3-2**.

The following descriptions characterize each soil type on the project site (NRCS, 2009a):

- Balcom silty clay loam, 15 to 30 percent slopes, eroded (BaE2) – This soil type is found at elevations of 300 to 1,000 feet, on slopes of 15 to 30 percent. The drainage class is "well drained," and flooding does not occur. Parent material for BaE2 is residuum weathered from calcareous sandstone.



SOURCE: USGS Earthquake Hazards Program, 2007; AES, 2012

Figure 3-1
Regional Fault Map

TABLE 3-1

PROJECT SITE SOILS

Map Unit Symbol	Map Unit Name	Occurs on Parcels	Slope Range	Erosion Hazard	Drainage Class	Flooding Occurrence	Percent of Total Project Site (Approximate)
BaE2	Balcom silty clay loam, 15 to 30 percent slopes, eroded	8-10	15-30 %	Moderate	Well Drained	None	9 %
BaF2	Balcom silty clay loam, 30 to 50 percent slopes, eroded	8, 9	30-50 %	Severe	Well Drained	None	8 %
Ck	Clear Lake Clay	8, 9	0-2 %	Slight	Poorly Drained	Rare	2 %
CtD2	Corning gravelly loam, 2 to 15 percent slopes, eroded	9, 10	2-15 %	Slight	Well Drained	None	10 %
DaF2	Dibble clay loam, 30 to 50 percent slopes, eroded	10	30-50 %	Severe	Well Drained	None	9 %
MrG2	Millsholm rocky loam, 15 to 75 percent slopes, eroded	10	15-75 %	Very Severe	Well Drained	None	3 %
Rh	Riverwash	1, 2	0-2 %	Slight	Excessively Drained	Frequent	2 %
TaA	Tehama Loam, 0 to 2 percent slopes	1, 2, 4-15	0-2 %	Slight	Well Drained	None	39 %
TaB	Tehama Loam, 2 to 5 percent slopes	9	2-5 %	Slight	Well Drained	None	3 %
Ya	Yolo Silt Loam	1-4, 11, 14	0-1 %	Slight	Well Drained	None	14 %

SOURCE: NRCS, 2009a

SOURCE: NRCS Soil Survey Data; USDA NAIP Aerial Photograph, 2010; Yolo County GIS, 2009; AES, 2012

Figure 3-2

Soils Map

- Balcom silty clay loam, 30 to 50 percent slopes, eroded (BaF2) – This soil type is found at elevations of 300 to 1,000 feet, on slopes of 30 to 50 percent. The drainage class is "well drained," and flooding does not occur. Parent material for BaF2 is residuum weathered from calcareous sandstone.
- Clear Lake Clay (Ck) – This soil type is found at elevations of 10 to 400 feet, on slopes of 0 to 2 percent. The drainage class is "poorly drained," and flooding is rare. Parent material for Ck is fine-loamy alluvium derived from sedimentary rock.
- Corning gravelly loam, 2 to 15 percent slopes, eroded (CtD2) – This soil type is found at elevations of 120 to 600 feet, on slopes of 2 to 15 percent. The drainage class is "well drained," and flooding does not occur. Parent material for CtD2 is mixed gravelly alluvium derived from sedimentary rock.
- Dibble clay loam, 30 to 50 percent slopes, eroded (DaF2) – This soil type is found at elevations of 500 to 2,000 feet, on slopes of 30 to 50 percent. The drainage class is "well drained," and flooding does not occur. Parent material for DaF2 is residuum weathered from siltstone.
- Millsholm rocky loam, 15 to 75 percent slopes, eroded (MrG2) – This soil type is found at elevations of 500 to 2,500 feet, on slopes of 15 to 75 percent. The drainage class is "well drained," and flooding does not occur. Parent material for MrG2 is residuum weathered from sedimentary rock.
- Riverwash (Rh) – This soil type is found at elevations of 0 to 500 feet, on slopes of 0 to 2 percent. The drainage class is "excessively drained," and flooding occurs frequently. Parent material for Rh is mixed sandy and gravelly alluvium.
- Tehama Loam, 0 to 2 percent slopes (TaA) – This soil type is found at elevations of 50 to 500 feet, on slopes of 0 to 2 percent. The drainage class is "well drained," and flooding does not occur. Parent material for TaA is mixed alluvium.
- Tehama Loam 2 to 5 percent slopes (TaB) – This soil type is found at elevations of 50 to 500 feet, on slopes of 2 to 5 percent. The drainage class is "well drained," and flooding does not occur. Parent material for TaB is mixed alluvium.
- Yolo Silt Loam (Ya) – This soil type is found at elevations of 30 to 400 feet, on slopes of 0 to 1 percent. The drainage class is "well drained," and flooding does not occur. Parent material for Ya is fine-loamy alluvium derived from sedimentary rock.

3.1.5 SOIL HAZARDS

SOIL EROSION

Soil erosion is the wearing and removal of soil materials from the ground surface and the transportation of these soil materials resulting in deposition elsewhere. Mechanisms of soil

erosion include storm water runoff and wind, as well as human activities, such as changes in drainage patterns and removal of vegetation. Factors that influence erosion include physical properties of the soil, topography (slope), and annual rainfall and peak intensity. The United States Department of Agriculture (USDA) rates the erosion potential of a map unit by taking all of the above into consideration. The ratings range from "slight" to "very severe." The erosion hazard ratings of the 10 soils within the project site are provided in **Table 3-1**. Approximately 80 percent of the project site contains soils with an erosion hazard rating of slight to moderate (NRCS, 2009a).

CORROSIVITY

The portion of the project site proposed for development (Parcels 1, 2 and 7 through 10) contains soils that are corrosive to steel and/or concrete.

LIQUEFACTION

Liquefaction involves soils that become highly saturated and lose their cohesive strength and subsequently act as a liquid, rather than a solid mass. Soils comprised of sands and inland fill in areas with high groundwater tables or rainfall are subject to liquefaction during intense seismic shaking events. The only sandy soils on the project site are of the Riverwash (Rh) type, which occur on approximately two percent of the project site, adjacent to Cache Creek (NRCS, 2009a; refer to **Table 3-1** and **Figure 3-2**). The portion of the project site proposed for development does not contain sandy soils and so the risk of liquefaction is minimal.

LANDSLIDES

Areas susceptible to landslides are comprised of weak soils on sloping terrain. Landslides can be induced by weather, such as heavy rains or strong seismic shaking events. The project site has flat areas and gently sloping hills with low landslide susceptibility.

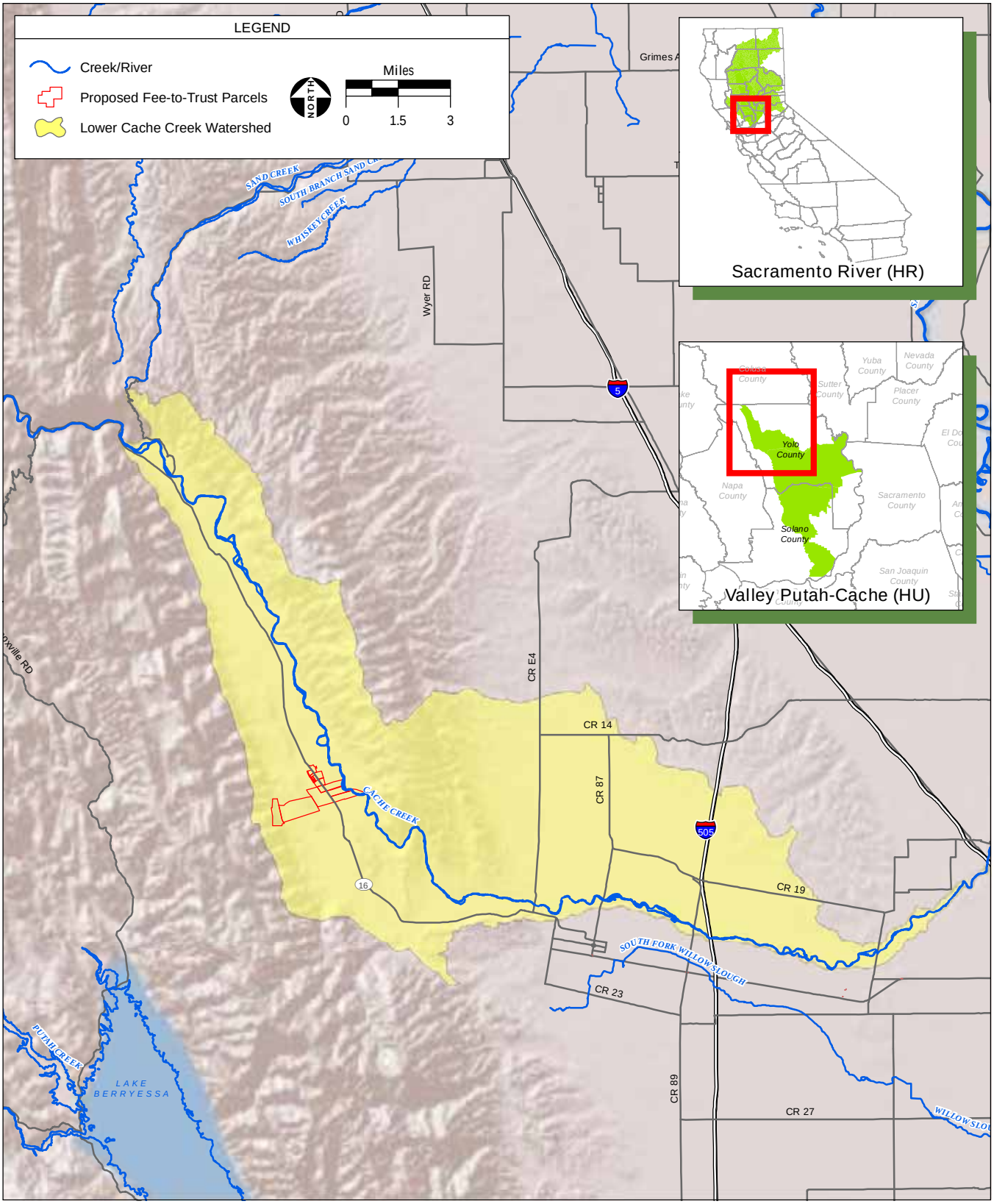
3.1.6 MINERAL RESOURCES

Six aggregate mines and 25 natural gas fields are currently operating in Yolo County; however, none are located on or in the vicinity of the project site (Yolo County, 2009a). The closest mineral resource zone is over two miles southeast of the project site.

3.2 WATER RESOURCES

3.2.1 SURFACE WATER

The project site is located within the lower Cache Creek Watershed (**Figure 3-3**). From its headwaters at the outlet of Clear Lake, Cache Creek flows generally to the northeast to its



SOURCE: California Interagency Watershed Map of 1999; AES, 2012

Figure 3-3
Lower Cache Creek Watershed Map

confluence with the north fork of the creek before heading southeast to the head of Capay Valley near Rumsey. Downstream from Rumsey, Cache Creek flows in a southern direction through Capay Valley, where it turns east at Capay flowing towards the Yolo Bypass. Cache Creek terminates in the Cache Creek Settling Basin, which is essential to flood management in the Yolo Bypass. Water conveyed to the settling basin is discharged into the Yolo Bypass via an overflow weir or low-flow outlet structure (Yolo County WRA, 2004). The watershed, upstream of Interstate 5 (I-5), encompasses 1,139 square miles. The project site is located within the drainage areas contributing to Cache Creek downstream of the Capay Diversion Dam and above I-5, comprising an area of 95 square miles.

Water resources on the project site include Cache Creek and associated tributaries. Cache Creek is located adjacent to Parcels 1 and 2. Small tributaries to Cache Creek are located adjacent to the northern boundary of Parcel 3 and traverse diagonally through Parcel 9. The Parcels 4 though 8 and 11 through 15 are used for agriculture and contain a few rural residences, but do not have surface water resources except for agricultural drainages. Parcel 10 contains natural drainages associated with the elevated topography of the parcel. Surface water resources are further addressed under Waters of the U.S. in **Section 3.4** and in the Biological Assessment, included as **Appendix E**.

SURFACE WATER SUPPLY

Yolo County's principal surface water supply systems consist of Clear Lake, Indian Valley Reservoir, and Cache Creek, which are operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD). The YCFCWCD manages two small hydroelectric plants; two reservoirs; more than 150 miles of canals and laterals; and three dams, including an inflatable rubber dam known as the Capay Diversion Dam (YCFCWCD, 2000).

Non-potable water is available for purchase from the YCFCWCD to any parcels within the District's boundaries through the submittal of a Notice of Intent verifying the purpose and need for the water. Parcels 1 and 2 have undeveloped riparian rights to use water from Cache Creek; thus, there are no agreements between the Tribe and the YCFCWCD relating to the exercise of those riparian rights to date. All 15 of the proposed trust parcels are within the YCFCWCD and therefore are eligible to use surface water from Cache Creek, subject to YCFCWCD rules, regulations, and fees.

DRAINAGE

Precipitation in Yolo County occurs primarily as rainfall, with the average rainfall in Brooks at 18 inches per year. While the average precipitation per year on Lower Cache Creek is 23 inches per year, Upper Cache Creek has an average of 35 inches per year (WRCC, 2009). Snowmelt occurs in mountain ridges in the western part of the County; however, it typically melts within days.

Therefore, snowmelt is not an important factor of the County's hydrology. There are three natural drainage features on the project site, one being Cache Creek along the eastern boundary of Parcels 1 and 2, and the others being tributary drainages to Cache Creek located on the northernmost portion of Parcel 3 that traverse Parcel 9 in a southeast direction. Parcels 4 and 5 west of State Route 16 (SR-16) contain irrigation ditches bordering the alfalfa fields that are connected to roadside ditches. These ditches are also connected to a canal north of the Tribe's existing trust parcel, which essentially drains all of the irrigation and roadside ditches on the project site.

Parcels 1, 2, and 7 through 10 are slated for some development and therefore were studied in more detail to assess the existing drainage patterns. A wastewater treatment plant (WWTP) and recycled water reservoir would be developed on Parcel 8, and therefore was included in the grading and drainage plan (**Appendix B**). Parcels 1 and 2 are relatively flat, trending west to east resulting in overland sheet flow of stormwater to Cache Creek. Development of the proposed Outdoor Cultural Activity Center on Parcel 2 would be located within the floodplain of Cache Creek. As stated in **Section 1.0**, the Outdoor Cultural Activity Center would consist of nonpermanent structures representative of a historic Tribal village.

Parcel 7 is relatively flat and slopes from the southeast to northeast where sheet flow is directed towards a culvert crossing SR-16 and then through manmade agricultural drainage ditches into Cache Creek. Parcel 9 collects surface water runoff from the Palmer Canyon and Toll Road basins. Runoff from the Palmer Canyon basin discharges to a normally dry creek bed that traverses northwest to southeast through Parcel 9. The Toll Road Basin discharges to an existing pond east of a private access road.

FLOODING

The Federal Emergency Management Agency (FEMA) is responsible for predicting the potential for flooding in most areas. FEMA routinely performs this function through the issuance of Flood Insurance Rate Maps (FIRMs), which depict various levels of predicted flood inundation. The project site is included within FIRM numbers 0604230350B and 0604230225B-1, which show that a portion of the project site east of SR-16 (Parcels 1, 2, 4, and 5) and a portion of Parcel 9 fall within the 100-year floodplain (**Figure 3-4, Table 3-2**). The remaining parcels (Parcels 3, 6 through 8, and 11 through 15) are located in Zone C, which is defined by the FIRM as exhibiting minimal flooding potential but not located within a classified floodplain. A majority of Parcel 10 is located within Zone C, with a small portion (<0.1 percent) located in the 100-year floodplain that is associated with a tributary to Cache Creek.

A preliminary updated FEMA designation dated December 19, 2008 has been prepared (**Appendix B**). The preliminary update indicates that while the floodplain elevations appear similar to the existing FIRMs, the zone designations have changed. The areas designated as Zone

LEGEND

- Designated Parcel ID
- Existing Trust Parcel
- Proposed Fee-to-Trust Parcel
- Proposed Roadway
- Proposed Improvements to Existing Roadway
- Blueline Streams
- Existing Cultural Center and Outbuildings
- Proposed Cultural Education Centers
- Proposed Tribal School
- Proposed Wastewater Treatment Facility
- Proposed Water Tank
- Proposed Residence

FEMA FIRM DESIGNATIONS

- A - Areas of 100 year Flooding. BFEs and flood hazard factors not determined.
- C - Area of Minimal Flooding

DETAILED FLOODPLAIN STUDY

- Approximate Floodplain - No Tailwater
- Floodplain - Tail Elevation 355 feet
- Floodplain - Tail Elevation 350 feet

NORTH

Feet

0 600 1,200

APN #060 030 001
17.69 ac

APN #060 010 001
4.49 ac

APN #060 020 011
10.41 ac

APN #060 020 014
5.28 ac

APN #060 030 008
26.32 ac

CR 71

CR 70

CR 72

PARK PL

APN #060 030 009
16.02 ac

APN #060 013 001
2.3 ac

APN #060 020 018
17.82 ac

APN #060 014 001
1.55 ac

APN #060 030 015
62.61 ac

Cache Creek

APN #060 020 019
19.76 ac

PUHKUM RD (Formally CR 75A)

APN #060 030 016
55.92 ac

Wastewater
Treatment Facility

APN #060 020 020
153.70 ac

APN #060 030 017
92.14 ac

Tribal School

Cultural
Education Center

Outdoor Cultural
Activity Center

CR 76

Cultural
Resource Center

16

APN #047 020 001
113.09 ac

APN #048 230 001
316.41 ac

Brooks Creek

Water Tank

SOURCE: Langenour & Meikle, 2011; FEMA FIRM Data, circa 1980; Aerial Express aerial photograph, 6/2007; Yolo County GIS, 2009; AES, 2012

Figure 3-4
Floodplain Map

C on the existing floodplain maps have been re-designated to Zone X, which is defined in the preliminary update as "Areas of 500-year flood; areas of 100-year flood with average depths less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levels from 100-year flood" (**Appendix B**).

TABLE 3-2
100-YEAR FLOODPLAIN STATUS BY PARCEL NUMBER

Parcel I.D.	100-Year Floodplain Location	100-Year Floodplain Acreage	Parcel I.D.	100-Year Floodplain Location	100-Year Floodplain Acreage
1	All but western portion	47.29	9	Southeast corner to northwest corner	33.27
2	All but western portion	76.94	10	Northwestern portion	0.1
3	N/A	0	11	N/A	0
4	Eastern half	8.87	12	N/A	0
5	North east corner	1.18	13	N/A	0
6	N/A	0	14	N/A	0
7	N/A	0	15	N/A	0
8	N/A	0			

SOURCE: FEMA, 1980.

3.2.2 GROUNDWATER

THE CAPAY VALLEY SUBBASIN

The project site lies within the Capay Valley Subbasin of the Sacramento Valley Groundwater Basin. Runoff and groundwater from the east-facing foothills recharge regional aquifers, which are unconfined near the surface and become increasingly confined with depth. There are no continuous barriers to vertical flow, yet the clay and silt soils create a combined impediment to vertical groundwater flow with increasing depth. Older, deeper sediments tend to be more compact and therefore less permeable than younger, shallower sediments (DWR, 2004).

The eastern and western margins of the Capay Valley Subbasin are defined by the lower east and west flanks of the valley, along the geologic contact between the older, less permeable cretaceous marine rocks and the overlying Tehama formation sediments (DWR, 2004). The subbasin extends from the Yolo County boundary on the north to the confluence of Salt Creek and Cache Creek to the south. As stated in *California's Groundwater Bulletin* published by the Department of Water Resources (DWR), the Capay Valley Subbasin structurally is, "a broad, elongated synclinal depression between the Blue Hills of the Vaca Mountains and the Rumsey Hills in the Coast Range Geomorphic Province." Recharge for the subbasin comes from Cache Creek and Bear Creek. Bear Creek can contribute high concentrations of boron to the subbasin, and thus, has an influence on water quality within Cache Creek and on groundwater extracted from Cache Creek deposits within the Capay and Sacramento Valleys (DWR, 2004).

Groundwater levels in the subbasin vary from approximately 10 to 40 feet below ground surface and remain relatively stable, even during dry periods (DWR, 2004). The Capay Valley Subbasin has a total thickness of less than 1,000 feet. The primary developed land use is for agriculture, irrigated by both surface water and groundwater. **Table 3-3** provides information regarding general well characteristics in the Capay Valley Subbasin.

TABLE 3-3
CAPAY VALLEY SUBBASIN WELL CHARACTERISTICS

Well Yields		
Municipal/Irrigation	Range: 150-1500 (approx.)	Average: 660 gpm
Total Depth (feet)		
Domestic	Range: 45 to 360 ft (approx)	Average: 215 ft (approx.)
Municipal/Irrigation	Range: 50 to 560 ft (approx.)	Average: 220 ft (approx.)

SOURCE: DWR, 2004; AES, 2011

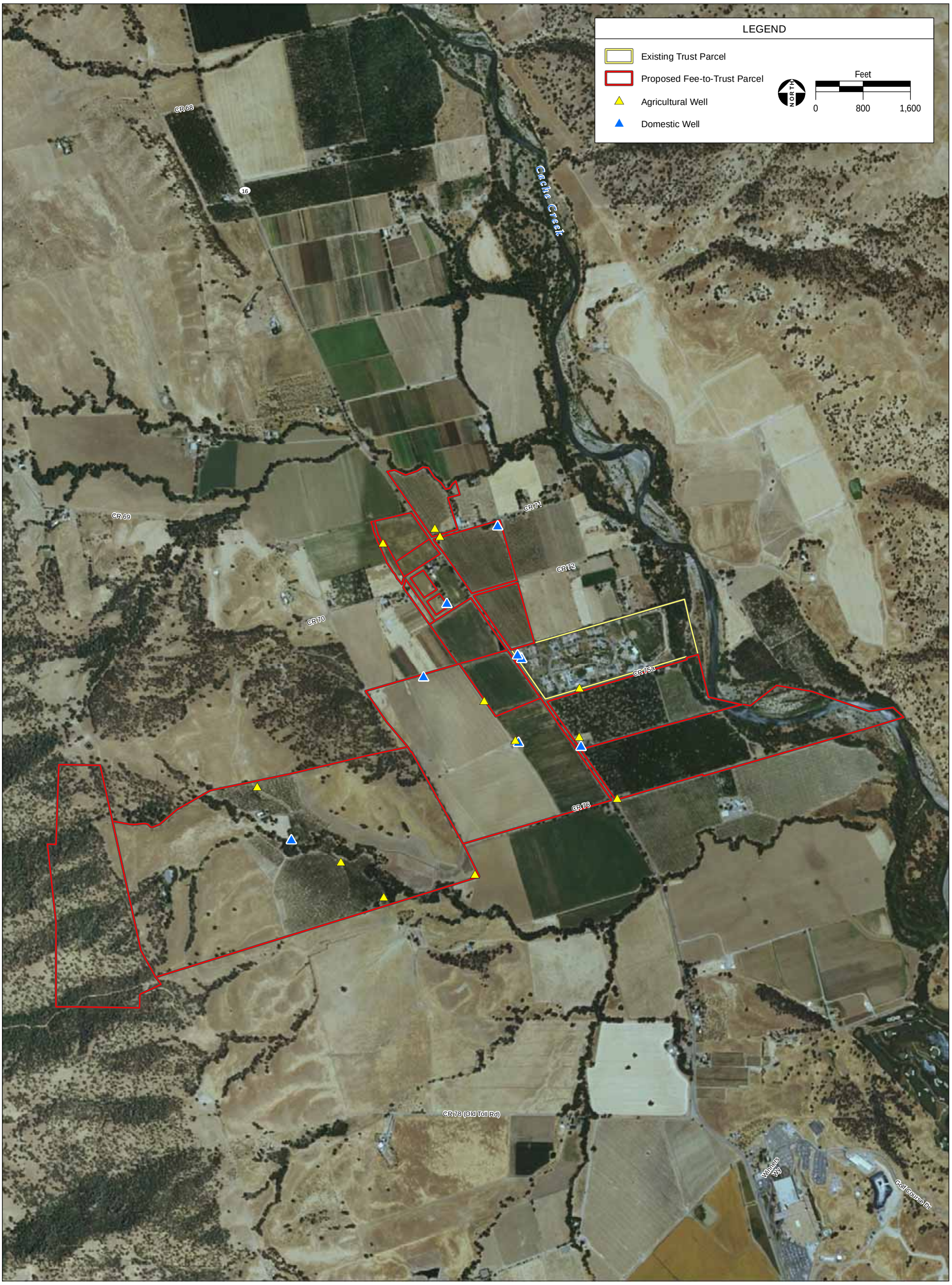
GROUNDWATER SUPPLY

Municipal Water Supply

Water in the vicinity of the project site is supplied primarily by domestic wells. There is no municipal water supply to Capay Valley. The closest municipal water supplier is the Esparto Community Service District, located in the town of Esparto, approximately nine miles southeast of the project site. The Esparto Community Service District currently operates five wells that have a capacity ranging from 300-700 gallons per minute (gpm). These wells are adequate to supply domestic demand, but additional wells are necessary to enhance demands for fire protection. Currently, there are no plans to extend municipal water service to the Tribe's land.

Irrigation Wells

Irrigation for the project site is provided by on-site wells, as shown in **Figure 3-5**. These active wells are used for irrigation and domestic purposes. In the center of Parcel 9, there are five agricultural wells arranged from north to south within the parcel. As stated in Section 3.2.1 of **Appendix C**, the wells and well pumps on Parcels 7 and 8 are interconnected with pipes so that water can be diverted to either property as needed (refer to **Figure 3-5**). On Parcel 9, although five wells exist on the property, none of them are routinely used since the yield is not considered dependable for agricultural usage (**Appendix C**). Instead, water is pumped from the wells on Parcels 7 and 8 (**Appendix C**).



SOURCE: Yolo County GIS, 2007; Langenour & Meikle, 2004-2007; USDA NAIP Aerial Photograph, 2010; AES, 2012

Figure 3-5
Wells on the Project Site

3.2.4 WATER QUALITY

SURFACE WATER QUALITY

The Clean Water Act (CWA) (33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The U.S. Environmental Protection Agency (EPA) is delegated as the authoritative body under the CWA. Important sections of the CWA are as follows:

- *Sections 303* and *304* provide for water quality standards, criteria, and guidelines. Section 303(d) requires states to identify impaired water bodies and develop total maximum daily loads (TMDLs) for the contaminant(s) of concern.
- *Section 401* (Water Quality Certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the U.S., to obtain certification from the state that the discharge will comply with other provisions of the Act.
- *Section 402* establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the U.S. Each NPDES permit contains limits on pollutant concentrations of wastes discharged to surface waters to prevent degradation of water quality and protect beneficial uses.
- *Section 404* regulates the discharge of dredged and fill material into waters of the U.S. The U.S. Army Corps of Engineers requires that a permit be obtained if a project proposes placing structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high-water mark. The USACE has established a series of nationwide permits (NWPs) that authorize certain activities in waters.

Anti-degradation Policy

Federal policy [Code of Federal Regulations (CFR), Title 40, Part 131.6] specifies that each state must develop, adopt, and retain an anti-degradation policy to protect the minimum level of surface water quality necessary to support existing uses. Each state must also develop procedures to implement its anti-degradation policy through water quality management processes. Each state's anti-degradation policy must include implementation methods consistent with the provisions outlined in 40 CFR 131.12 (EPA, 1994). Complying with the anti-degradation provision of the CWA, the Central Valley Regional Water Quality Control Board (CVRWQCB) has established water quality objectives for all inland surface waters to protect designated beneficial uses. Water quality objectives limit the impact of discharges to surface waters. The

water quality objectives that govern water quality within Cache Creek are summarized in **Table 3-4**.

TABLE 3-4
CVRWQCB SURFACE WATER QUALITY OBJECTIVES

Property/Constituent	Water Quality Objective
Bacteria	In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Biostiumulatory Substances	Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
Chemical Constituents	Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the provisions of Title 22 of the California Code of Regulations. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l.
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved Oxygen	For surface water bodies outside the legal boundaries of the Delta, the monthly median of the mean daily dissolved oxygen *(DO)* concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation. The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time: ▪ Waters designated WARM 5.0 mg/l ▪ Waters designated COLD 7.0 mg/l ▪ Waters designated SPWN 7.0 mg/l
Floating Materials	Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.
Methyl Mercury	For Cache Creek (Clear Lake to Yolo Bypass) (54), North Fork Cache Creek, and Bear Creek (tributary to Cache Creek), the average methylmercury concentration shall not exceed 0.12 and 0.23 mg methylmercury/ kg wet weight of muscle tissue in trophic level 3 and 4 fish, respectively.
Oil and Grease	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.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses. In determining compliance with the water quality objective for pH, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.
Pesticides	▪ No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. ▪ Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. ▪ Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer. ▪ Pesticide concentrations shall not exceed those allowable by applicable anti-degradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R.

Property/Constituent	Water Quality Objective
	Section 131.12.). ▪ Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. ▪ Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15. ▪ Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 µg/l.
Radioactivity	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Settleable Materials	Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
Suspended Materials	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Tastes and Odors	Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Turbidity	All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

SOURCE: CVRWQCB, 2007

Cache Creek was placed on California's list for impaired water bodies in 1988 (Section 303(d) of the CWA) for mercury levels within the creek and methylmercury levels within tissues of fish inhabiting the creek. The impacted area covers 96 miles of the lower Cache Creek watershed, from the Clear Lake Dam to the Cache Creek settling basin near the Yolo Bypass. Erosion and natural mercury levels in stream-bank sediment and mining operations within the drainage basin are considered to be the main cause of elevated mercury levels in Cache Creek. Although natural mercury is still a concern, mining operations within the drainage basin of Cache Creek have ceased. A TMDL was established by the CVRWQCB and was made an amendment to the Basin Plan in 2005, which went into effect in February 2007. The Basin Plan was amended to include a water quality management program to reduce concentrations of methylmercury in fish tissue, by reducing total mercury and methylmercury loading into Cache Creek. The amendment established a site-specific water quality objective of 0.14 nanograms per liter (ng/l), which would reduce annual methylmercury loading within Cache Creek at the Yolo Bypass by approximately 54 percent.

To meet site-specific water quality objectives, the basin plan amendment specifies actions associated with source reduction. Because the source of mercury within the lower Cache Creek watershed is from discharges into the upper Cache Creek watershed, a majority of the recommended actions address the upper Cache Creek watershed. Concerning the lower Cache Creek watershed, the basin plan specifies that proponents of new reservoirs, ponds, and wetlands must submit plans to control methylmercury discharges; and construction projects within the ten-year floodplain of the creek are required to implement erosion control management practices and conduct monitoring to evaluate compliance with the turbidity objective of the basin plan.

The lower Cache Creek watershed is also listed on the 303(d) list for unknown toxicity. In 2002, the creek was listed as low priority over an estimated 96-mile area on the 303(d) list. Priority ratings were removed from the 2006, 303(d) list. According to the 2006 list, the TMDL for unknown toxicity is anticipated to be reached in 2019.

A stream characterization of Cache Creek surface water quality adjacent to the Yocha Dehe Golf Club (approximately 1 mile downstream of the project site) was conducted in 2007. Results from the stream characterization are presented in **Table 3-5**. The results indicate good overall water quality, as indicated by comparing analytical results to the applicable regulatory level. None of the reported primary or secondary maximum contaminant levels (MCLs) were exceeded during the sampling event in 2007.

Municipal Wastewater / On-Site Wastewater Treatment and Disposal

The project site is not served by a municipal wastewater system. Septic tank systems are the primary method of treatment and disposal of residential sewage in the unincorporated areas of Yolo County. The Environmental Health Department of Yolo County estimates that the unincorporated areas contain about 6,700 septic tank systems, and based on information gathered from local haulers, these tanks yield approximately 1.5 to 2 million gallons of septic waste per year (Bencomo, 2006).

Individual septic tanks and leach beds provide wastewater treatment and disposal for the existing trust parcel located adjacent to the project site. Soils are favorable for these systems, and they are acceptable to the Yolo County Environmental Health Department. The septic tanks must be pumped periodically to remove the settled solids or sludge. This waste is pumped by trucks and hauled to a disposal facility.

GROUNDWATER QUALITY

Through the Basin Plan, the CVRWQCB has established water quality objectives for groundwater to protect designated beneficial uses. The water quality objectives that govern off-reservation groundwater quality are summarized in **Table 3-6**.

TABLE 3-5
SURFACE WATER QUALITY OF CACHE CREEK (2007)

Parameter		Cache Creek	Regulatory Level [1]
Trihalomethanes	Bromoform (µg/L)	<0.5	100[2]
	Bromodichloromethane (µg/L)	<0.5	
	Chloroform (µg/L)	<0.5	
	Dibromochloromethane (µg/L)	<0.5	
pH		8.02	6.5-8.5
General Minerals	Alkalinity, Total (as $CaCO_3$) (mg/L)	130	None
	Boron (µg/L)	840	CCL[5]
	Bicarbonate (as $CaCO_3$) (mg/L)	130	None
	Carbonate (as $CaCO_3$)	<5	None
	Hydroxide (as $CaCO_3$)	<5	None
	Chloride (mg/L)	9.4	250[4]
	Flouride (mg/L)	0.12	2,000
	Total Hardness (as $CaCO_3$) (mg/L)	130	None
	Magnesium (mg/L)	19	None
	Sulfate (mg/L)	7.5	250[4]
	Sodium (mg/L)	14	CCL[5]
	Total Dissolved Solids (mg/L)	150	500[3]
Dissolved Metals	Arsenic (mg/L)	<0.002	0.05
	Aluminum (mg/L)	0.16	1.0
	Barium (mg/L)	<0.1	1.0
	Cadmium (mg/L)	<0.001	0.010
	Copper (mg/L)	<0.05	1.0[4]
	Iron (mg/L)	0.21	0.3
	Lead (µg/L)	<5	15
	Manganese (ug/L)	23	0.05[4]
	Mercury (ug/L)	<1.0	2
	Nickel (mg/L)	<0.01	0.1
	Zinc (mg/L)	<0.05	5.0[4]

NOTES:
[1] Regulatory levels from the Basin Plan
[2] Trihalomethanes may not exceed a combined total of 100 g/l
[3] Recommended secondary MCL for taste preference
[4] Secondary MCL, based on consumer taste thresholds and is not health related
CCL = Contaminant Candidate List, EPA is evaluating potential MCL
< = Not detected above the laboratory method reporting limit
CaCO3 = Calcium Carbonate
SOURCE: AES, 2007a

TABLE 3-6
CVRWQCB GROUNDWATER QUALITY OBJECTIVES

Property/Constituent	Water Quality Objective
Bacteria	In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml.
Chemical Constituents	Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations
Radioactivity	At a minimum, ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations
Tastes and Odors	Ground waters shall not contain taste- or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
Toxicity	Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s).

SOURCE: CVRWQCB, 2007

Groundwater in the Capay Valley Subbasin is recharged almost exclusively by Cache Creek and its tributaries. As a result, the groundwater quality of the subbasin is influenced by the water quality of Cache Creek and is, therefore, likely to be similar (DWR, 2004). In general, Capay Valley groundwater has moderate to very high hardness and nitrates in the upper aquifer, but is otherwise of good quality. Yolo County's groundwater contaminants of concern are as follows: total dissolved solids (TDS), nitrates (NO_3), boron, arsenic, chromium, manganese, selenium, and iron. Typically, irrigation comes from agricultural wells on or adjacent to the project site. These irrigation wells tend to be shallow with high levels of TDS and a high yield. Domestic water is obtained from wells that are drilled to a deeper depth (approximately 150 feet) where water quality is better; however, these wells tend to have a lower yield.

Potable water for the Tribe's CCCR is provided by wells on the Tribe's Three Feathers Ranch, which is located directly across SR-16 from CCCR and approximately two miles from the project site. A representative groundwater analysis of these wells is presented in **Table 3-7**. Results of the analysis indicate water of relatively good quality, as indicated by comparing the analytical results to the regulatory limits and water quality objectives.

TABLE 3-7
GROUNDWATER QUALITY OF CCCR WELLS

Constituent	Well #1		Well #2		Regulatory Limit
	December 2001	August 2007	December 2003	August 2007	
Chloride (mg/l)	140	90	100	100	250 mg/l[2]
Color	13	ND	ND	ND	15 Units[2]
Specific Conductance (µmhos/cm)	850	800	930	1,000	900 µmhos/cm[2]
Fluoride (mg/l)	1.0	0.25	ND	0.26	2 mg/l[3]
Total Hardness as $CaCO_3$ (mg/l)	NS	270	280	360	None
Nitrate as NO_3 (mg/l)	2.9	3.8	21	45	45 mg/l[3]
pH	7.3	7.02	7.26	7.22	6.5-8.5[4]
Sulfate (mg/l)	75	70	63	70	250 mg/l[2]
Total Dissolved Solids (mg/l)	540	480	540	600	500 mg/l[2]
Turbidity (NTU)[1]	5.4	1.2	0.47	3.5	5 NTU[2]
Barium (µg/l)	99	98	ND	100	1,000 µg/l[3]
Boron (mg/l)	NS	.77	0.78	0.79	None
Copper (µg/l)	ND	ND	ND	11	1,000 µg/l[2]
Iron (µg/l)	370	ND	55	400	300 µg/l[2]
Mercury (µg/l)	NS	ND	NS	ND	2 µg/l[3]
Zinc (µg/l)	450	24	ND	130	5,000 µg/l[2]

NOTES:
ND = non-detect
NS = not sampled
[1] Nephelometric Turbidity Unit
[2] Per California Title 22, Secondary Maximum Contaminant Levels, non-health based standards.
[3] Per California Title 22, Maximum Contaminant Levels
[4] Per EPA Secondary Maximum Contaminant Levels.
SOURCE: HSE, 2007

3.3 AIR QUALITY

3.3.1 PROJECT AREA AND VICINITY

The project site is located in the Sacramento Valley Air Basin (SVAB), which includes Yolo, Sacramento, Yuba, Sutter, Butte, Tehama, Shasta, Glen, Colusa, and parts of Placer and Solano counties. The project site is currently under the jurisdiction of the Yolo Solano Air Quality Management District (YSAQMD); however, trust lands are under the jurisdiction of the EPA.

The climate in the SVAB is classified as Mediterranean, with mild, wet winters and warm, dry summers. The major climatic influences are the Pacific High Pressure system over the eastern

Pacific Ocean and the local valley topography. The project area's proximity to the Pacific Ocean and location within the Central Valley are the greatest influences on temperature variability in the project area. In the summer the average temperature is 89.3 degrees Fahrenheit (ºF), whereas the average winter is 55.6 F. Hot spells can occur with temperatures exceeding 100 ºF and are typically caused by a lack of airflow and low humidity; these spells do not allow air pollutants to disperse from the SVAB. Annual average rainfall is approximately 18.15 inches. Heavy rains that occur mainly in mid-winter reduce air pollutions in the project area (WRCC 2009).

The north-south alignment of the valley, the coast range, and the Sierra Nevada mountains strongly influence wind flow in the project area. The prevailing wind in the area is southerly all year. The prevailing wind moves through the Carquinez Strait near the Sacramento-San Joaquin River Delta, causing pollutants to be pushed from the San Francisco Bay Area Basin into the SVAB and the Capay Valley. Vertical mixing of air pollutants is often limited by temperature inversions, which can cause pollutants to linger.

3.3.2 REGULATORY CONTEXT

The Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. Basic components of the CAA and its amendments include national ambient air quality standards (NAAQS) for major air pollutants and state implementation plans (SIPs) to ensure these standards are met. Regulation of air pollution is achieved through both the NAAQS and emission limits for individual sources of air pollutants. The EPA is the federal agency responsible for identifying criteria air pollutants (CAPs), establishing NAAQS, and approving and overseeing SIPs as they relate to the CAA.

CLIMATE CHANGE

Federal

In 2010, the Council on Environmental Quality (CEQ) circulated draft NEPA guidance on consideration of the effects of climate change and greenhouse gas emissions. The CEQ draft guidance advises federal agencies to consider GHG emissions whenever such consideration would be "meaningful." The guidance suggests that 25,000 metric tons of carbon dioxide-equivalent provides a "useful indicator" for identifying when climate change analysis may prove "meaningful." The guidance also provides methodological suggestions for preparing such an analysis. This document is consistent with the CEQ guidance.

State

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and

involves a number of state agencies implementing a variety of state laws and policies. These laws and policies are briefly summarized below.

Assembly Bill 1493 (AB 1493)

Signed by the Governor in 2002, AB 1493 requires that the CARB adopt regulations requiring a reduction in GHG emissions emitted by cars in the state. AB 1493 is intended to apply to 2009 and later vehicles, however in March 2008 the EPA denied a Clean Air Act waiver, which the state needs in order to implement AB 1493. In July 8, 2009 the EPA granted CARB's request for the waiver (EPA, 2009).

Executive Order S-3-05 (EO S-3-05)

EO S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,
- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" or "CAT" headed by the California Environmental Protection Agency and including several other state agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also tasked with creating a strategy to meet the emission reduction target required by the EO. In April 2006 the CAT published an initial report that accomplished these two tasks.

Assembly Bill 32 (AB 32)

Signed by the Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. However, AB 32 also continues the CAT's efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

In order to accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). In order to assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In its October 2007 report, CARB cited the CAT

strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 requires that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. According to AB 32 this scoping plan must be in place no later than January 1, 2009. CARB has initiated preparation of the scoping plan and plans on adopting a final plan in late 2008 (CARB, 2007b).

Executive Order S-01-07 (EO S-01-07)

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in their October 2007 report.

Governor's Office of Planning and Research – Technical Advisory

The Governor's Office of Planning and Research (OPR) released a Technical Advisory on June 19, 2008, titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review*. The Technical Advisory provides informal, interim guidance for analyzing climate change impacts in advance of comprehensive amendments to the CEQA Guidelines to be prepared pursuant to Senate Bill (SB) 97, and scheduled for release on or before January 1, 2010. The Technical Advisory provides the following guidance when providing climate change analyses in a CEQA document:

- Each lead agency needs to develop its own approach to performing climate change analyses.
- Lead agencies should determine whether GHGs are generated by the project and, if they are, they must be quantified.
- A project's impact can either be cumulatively or individually significant, but climate change is "ultimately a cumulative issue."
- A lead agency must provide mitigation measures to avoid, reduce, or otherwise mitigate the impacts of GHG emissions.
- There is no standard format for including the analysis in a CEQA document.
- A less-than-significant impact can be presented using mitigation measures.
- The Technical Advisory outlines mitigation measures.

CEQA Guidelines

In 2010, the State of California finalized a series of Guidelines addressing consideration of climate change impacts under CEQA. Among other things, the Guidelines direct state and local agencies to evaluate the significance of a project's potential GHG emissions, to determine the

relationship between proposed projects and plans for the reduction or mitigation of GHGs, and, where necessary, to identify reasonable mitigation for GHG emissions.

Although CEQA does not apply to the Proposed Action, the methodology analyzing climate change impacts in this document is consistent with the CEQA Guidelines addressing GHGs and the OPR Technical Advisory.

3.3.3 POLLUTANTS OF CONCERN

The EPA has identified six CAPs that are both common and detrimental to human health, and are used as indicators of regional air quality. The six CAPs are ozone (O_3), carbon monoxide (CO), particulate matter ≤ 10 microns and ≤ 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Pollutants of concern are CAPs that are present in quantities exceeding the NAAQS in the applicable air quality management district. In the area monitored by the YSAQMD, O_3 has been identified as a pollutant of concern. Because the NAAQS for O_3 were exceeded on more than three days within three consecutive years, the YSAQMD is in nonattainment for this CAP (see **Table 3-8**).

TABLE 3-8
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	NAAQS			YSAQMD Attainment Status
		Standards		Violation Criteria	
		parts per million (ppm)	micrograms per cubic meter (µg/m^3)		
O_3	8 hours	0.075	157	If exceeded on more than 3 days in 3 years.	***Nonattainment (Severe)***
CO	8 hours	9	10,000	If exceeded on more than 1 day per year.	Attainment
PM_{10}	24-hour	N/A	150	If exceeded on more than 1 day per year.	Unclassified
$PM_{2.5}$	24-hour	N/A	35	If exceeded on more than 1 day per year.	***Nonattainment (Partial)***
NO_2	Annual	N/A	100	If exceeded.	Attainment
SO_2	1-hour	0.03	80	If exceeded on more than 1 day per year.	Attainment

SOURCE: YSAQMD, 2009.

OZONE

The largest source of ground-level O_3 is the incomplete combustion of fossil fuels, which results in emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X). These O_3 precursors react in the atmosphere in the presence of sunlight to form O_3. Because the rate of this photochemical reaction depends on air temperature and the intensity of ultraviolet light, O_3 is

primarily a summer air pollution problem. Often the effects of the emitted ROG and NO_X are observed at a distance downwind of the emission sources. O_3 is subsequently considered a regional pollutant, as the reactions forming it take place over time and downwind from the sources of the emissions. As a photochemical pollutant, O_3 is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Thus, O_3 concentrations vary depending upon both time of day and location.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). $PM_{2.5}$ poses the greatest public health concern, because it is small enough to enter the bloodstream.

HAZARDOUS AIR POLLUTANTS

In addition to the criteria air pollutants, another group of airborne substances, called Hazardous Air Pollutants (HAPs) are known to be hazardous to human health. HAPs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. HAPs can be emitted from a variety of common sources, including fueling stations, vehicles, dry cleaners, industrial operations, and painting operations. Farms, construction sites, and residential areas can also potentially contribute to HAPs. HAPs are regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations.

3.3.4 MONITORING DATA

Monitors that collect air quality data are located at stations throughout the YSAQMD and California. Some monitoring stations collect data on all six federal CAPs, while others are specialized and only collect data for certain CAPs. **Table 3-9** shows data on the YSAQMD pollutant of concern O_3 collected at the Woodland-Gibson Road Monitoring Station, which is the closest monitoring station to the project site.

TABLE 3-9
EXCEEDANCES OF NAAQS IN THE YSAQMD

Pollutant		2006	2007	2008
Ozone [1]	Highest Concentration (ppm)	0.090	0.077	0.087
	Days >0.075 ppm	14	2	4

NOTES:
[1] 8-hour averaging time
SOURCE: CARB, 2009 (Data provided by the Woodland-Gibson Road monitoring station).

3.3.5 SENSITIVE RECEPTORS

Sensitive receptors are generally defined as land uses that house or attract people who are susceptible to experience adverse impacts from air pollution emissions and, as such, should be given special consideration when evaluating air quality impacts from projects. Sensitive receptors include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent homes, parks and recreational facilities, and residential areas are examples of sensitive receptors.

Land use in the vicinity of the project site is mainly agricultural, with some scattered residences. Tribal housing and the Yocha Dehe Wintun Academy on the existing trust parcel, located adjacent to the project site (to the north of Parcel 1), are the nearest sensitive receptors. The existing Tribal housing and school are located approximately 2,400 feet east of the site proposed for a wastewater treatment plant, approximately 700 feet north of and across CR-75A from the area proposed for the conversion of the existing former residence on Parcel 1 to a Cultural Resource Center, and approximately 4,000 feet east and across SR-16 from the area proposed for residential development and the new Tribal school on Parcels 9 and 10. The nearest off-reservation schools are located in Esparto, approximately nine miles from the project site.

3.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources in the vicinity of the project site. The assessment of the existing biological resources is based on the results of biological field surveys within the project site, which were conducted to document the existing habitat types, including potential Waters of the U.S., and to assess the potential for occurrence of state and federally listed species and/or their habitats. The following discussion of existing biological resources provides the basis from which potential environmental consequences were identified and measured in **Section 4.4**. More detailed information is provided in the Biological Assessment, included as **Appendix E** (AES, 2011).

3.4.1 ENVIRONMENTAL SETTING

The Capay Valley falls within Climate Zone 14 "Ocean-influenced Northern and Central California." Climate Zone 14 includes inland areas with oceanic or other cold air influence. This climate zone is a linear region that runs from Humboldt County to Santa Barbara County (Hickman, 1993). The local and regional geology is within the Inner North Coast Range (NCoRI) geographic subdivision of California. The NCoRI is characterized by chaparral and pine and oak woodland, with low rainfall and hot, dry summers. The NCoRI subdivision is part of the larger Northwestern (NW) geographic division, which is a component of the larger California Floristic Province (Ca-FP); thus is equivalent to "cismontane" as often cited in other

scientific texts (Hickman, 1993).

3.4.2 REGULATORY SETTING

FEDERAL ENDANGERED SPECIES ACT

Under the federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce have the authority to list a species, within their respective jurisdictions, as *threatened* or *endangered* [16 United States Code (U.S.C.) 1533c]. The purposes of the FESA are to provide a means to conserve the ecosystems that endangered and threatened species depend on and to provide a program and means for conservation and recovery of the species with the intent of removing the species from a listed, protected status. Regulatory protection is given to any species listed as endangered or threatened. Additionally, species of concern are considered during environmental review for environmental impacts by project proponents and federal agencies, although they are not otherwise protected under FESA.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) are the federal agencies that enforce the FESA. Pursuant to the requirements of the FESA, an agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species. Under the FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any candidate species for listing under the FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 U.S.C. 1536). The USFWS is the jurisdictional lead for the species within the area of the proposed fee to trust action.

WETLANDS AND OTHER WATERS OF THE U.S.

Any project that involves working in navigable and other waters of the U.S., including the discharge of dredged or fill material, must first obtain authorization from the USACE, under Section 404 of the CWA. In addition, all projects over one acre in size must comply with the terms of the General Construction National Pollutant Discharge Elimination System (NPDES) permit issued by EPA and must achieve compliance with Section 401 of the CWA.

MIGRATORY BIRD TREATY ACT

Most bird species, especially those that are breeding, are considered migratory, or are of limited distribution, are protected under federal and/or state regulations. Under the Migratory Bird Treaty Act of 1918 16 U.S.C. 703-712, migratory bird species and their nests and eggs, on the federal list [50 Code of Federal Regulations (C.F.R.) 10.13], are protected from injury or death.

BALD AND GOLDEN EAGLE PROTECTION ACT

When first enacted in 1940, the Bald and Golden Eagle Protection Act prohibited the take, transport, or sale of bald eagles, their eggs, or any part of an eagle except where expressly allowed by the Secretary of the Interior. The Act was amended in 1962 to extend the prohibitions to the golden eagle.

CALIFORNIA ENDANGERED SPECIES ACT (SECTION 2080)

The California Endangered Species Act (CESA) is similar to the FESA but applies to state-listed threatened and endangered species. The CESA prohibits the take of state-listed threatened and endangered species. Under CESA, state agencies are required to consult with the California Department of Fish and Game (CDFG) when preparing California Environmental Quality Act (CEQA) documents. Consultation ensures that proposed projects or actions do not have a negative effect on state-listed species. During consultation, CDFG determines whether take would occur, and identifies "reasonable and prudent alternatives" for the project and conservation of wildlife species. CDFG can authorize take if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with FESA, or if the director of the CDFG issues a permit under Section 2080 in those cases where it is demonstrated that the impacts are minimized and mitigated. Federal agencies are not required to address CESA issues and the CESA does not apply on trust lands. Nevertheless, state-listed threatened and endangered species are discussed in this EA for informational purposes.

3.4.3 METHODOLOGY

SPECIAL-STATUS SPECIES

Federally listed special-status species evaluated in this EA as required by NEPA and as suggested in NEPA guidance include:

- Species listed as endangered, threatened, or that are candidates for listing under FESA; and
- Migratory birds and federally protected species.

Other special-status species discussed in this EA, in order to provide a more comprehensive description of the affected environment, include:

- Species listed as endangered, threatened, rare, or proposed for listing under CESA;
- Species designated as endangered or rare pursuant to California Fish and Game Code (Section 1901);
- Species designated as fully protected pursuant to California Fish and Game Code (Subsection 3511, 4700, or 5050);

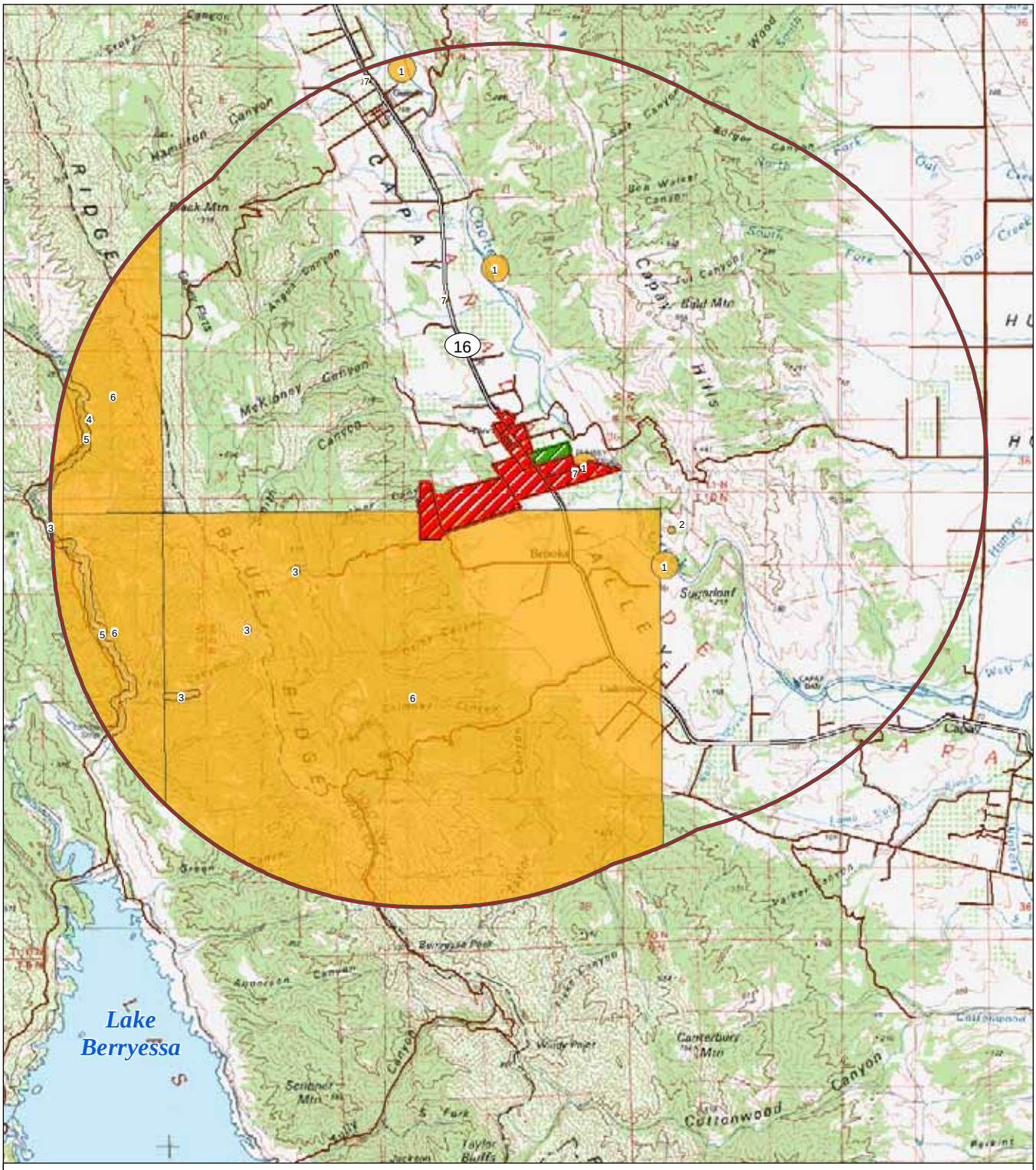
- Species designated as species of special concern by CDFG; and
- Plants or animals that meet the definitions of rare or endangered under CEQA, including plants ranked by California Native Plant Society (CNPS) as rare, threatened, or endangered in California (Lists 1A, 1B, and 2).

PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field visit the following resources were reviewed:

- Aerial photography of the project site and vicinity;
- USFWS list of federally listed special-status species with the potential to occur on or be affected by projects on the Guinda, Brooks, Lake Berryessa, Chiles Valley, Walter Springs, Knoxville, Glascock Mountain, Rumsey, Wildwood School, Bird Valley, Esparto, and Monticello Dam Geological Survey (USGS) 7.5 minute quadrangles (quad) (**Appendix E**);
- CNPS list of regionally occurring special-status plant species for the Guinda, Brooks, Lake Berryessa, Chiles Valley, Walter Springs, Knoxville, Glascock Mountain, Rumsey, Wildwood School, Bird Valley, Esparto, and Monticello Dam quads (**Appendix E**), from the online edition of the *Inventory of Rare and Endangered Plants of California* (CNPS, 2009);
- CDFG California Natural Diversity DataBase (CNDDB) list of special-status species for the Guinda, Brooks, Lake Berryessa, Chiles Valley, Walter Springs, Knoxville, Glascock Mountain, Rumsey, Wildwood School, Bird Valley, Esparto, and Monticello Dam quads (CDFG, 2003; **Appendix E**);
- CDFG CNDDB/RareFind (Version 3.0, 2003) query of special-status species spatially plotted within a five-mile radius around the boundary of the project site using geographic information system (GIS) software (ArcView GIS version 3.3) (**Figure 3-6**); and
- Pertinent literature including: The Jepson Manual, Higher Plants of California (Hickman, 1993); Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes, 1994); and California Birds: Their Status and Distribution (Small, 1994).

A complete list of all regionally occurring special-status species reported in the scientific database queries was compiled for the project site (Appendix B of **Appendix E**). An analysis to determine which of these special-status species have the potential to occur on the project site was conducted. The habitat requirements for each regionally occurring special-status species were assessed and compared to the type and quality of habitats observed onsite during the field



SPECIAL STATUS SPECIES DATA

Existing Trust Parcel
Proposed Fee-to-Trust Parcel
5-Mile Radius

Special Status Species Occurrence
1 - bank swallow
2 - California tiger salamander
3 - foothill yellow-legged frog
4 - Keck's checkerbloom
5 - northwestern pond turtle
6 - prairie falcon
7 - valley elderberry longhorn beetle

SOURCE: "Healdsburg, CA" USGS 100k Topographic Quadrangle, Mt. Diablo Baseline & Meridian; California Natural Diversity Database, 8/2009; AES, 2012

Figure 3-6
CNDDB 5-Mile Radius

surveys. Several regionally occurring special-status species were eliminated due to lack of suitable habitat on the project site, elevation range, lack of suitable soil/substrate, and/or geographic distribution. The analysis was also based on reviews of resource agency materials, pertinent scientific literature, aerial photography of the project site, topographic maps of the project site, and other local information, as well as field work by AES biologists and botanists.

FIELD SURVEY

A reconnaissance-level field assessment of the project site was performed by the following AES biologists: LaTisha Burnaugh, M.S. and Dan Schrimsher on March 29 and April 19, 2007; Kenna Lehmann and Kelly Buja, M.S. on August 18 and 19, 2009; and Ms. Lehmann and Kristie Haydu on September 1, 2009. Variable-intensity pedestrian surveys were conducted. All visible fauna and flora were noted and identified to the lowest possible taxon. Habitat types occurring on the project site were characterized and evaluated for their potential to support regionally occurring special-status species. The project site was assessed for the presence of potentially jurisdictional water features and other biologically sensitive features. The location of boundaries of habitats, potentially occurring waters of the U.S., and other biologically important features were recorded using global positioning system (GPS) technology or evaluated using aerial photography.

Terrestrial habitats were classified using the CDFG *Terrestrial Natural Communities of California* system, or "Holland type" (Holland, 1986) and, where applicable, detailed by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995).

Wildlife habitats were classified according to the CDFG *California Wildlife Habitat Relationships System*, or "CWHR type" (Mayer and Laudenslayer, 1988).

Habitat boundaries, potentially jurisdictional waters of the U.S., and other sensitive biological resources in the project site were overlaid on a color aerial photograph creating the habitat map seen in **Figure 3-7**. The boundaries were identified using a GPS or aerial photography. Geographic analyses were performed using GIS software (ArcView 3.3 GIS, ESRI, Inc.).

3.4.4 RESULTS

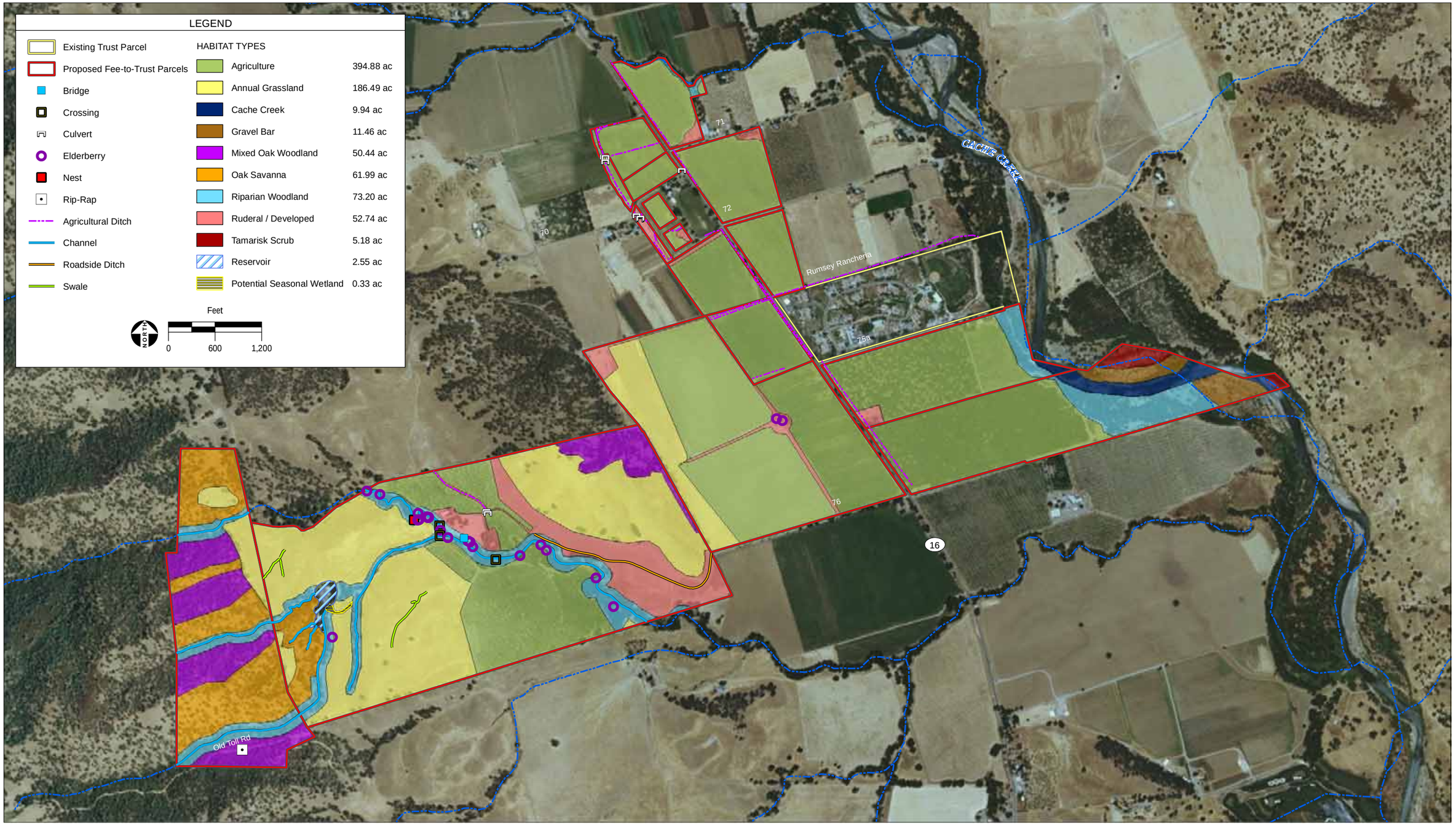
This section summarizes the results of the field surveys that were conducted on the project site and provides further analysis of the data collected in the field.

HABITAT TYPES

Upland habitats located on the project site consist of riparian woodland, tamarisk scrub, mixed oak woodland, oak savannah, annual grassland, agricultural fields, gravel bar, and ruderal/developed. These habitats are described below and shown in **Figure 3-7**. Additionally, a cultural resources survey identified several groves of heritage oak trees occurring in the vicinity of the project site. These groves are discussed below. Photographs of the project site are illustrated in **Figures 3-8**, **3-9**, and **3-10**. A comprehensive list of plants identified on the project site is provided in **Appendix E** and a summary of habitat types is provided in **Table 3-10**.

Riparian Woodland

Riparian woodland occurs along Cache Creek on the southeastern boundary of the project site, along intermittent drainages throughout Parcel 9, and along an intermittent drainage on the far northeastern boundary of the project site (**Figure 3-8** and **Figure 3-9**). The riparian woodland on the southeastern portion corresponds to "Great Valley cottonwood riparian forest – 61410" in the Holland classification system (Holland, 1986), and is detailed by the "Fremont cottonwood series" in the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995). Fremont cottonwood (*Populus fremontii*) is the dominant tree in the canopy layer, interspersed with northern California black walnut (*Juglans californica* var. *hindsii*) and Goodding's black willow (*Salix gooddingii*). The shrub layer is composed of species including elderberry (*Sambucus mexicana*), California rose (*Rosa californica*), and California blackberry (*Rubus ursinus*). California wild grape (*Vitis californica*) was the dominant vine species observed. Ground cover vegetation includes mugwort (*Artemisia douglasii*), sedge (*Cyperus* sp.) milk thistle (*Silybum marianum*), winter vetch (*Vicia villosa*), ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), zorro fescue (*Vulpia myuros*), and rough cockle-bur (*Xanthium strumarium*).



SOURCE: USDA NAIP Aerial Photograph, 2010; Yolo County GIS, 2009; AES, 2012

Figure 3-7
Habitat Map

PHOTO 1: Riparian forest habitat adjacent to Cache Creek. Photo taken from west to east near the northern edge of Parcel 1.

PHOTO 2: Tamarisk scrub location along Cache Creek. Photo taken from east to west, just east of Parcel 1.

PHOTO 3: Annual grassland on Parcel 9 in the foreground and mixed oak woodland and oak savannah on Parcel ten in the background. Photo taken from east to west near the northern boundary of Parcel 9.

PHOTO 4: Annual grassland on Parcel 9. Taking from west to east.

PHOTO 5: Irrigated agriculture field. Photo taken from east to west in Parcel 14.

PHOTO 6: Orchard on Parcel 9. Photo taken from north to south.

SOURCE: AES, 2012

Figure 3-8
Site Photographs

PHOTO 7: Ruderal/developed area. Photo taken from west to east on Parcel 8.

PHOTO 8: Ruderal/developed area. Photo taken from north to south on Parcel 16.

PHOTO 9: Ruderal/developed area. Photo taken from south to north on Parcel 13.

PHOTO 10: Cache Creek on September 1, 2009. Photo taken from south to north on Parcel 2.

PHOTO 11: Intermittent Drainage on Parcel 9. Photo taken from south to north near northern property boundary.

PHOTO 12: Intermittent drainage that flows into stock pond on Parcel 9. Photo taken from east to west, looking upstream of drainage.

SOURCE: AES, 2012

Figure 3-9
Site Photographs

PHOTO 13: Stock pond on Parcel 9. View from northeast to southwest.

PHOTO 14: Stock pond overflow spillway, potential wetland. View from east to west.

PHOTO 15: Stock pond overflow spillway, potential wetland. View from west to east.

PHOTO 16: Remnant riparian vegetation in old drainage corridor. View from west to east.

PHOTO 17: Irrigation ditch through orchard on Parcel 9. View from south to north.

PHOTO 18: Irrigation ditch adjacent to irrigated hay fields on Parcel 16. View from north to south.

SOURCE: AES, 2012

Figure 3-10
Site Photographs

TABLE 3-10
SUMMARY OF HABITAT TYPES ON THE PROJECT SITE

	Habitat Type	Acres	Percent Area
Terrestrial Habitats	Annual Grassland	186.49	21.96
	Gravel Bar	11.46	1.34
	Mixed Oak Woodland	50.44	5.91
	Oak Savanna	61.99	7.27
	Tamarisk Scrub	5.18	0.61
	Riparian Woodland	73.20	8.58
	Agriculture	408.52	47.89
	Ruderal/Developed	52.74	6.18
Aquatic Habitats	Reservoir	2.55	0.29
	Potential Seasonal Wetland	0.33	0.038 ~~3.8 E -4~~
	TOTAL	**852.90**	**100.03**

NOTE: Data rounded to two decimal places.
SOURCE: AES, 2011.

Vegetation growing adjacent to Cache Creek along gravel bars consists primarily of giant reed (*Arundo donax*) and tamarisk (*Tamarix ramosissima*), both of which are invasive, nonnative species. Recently, the Tribe has worked to remove these species, in conjunction with the Cache Creek Conservancy and the USFWS, using methods that include integrated pest management techniques.

The riparian woodland along the northeastern boundary of the project site and throughout Parcel 9 corresponds to "Great Valley oak riparian forest – 61430" in the Holland classification system (Holland, 1986). The overstory is dominated by Valley oak (*Quercus lobata*). Species in the understory include northern California black walnut, elderberry (*Sambucus* sp.), and buckeye (*Aesculus californica*). The shrub layer is dominated by poison oak (*Toxicodendron diversilobum*) and California rose. The dominant understory vine species is California wild grape. Giant reed was also observed in the channel along the northeastern boundary of the project site.

Tamarisk Scrub

Tamarisk scrub is located along the southeastern boundary of the project site along both sides of Cache Creek (**Figure 3-8**). The tamarisk was observed in nearly pure stands with little other vegetation other than giant reed. The tamarisk scrub corresponds to "Riparian scrub – 63000" in the Holland classification system (Holland, 1986), and is detailed by the "Tamarisk series" in the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995).

Tamarisk scrub is a highly invasive nonnative shrub that is responsible for supplanting native vegetation and reducing available water in waterways. A single large tamarisk shrub can

transpire 300 gallons of water per day. Active tamarisk removal is occurring along the riparian area of Cache Creek on and adjacent to the project site.

Mixed Oak Woodland

Mixed oak woodland occurs along the central and western boundaries of the project site (**Figure 3-8**). The oak woodland corresponds to "Cismontane woodlands – 71000" in the Holland classification system (Holland, 1986), and is detailed by the "Mixed oak series" in the CNPS Vegetation Classification system (Sawyer and Keeler-Wolfe, 1995). The moderately dense canopy is occupied primarily by blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizenii*), and foothill pine (*Pinus sabineana*) with interspersed valley oak. There is no understory or shrub layer. The ground cover is sparse and consists of upland grasses and forbs including ripgut brome, Italian ryegrass, and geranium (*Geranium* sp.).

Oak Savannah

Oak savannah occurs on south-facing slopes throughout the western parcels (9 and 10) of the project site (**Figure 3-8**). It most closely corresponds to "Cismontane woodlands – 71000" in the Holland classification system (Holland, 1986), and is detailed by the "Mixed oak series" in the CNPS Vegetation Classification system (Sawyer and Keeler-Wolfe, 1995). It is differentiated from the mixed oak woodland by having a more open overstory of blue oak, interior live oak, and valley oak; no understory; and ground cover consisting of only grasses and forbs.

Annual Grassland

Annual grassland occurs throughout the western portion of the project site (**Figure 3-8**). This habitat type corresponds to "nonnative annual grassland – 42200" in the Holland classification system (Holland, 1986) and the "California annual grassland series" in the CNPS Vegetation Classification system (Sawyer and Keeler-Wolfe, 1995). This habitat is dominated by grasses and forbs including soft brome (*Bromus hordeaceus*), wild oat (*Avena fatua*), Italian ryegrass, ripgut brome, medusa head (*Taeniatherum caput-medusae*), and yellow star-thistle (*Centaurea solstitialis*), with the occasionally isolated oak. Most of the annual grassland is found on parcels 9 and 10. The majority of the annual grassland onsite is used for cattle grazing.

Agricultural

The majority of the project site is devoted to agriculture. Crops include irrigated hayfield, vineyards, and orchard. In addition, a portion of the irrigated hayfield onsite is used for cattle grazing.

Walnut orchards occur on the southern parcels and almond orchards on the northern parcels (**Figure 3-8** and **Figure 3-10**). Additional orchards and vineyards are located on Parcel 9. These orchards correspond to "Deciduous orchard – 11212" in the Holland classification system

(Holland, 1986). The walnut orchards consist of English walnut (*Juglans regia*), grafted onto heartier rootstock. Some of the orchards on Parcel 1 are diseased and will be removed to avoid the spread of the disease to healthy trees. The almond orchards on the northern portion of the project site contain young almond species (*Prunus* sp.). There is an open understory in the orchards and vineyard with sparse ground cover vegetation consisting of ruderal species that are associated with regular disturbance. These species include buttercup (*Ranunculus* sp.), long-beaked filaree (*Erodium botrys*), ripgut brome, Italian ryegrass, and geranium.

Irrigated alfalfa fields occur on the west side of SR-16 **(Figure 3-8**). Irrigation ditches that supply water to the alfalfa (*Medicago* sp.) during the growing season surround and intersect the fields. The fields correspond to "Irrigated hayfields – 11202" in the Holland classification system (Holland, 1986) and are cut and stored for domestic livestock feed. Wild mustard (*Sinapis arvensis*), Italian ryegrass, and milk vetch dominate the areas surrounding the ditches and fields.

Gravel Bar

Gravel bars occur along Cache Creek, adjacent to the channel. The gravel bars were created by periodic flooding events. The habitat corresponds to the CWHR "Riverine" type habitat and is classified as periodically flooded gravel/cobble bars consisting predominantly of cobble size rocks (65-256 cm). Previous gravel mining operations along Cache Creek may have caused this habitat to be more abundant than would occur naturally. Vegetation is lacking in the gravel bar habitat.

Ruderal/Developed

Developed land occurs throughout the project site (**Figure 3-9**). This land consists of houses with associated yards, barns, roads, and land graded and cleared for future planting. Vegetation within the yards consists of various weedy upland grasses and forbs including ripgut brome, Italian ryegrass, Bermuda grass (*Cynodon dactylon*), geranium, and clover (*Trifolium* sp.).

WATERS OF THE U.S.

During the field assessment, the project site was informally assessed for potential waters of the U.S. in a manner that is consistent with the Supreme Court's decision regarding *Rapanos v. United States* and *Carabell v. United States* (USACE and EPA, 2007). The decision provides standards that distinguish between traditional navigable waters (TNWs), relatively permanent waters (RPWs), and non-relatively permanent waters (non-RPWs). Wetlands adjacent to non-TNWs are subject to CWA jurisdiction if:

- The waterbody is relatively permanent;
- The waterbody abuts an RPW; or
- The waterbody, in combination with all wetlands adjacent to that water body, has a

significant nexus with TNWs.

The significant nexus standard is based on evidence applicable to ecology, hydrology, and the influence of the water on the "chemical, physical, and biological integrity of downstream traditional navigable waters" (USACE and EPA, 2007). Isolated wetlands are not subject to CWA jurisdiction, based on the Supreme Court's decision regarding Solid Waste Agency of Northern Cook County (SWANCC, 2001). The informal assessment of wetland and other waters of the U.S. identified ten natural water drainages, one stock pond, and several irrigation and drainage ditches that are potentially jurisdictional water features on the project site. In addition, potential wetlands occur around the stock pond and its overflow canal.

A formal delineation has not been conducted within the project site. The stock pond, Cache Creek drainage, and multiple unnamed natural drainages throughout the project site are considered to be potentially jurisdictional waters of the U.S. (**Figure 3-9** and **Figure 3-10**). Cache Creek is a perennial channel located along the southeastern boundary of the project site. Cache Creek contained water during the field survey spanning a width of approximately 75 feet. One unnamed intermittent drainage is located along the northeastern boundary of the project site (**Figure 3-9**). Several drainages flow through Parcels 9 and 10 and either drain into or receive water from the stock pond (**Figure 3-10**). These drainages were dry channels during the surveys of Parcels 9 and 10 (August 18 and 19, and Sept 1, 2009). All these drainages are tributary to Cache Creek and are surrounded by riparian vegetation.

The stock pond is situated in the confluence of four drainages. A large berm created the existing stock pond by blocking the natural flow of these drainages. Overflow from the stock pond has been diverted around this berm and into the drainage via a manmade channel (**Figure 3-9**). This manmade channel has been heavily grazed, but has the potential to be a jurisdictional wetland. There are irrigation/drainage ditches surrounding and transecting many of the agricultural fields on the project site. These have been excavated from and drain upland areas. Many of these drainages are linked together with the roadside ditches on the west side of SR-16. Roadside ditches are culverted eastward under SR-16 to a manmade drainage ditch that exists on the northern boundary of the Tribe's existing trust parcel. This manmade drainage ditch is also linked to the roadside ditches on the east side of SR-16. The manmade drainage ditch flows eastward toward Cache Creek where it loses its channelization approximately 750 feet away from the creek. These drainages do not appear to be part of a historic drainage, and a localized depression in the topography prevents water flow from reaching Cache Creek.

Additional irrigation and roadside ditches on the eastern portion of the project site (Parcels 9 and 10) lose their bed and bank and terminate in sheet flow in upland areas and are not likely to be jurisdictional.

WILDLIFE OBSERVED DURING FIELD VISITS

Mammal species are primarily identified by observation, tracks, scat, burrows, or remains. Evidence of mammals in the project site noted during field surveys includes black-tailed deer (*Odocoileus hemionus columbianus*) tracks, raccoon (*Procyon lotor)* tracks, beechey ground squirrel (*Spermophilus beecheyi*) burrows, visual identification of western gray squirrel (*Sciurus griseus*), and coyote (*Canis latrans*) scat and remains found along the riparian area. Sight, call, or nests are used most often to identify avian species. Species identified in the vicinity of the project site include Brewer's blackbird (*Euphagus cyanocephalus*), brown-headed cowbird (*Molothrus ater*), California quail (*Callipepla californica*), common merganser (*Mergus merganser*), mallard duck (*Anas platyrhynchos*), wood duck (*Aix sponsa*), great blue heron (*Ardea herodias*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhyncos*), red-winged blackbird (*Agelaius phonoiceus*), turkey vulture (*Cathartes aura*), tree swallow (*Tachycineta bicolor*), and red-tailed hawk (*Buteo jamaicensis).* Great blue heron nests were observed in the riparian canopy along Cache Creek. A list of all animal species identified during the field visits is included in **Appendix E**.

SPECIES OF CONCERN

This section discusses species that are afforded special-status designation by USFWS, CDFG, and/or CNPS. The species recognized at the state or local level generally do not receive specific protection on land taken into trust by the federal government, unless they are also federally listed under FESA or otherwise federally protected.

Upon review of the habitat requirements of the 26 regionally occurring plants and 30 regionally occurring wildlife species, no federally listed plants and 3 federally listed wildlife species have the potential to occur within the project site. In addition, two state-listed plants and 13 state-listed wildlife species have the potential to occur within the project site. Habitat requirements for the potentially occurring species are outlined in **Table 3-11** below. The rationales as to why the other species were determined not to have the potential to occur within the project site and are not discussed further within this EA are summarized in **Appendix E**. The project site does not occur within critical habitat for any of the special-status species discussed below.

MIGRATORY BIRDS

Migratory waterfowl including mallard duck, wood duck, and common merganser were observed in and around Cache Creek during the field surveys. Migratory birds and other birds of prey including tree swallows, bald eagles, and golden eagles were also observed foraging. The most suitable nesting area for migratory birds in the project site is along the riparian forested area.

FISHERIES

The Sacramento River, to which Cache Creek is tributary, supports spawning runs of several anadromous fishes, which were historically supported by Cache Creek as well. Currently,

however, anadromous fish are unable to travel up Cache Creek beyond the Capay Diversion Dam located approximately five miles downstream of the project site. Cache Creek rarely reaches the Sacramento River, as lower Cache Creek consists of shallow riffles in a wide, exposed channel. In the summer, lower Cache Creek dries up in places and lacks deep pools and complex riparian cover due to gravel mining and other habitat degradation. Water flowing through Cache Creek is detained by the Cache Creek Settling Basin. Due to these barriers, anadromous species no longer ascend Cache Creek to spawn. Anadromous fish do not occur in Cache Creek or its tributaries at or upstream of the Capay Diversion Dam, and therefore do not occur at the project site.

Species composition in Cache Creek has been documented to include California roach (*Hesperoleucus symmetricus*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), Common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), brown bullhead (*Ameiurus nebulosus*), small mouth bass (*Micropterus dolomieu*), hitch (*Lavinia exilicauda*), and riffle sculpin (*Cottus gulosus*) (USFWS, 2001). Several Sacramento suckers were identified in Cache Creek during a November 26, 2007 physical habitat characterization visit. No other fish species were observed. Cache Creek does not provide enough habitat complexity to support a diverse assemblage of aquatic organisms.

TABLE 3-11
FEDERAL, STATE, AND CNPS LISTED POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES

Federally Listed Species	Federal/State Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
Invertebrates					
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--	Known throughout the riparian forests of the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba.	Occurs within riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems ≥ 1-inch diameter for the beetle. Elevations range from 0-762 meters.	Year-Round	(Observed in Cache Creek). The host species was observed growing in the riparian areas of Cache Creek and the channels on the eastern portion of the project site, and a portion of the ruderal/developed area onsite. The beetle was observed along Cache Creek during the 2009 field surveys (Appendix E). However, this occurrence is located on the eastern margin of the project site, near Parcel 1, and this area will not be impacted under the Proposed Project. An updated field survey was conducted in April of 2011, which focused on inspecting the two creek crossings on Parcel 9 for the presence of VELB. No bore holes or VELB were identified at these creek crossing sites. In summary, no VELB was identified within the proposed construction areas under the Proposed Project.
Amphibians					
Ambystoma californiense California tiger salamander Central population	FT/CSC	Occurs in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Occurs in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stockponds, in grassland and oak savannah plant communities; Elevation 3-1054 meters.	November-February (adults) March 15-May15 (larvae)	(Low potential to occur). The project site provides suitable breeding habitat for this species within the stockpond. One CNDDB record occurs approximately one mile southeast of the project site east of Cache Creek. This is occurrence number 851 and it was documented in a cattle stock pond with bull frogs present in 2005. No other records have been documented within five miles of the project site. This species does not appear on the USFWS lists of species with the potential to occur on the Brooks or the Guinda quads. The project site is located on these two quads. This species was not

					observed during the biological surveys. This species has a low potential to occur within the project site.
Birds					
Coccyzus americanus occidentalis western yellow-billed cuckoo	FC/CE	Occurs at isolated sites in Sacramento Valley in northern California, and along the Kern and Colorado River systems in southern California.	Frequents valley foothill and desert riparian habitats. Inhabits open woodlands with clearings and riparian habitats with dense understory foliage along slow-moving drainages, backwaters, or seeps. Prefers dense willows for roosting, but will use adjacent orchard in the Sacramento Valley.	June - August	(Potentially occurring). The mixed oak woodland, riparian habitat, and orchards provide potential habitat for this species. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site. This species has the potential to occur on site.

State Listed Species	State/CNPS Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
Plants					
Hesperolinon brewerii Brewer's western flax	--/1B	Known to occur in Napa, Solano and Contra Costa counties.	Found in chaparral, cismontane woodland and valley and foothill grassland\usually in serpentine soil. Elevations; 30-900 meters.	May - July	(Potentially occurring). This species has the potential to occur within the annual grassland, mixed oak woodland, and oak savanna within the project site. None of the biological surveys were conducted within the evident and identifiable blooming period for this species. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site. This species has the potential to occur within the project site.
Streptanthus breweri var. *hesperidis* green jewel-flower	--/1B	Known to occur in Glenn, Lake, Napa, and Sonoma counties.	Found in chaparral (openings) and cismontane woodland/serpentinite, rocky. Elevations; 130 to 760 meters.	May - July	(Potentially occurring). This species has the potential to occur within the mixed oak woodland and oak savanna within the project site. None of the biological surveys were conducted within the evident and identifiable blooming period for this species. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site.

State Listed Species	State/CNPS Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
					This species has the potential to occur within the project site.
Amphibians					
Rana boylii Foothill yellow-legged frog	CSC/--	Ranges from northern Oregon west of the Cascades south along the coast to the San Gabriel mountains, and south along the western side of the Sierra Nevada mountains to Kern County; known populations from Lake County.	Found in woodland, chaparral, and forests associated with slow and gravelly streams and rivers.	March - June (breeding) July - September (non-breeding)	(Potentially occurring). The project site provides limited habitat for this species within Cache Creek and the surrounding riparian habitat. There are three known CDNNB records for this species within five miles of the project site. This species was not observed during the biological surveys. This species has the potential to occur within the project site.
Spea hammondii western spadefoot toad	CSC/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Elevations range from 0-1,200 meters.	November-March	(Potentially occurring). The project site provides limited habitat for this species within the stock pond. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site. This species has the potential to occur within the project site.
Reptiles					
Actinemys marmorata western pond turtle	CSC/--	West coast of North America from southern Washington to northern Baja California, Mexico.	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	Year-Round	(Potentially occurring). The project site provides habitat for this species within the stock pond and along Cache Creek. This species was not observed during the biological surveys. This species has the potential to occur within the project site. Three known CNDDB records occur within five miles of the project site. The records occur in the Putah Creek drainage across the Blue Mountain Ridge west of the project site. This species has the potential to occur within the project site.
Birds					

State Listed Species	State/CNPS Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
Aquila chrysaetos Golden eagle	FP/--	Uncommon throughout California.	Nests in cliffs or large trees. Foraging habitats include rolling foothills, mountain areas, sage-juniper flats, grasslands, deserts, savannahs, and early successional stages of forest and shrub. Elevations; 0 to 3,833 meters.	Year-Round	(Potentially occurring). The project provides potential nesting habitat for this species within the mixed oak woodland and the riparian habitat. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site. This species has the potential to occur within the project site.
Athene cunicularia burrowing owl	CSC/--	Known throughout California, except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	Year-Round	(Potentially occurring). The project provides potential nesting habitat within the annual grassland for this species. This species was not observed within the project site and there are no known CNDDB records for this species within five miles of the project site. This species has the potential to occur within the project site.
Buteo swainsoni Swainson's hawk	CT/--	In California, breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County.	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	March – October	(Potentially occurring). There is a low likelihood that this species would nest along Cache Creek and in the mixed oak woodland and forage within the annual grassland. However, this species was not observed during the biological surveys and there are no documented CNDDB records within five miles of the project site. This species has the potential to occur within the project site.
Charadrius montanus mountain plover	CSC/--	Occurs in the Central Valley from Sutter and Yuba counties southward. Also found in foothill valleys west of San Joaquin Vally and in Imperial Valley.	Found in open short grass plains, plowed fields and open sagebrush areas. Winters below 3,200 feet.	September - March	(Potentially occurring). There is a low likelihood that this species could winter along Cache Creek and forage within the open agricultural land and annual grassland . However, this species was not observed during the biological surveys and there are no documented CNDDB records within five miles of the project site. This species has the potential to occur within the project site.
Falco peregrinus anatum	FP/CE	Active nesting sites known along the coast north of Santa Barbara and other	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or	Year-Round (some migrate)	(Potentially occurring). The project site provides potential nesting habitat for this species

State Listed Species	State/CNPS Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
American peregrine falcon		mountains in northern California.	banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore, or cottonwood trees 50-90 feet above the ground.		within the riparian habitat along Cache Creek and within the mixed oak woodlands. Three known CNDDB records occur within five miles of the project site. This species was not observed during the biological surveys. This species has the potential to occur within the project site.
Haliaeetus leucocephalus bald eagle	FP/CE	Nests in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity Counties. Winters throughout most of California.	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Year-Round	(Potentially occurring). The project site provides potential nesting habitat for this species along Cache Creek. This species was not observed during the biological surveys and no known CNDDB records occur within five miles of the project site. This species has the potential to occur within the project site.
Riparia riparia bank swallow	CT/--	In California, primarily nests from Siskyou, Shasta and Lassen Counties, south along the Sacramento River to Yolo County. Also nests locally across much of the State.	Found primarily in riparian and other lowland habitats west of the deserts during the spring-fall period . In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes.	April - July	(Potentially occurring). There is a low likelihood that this species would nest along Cache Creek and forage within the annual grassland. This species was not observed during the biological surveys. Four CNDDB records are documented within five miles of the project site along Cache Creek. One CNDDB record is mapped within the southeastern portion of the project site. This species has the potential to occur within the project site. .
Mammals					
Antrozous pallidus pallid bat	CSC/--	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern cos., and the northwestern corner of the State from Del Norte and western Siskiyou cos. to northern Mendocino Co.	Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges.	Year-Round	(Potentially occurring). This species has the potential to roost within the existing structures and within the trees on site. This species was not observed during the biological surveys and no known CNDDB records occur within five miles of the project site. This species has the potential to occur within the project site.

State Listed Species	State/CNPS Status	Distribution	Habitat Requirements	Identification	Rationale for Potentially Occurring Species
Corynorhinus townsendii Townsend's big-eared bat	CSC/--	Occurs throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other man-made structures for roosting. Hibernation sites must be cool and cold, but above freezing.	Year-Round	(Potentially occurring). This species has the potential to roost within the existing structures and within the trees on site. This species was not observed during the biological surveys and no known CNDDB records occur within five miles of the project site. This species has the potential to occur within the project site.
Lasiurus blossevillii western red bat	CSC/--	Occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts.	The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Roosts primarily in trees (less often in shrubs) along the edge of habitats adjacent to streams, fields or urban areas. Foraging habitats occurs in open areas. They may be found in unusual habitats during migration.	Year-Round (spring migrations March to May and autumn migrations September to October)	(Potentially occurring). This species has the potential to roost within the existing structures and within the trees onsite. This species was not observed during the biological surveys and no known CNDDB records occur within five miles of the project site. This species has the potential to occur within the project site.

STATUS CODES:
Federal: United States Fish and Wildlife Service
FT Federally Threatened
FC Federal Candidate for Listing
FP Federally Protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act

State: California Department of Fish and Game
CE California Listed Endangered
CT California Listed Threatened
CSC California Species of Special Concern

CNPS: California Native Plant Society
1B Plants Rare, Threatened, or Endangered in California and Elsewhere

SOURCE: USFWS, 2009, 2011; CDFG, 2003; CNPS, 2011; Moyle, 2002; CaliforniaHerps.com, 2009.

3.5 CULTURAL RESOURCES

A cultural resources inventory of Parcels 1-7 was conducted by AES in March 2007. Additional surveys of the remaining parcels (8-15) were conducted by AES staff in August 2009. The cultural resources study is bound under separate cover as **Appendix F**. The cultural resources study included a records search, literature review, field survey, and Native American consultation to identify and evaluate any prehistoric and historic-period resources within or adjacent to the project site that may be impacted by the proposed undertaking. Following is a summary of applicable sections of the cultural resources study.

3.5.1 REGULATORY SETTING

NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act (NHPA), as amended, and its implementing regulations found in 36 Code of Federal Regulations (CFR) Part 800 require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting. The significance of the resources must be evaluated using established criteria outlined 36 CFR 60.4, as described below.

If a resource is determined to be a historic property, Section 106 of the NHPA requires that effects of the development on the resource be determined. A historic property is defined as: "…any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property" (NHPA Sec. 301[5]).

The criteria for listing on the National Register of Historic Places (NRHP), defined in 36 CFR 60.4, are as follows:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history;

B. That are associated with the lives of persons significant in our past;

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important to prehistory or history.

Sites younger than 50 years, unless of exceptional importance, are not eligible for listing in the NRHP.

NATIONAL ENVIRONMENTAL POLICY ACT

NEPA requires that federal agencies take all practical measures to "preserve important historic, cultural, and natural aspects of our national heritage" (NHPA, Section 800.8(a)). NEPA's mandate for considering the impacts of a federal project on important historic and cultural resources is similar to that of Section 106 of the NHPA, and the two processes are generally coordinated when applicable. Section 800.8(a) of NHPA's implementing regulations provides guidance on coordination with NEPA.

ANTIQUITIES ACT

Passed in 1906, the Antiquities Act prohibits the collection, destruction, injury, or excavation of "any historic or prehistoric ruin or monument, or any object of antiquity" that is situated on federal land without permission of the appropriate land management agency. The Antiquities Act also provides for the criminal prosecution, including fines and imprisonment, for individuals who commit one or more of the acts described above.

3.5.2 CULTURAL RESOURCES SETTING

The following discussion of the cultural setting of the project area is condensed from the information presented in the cultural resources study, included as **Appendix F**. The details of the cultural sites are considered sensitive information and the cultural resources study has been excluded from the public version of the EA to ensure sensitive information is protected. The cultural resources study has been reviewed by the appropriate State and Federal agencies to ensure compliance with Federal regulations.

EARLY AND MIDDLE HOLOCENE

The cultural prehistory of central California spans more than 12,000 years. The earliest evidence for occupation of the region comes from archaeological assemblages attributed to the regional expression of the Fluted Point Tradition (FPT) and Western Stemmed Tradition. Commonly referred to as the Clovis culture, the FPT is generally associated with hunting of large, now extinct, megafauna such as mammoth, mastodon, sloth, camel, etc. In the far West, however, archaeological sites with FPT components suggest that these highly nomadic people were practicing a more broad-spectrum subsistence strategy. In the Great Basin and California, FPT sites are often found in association with the former strandlines of ancient pluvial lakes and marshlands that were once resource rich, but are now arid and inhospitable. FPT sites are

sometimes associated with streams, springs, ponds, and river terraces, and even high elevation mountain passes.

The FPT is characterized by long fluted and bifacially flaked stone points. The bifaces tend to have slightly convex or parallel sides with a concave base. Other artifacts identified at the Clovis type-site, Black Water Draw #1, in New Mexico, include retouched bone, small triangular points, large lanceolate points, retouched flakes, crescents, and hammerstones. Sites in California that have yielded artifacts attributed to the FPT include Tulare Lake (Riddell and Olsen 1969), Borax Lake (Harrington, 1948,; Meighan and Haynes, 1970), China Lake (Davis, 1978), Ebbetts Pass (Davis and Shutler, 1969), and Tracy Lake (Beck, 1971), among others. The Post Pattern is the regional manifestation of the widespread FPT. It is characterized by the use of Clovis-like fluted points and stone crescents. Based on landscape associations, the Post Pattern is presumed to represent a subsistence economy focused on lacustrine environments, such as those found on the margins of Clear Lake.

In the southern North Coast Ranges, sites dated to 10,000 – 7,500 B.P. have been attributed to the Borax Lake Pattern. Constituents of such sites imply a subsistence economy focused on hunting and small seed gathering. Artifacts associated with the Borax Lake Pattern include wide-stemmed and square-stemmed projectile points and abundant millingstones and handstones. The dearth of early Holocene sites in the Sacramento Valley has been noted by a number of researchers and has often been attributed to the rapid sedimentation of the valley that has occurred throughout the Holocene epoch (Milliken, 1997; Moratto, 1984).

Sites attributed to the middle Holocene (7,500 – 4,500) are few in number. At the onset of this period the climate shifted to warm and dry conditions, which led to an expansion of the San Joaquin-Sacramento Delta. Sites in proximity to the project area during this period include CA-COL-247 (ca. 5,970 B.P.), CA-SJO-68 (ca. 5,000 B.P.), as well as CA-CCO-548 and -637 (ca. 5,000 and 6,900 B.P., respectively). Sites dating to this period indicate greater use of nut crops such as acorn and pine nuts, although groundstone assemblages dating to this period are dominated by millingstones and handstones.

LATE HOLOCENE

Archaeological sites dated to the latter half of the Holocene have been documented in much greater numbers and detail in the Central Valley and North Coast Ranges compared to the preceding periods. The following discussion focuses on regional prehistory between 4,500 B.P. to Spanish contact.

Early efforts to describe the cultural prehistory of the Central Valley focused on archaeological sites with burial features located in close proximity to the Sacramento-San Joaquin Delta and its surrounding tributaries (Meredith, 1900; Schenck and Dawson, 1929; Lillard et al., 1939; Lillard

and Purves, 1936; Heizer and Fenenga, 1939; Beardsley 1948, 1954; Heizer, 1949). Investigations undertaken in the Central Valley in the first half of the 20th Century culminated in the development of a tripartite cultural sequence that came to be known as the Central California Taxonomic System (CCTS). Since its inception, the CCTS has been revised to accommodate new data, most notably by D. Fredrickson (1973, 1974) and J. Bennyhoff (1994). The following discussion retains the original terminology of *periods* that are distinguished on the basis of adaptive strategies, technology, and chronology.

Early Period (ca. 4,500 – 2,500 B.P.)

As initially conceived, artifact assemblages that typified Early Period components include: *Haliotis* beads, projectile points and blades, charmstones, *Olivella* beads, *Haliotis* ornaments, bone implements, quartz crystals, and red ochre. These were funerary objects observed in the Early Period components at the principle sites of CA-SAC-107, CA-SJO-56, -68, and -142. Mortuary practices at these sites are characterized by extended interments oriented in a westerly direction. The majority of burials were ventrally extended, although some were dorsal extensions. Burials within this component exhibit a high incidence of associated artifacts. Artifacts commonly found in association with Early Period sites include flaked stone implements, charmstones, *Olivella* beads and *Haliotis* ornaments, bone and antler implements, quartz crystals and red ochre (Heizer, 1939:380, 1948:41). Artifacts found sporadically included baked clay objects, artifacts of human bone, trident harpoon tips, and pipes.

Middle Period (ca. 2,500 – 940 B.P.)

Artifact assemblages that characterize the Middle Period component include, most notably, a large and varied assemblage of bone and antler objects such as sweat scrapers or "ceremonial wands," beaver mandibles, tubes, whistles, incised game pieces, perforated needles, atlatl spurs, barbless harpoon tips, ground sturgeon mouth plates and wedges. Other typical artifacts related to the Middle Period include *Haliotis* beads, large obsidian and chert concave and stemmed-based projectile points, charmstones, *Olivella* beads, *Haliotis* ornaments, quartz crystals, millingstones and handstones, red ochre, asphaltum, chrysolite asbestos splinters, steatite tubes and earplugs, slate pendants and baked clay spools, net weights and occasional mortars and pestles (Heizer, 1939:382). While many of these artifacts continued to be found as mortuary items, they were no longer exclusively so and were found in other contexts within Middle Period components at the principle sites of CA-SAC-60, -107, -66, -99, 1, CA-SJO-139 and -142. Mortuary practices at these sites are characterized by flexed burials with variable orientation. The Middle Period components clearly mark a florescence of artifact types and the materials used in their manufacture.

Late Period (ca. 940 – 150 B.P.)

Late Period artifact assemblages and characteristics include *Haliotis* beads, small chert and obsidian arrow points, with an emphasis on "Stockton Serrated" types. Other artifacts

characteristic of this period include charmstones, *Olivella* beads, *Saxidomus nuttalli* beads and other species of clam, *Haliotis* ornaments, magnesite and steatite beads, ear spools and tubes, whole *Haliotis* shells, mammal bone tubes, incised bird bone whistles, barbed harpoon tips, antler arrow shaft straighteners, baked clay objects, wooden fishhooks, netting and basketry items, mortars and pestles (Heizer, 1939:383). The components at some of the early sites that defined this period were at CA-CCO-138, CA-SAC-107, -1, -120, -126, -127 and -6. Mortuary practices at these sites were variable, with both flexed interments and cremations were present.

ETHNOGRAPHIC OVERVIEW

At the time of Euroamerican contact, Capay Valley was occupied by Patwin-speaking people (Johnson, 1978:350). Patwin are members of the California Penutian linguistic stock and are the southernmost division of the Wintuan group, a distinction based primarily on linguistic variation. Sources on the ethnographic Patwin include Johnson (1978), Kroeber (1925, 1932), McKern (1922, 1923), Powers (1976), and the testimony of Princess Isidora, wife of Chief Solano (Sanchez, 1930). Synonymous names for the Patwin include Copeh and Southern Wintun.

The core Patwin territory included lands in the southern Sacramento Valley west of the Sacramento River from the town of Princeton, north of Colusa, south to San Pablo and Suisun bays. Distinction is made between the River Patwin, who resided in large villages near the Sacramento River, especially between Colusa and Knights Landing, and the Hill Patwin, whose villages were situated in the Long, Bear, Indian, Capay, Pope, and Cortina valleys. The term "Patwin" refers to the people belonging to the many small contiguous independent political entities who shared linguistic and cultural similarities. Hill and River Patwin dialects are grouped into a Northern Patwin language, separate from southern Patwin, spoken by people that occupied present-day Knight's Landing and Suisun. Together, they are classified as southern Wintuan and belong to the Penutian language family.

The "tribelet" village community formed the primary social unit among the Patwin (Kroeber, 1925). Tribelets were autonomous social units generally composed of a central village site, with outlying hamlets. Dialects were sometimes shared across tribelets. Johnson notes that at least 16 tribelets were documented among the Hill Patwin during the ethnographic period (Johnson 1978). Principal villages were invariably located along major drainages, inhabited mainly in the winter as it was necessary to go out into the hills and higher elevations to establish temporary camps during food gathering seasons (i.e. spring, summer, and fall). Kroeber (1925; 1932) identified several Patwin villages located in the vicinity of the project site, including *Kisi* and *Imil*, which were situated along the west side of Cache Creek, within Capay Valley. McKern documented four primary structures typically found within Patwin villages, including the family house, dance house, sudatory (sweat lodge), and menstrual hut (cf. Johnson 1978).

Fishing, hunting, and gathering formed the basis of the Patwin domestic economy. The Patwin made full use of the various environments within their territory, emphasizing different areas depending on the season and availability of resources. Game was hunted either by the individual or in community drives. Salmon runs and other food resources available along Cache Creek also contributed significantly to the Hill Patwin subsistence. Acorns represented one of the most important staples of Patwin subsistence and were particularly abundant within oak woodlands. As discussed below, the Patwin culture was significantly disrupted during the historic period as a result of introduced diseases, forced labor, religious conversion, violence, and theft of traditional lands.

HISTORICAL OVERVIEW

The ethnohistory of the Cache Creek area and surrounding region is provided by Milliken (2005), who chronicles the period of Spanish colonization through the early American Period. Milliken's work is briefly summarized below with supplementary contextual information.

Following the settlement of San Diego in 1769, the Spanish made steady progress in the exploration and settlement of the coastal regions of Alta California. By 1776 the Spaniards established the Presidio of San Francisco and by 1798 the Mission San Jose. The Central Valley would remain largely uncharted in the first decades of Spanish settlement. Early in the colonial period, Spaniards made occasional forays into the Central Valley in pursuit of stolen livestock or natives who had fled the forced labor imposed at coastal missions. Diseases introduced by Spanish settlers and other foreigners inflicted a heavy toll on native populations in California. The measles epidemic of 1806 struck Missions Santa Clara, San Jose, and San Francisco particularly hard and, while it is known to have spread to remnant villages, its effect on populations inhabiting the Sacramento Valley is less understood.

Between 1804 and 1823 the Spanish made numerous trips into the Central Valley prospecting for new mission sites, attempting to recover stolen horses and cattle, or making punitive raids on the local natives believed responsible for the theft of livestock. Chief among the earliest Spanish explorers in the Central Valley was Pedro Fages, who led at least 46 explorations into the interior between 1805 and 1820. During his many expeditions he named the San Joaquin, Mariposa, Merced, and Sacramento Rivers (Caughey, 1940). Gabriel Moraga is credited with leading the first documented Spanish expedition into the Sacramento Valley in 1808. Though he did not have direct contact with the Capay Valley area, he came within the general vicinity of Cache Creek when he crossed the Feather River roughly 18 miles to the east. It was during this journey between the Feather and Sacramento Rivers that the Spanish party first came in contact with Patwin-speaking people. The encounter occurred near the present town of Colusa at the Patwin village of Koru. In 1810 Moraga lead another military expedition across the Carquinez Strait to attack Patwin-speaking Suisuns that harbored some coast Miwok refugees from the missions. As a result, by 1820 most southern Patwin-speaking people such as the Suisuns, Tolenas from the

Rockville area, and Malacas from the Fairfield area were brought into the mission system, particularly Mission San Francisco (Milliken, 2005).

Secularization of the missions of California was initiated in 1813, and formally declared in 1821 (Caughey, 1940). That same year, Mexican forces prevailed in their struggle for independence and declared California part of the Mexican empire. This event marked the beginning of the short-lived Mexican Period in California history.

The next major expedition into Patwin territory was in 1821 under the command of Luis Arguello who traveled up the west side of the Sacramento Valley in search of illegal Russian and English traders. From the Winters area Arguello's group traveled northeast to the Patwin village of *Chila* on Cache Creek just west of Woodland, and then onto *Goroy* on the Sacramento River. During his return to San Francisco, Arguello camped in the Grimes area where a hostile encounter took place. As a result of the expedition Spanish (now Mexican) control of the lower Sacramento Valley started to solidify. Directly south of Cache Creek, Patwin-speaking Ululatos from the Vacaville area migrated to Mission San Francisco, the last large group of native Californians baptized there (Milliken, 2005).

Following the Jedediah Smith expedition of 1827, British, French, and American trappers established a presence on the lower Sacramento River by 1830. Cache Creek derives its name from the numerous furs that trappers cached along its banks (Hoover et al. 2002). The arrival of additional Europeans and Euroamericans in Alta California introduced additional hitherto unknown pathogens resulting in a series of devastating illnesses. Coupled with military campaigns, forced labor, disruption of traditional subsistence patterns, and colonial government, the epidemics of the first half of the 19th century decimated indigenous populations, including the Patwin (Castillo 1978). A trapping party led by John Work of the Hudson's Bay Company documented a terrible plague that devastated indigenous people in 1833. Accounts given by Work party members describe the complete decimation of native peoples along the Sacramento River: "…where the uninhabited and deserted villages had been converted to graveyards" (Cook, 1955:318 cf. Milliken, 2005).

In 1833, the formal process of secularizing the missions began and the land holdings were divided among the Californios. The grants, known as ranchos, enriched those individuals fortunate enough to receive one, while effectively subjugating the native tribes as an indentured labor force. The project site is located within the *Rancho Cañada de Capay*, granted to Francisco Berryessa and his brothers Santiago and Demisio in 1846. The rancho, covering more than 40,000 acres, stretched from the mouth of Capay Valley on the east, through the northern reaches of the Valley (Hoover et al., 2002).

In early 1848, what is now Yolo County had scarcely 30 non-native inhabitants (Gregory, 1913). Most settlers were engaged in agricultural pursuits such as farming grain and raising livestock. In February 1850 the newly formed California legislature established 27 counties, of which Yolo was one. The first county seat was established at the short-lived settlement of Fremont (1850 – 1851), and later moved to Washington (1851 – 1857; 1861 – 1862) and Cacheville (1857 – 1861), before finally settling at Woodland (1862 – present) (Hoover et al. 2002). The latter half of the 19th century witnessed profound changes in Yolo and surrounding counties, particularly with the growth and development of major population centers such as Sacramento and Woodland. Many of those who failed to strike it rich in the Sierran gold mines settled in the Central Valley to pursue a more reliable career in agriculture.

The agricultural expansion of Capay Valley was made possible not only by irrigation, but also by the arrival of the railroad. The Vaca Valley and Clear Lake Railroad ran through the Capay Valley, extending from the mouth of the valley to Rumsey. The line, originally formed as the Vaca Valley Railroad Company (VVRC), was incorporated in 1869 by a group of Solano County businessmen. When brothers Andrew Muldro and George Bushrod Stevenson gained control of the line, they set out to extend it into Yolo County, in an attempt to share in the grain trade. The improved market access appealed to local farmers and ranchers and they eagerly awaited the arrival of the line (Larkey and Walters, 1997: 49). The Vaca Valley and Clear Lake Railroad Company (VV&CLRRC) was incorporated in February 1877 to extend the VVRC north from Winters to Cache Creek, through the Capay Valley, with a terminus at Clear Lake (Larkey and Walters, 1997: 51). Construction of this extension was delayed, however, by the consolidation in May 1888 of the VV&CLRR and seven other small California railroads into the Northern Railway, a holding company for the Southern Pacific Railroad Company (SPRR). With financial backing from the SPRR, construction proceeded at a fast pace and by August 1888 twenty-four miles of track had been laid from Vacaville to Rumsey (Larkey and Walters, 1997: 52; Robertson, 1998: 291; Merhoff, 1986: 143). The importance of the railroad waned as farmers shifted from orchards to other, less perishable crops that were cheaply shipped by trucks. The line from Rumsey to Capay closed in 1934 and, by 1975, the tracks were removed (Larkey and Walters, 1997: 54)..

An important facet of the historic development of Yolo County was the establishment of the Rumsey Rancheria. Land for the Rancheria was purchased by the federal government in 1907 and 1908 near the community of Rumsey (34 Stat. 333, 303504; 35 Stat. 76-77, c. 153). Surviving Wintun were forcibly moved to the Rancheria shortly after its purchase. This mostly wooded and hilly land proved to be agriculturally unproductive. In 1940 the Rancheria was relocated to further down the valley in Brooks. Unlike many other northern California Indian tribes, the Yocha Dehe Wintun Nation (formerly, Rumsey Band of Wintun Indians) was never "terminated" by the federal government and has continuously retained its federal recognition.

3.5.3 RESULTS OF CULTURAL STUDIES

Documentation of cultural resources within the project site was achieved through review of pertinent anthropological literature, historic documents and maps, a records search at the Northwest Information Center (NWIC), consultation with the Tribe, and a field examination of the project site by archaeologists who meet the Secretary of the Interior's professional qualification standards.

RECORDS AND LITERATURE SEARCH

A records search for the Area of Potential Effects (APE) was conducted by AES staff at the Northwest Information Center (NWIC) of the California Historical Resources Information System on August 18, 2009 (NWIC File 09-0168). The NWIC, housed at California State University, Sonoma, is an affiliate of the State Office of Historic Preservation as the official state repository of archaeological and historic records and reports for a 16-county area that includes Yolo County. The 2009 review supplemented a 2007 records search conducted for Parcels 1 – 7.

The records search and literature review were done to (1) determine whether known cultural resources had been recorded within or adjacent to the study area and to determine if the parcel was subject to surveys in the past; (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature; and (3) review the distribution of nearby archaeological sites in relation to their environmental setting.

Included in the review was the California Inventory of Historical Resources (California Office of Historic Preservation, 1976), the California Office of Historic Preservation's Five Views: An Ethnic Historic Site Survey for California (1988), California Historical Landmarks (1990), California Points of Historical Interest (1992), and the Historic Properties Directory Listing for Yolo County (2009). The Historic Properties Directory includes the National Register of Historic Places, the California Register of Historical Resources, and the most recent listings (through February, 2009) of the California Historical Landmarks and California Points of Historical Interest.

The records search indicates that a very small portion of the project site has been previously surveyed for cultural resources. The California Department of Transportation (Caltrans) conducted a survey of a short segment of SR-16 along the northwest corner of the Tribe's existing trust parcel and Parcel 5 (APN 060-030-009). No cultural resources were identified as a result of the survey (Wulf, 2002). Portions of Parcel 9 (APN 048-230-001) were surveyed in 1978 by Theodoratus Cultural Research (Ridell et al., 1978) as part of the Capay-Lamb Valley Water Project. Though that effort resulted in the identification of numerous cultural resources, none of them are located within or adjacent to the current APE. One additional study was conducted within 0.5 miles of the project site (Greenway, 1978). Greenway's survey of the Tribe's existing

trust parcel did not identify any previously unknown resources; however, Greenway did update the archaeological site record for CA-YOL-128/H, which is located near the southeastern margin of the trust parcel.

The records search identified one archaeological resource (CA-YOL-128/H) within the APE. CA-YOL-128/H is described as a prehistoric occupation site containing midden, lithic debitage and tools, ground stone, and possible human remains. In addition, it is located within area containing modern structures and a very diffuse historic artifact scatter.

The records search also identified the presence of several groves of large valley oak trees (P-57-132) within and adjacent to the project site. The trees were identified by the Yolo County Historic Resources Survey undertaken by Les-Thomas Associates (1986). While such trees may be afforded consideration as biological resources, they are beyond the purview of existing cultural resources regulations, and are more appropriately addressed elsewhere. **Table 3-12** summarizes the previously identified cultural resources within the project site.

TABLE 3-12
PREVIOUSLY RECORDED CULTURAL RESOURCES LOCATED WITHIN APE

Resource	Description	NRHP / CRHR Status
CA-YOL-128/H	Habitation site with midden, fire-affected rock, flaked stone tools and debitage (obsidian and chert), groundstone, shell beads, and possibly human remains. Historic component includes a house, outbuildings, and a sparse artifact scatter.	Not determined
P-57-132	Heritage oaks; do not qualify as cultural resources for Section 106 purposes.	Likely ineligible

SOURCE: Northwest Information Center, 2009

In addition to the resources previously documented within the APE, one prehistoric and four historic resources have been recorded within a 0.5-mile radius of the subject properties. These include a prehistoric lithic scatter that may be an ethnohistoric village (CA-YOL-116), the Charles Curtis House built in 1901 (HRI-1/010), the Alex Kelly House built in 1892 (HRI-1/011), the Canon School (HRI-1/014) built in 1884 (located on the west-side of Highway 16 directly across from the southwest corner of Parcel 7), and the John Winter Ranch established in 1884 (HRI-1/015).

Given the environmental setting, it is anticipated that prehistoric archaeological material, ranging from isolated artifacts and lithic scatters to intact midden deposits, might be encountered in areas left undisturbed within the APE. It is also considered possible that outlying historic-period deposits related to homesteads, agricultural, and ranching activity may be present.

NATIVE AMERICAN CONSULTATION

On March 5, 2007, the State Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American cultural resources potentially located within Parcels 1 - 7. On March 23, 2007, the NAHC responded indicating that they have no knowledge of Native American resources within that portion of the project site. A second review was requested on October 8, 2009, which included all of the subject parcels. On October 27, 2009, the NAHC responded again indicating they had no knowledge of Native American resources within or adjacent to the project site.

Consultation with the Yocha Dehe Wintun Nation has been ongoing since the inception of the project. The Tribe's Cultural Renewal Committee has contributed to the inventory efforts and has been kept abreast of all of the findings made by AES.

FIELD SURVEYS

AES Cultural Resource staff (Mike Taggart, RPA., Damon Haydu, RPA., and Jennifer Bowden, B.A.) conducted a cultural resources survey of Parcels 1 through 7 between March 29 and 30, 2007. The survey used linear transects spaced 10- to 25-meters apart within all accessible portions of the subject parcels. A small portion of the area located along the eastern margin of Parcel 7 was not completely surveyed due to extremely dense vegetation. A cursory survey strategy was used in this small portion of the parcel, focusing on areas deemed to be moderately sensitive for cultural resources. Parcels 8 through 15, were surveyed by AES Cultural Resources staff Damon Haydu, RPA., and Megan Wahrlich, B.A., between August 21 and September 3, 2009 employing a similar survey strategy. In addition to the pedestrian survey transects, cut banks along drainage ditches and natural drainages were examined for soil profiles and buried deposits. Surface visibility varied from little or no visible ground surface in areas with dense vegetation as discussed above, to complete surface visibility in areas of recently plowed bare soil. Overall, ground visibility was judged to be good, lending a high degree of confidence to the observations made and the conclusions reached.

A full accounting of known cultural resources within the APE was achieved by consulting pertinent anthropological literature, historic documents and maps, conducting a records search at the NWIC, conducting consultation with the Tribe, and a field examination of the subject property by AES archaeologists. This effort resulted in the identification of six previously undocumented structures within the project area. These newly identified cultural resources are presented in **Table 3-13** below.

TABLE 3-13
NEWLY IDENTIFIED CULTURAL RESOURCES LOCATED WITHIN APE

Resource	Location	Description	NRHP / CRHR Status
Tancred Truck Scale	Northwest corner of Parcel 4, south of CR-71	Industrial capacity truck scale and associated structure located on Parcel 4 adjacent to SR-16	Not determined
18515 CR- 71	Northeast corner of Parcel 2, south side of CR-71	Single family residence that is at least 52 years old as indicated by 1959 topographic map. Other structures on parcel do not appear to meet minimum age criteria.	Not determined
Restored Residence	Southwest corner of Parcel 1, east side of SR-16	Single family residence and associated outbuildings; the house is at least 66 years old as indicated by 1945 topographic map.	Not determined
CR-1	Southeast corner of Parcel 9, south of CR-76	Prehistoric archaeological resource containing midden, lithic scatter, and fire-affected rock.	Not determined
Residence (APN 060 020 020)	Central portion of Parcel 8	Vacant single family resdience and barn. Residence appears to be less than 50 years old as indicated by the 1959 topographic map.	Not determined
Residence (APN 048 230 001)	Northern, central portion of Parcel 9	Vacant single family residence and barn. Residence appears to be less than 50 years old as indicated by the 1959 topographic map.	Not determined

SOURCE: AES, 2011

SUMMARY OF FINDINGS

Of the six newly identified cultural resources, three standing structures were identified within the subject properties as likely to meet the minimum age requirement of 50 years for consideration as historic properties (**Table 3-13**). These structures include the Tancred Truck Scale (Parcel 4), a residence and associated outbuilding at 18515 County Road 71 (Parcel 4), and a restored residence and associated outbuildings on Parcel 1. The age estimates are based on examination of historic maps of the subject properties (1945 USGS Rumsey 15' quadrangle, 1959 USGS Guinda 7.5' quadrangle), personal communication with a local resident, and a preliminary assessment of the architectural styles represented (**Appendix F**). The Tancred Truck Scale does not appear on any of the historic maps examined, or on the 1993 (photorevised) USGS Guinda 7.5'quadrangle. Additional research will be necessary to determine the age of the Tancred Truck Scale and whether it qualifies as a historic property relative to the NRHP, or a historical resource relative to the CRHR (**Appendix F**).

One previously documented multi-component cultural resource (CA-YOL-128/H) was monitored and updated as a result of the field study. These updates are presented in **Appendix F**. Three isolated flaked stone artifacts (debitage) and an isolated portable mortar were noted during the field survey. However, isolated artifacts are considered *a priori* insignificant and do not require

any further consideration. A description of these artifacts is included in **Appendix F**. Discussion of the heritage oaks recorded as P-57-000132 can be found in **Section 3.0**, Biological Resources. Additional information regarding the cultural resources identified onsite is included in **Appendix F**.

3.5.4 PALEONTOLOGICAL SETTING

Paleontological resources are defined as the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers. Fossils are important resources due to their scientific and educational value.

This section presents documentation on reported paleontological deposits on the project site and surrounding region, as well as an analysis on the potential for unreported paleontological resources to be present on the project site.

REGULATORY BACKGROUND

The Antiquities Act of 1906 (PL 59-209; 16 United States Code 9 (U.S.C.) 431 et seq.; 34 Stat. 225) calls for the protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. While neither the Antiquities Act nor its implementing regulations [43 Code of Federal Regulations (C.F.R.) 3] explicitly mention fossils or paleontology, the inclusion of "object[s] of antiquity" in the Act has been interpreted to extend to paleontological resources by many federal agencies. As such, projects involving federal lands require permits for paleontological resource evaluation and mitigation efforts that involve excavation, collection, etc. Additional provisions appear in the Archaeological and Historic Data Preservation Act of 1974, as amended, for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data, in such cases wherein this type of data might be otherwise destroyed or irrecoverably lost as a result of federal projects.

POTENTIAL FOR FOSSIL DISCOVERY

The depositional environments of the sediments underlying the project site are primarily alluvial fans and marshes associated with the Cache Creek drainage and adjacent uplands. Fossil occurrences are not usually common in alluvial fan deposits because of the high probability of reworking and damage of any skeletal and plant material as it is transported and deposited. In addition, indicators of significant paleontological resources within the project site and immediate vicinity are absent in the sources consulted, and no such resources were observed in the course of surface reconnaissance surveys by AES in 2007 and 2009. The geologic formation upon which the project site is located has not produced significant paleontological specimens of scientific consequence and is unlikely to do so in the future.

3.6 SOCIOECONOMIC CONDITIONS / ENVIRONMENTAL JUSTICE

3.6.1 SOCIOECONOMIC CHARACTERISTICS OF THE REGION

OVERVIEW

The Capay Valley is characterized as a rural area with clusters of development. The nearest populated centers to the project site are Esparto, located approximately 10 miles to the east, and the City of Winters, located approximately 20 miles to the south. The largest incorporated areas in the County, the Cities of Woodland and Davis, are located in the southeastern portion of the County.

POPULATION

Table 3-14 shows 1990 and 2009 population estimates for unincorporated Yolo County, the County as a whole, and the State. The 2009 population of the unincorporated areas is 23,471, which represents approximately 12 percent of the total population of the County. Establishing the rate of population growth/decline per year from past data provides a perspective on the expected annual change in future population of the region. Over the 19-year period from 1990 to 2009, the population of the unincorporated areas grew at a rate of 0.6 percent per year, while population growth in the County as a whole was 2.2 percent per year and population growth in the State was 1.5 percent per year.

TABLE 3-14
REGIONAL POPULATION

Location	1990	2009	Trend [1]
Unincorporated Yolo County	21,121	23,471	+ 0.6 %
Yolo County	141,210	200,709	+ 2.2 %
California	29,758,213	38,292,687	+ 1.5 %

NOTE: [1] Change Per Year
SOURCE: CDF, 2007a; CDF, 2009a.

HOUSING

Table 3-15 shows a comparison of housing units and vacancy estimates for the unincorporated areas of the County, the County as a whole, and the State in 1990 and 2009. In 2009, the unincorporated areas had 7,356 total units, of which 3.5 percent were vacant. The unincorporated areas account for ten percent of total units within the County. In 1990, the unincorporated areas had a vacancy rate slightly less than both the County and State. Establishing the rate of housing unit and vacancy growth/decline per year from past data provides a perspective on the expected annual change in future housing and vacancy in the region. Over the 19-year period from 1990 to

2009, the quantity of units in the unincorporated areas grew at a rate of 0.6 percent per year, which was less than the growth rates for the County as a whole and for the State. Over the same 19-year period, the portion of vacant units in the unincorporated areas slightly decreased each year, while the portion in the County remained constant and the portion in the State decreased at a rate of one percent per year.

TABLE 3-15
REGIONAL HOUSING STOCK

Location	1990		2009		Trend [1]	
	Total Units	Vacant	Total Units	Vacant	Total Units	Vacant
Unincorporated Yolo County	6,560	3.8 %	7,356	3.5 %	+ 0.6 %	- 0.4 %
Yolo County	53,028	5.9 %	73,811	5.9 %	+ 2.1 %	+ 0.0 %
California	11,182,513	7.2 %	13,530,719	5.9 %	+ 1.1 %	- 1.0 %

NOTE: [1] Change Per Year
SOURCE: CDF, 2007b; CDF, 2009b.

PROPERTY TAXES

Currently, the 15 subject parcels owned in fee title by the Tribe and proposed for trust under the Proposed Project are subject to County property taxes. This area will be discussed under **Section 3.9** and impacts will be analyzed in the context of impacts to public services in **Section 4.1.9**.

INCOME

Median household income in Yolo County in 2007 was $54,307. This value is similar, but slightly lower, than median household income for the State, which was $58,361. These values indicate that the middle household in Yolo County takes home an income similar to that of the middle household in the entire State.

3.6.2 YOCHA DEHE WINTUN NATION

The Tribe has a total enrollment of 63 individuals. The Tribal Council (Council) is the governing body of the Tribe. The Council consists of five Tribal members who serve three-year terms and are elected by qualified voters of the Tribe ages 18 and older. The Council oversees all areas of Tribal government and its business enterprises, including the Yocha Dehe Wintun Academy, Yocha Dehe Fire Department, Yocha Dehe Community Fund, Cultural Renewal Committee, Health & Wellness Committee, Farm and Ranch Operations, Tribal Gaming Agency, and the CCCR.

3.6.3 ENVIRONMENTAL JUSTICE COMMUNITIES

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, as amended, directs federal agencies to develop an Environmental Justice

Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The CEQ has oversight responsibility of the federal government's compliance with Executive Order 12898 and NEPA. The CEQ, in consultation with the EPA and other agencies, has developed guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to the CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act* (1997) and the U.S. Environmental Protection Agency (EPA, 1998), agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects. Communities may be considered "minority" under the executive order if one of the following characteristics apply:

- The cumulative percentage of minorities within the affected community is greater than 50 percent (primary method of analysis); or
- The cumulative percentage of minorities within the affected community is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

Communities may be considered "low-income" under the executive order if one of the following characteristics applies:

- The median household income for a census tract is below the poverty line (primary method of analysis); or
- Other indications are present that indicate a low-income community is present within the census tract (secondary method of analysis). Examples may include limited access to health care, over burdened or aged infrastructure, and dependence on subsistence living.

The northwestern portion (approximately a quarter of the entire area) of Yolo County, including the project area and the Capay Valley, is located within Census Tract 115. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment. Statistics of census tracts provide an accurate representation of a community's racial and economic composition. Due to the rural character of the project area, the project site and large expanses of the surrounding areas are contained within a single census tract.

Races considered minorities under Executive Order 12898, include American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic origin), and Hispanic. Census 2000 data

is the most current census tract racial composition data available. According to the 2000 Census, 46 percent of the population in Census Tract 115 is considered to be composed of minority races. Since less than 50 percent of the population is composed of minority races, Census Tract 115 is not considered to represent a minority community.

For the primary method of analysis, a low-income community is identified by a poverty threshold. Poverty thresholds for Census 2000 income data are found in Table 1 of the U.S. Census Bureau's report *Poverty: 1999*, which relates household income to household size, rounded up to the nearest integer (U.S. Census, 2003). Census 2000 data identifies that Census Tract 115 has an average household size of approximately three, which corresponds to a poverty threshold of $13,290 (U.S. Census, 2000). The median household income for Census Tract 115 based on Census 2000 data is $40,577, which is substantially larger than the poverty threshold. Therefore, Census Tract 115 is not considered a low-income community.

3.7 TRANSPORTATION AND CIRCULATION

3.7.1 ENVIRONMENTAL SETTING

The Capay Valley (Valley), where the project site is located, is a rural, low-density region. CCCR is a major trip attractor in the Valley. The dominant mode of transportation in the Valley is by automobile.

EXISTING ROADWAY NETWORK

The roadway network in the Valley consists of one state route and several local roadways. Roads in the project area are described below.

State Route 16 (SR-16)

SR-16 is a north-south aligned two-lane highway that originates off SR-49, in Amador County. SR-16 traverses west through the Central and Capay Valleys where it terminates at SR-20 in Colusa County. In the project corridor, SR-16 is designated as a conventional two-way highway. **Table 3-16~~7~~** shows the peak-hour traffic counts for southbound and northbound traffic along SR-16 in the vicinity of the project site.

TABLE 3-16 (REVISED)
SR-16 TRAFFIC COUNTS IN THE PROJECT AREA

Roadway Segment	Peak-Hour Traffic Count
Mossy Creek Bridge	260

SOURCE: Caltrans, 2009.

Local Roads

The local roadways that cross SR-16 in the project corridor would be used for construction access and would be affected by construction and residential traffic. The roadways, which are paved and unpaved rural County roads with limited shoulder widths and speed limits of less than 45 miles per hour are described below (refer to **Figure 2-1**).

- CR-70 originates off SR-16 and is a partially improved east/west aligned collector. A portion of CR-70 occurs between the border of Parcels 11 and 12 on the west side of SR-16. No impacts to CR-70 would occur under the Proposed Project.
- CR-71 originates off SR-16 and is a partially improved east/west aligned collector. A portion of CR-71 occurs between the border of Parcels 3 and 4 on the east side of SR-16. No impacts to CR-71 would occur under the Proposed Project.
- CR-72 originates off SR-16 and is a partially improved east/west aligned collector. A portion of CR-72 occurs between the border of Parcels 4 and 5 to the east of SR-16 and the northern border of Parcel 6 to the west of SR-16. No impacts to CR-72 would occur under the Proposed Project.
- Puhkum Road (formerly CR-75A) originates off SR-16 and is a paved east/west aligned collector. This former County road was seceded to the Tribe in late 2010 and is currently designated by dual signage (Reeves pers. comm.., 2010). Puhkum Road is the main access road to the Tribe's existing trust parcel and would be the main access road for the proposed conversion of the existing Yocha Dehe Wintun Academy buildings into Tribal community center/government uses on existing trust land (to the north of Parcel 1) under the Proposed Project. Puhkum Road on the east side of SR-16 is paved with no dividing line. When the road was seceded back to the Tribe the underlying property became part of the original parcels and is thereby subject to this fee to trust process.
- CR-76 originates off SR-16 and is a partially improved east/west aligned collector. CR-76 would be the main access road to the 25 proposed Tribal residences and school to the west of SR-16 on Parcels 9 and 10. To the east of SR-16, CR-76 is unimproved but could provide access to the proposed Tribal cultural/education facilities on Parcel 2.
- Park Place runs along the eastern border of Parcels 12 and 13 to the west of SR-16. Park Place is an unimproved County road designated on the County's online public map viewer (Yolo Co. GIS, 2010). However, this road is currently not utilized and is part of a small network of unimproved roads in the vicinity of Parcels 12 and 13, which constitute County roads from an antiquated subdivision that was never developed.

The on-site roadway network within the project site consists of primarily unpaved farm roads. On Parcel 9, where most of the proposed development under the Proposed Project would occur,

the existing farm roads include three water crossings: two low water crossings and a crossing over the top of an existing stock pond impoundment.

PUBLIC TRANSIT, BICYCLE, AND PEDESTRIAN CIRCULATION

There is currently no public transit system that serves the project site. However, public transit service is located within two miles from the project site. SR-16 is designated as bike accessible, which means bikes are allowed on SR-16 and the highway is intended to serve as a bike route. There is currently no pedestrian system that serves the project site.

3.7.2 REGULATORY SETTING

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans manages interregional transportation, including management and construction of the state highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The project area includes one roadway that falls under Caltrans' jurisdiction, SR-16. Caltrans requires that permits be obtained for transportation of oversized loads, transportation of certain materials, and for construction-related traffic disturbances. Caltrans regulations would apply to construction within and immediately adjacent to SR-16 (Caltrans, 2002). If wastewater pipelines are placed beneath SR-16 under the Proposed Project, Caltrans' approval may be required.

3.8 LAND USE

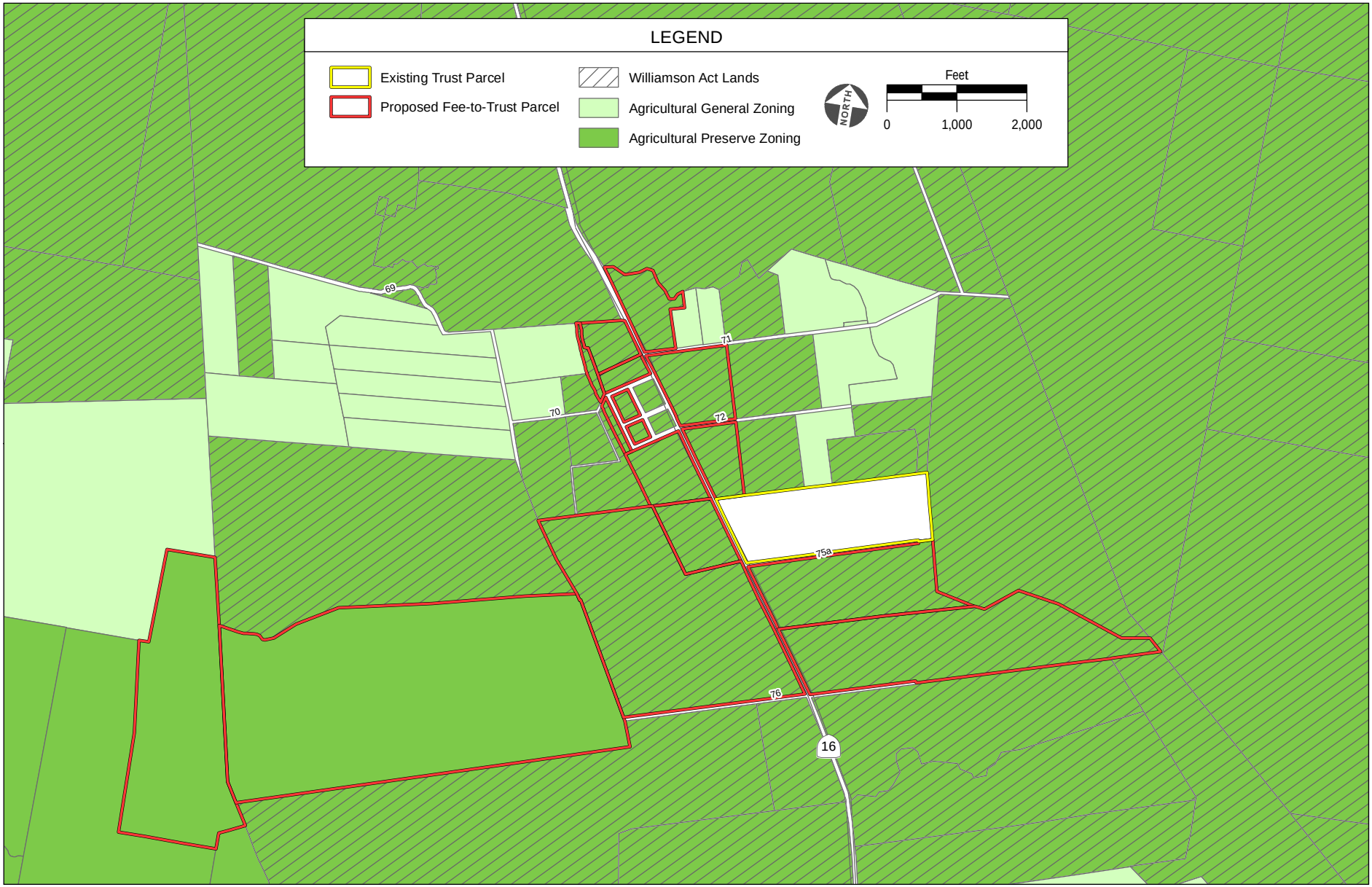
NEPA requires an assessment of a project's effect on adopted land use plans as well as plans that have been formally proposed and are being actively pursued by officials of the jurisdiction. Accordingly, adopted and proposed land use regulations are discussed below.

Land uses on the 853± acre project site include five single-family residences (one is currently occupied and another was restored by the Tribe) and their ancillary structures. The project site also contains two parcels for which there is an approved subdivision map providing for the development of a total of 30 residential units (**Appendix I**). The remainder of the project site is comprised of orchards and agricultural fields.

3.8.1 YOLO COUNTY PLANNING DOCUMENTS

ZONING ORDINANCE

The Yolo County Zoning Ordinance (Yolo County, 2009b) identifies the project site as Agricultural Preserve (A-P) (**Figure 3-11**). Article 4, Section 8 states, "the purpose of the Agricultural Preserve Zone (A-P) shall be to preserve land best suited for agricultural use from the encroachment of non-agricultural uses. The intended use for A-P zoned land is to establish



SOURCE: Yolo County GIS, 2007; C.Lee, Yolo County, pers. comm., 2010; AES, 2012

Figure 3-11
Zoning Map - Updated November 2010

agricultural preserves in accordance with the California Land Conservation Act of 1965, as amended." The California Land Conservation Act, better known as the Williamson Act, is the State's premier agricultural land conservation program, and is discussed in detail below. Under County jurisdiction, principal uses that are allowed on land zoned A-P consist of agriculture, publicly owned parks, rural recreation, and one single-family dwelling per parcel. Other permitted and conditionally-permitted uses include water and wastewater facilities, educational resources, and temporary structures and facilities.

YOLO COUNTY GENERAL PLAN

The Yolo County General Plan (October 2009) is the guiding document for development in the unincorporated areas of the County, which include the off-reservation vicinity of the project site. The Yolo County General Plan assigns a land use designation of Agriculture (AG) to the project site. Relevant goals contained within the County's General Plan related to land use and agriculture include:

- GOAL LU-1: Range and Balance of Land Uses. Maintain an appropriate range and balance of land uses to maintain the variety of activities necessary for a diverse, healthy and sustainable society.
- GOAL LU-2: Agricultural Preservation. Preserve farm land and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy.
- GOAL LU-3: Growth Management. Manage growth to preserve and enhance Yolo County's agriculture, environment, rural setting and small town character.
- GOAL LU-5: Equitable Land Use Decisions. Ensure inclusion, fair treatment and equitable outcomes in local land use decisions and regulations.
- GOAL LU-6: Intra-County Coordination. Ensure inclusion, fair treatment and equitable outcomes for the County in land use planning matters involving other local government entities.

CAPAY VALLEY AREA PLAN, FINAL DRAFT OCTOBER 2010

The Final Draft of the Capay Valley Area Plan, dated October 2010, was adopted on December 7, 2010. The Capay Valley Area Plan establishes the following goals (among others) relevant to land use and agriculture (Yolo County, 2010):

- Agriculture Goal 1: Viable agriculture in the Capay Valley Plan planning area.
    - Policy 1: The County shall maintain, encourage, and actively support agricultural use within the Capay Valley Area Plan planning area.
    - *Implementation Measure 1*: Consult with farmers and landowners to create and implement an Agricultural District program for the Capay Valley, to

enhance and aggressively promote the distinctive agricultural and recreational character of this unique region. The district may include tailored zoning requirements, permit streamlining, development standards, financial incentives, marketing, and/or other benefits as appropriate to expand the local agricultural and recreation economy. Areas of focus within the District may include the wine appellation, the Capay Valley brand, historic downtowns, Cache Creek Casino, organic farming, outdoor recreation, agricultural and ecotourism, and providing visitor services in Esparto and Madison.

- Policy 2: The County shall protect agricultural land as a resource rather than a commodity.
- Policy 3: The County shall continue to support the principles of the Williamson Act. (The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments, which are lower than normal, because they are based upon farming and open space uses as opposed to full market value).
- Policy 5: The County shall pursue all options, as allowed by law, to eliminate or deter the development of antiquated subdivisions.
- *Implementation Measure 1*: Yolo County shall discourage, to the extent possible, development of antiquated subdivisions for non-agricultural uses outside of designated Urban Growth Boundaries within agriculturally zoned areas.
- *Implementation Measure 2*: Yolo County shall pursue strategies to discourage development of antiquated subdivisions. Such strategies could include dedication of perpetual agricultural conservation easements, cluster developments and Transfer of Development Rights (TDRs). Other strategies include those that are voluntary for landowners, such as lot line mergers/adjustments to restrict and/or eliminate antiquate subdivisions.

- Agriculture Goal 2: Adequate soil and water resources to support agricultural lands in the Capay Valley.
- Agriculture Goal 3: Land uses compatible with agriculture.
- Land Use Goal 1: Preservation of the rural quality of life and community unique to the Capay Valley region.

3.8.2 AGRICULTURE

FARMLAND PROTECTION POLICY ACT

The Agriculture and Food Act of 1981 (Public Law 97-98) contained the Farmland Protection Policy Act (FPPA) (Subtitle I of Title XV, Section 1539-1549). The purpose of the FPPA is to minimize the impact of federal programs on the unnecessary and irreversible conversion of farmland to nonagricultural uses. The Farmland Mapping and Monitoring Program (FMMP), within the California Department of Conservation (CDC), maps activity from the U.S. Department of Agriculture (USDA) on a continuing basis. The FMMP produces maps and statistical data used for analyzing impacts on California's agricultural resources (CDC, 2004). The FMMP's Important Farmland Map for Yolo County includes six farmland categories, the following five of which occur on the project site (CDC, 2008):

- *Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.*
- *Unique Farmland consists of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.*
- *Farmland of Local Importance (is) cultivated farmland having soils which meet the criteria for prime or statewide, except that the land is not presently irrigated, and other farmland.*
- *Farmland of Local Potential (consists of) prime or statewide soils which are presently not irrigated or cultivated.*
- *Grazing Land is land on which the existing vegetation is suited to the grazing of livestock.*

The vicinity of the project site includes the five farmland categories described above, plus *Farmland of Statewide Importance*, *Urban and Built-Up Land*, and *Other Land* (CDC, 2008).

The National Resource Conservation Service (NRCS), an agency of the U.S. Department of Agriculture (USDA), fulfills the directives of the Soil and Water Conservation Act [16 United States Code (U.S.C.) 2001-2009] by identifying significant areas of concern for the protection of our resources. NRCS uses a land evaluation and site assessment (LESA) system to establish a Farmland Conversion Impact Rating (FCIR) score. The FCIR is completed on form AD-1006 (NRCS, 2009b). The FCIR form has two components: land evaluation, which rates soil quality up to 100 points, and the site assessment, which measures other factors that affect the farm's

viability up to 160 points.

The total FCIR score is used as an indicator for the project's sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the allowable level. Sites receiving a combined score of less than 160 (out of 260 possible points) do not require further evaluation; alternative project locations should be considered for sites with a combined score greater than 160 points. An FCIR form was completed for the project site (**Appendix G**). The project site received a total of 147 points; as this score is less than 160 points, no further evaluation is needed.

WILLIAMSON ACT

The California Legislature passed the California Land Conservation Act of 1965, better known as the Williamson Act, to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. Under the Williamson Act, private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party files a "notice of nonrenewal," the contract is automatically renewed). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value. A majority of the funding for County and local implementation of the Williamson Act provisions is provided by the State. State subvention of revenue was recently reduced significantly and so counties were given options in regards to Williamson Act contracts under recent changes to State law [Senate Bill (SB) 863]. The Yolo County Board of Supervisors voted to modify the County Williamson Act ordinance consistent with the new SB 863 in December of 2010.

Nonrenewal Process

A notice of nonrenewal can be filed by either the local government or the private landowner. Once a notice of nonrenewal has been filed, a nine-year nonrenewal period is initiated. During the nonrenewal process, land use restrictions of the contract remain in effect and the annual tax assessment gradually increases. At the end of the nine-year nonrenewal period, the contract is terminated.

At present, all of the project parcels except for Parcels 9 and 10 are under Williamson Act contracts (Yolo Co. GIS, 2010; C. Lee, pers. comm., 2010). To date, nonrenewal notices have been filed for all of the project parcels currently under Williamson Act contract (C.Lee ,pers.comm., 2011). The project parcels under Williamson Act contracts represent 420± acres (0.09 percent) of the 450,000± acres under Yolo County Williamson Act contracts (SACOG, 2008)

3.9 PUBLIC SERVICES

3.9.1 WATER SUPPLY

Water in the vicinity of the project site is supplied by wells and by Cache Creek. The closest municipal water service is provided by the Esparto Community Service District, located in the town of Esparto, approximately ten miles away. There are no plans to extend municipal water service to the project area. Further detail regarding water resources is provided in **Section 3.2**.

3.9.2 WASTEWATER SERVICE

There is no municipal wastewater system available in the project area. The nearest wastewater treatment plant is at CCCR (two miles from the project site) and the nearest municipal wastewater system is in Esparto (ten miles from the project site). Wastewater in the vicinity of the project site is disposed of via septic tanks and leach fields. Further detail regarding wastewater is provided in **Section 3.2**.

3.9.3 SOLID WASTE

The management of non-hazardous solid waste in Yolo County is mandated by state law, including Assembly Bill (AB) 939, and is guided by policies at the state and local levels. In accordance with AB 939, the County is required to divert 50 percent of its total waste stream from landfill disposal. The unincorporated areas of the County account for approximately eight percent of the total amount of waste generated in the County (CIWMB 2007).

Solid waste from the Tribe's existing trust property located adjacent to the project site is taken to the Yolo County Central Landfill (YCCL), which is operated by the County Public Works Department. Waste Management, Inc. transports solid waste to the YCCL from the Tribe's existing facilities. The YCCL covers 724 acres and is currently permitted to receive approximately 1,800 tons of solid waste per day. The landfill is expected to reach its capacity of 25,000,000 cubic yards in the year 2045 (CIWMB, 2007). The Class II facility accepts municipal wastes, recycled materials, liquid wastes, wood, and green wastes. Located at the YCCL are two 100,000-ton bioreactor cells, which use circulated liquid to increase the rate of decomposition, and increase the utilization of landfill acreage. The methane gas that is released in the process is captured and used for energy generation (CIWMB, 2007).

3.9.4 ELECTRICITY, NATURAL GAS, AND TELECOMMUNICATIONS

Pacific Gas & Electric (PG&E) provides electrical services to the project area. Evans Telephone Company provides telecommunication services to the project area. The nearest natural gas service is at CCCR, approximately two miles south of the project site, along SR-16. A variety of providers offer cellular and cable service in Yolo County.

3.9.5 LAW ENFORCEMENT

California is a Public Law 280 state that allows for state criminal law enforcement jurisdiction on Tribal trust lands; however, this jurisdiction does not include regulatory civil law authority. Depending on the crime (pursuant to Public Law 280 and the Major Crimes Act), the U.S. Marshal may also provide support in specified situations. Tribal security provides law enforcement services for all Tribal trust lands.

YOLO COUNTY SHERIFF'S DEPARTMENT

The Capay Augmented Patrol (CAP) program was established over ten years ago as a partnership between the Tribe and the Yolo County Sheriff's Department. CAP is funded solely by the Tribe and employs three full-time deputies and a fully equipped patrol vehicle [as currently mandated by the 2002 Intergovernmental Agreement (IGA)], allowing the Sheriff's Department to serve the Capay Valley 24 hours a day, five days a week. The Sheriff's Department's station closest to the project site is located in the City of Woodland, approximately 26 miles from the project site.

The Sheriff's Department participates in multi-agency law enforcement units, including the Area Law Enforcement Response Team (ALERT) and the Yolo County Bomb Squad (YCBS), in order to be prepared for incidents requiring specialized law enforcement response.

CALIFORNIA HIGHWAY PATROL

The California Highway Patrol (CHP) is the chief law enforcement agency for traffic-related issues on SR-16, which provides access to the project area. The closest sub-station is located at 1975 Wintun Drive in Woodland. Currently, there is a minimum staffing requirement of three CHP Officers on regular duty in Yolo County, with additional officers employed as needed for special events. In 2007, rural Yolo County experienced 284 traffic incidents with injuries. Of these accidents, 23 resulted in fatalities, none of which occurred on SR-16 (SACOG, 2009). When traffic accidents occur in the Capay Valley, available CHP officers respond.

3.9.6 FIRE PROTECTION

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

The California Department of Forestry and Fire Protection (CAL FIRE) provides wildland fire protection and, under contract with the BIA, responds to wildfires on Indian reservations in California. CAL FIRE also protects State Responsibility Areas, which comprise a large portion of unincorporated Yolo County. The project site is located within an area designated by CAL FIRE as a Moderate Fire Hazard Severity Zone (CAL FIRE, 2007). The nearest CAL FIRE station to the project site is the Brooks station located approximately one mile south of the project site along SR-16. During the fire season (May through October), the Brooks CAL FIRE Station houses one Type III engine, with a minimum staff of two firefighters and one fire captain. The captains and most of the staff are certified EMTs (Strebow, 2007).

LOCAL FIRE DEPARTMENTS

The Yocha Dehe Fire Department (YDFD) and three volunteer fire departments provide the region with fire protection and emergency services. YDFD, the Capay Valley Fire Department (CVFD), and the Esparto Fire Department (EFD) maintain an Automatic Aid Agreement that commits the three departments to aid one another, when necessary, to provide sufficient coverage to the Capay Valley. YDFD, EFD, CVFD, and the Madison Fire Department (MFD) have established a multi-department training program that incorporates joint training sessions and emergency planning, with the intent to create a safer and more prepared Capay Valley.

YDFD provides fire protection to all Tribal lands. The YDFD station (Station 25), located on existing trust land, began providing service in April 2004. YDFD is currently equipped with two Type I engines and one Type III engine, which utilize a compressed air foam system, as well as three command vehicles, all housed in a 14,000 square-foot station located near the northern border of the Tribe's Cache Creek Casino Resort, approximately two miles south of the project site. These engines are equipped with Holmatro Rescue Tools, including cutters and spreaders, for extraction of victims of auto accidents. Each shift is staffed with a battalion chief, two captains, two engineer/paramedics, and at least two firefighter/paramedics. All YDFD firefighters obtain "Firefighter II" certification within one year of joining the department. The YDFD recently received the honorable distinction of Accredited Agency under the Commission on Fire Accreditation International (CFAI) in August of 2010 (Chandler pers.comm., 2010). The Tribe became the first native American tribe to receive this accreditation and is currently one of only 147 fire and emergency service organizations internationally that possess this accreditation (Chandler pers. comm.., 2010). Once project parcels are taken into trust under the Proposed Action, the YDFD would be the primary fire and emergency response force for the trust land.

3.9.7 EMERGENCY MEDICAL SERVICES

FIRST RESPONSE

YDFD provides first response emergency services on trust land and, through the mutual aid agreements, assists other departments in areas outside Tribal jurisdiction. At least four YDFD staff members on duty at any time are certified paramedics. Paramedics are extensively trained and are qualified to give shots, start intravenous lifelines, and use advanced airway management devices to support breathing, as compared to EMTs, who are more limited in their capabilities and qualifications. YDFD firefighters are also trained in swift water rescue, vehicle extraction, trench rescue, low angle rescue, and confined space rescue. YDFD is fully trained and equipped to respond to a medical emergency until an ambulance or helicopter arrives.

EMERGENCY DISPATCH AND TRANSPORT

The Yolo Emergency Communications Agency (YECA) is the local 9-1-1 public safety dispatch provider for the project site and the surrounding region. YECA dispatches four law enforcement agencies and 17 fire departments, including YDFD.

In accordance with an agreement with Yolo County, American Medical Response (AMR) of Woodland is the sole provider of ground ambulance service to the Capay Valley. AMR has an estimated response time from Woodland to the project area of approximately 25 minutes (90 percent of the time) (Sierra-Sacramento Valley EMS Agency, 2006). Emergency air transportation is provided by either California Shock Trauma Air Rescue (CALSTAR) or Redwood Empire Air Care Helicopter (REACH). CALSTAR 8 is based out of the Vacaville Airport, while REACH Patient Transport has four rotor-wing bases located in Lakeport, northwest of the project site, Santa Rosa to the west, Marysville to the northeast, and Lodi to the southeast. Response times to the project area for either air transportation service range from approximately 21 to 39 minutes.

LOCAL MEDICAL FACILITIES

The Woodland Healthcare and Memorial Hospital, located 24 miles from the project site, provides emergency room medical services to the Capay Valley. This hospital is an acute care facility that can accommodate both medical and trauma emergencies. The nearest major trauma center is the U.C. Davis Medical Center in Sacramento, California, approximately 55 miles from the project site.

OFFICE OF EMERGENCY SERVICES

Through recent reorganization and funding, the Yolo County Office of Emergency Services (OES) provides multi-jurisdictional support for emergency planning, coordination, and incident response. OES is designated as the lead response agency for the County in the event of a major emergency. OES is located at 120 West Main Street in the City of Woodland.

3.9.8 SCHOOLS

TRIBAL SCHOOL

The Yocha Dehe Wintun Academy (Academy), currently preschool through 8th grade, is located on land held in trust for the Tribe, adjacent to the project site to the north of Parcel 1. During the 2009-2010 school year, the Academy served 17 students at its preschool through 8th grade campus, as well as several off-campus students attending high school and college. The Academy employs six full-time faculty, three part-time instructors, a Director of Education, and two office assistants. Although the Yocha Dehe Wintun Academy is located on trust property, the school is open to students from outside the Tribe (Reeves, 2009). Under the Proposed Project, the

Academy would be relocated to Parcel 9 to better accommodate future growth and Tribal education needs.

PUBLIC SCHOOLS

The closest public schools to the project site are within the Esparto Unified School District, located in the City of Esparto (approximately ten miles east) and Madison (approximately 13 miles east of the project site). They include the following:

- Esparto High School, located at 17121 Yolo Avenue, Esparto;
- Esparto Middle School, located at 26058 CR-21A, Esparto.
- Esparto Elementary School, located at 17120 Omega Street, Esparto; and
- Madison High School, located at 17923 Stephens Street, Madison.

3.9.9 PARKS AND RECREATION

PARKS

A number of parks and recreational facilities are located in unincorporated Yolo County. The parks closest to the project site include the following:

- Vernon Nichols Park is located in Guinda along SR-16 at CR-57. This 22-acre facility includes picnic areas, fishing, and beach access to Cache Creek. An easement has also been placed over the park to provide mitigation for the elderberry shrub (YCPRD, 2009).
- Camp Haswell is located two miles north of the town of Runsey along SR-16. This old Boy Scout camp is ideally situated to enjoy Cache Creek. This park is heavily used by rafters as a take-out site (YCPRD, 2010a).
- Cache Creek Regional Park is located along SR-16, approximately six miles north of the town of Rumsey. This 700+ acre park consists of three developed areas: Upper, Middle, and Lower sites. This park also provides access to 54,000 acres of Federal Bureau of Land Management property, including the Blue Ridge Trail (YCPRD, 2010b).
- Esparto Community Park, which is located in Esparto, is a County-operated, 4-acre site with picnic tables, a grill, a turf area, playground and restrooms. The park hosts the Capay Valley regional farmers' market on the first Saturday of each month from April through December (YCPRD, 2009).

WHITEWATER RAFTING

Cache Creek is a popular destination for whitewater rafting, with two companies offering one- and two-day rafting/camping trip packages north of the project site. Both companies operate

under agreements signed by the Yolo County Parks, Recreation, and Wildlife Advisory Committee. The YDFD provides the primary swift water rescue response in the vicinity of the Proposed Project area.

YOCHA DEHE GOLF CLUB

The Yocha Dehe Golf Club is an 18-hole championship golf course located east of and adjacent to the Resort. The 7,300-yard, par-72 course also includes a driving range and a clubhouse with a restaurant and observation deck. The golf club is owned by the Tribe and, although it is partially located on the trust land, the entire facility is open to the public.

3.9.10 YOLO COUNTY PROPERTY TAXES

The Proposed Project includes the transfer of 15 parcels into trust status for the Tribe. Assessed value of the subject parcels includes the value of the land and any improvements made to the parcel, such as structures. Expected property tax is estimated based on the California property tax rate of one percent of the taxable value of a property (BOE, 2005). The 15 subject parcels have a total 2009 assessed value of $4,884,338 and will result in 2009 tax revenue for the County of $48,843 (Yolo County Assessor, 2009).

3.10 NOISE

3.10.1 NOISE EXPOSURE AND COMMUNITY NOISE

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Environmental noise is typically measured in A-weighted decibels (dBA). A dBA is a dB corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels. In general, A-weighting of environmental sound consists of evaluating all of the frequencies of a sound, taking into account the fact that human hearing is less sensitive at low frequencies and extremely high frequencies than in the frequency mid-range.

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. However, community noise varies continuously over a period of time with respect to the contributing sound sources in the community noise environment. What makes community noise constantly variable throughout a day is the addition of short duration single event noise sources such as aircraft flyovers, vehicle pass-bys, sirens, etc., which are readily identifiable to the individual. These successive additions of sound to the community noise environment varies the community noise level from instant to instant, requiring

the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors such as L_{eq}, L_{dn}, and Community Noise Equivalent Level (CNEL), which averages noise over a specified number of hours.

Part of community noise level is construction noise. Construction noise is dominated by heavy equipment and is discussed further in **Section 4.10**. In general, noise emitted from construction projects is intermittent and short-term in nature and will generally occur during the daytime hours.

Generally, the noise environment in a community is dominated by traffic noise. Typically it takes an additional 200 vehicles per hour to increase the ambient noise levels in an area (Traffic Noise Calculator, 2007).

3.10.2 REGULATORY SETTING

The Department of Housing and Urban Development (HUD) and the Federal Highway Administration (FHWA), federal agencies, consider outdoor day-night noise exposure up to 65 dBA, Ldn as acceptable under most circumstances. The FHWA considers 75 dBA as acceptable during construction, if construction is conducted between the hours of 7:00 a.m. and 6:00 p.m. (FHWA, 2006).

3.10.3 SENSITIVE RECEPTORS

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well-being could be impaired or endangered by the existence of the criteria pollutant, whether it is emissions or noise, in the atmosphere.

Land use in the vicinity of the project site is mainly agricultural with some scattered residences. Sensitive noise receptors in the vicinity of the project site are residences. The nearest sensitive noise receptor to the proposed residential units is an existing residence located on Parcel ~~9~~1. This residence is located 200 feet east of the nearest proposed residence site. Proposed residential units would be constructed on Parcel 1, approximately 3,900 feet from the existing Wintun Academy and residences on the Tribe's existing trust parcel.

3.10.4 EXISTING NOISE SOURCES

The noise environment surrounding the project site is influenced primarily by noise from vehicles traveling on SR-16, which borders Parcel 1 and is within 2,500 feet of Parcel 9. The surrounding area is mainly agricultural land. The ambient noise level near sensitive noise receptors can be increased when farm equipment is used in close proximity of receptors. Use of farm equipment can increase the ambient noise level near sensitive noise receptors; however, this increase is temporary and only occurs several times a year. The area is characterized as rural and, therefore, is assumed to have a typical ambient noise level of 55 dBA during the day and 45 dBA or less at night.

3.11 HAZARDOUS MATERIALS

The 853± acre project site was investigated to determine if any Recognized Environmental Conditions (RECs) exist (AES, 2011). RECs refer to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products on the property or into the ground, groundwater, or surface water of the property. This includes hazardous substances and petroleum products. All Phase I ESAs were prepared in accordance with the BIA Guidelines (602 DM Chapter 2) and the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05. Site reconnaissance, review of federal and state regulatory agency records and databases, interviews with local officials and property owners and review of historical aerial photographs of the 853± acre project site were performed. Following is a summary of the site reconnaissance for each parcel (**Appendix H**).

Parcel 1 includes approximately 56 acres of walnut orchard located on the east side of SR-16 and extends to Cache Creek to the east. Three wells are present on Parcel 1. One well is an agricultural well located approximately 100 feet east of SR-16; the additional two wells are domestic wells associated with one residence and one former residence. All transformers appeared to be in good condition with no apparent leaks (AES, 2011). A vacant house is present on Parcel 1, which is located next to SR-16 on the southwest corner of Parcel 1 and is approximately 1200 square feet (sf) in size, with a detached garage and barn. Several gallons of paint were being stored in the garage and a 55-gallon drum of what appeared to be waste oil was located in the northeast corner of the garage. As part of the Tribe's restoration efforts in 2008, the hazardous materials were removed from this residence and disposed of in accordance with applicable standards (AES, 2011). A former residence with detached garage and large metal barn used for storing agricultural equipment was located on the northeast section of Parcel 1, as observed during a site visit in 2009 (AES, 2011). However, this former residence, garage, and barn have been demolished as of April 2010 and applicable procedures were used to dispose of the waste material and clean up the site (Etters, 2010).

Parcel 2 includes approximately 92 acres of walnut orchard. No structures are present on the parcel. One agricultural well is located at the southwest corner of the parcel and one five-gallon bucket of hydraulic fluid was observed next to the well. No unusual chemical odors or surface staining was observed on or around the well (AES, 2011).

Parcel 3 includes approximately 17.69 acres of almond orchard. Also, power lines, a pole-mounted transformer, and an agricultural well are present along the frontage of SR-16. No structures are present on Parcel 3 (AES, 2011).

Parcel 4 includes approximately 26 acres of almond orchard. Two wells are present on Parcel 4. One well is an agricultural well located on the northwest corner of the parcel and the second well is a domestic well associated with the former residence located on the northeast corner of the parcel. A 500-gallon propane tank was observed adjacent to the former residence. A metal storage building/garage was observed in the northeast corner of the parcel. A debris pile was observed adjacent to the location of the former residence, which contains tires, an empty 55-gallon drum, scrap metal, and an air conditioning unit. A pole-mounted transformer is located adjacent to the former residence. The transformer appears to be in good condition and no apparent leaks were observed (AES, 2007b).

Parcel 5 includes approximately 16 acres of almond orchard. No structures are present on Parcel 5 (AES, 2007b).

Parcel 6 includes approximately 18 acres of alfalfa field. No structures are present on Parcel 6 (AES, 2007b).

Parcel 7 includes approximately 20 acres of alfalfa field. No structures are present on Parcel 7 (AES, 2007b).

Parcel 8 includes approximately 154 acres of irrigated farmland and approximately 30 acres of undeveloped grassland and oak woodland along the western border. An approximately 800 square foot vacant residence, detached garage, and barn are located in the central portion of Parcel 8. Farm equipment was observed within the garage and mild surface staining was observed underneath the piece of equipment in the garage. Two agricultural wells and two domestic wells are present on the parcel. A barn, corral, and foundation pad are located on the northwest corner of Parcel 8. An empty approximately 55-gallon container was observed within the barn. Several power lines and pole-mounted transformers were also observed; they appeared to be in good condition and no apparent leaks were visible (AES, 2008).

Parcel 9 includes approximately 316 acres of undeveloped grasslands, oak woodland, riparian areas, walnut orchards, and vineyards. An approximately 2,400 square foot residence and

detached garage are present in the central portion of Parcel 9. An approximately 500-gallon propane tank and 2,500-gallon water holding tank were observed on the west side of the garage. A large metal barn and corral are located to the north of the residence. The corral is no longer in use and the metal barn is used to store tractors, tools, and sprayers. One 550-gallon aboveground storage tank (AST) was observed on the north side of the metal barn. The AST appeared to be empty and no surface staining was visible. A pole-mounted transformer was observed to the east of the residence. It appeared to be in good condition and no apparent leaks were observed (AES, 2007a).

Parcel 10 includes approximately 113 acres of rolling hills, steep ravines and oak woodland. A non-hazardous debris pile was observed on steep slope near the southern property boundary. No structures are present on Parcel 10 (AES, 2007a).

Parcel 11 includes approximately 5 acres of pasture. No structures are present on Parcel 11 (AES, 2011).

Parcel 12 includes approximately 2 acres of pasture. No structures are present on Parcel 12 (AES, 2011).

Parcel 13 includes approximately 2 acres with a vacant residence and three associated outbuildings. An on-site domestic well and septic sewer systems were noted on the parcel, along with a 500-gallon propane tank to the west of the vacant residence. Also, a pole-mounted transformer was observed to the south of the associated outbuildings. It appeared to be in good condition and no apparent leaks were observed (AES, 2011).

Parcel 14 includes approximately 10 acres of pasture. No structures are present on Parcel 14 (AES, 2011).

Parcel 15 includes approximately 5 acres with two pole barns, cattle/horse stalls, and pasture (AES, 2011).

Database searches were conducted for records of known storage tank sites and known sites of hazardous materials generation, storage, or contamination. Databases were searched for sites and listings up to 2.0 miles from a point roughly equivalent to the center of the 853± acre property. No sites were listed on the Environmental Data Resources, Inc (EDR) databases. Based on the site reconnaissance of the parcels, review of federal and state regulatory agency records and databases, interviews with local officials and property owners and review of historical aerial photographs, no RECs were identified on the parcels.

3.12 VISUAL RESOURCES

Yolo County is predominantly rural, having an agricultural character throughout most of the eastern portion of the County, and a foothill/mountain natural environment character in the western portion of the County. The project site lies within the Capay Valley near the western border of the County. This area provides extensive scenic views of the surrounding foothills and mountains. The visual characteristics of the project site and surrounding areas are similar to the rest of the Capay Valley and typical of rural Yolo County. The project site is sparsely developed with approximately five single-family homes, five barns, and associated structures located throughout the site. The site is primarily devoted to agricultural practices including orchards, vineyards, irrigated hayfield, and rangeland.

The majority of the project site is adjacent to SR-16 which is a two-lane highway eligible for designation as a State Scenic Highway. SR-16 is designated a "Local Scenic Highway" in Policy CC-1.13 of the Yolo County General Plan Update (2009). This stretch of road is known for its views of scenic vistas. Rolling foothills, grasslands, scattered oak woodlands, and lack of major development in the area contribute to the scenic designation of this highway. Those parcels not adjacent to SR-16 can be accessed by various county roads, including CR-76, CR-70, CR-71 and CR-72. Regular street lamps are not provided along SR-16 or the county roads, and most local residences use limited outdoor lighting.

SECTION 4.0

ENVIRONMENTAL CONSEQUENCES

SECTION 4.0
ENVIRONMENTAL CONSEQUENCES

In this section, environmental consequences are described for Alternative A (Proposed Project), Alternative B (Reduced Acreage), and Alternative C (No-Action). Resource areas that are analyzed in this section include direct and indirect impacts to land resources, water resources, air quality, biological resources, cultural resources, socioeconomic conditions and environmental justice, transportation and circulation, land use, public services, noise, hazardous materials, and visual resources. Direct impacts are those that are caused by the action and occur at the same time and place, while indirect impacts are caused by the action and occur later in time or further in distance, but are still reasonably foreseeable (Council on Environmental Quality, Regulation 1508.8). Cumulative and growth-inducing effects of the Proposed Project are also assessed in this section for each of these resource areas.

4.1 ALTERNATIVE A - PROPOSED PROJECT

4.1.1 LAND RESOURCES

TOPOGRAPHY

As discussed in **Section 2.1.8**, no construction activities would occur on Parcels 3 through 6, and 11 through 15. The current agricultural land uses would be maintained on the remaining subject parcels and therefore no adverse impacts to topography would occur on these parcels.

The proposed Tribal housing and Tribal school on Parcels 9 and 10 would be designed to avoid construction on steep slopes. Cultural/education facilities proposed for the initial phase of project construction on Parcels 1 and 2 would consist of the renovation of the former residence and associated outbuildings onsite and development of a permanent building to house the Cultural Education Center (Parcel 1) and the construction of nonpermanent structures representative of a historic Tribal village to serve as the Outdoor Cultural Activity Center (Parcel 2). The nonpermanent structures of the Outdoor Cultural Activity Center on Parcel 2 would not require grading or other earthwork activities. Likewise, the conversion and expansion of the existing former residence and associated outbuildings on Parcel 1 into the Cultural Education Center would not require significant grading or other earthwork activities (**Figure 2-1**). If the third cultural/education facility is developed, it would be phased at a later date on Parcel 2. Overall, architectural designs of all proposed developments would accommodate the topography in order to preserve the natural aesthetics of the project site. A preliminary grading plan was developed

for the proposed housing (**Appendix B**), which incorporates appropriate cut and fill to prevent the need for import or export of soils.

SEISMICITY

The projected earthquake magnitudes for the region indicate that the project site could potentially be exposed to future seismic shaking at levels that could induce damage in ordinary buildings. Construction of Alternative A would adhere to the Tribe's building ordinance, which meets or exceeds the California Building Code (CBC) (including seismic standards), as described in **Section 2.1.9**. The CBC serves as the basis for the design and construction of buildings in California. The CBC incorporates by reference the Uniform Building Code with necessary California amendments. For example, the CBC includes provisions for designing structures to withstand earthquakes and requires the identification of soil and geologic conditions at the site. If conditions are found that may interfere with the stability of the building, the CBC includes specific building requirements for those conditions. Use of the CBC design and construction standards would allow ground shaking-related hazards to be managed from a geologic, geotechnical, and structural standpoint such that adverse impacts to the health or safety of workers or members of the public would be minimized.

SOILS

The soil types located on the majority of the project site are characterized by gentle slopes and moderately high permeability rates. All of the soil types in the areas proposed for development have erosion hazard ratings of slight to moderate. No development is proposed on areas of the project site containing soils with severe or very severe erosion hazard ratings (refer to **Table 3-1**; **Figure 3-2**). General construction activities associated with grading and excavation reduce the integrity of the soil structure, increasing the likelihood of erosion from wind and/or stormwater runoff. With implementation of protective measures for reducing erosion during construction activities, which are listed in **Section 5.1**, implementation of the Proposed Project would result in no significant adverse impacts related to soil erosion.

The soils on the areas of the project site proposed for development on Parcels 1, 2, and 7 through 10 are characterized as being corrosive to steel, and some are also characterized as being corrosive to concrete (NRCS, 2009b). In anticipation of these soil limitations, project design (**Section 2.1.9**) has incorporated protective measures to minimize adverse impacts relative to soil corrosivity. These measures require non-corrosive materials and/or protective coatings for buried facilities to be used for construction in corrosive soils.

With the implementation of the protective measures listed in **Section 2.1.9** and the mitigation measures listed in **Section 5.1**, development of the Proposed Project would result in no significant adverse impacts to Land Resources.

MINERAL RESOURCES

As stated in **Section 3.1.6**, there are no mineral resources located on or in the vicinity of the project site (Yolo County, 2009a). Construction of the proposed developments on Parcels 1, 2 and 7 through 10 would not result in the loss of mineral resources. No adverse impacts to mineral resources would result from the implementation of the Proposed Project.

4.1.2 WATER RESOURCES

SURFACE WATER

Alternative A has been designed to avoid construction of the Tribal residences, school, cultural/education facilities, domestic water storage tank, and wastewater treatment plant (WWTP) within the riparian corridors of surface water resources located on the project parcels (**Figure 2-1**). As discussed in **Section 2.1.7**, roadway crossings of water resources for Tribal roadways would be limited to the three existing crossing sites on Parcel 9. Further discussion of impacts to the surface water features on the project site is included in the discussion of biological resources in **Section 4.1.4**.

DRAINAGE

Alternative A would minimally increase impervious surfaces on Parcels 1, 2, and 7 through 10 due to the construction of Tribal residences, school, cultural/education facilities, domestic water storage tank, wastewater treatment plant and improvements to and construction of roads and sidewalks. Increased impervious surfaces could result in increased peak flows and localized flooding. A grading and drainage assessment was performed for the Proposed Project, which quantified the anticipated increase in stormwater runoff to determine the detention required to reduce peak runoff flows from the development to pre-existing conditions (**Appendix B**).

Minor drainage improvements to Parcels 9 and 10 to accommodate the construction of the Tribal residences, school, and domestic water storage tank would be accomplished through existing and proposed vegetated swales to be constructed as roadside detention for runoff from impervious surfaces. The proposed development on Parcels 9 and 10 represents a three percent increase in imperviousness. This change is minimal and the increase in peak flows on Parcel 9 would be insignificant (Section 3.5.4 in **Appendix B**). Although peak flow attenuation and detention is not required for this minimal increase, the preliminary grading and drainage assessment for the Proposed Project recommends the utilization of the existing stock pond as a detention pond on Parcel 9 to reduce peak flows (Section 3.5.4 in **Appendix B**). This would offset any increased peak flow due to the development (Section 3.5.4 in **Appendix B**). In addition, culverts (including culverts, bottomless culverts, or bridges) would be constructed to assure that drainage is not impeded at sites where the proposed access road crosses existing drainage courses. Due to the large watersheds with watercourses traversing Parcels 9 and 10, culvert crossings would be sized

to allow a 200-year, 24-hour storm event to drain without creating backwater or overtopping of existing and proposed roads (Section 3.6 in **Appendix B**).

With implementation of stormwater drainage improvements recommended in **Appendix B** and the protective measures and Best Management Practices (BMPs) discussed in **Section 2.1.9**, stormwater flows would equal pre-existing runoff rates. Thus, Alternative A would result in no significant adverse impacts to drainage on Parcels 9 and 10.

The net increase in stormwater runoff generated from the conversion of the former residence on Parcel 1 to a Cultural Education Center and the development of additional cultural/education facilities on Parcel 2 would be off-set by the placement of roadside vegetated swales to convey stormwater runoff, all of which eventually would be directed towards Cache Creek (refer to Section 2.6 in **Appendix B**). Check dams will be placed within the swales to reduce the velocities of stormwater flows (**Appendix B**). The check dams and BMPs that would minimize impacts to the floodplain and Cache Creek (Section 2.10 in **Appendix B**), resulting in less than significant impacts. Fill removed from the creation of the vegetated swales would be used to build the pads for the cultural/educational facilities above the 200-year flood elevation (Section 2.10 in **Appendix B**). Therefore, no import or export of material is anticipated under the Proposed Project. The limited development of cultural/education facilities on these parcels would have minimal or no permanent impacts to the floodplain.

With implementation of the stormwater drainage improvements recommended in **Appendix B**, the protective measures and BMPs discussed in **Section 2.1.9**, the existing stock pond and use of roadside vegetated swales for runoff, and construction of a detention basin for the minor developments on Parcels 1 and 2, impacts to stormwater runoff levels from the Proposed Project would be minimized such that stormwater flows to Cache Creek would equal pre-existing runoff rates. Implementation of Alternative A would result in no significant adverse impacts to drainage on Parcels 1, 2, 9, or 10.

Under the Proposed Project, a WWTP and recycled water reservoir could be constructed on Parcel 8. The WWTP would be designed as a zero discharge facility. Treated effluent would be recycled and applied to land as irrigation water. A recycled water reservoir would be sized to ensure adequate storage is available during the winter months, including storage capacity for precipitation. The reservoir would be located near the WWTP on Parcel 8 and would occupy roughly six acres with approximately six feet of water depth. With implementation of stormwater drainage improvements recommended in **Appendix B** and the protective measures and BMPs discussed in **Section 2.1.9**, stormwater flows would equal pre-existing runoff rates. Implementation of Alternative A would result in no significant adverse impacts to stormwater drainage on Parcel 8.

Implementation of Alternative A would result in no impact to existing stormwater drainage conditions on the project parcels that would remain under agricultural operation and not developed under the Proposed Project, including: Parcels 3 through 6, the majority of Parcels 7 and 8, and Parcels 11 through 15.

FLOODING

Executive Order 11988 pertaining to floodplain management states that each federal agency shall "provide leadership and shall take action to reduce the risk of flood loss." For each agency to carry out its responsibility, the order requires that each agency determine whether a project is located within a floodplain and consider alternatives to a project's location within a floodplain. If the project must reside on a floodplain, the agency must minimize any potential impacts.

All proposed residences and buildings on Parcels 8 through 10 west of State Route (SR)-16 would be constructed outside the Federal Emergency Management Agency (FEMA)-designated 100-year flood zone for Cache Creek or its tributaries (refer to **Figure 3.4**). Although the Outdoor Cultural Activity Center is proposed for development within the floodplain of Cache Creek on Parcel 2, it would consist only of nonpermanent structures representative of a historic Tribal village. To reduce adverse impacts from development in a floodplain, no grading or related earthmoving activities would occur since the structures proposed for the Outdoor Cultural Activity Center would be made of nonpermanent building materials. With the implementation of the design features identified in **Appendix B**, adverse impacts to floodplain management would be reduced through project design and construction timing to a less than significant level (refer to **Section 5.2**).

Some stretches of Tribal roadways on Parcel 9 would cross the flood zone of a tributary to Cache Creek; however, the existing elevations of the greater Cache Creek floodplain would be maintained under the Proposed Project (refer to **Section 2.1.7**). Impacts to floodplain management would be negligible as improvements to access roads would include culverts, bottomless culverts or bridges sized to allow at least 200-year, 24-hour storm events to drain through without generating significant backflow (**Appendix B**). To reduce potential impacts from construction, mitigation identified in **Section 5.2** would ensure construction activities within the floodplain are conducted during the dry season. With mitigation, no significant adverse impacts to the floodplain from Tribal roadway improvements would occur.

GROUNDWATER

Under the Proposed Project, Parcels 3 through 6 and Parcels 11 through 15 will not undergo any land use changes, therefore, well production on these parcels will remain unchanged (refer to **Section 2.0**). The existing domestic well located on Parcel 1 has the capacity to serve the needs of the cultural/education centers proposed for Parcels 1 and 2 due to their estimated small size

and low projected daily water demands (**Appendix C**). Alternatively, potable water supply demands for Parcels 1 and 2 may be met via connection to the existing water supply system in place on trust land directly adjacent to Parcel 1 (**Appendix C**).

The projected increase in Tribal potable water demand for Alternative A is 16 gallons per minute (gpm) (refer to Table 2-2 of **Appendix C**). Current irrigation demands would be maintained on Parcels 2 through 8 and 10 through 15, thereby no net increase in irrigation demands would be experienced on those parcels through the implementation of Alternative A. There would be minor landscaping water demands for the proposed Tribal residences, school, and cultural/education facilities on Parcels 1, 2, 9 and 10. However, these demands are greatly reduced when compared to the irrigation demands if the converted portions of the project parcels for these developments were to remain in agricultural use. There are eight existing domestic wells on the project site and 12 agricultural wells (**Figure 3-5**). Typical yields of the domestic wells are 5 to 15 gpm and yields of the agricultural wells are metered and range from 250 to 750 gpm. Based on the number of available wells on the project site, existing sustained yields, and lack of adjacent development within the area, the minor additional demand of approximately 16 gpm for the proposed developments on Parcels 1, 2, 9 and 10 would result in no significant adverse impacts to groundwater resources in the area (**Appendix C**). The Tribe's current water system on the existing trust parcel, in conjunction with the proposed domestic well and hill top domestic water storage tank to serve Parcel 9, would provide adequate water supplies to meet the Proposed Project's water demands while not significantly impacting the groundwater aquifer in the region. Alternatively, a new well and storage tank may be developed onsite to supply domestic demands and emergency fire flow to serve Parcels 1 and 2, as recommended in **Appendix C**.

WATER QUALITY

Construction activities and runoff from residential and community facilities could transport debris, oil, sediments, and grease into adjoining surface waters, potentially affecting surface water and groundwater quality. Increased runoff could create scouring and could impact riparian and aquatic habitats and seep into groundwater aquifers. The Tribe is required to adhere to the provisions of the Clean Water Act (CWA). To reduce the effects of increased surface runoff volume and associated pollutants, the Tribe will comply with the terms of the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) Construction General Permit and ensure that BMPs, such as those listed in **Section 2.1.9** and **Section 5.2** are used to reduce the risk of soil erosion and polluted discharge. Construction activities could increase the potential for erosion to occur, which could increase silt loads to Cache Creek and could also comprise soil integrity increasing the potential for transport of surface contaminants to groundwater resources. The recommended BMPs would significantly reduce erosion and minimize off-site pollutant transport. The Tribe will prepare and implement a

Stormwater Pollution Prevention Plan (SWPPP) that will include practices that reduce potential surface water contamination during storm events and minimize groundwater contamination. As discussed in **Sections 5.1** and **5.2**, BMPs would be implemented through the SWPPP to reduce potential construction-related adverse impacts to surface and ground waters to a minimal level. Additionally, roadways will be designed with adjacent vegetated swales to reduce adverse impacts to less-than-significant levels. The parking areas will be designed to divert stormwater to the vegetated swales to reduce operational adverse surface water quality impacts to less-than-significant levels.

Wastewater Treatment and Disposal

The WWTP would be designed to meet the recycled water quality standards cited within California Title 22 standards, which are indicative of water quality that is acceptable for irrigation of crops, including edible crops. As shown in Section 5.2 of **Appendix C**, wastewater would be treated using a membrane bioreactor (MBR) system at the tertiary treatment stage. The MBR system is a process that uses membranes comparable to that used for production of potable water. The biosolids produced by the WWTP would be dewatered and trucked off-site to be disposed at a licensed landfill (**Appendix C**).

Stormwater generated on the WWTP will be self-contained and treated at the facility. Wastewater would typically be generated at a rate of 15 gpm and, with treatment, would be used to offset irrigation demand on the proposed trust parcels during the irrigation season. As shown in **Appendix C**, irrigation demands during the irrigation season average 122 gpm and developed landscape irrigation demands average 19 gpm. Recycled water would account for 1.4 percent of the irrigation water. Dilution with other agricultural water resources would further reduce the potential for adverse impacts to water quality. Irrigation with recycled water would be limited to the irrigation season for crops or landscaping and would be applied at rates to prevent runoff. Mitigation has been incorporated into **Section 5.2** to ensure irrigation rates are monitored and are appropriate for the time of year to minimize incidental runoff. During the non-irrigation season, recycled water would be stored in the recycled water reservoir that would be constructed near the WWTP building on Parcel 8. The reservoir would be sized to retain a 100-year storm event, 24-hour duration and the peak wastewater flows generated from Parcels 1,2,9, and 10, and the existing development on trust land (Section 4.3.5 in **Appendix C**). Adverse impacts to surface water and groundwater quality associated with wastewater treatment and disposal would be less-than-significant and would be in full compliance with EPA standards.

4.1.3 AIR QUALITY

A significant adverse impact would occur if project construction or operational emissions of pollutants of concern were to exceed *de minimus* levels as provided in Federal Conformity Regulations of the Clean Air Act (CAA) found at 40 Code of Federal Regulations (C.F.R.) 93.

Pollutants of concern are those Criteria Air Pollutants (CAPs) for which the air basin is classified as non-attainment by the EPA. Within the Yolo-Solano Air Quality Management District (YSAQMD), the pollutants of concern are the ozone precursor nitrogen oxide (NO_X) and reactive organic gases (ROGs) and particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$) Conformity *de minimus* levels are 50 tons per year (tpy) each for NO_X and ROGs and 100 tpy for $PM_{2.5}$. All other federal CAPs have attainment status in the YSAQMD. Under the Federal Conformity Regulations, project emissions of these CAPs would result in minimal adverse impacts to regional air quality, as demonstrated below.

METHODOLOGY

Construction and operational emissions for Alternative A were estimated using URBEMIS 9.2.4 (URBEMIS), which is the latest version of the air quality model approved by the California Air Resource Board (CARB) and the EPA. Construction and operational emissions outputs from the model were then compared to *de minimus* levels. As discussed in **Section 2.1.8**, a construction period of three years was assumed, with construction expected to begin in 2011. URBEMIS operational defaults were used for mobile and area emissions, including trip generation rates published by the Institute of Transportation Engineers (2008) for residential and community government offices. The output files from the URBEMIS analysis are presented in **Appendix D**.

AIR QUALITY IMPACTS

Construction Impacts

Construction of the Proposed Project would generate emissions of the six federal CAPs described in **Section 3.3**. Alternative A construction emission results for the pollutants of concern are presented in **Table 4-1**, and URBEMIS output files for all the CAPs are provided in **Appendix D**. Since the time of the air quality analysis, the start of construction date has been changed from 2010 to 2011, with projected completion by 2014 (refer to **Section 2.1.8**). By changing the start of construction date to a later date, estimated emissions would be reduced due to anticipated reductions in emissions factors (CARB, 2010). Therefore, the new start of construction date would not result in a significant change in maximum annual emissions. The URBEMIS default construction equipment inventory was used, which is based on typical residential development construction. Construction assumptions include a maximum disturbance of 2.4 acres per day for site grading.

Construction Conformity Review

Construction of Alternative A would emit CAPs for which the project site is classified as non-attainment. Therefore, the estimated NO_X, ROG, and $PM_{2.5}$ emissions from the Proposed Project must be compared to conformity thresholds pursuant to the CAA General Conformity Rule [40 Code of Federal Regulations (C.F.R.) 93.153 (b)(1) and (2)]. To determine conformity with the California State Implementation Plan (SIP) to meet the National Ambient Air Quality Standards

(NAAQS), the construction year with the highest emissions rate is compared to the applicable *de minimus* conformity thresholds.

On May 5, 2010 the EPA downgraded the County's attainment status from serious to severe for the NAAQS for ozone. The Sacramento Valley Air Basin (SVAB) was designated nonattainment for $PM_{2.5}$ on October 8, 2009, and so the YSAQMD has three years to develop a SIP. The County is classified as partial nonattainment for $PM_{2.5}$; however, the portion of the County where the project site is located is in attainment (YSAQMD, 2009). As shown in **Table 4-1**, the maximum yearly construction emissions estimated for the Proposed Project do not exceed conformity thresholds and conform to General Conformity Rules for ozone precursors and $PM_{2.5}$, and to the applicable provisions of the California SIP for ozone precursors. Construction emissions would not exceed the federal *de minimus* levels. Therefore, construction of the Proposed Project would not adversely impact implementation of the California SIP based on federal conformity standards.

TABLE 4-1
UNMITIGATED CONSTRUCTION EMISSIONS

Construction Year	ROG	NO_X	$PM_{2.5}$
	tons per year		
2010	0.43	2.80	1.38
2011	0.86	2.49	0.16
2012	0.84	2.20	0.14
2013	0.26	0.59	0.04
Maximum Annual Emissions	**0.86**	**2.80**	**1.38**
De Minimis Level	*25*	*25*	*100*
Adverse Impact?	***No***	***No***	***No***

SOURCE: URBEMIS, 2007

Operational Emissions

Operational emissions include mobile sources (vehicle trips associated with the proposed Tribal residences, school, cultural/education facilities and associated support facilities) and area sources, which include stationary sources such as natural gas use in heating units, landscaping activities, architectural coatings, and consumer products used within the proposed residences and Tribal facilities. The majority of total operational emissions would be associated with motor vehicle use. Area source emissions associated with landscaping maintenance equipment, space heaters, and water heaters would be a minor contributor to total operational emissions. Based on trip generation rates and defaults for trip length, average trip speeds, vehicle fleet, residential natural gas use, landscaping activities, architectural coating applications, and consumer product use as contained in the URBEMIS 9.2.4 modeling program, operational emissions were estimated for a

full build-out of the Proposed Project by the year 2014. For this model, full build-out assumes all 25 residences would be occupied and up to 20 new employees would be employed under the Proposed Project. (refer to **Section 2.1.3**). **Table 4-2** summarizes the total operation emissions of the pollutants of concern, and URBEMIS output files for all CAP emissions are provided in **Appendix D**.

Operation Conformity Review

Operation of Alternative A would emit pollutants for which the project site is classified as a serious nonattainment area for ozone and a nonattainment area for $PM_{2.5}$. Therefore, the estimated NO_X, ROG, and $PM_{2.5}$ emissions from the Proposed Project must be compared to conformity thresholds pursuant to the CAA General Conformity Rule. Total source emissions (mobile and area) are compared to the applicable conformity thresholds. As shown in **Table 4-2**, the maximum yearly operational emissions do not exceed conformity thresholds and are considered to conform to General Conformity Rules for ozone precursors and $PM_{2.5}$, and to the applicable provisions of the California SIP for ozone precursors. Operational emissions would not exceed the federal *de minimus* levels. Therefore, operation of the Proposed Project would not adversely impact implementation of the California SIP.

TABLE 4-2
UNMITIGATED OPERATIONAL EMISSIONS

Sources	ROG	NO_X	$PM_{2.5}$
	tons per year		
Area	0.43	0.22	0.13
Mobile	0.63	0.93	0.24
Total Emissions	**1.06**	**1.15**	**0.37**
De Minimus Levels	*25*	*25*	*100*
Adverse Impact?	***No***	***No***	***No***

SOURCE: URBEMIS, 2007

CLIMATE CHANGE

The impacts of climate change could be both global (such as more erratic weather patterns, more frequent droughts, and rising sea level) and regional. Climate change has the potential to reduce the snow pack in the mountains, increase drought periods, reduce water tables, increase seawater intrusion, and reduce or reconfigure the coast line in California (IPCC, 2007). Development of the Proposed Project could result in an increase in greenhouse gas (GHG) emissions related to mobile sources (trips generated), area sources (components of the Proposed Project that directly emit GHG), and indirect sources related to electrical power consumption.

Methodology

Two recent federal court decisions [*Massachusetts v. Environmental Protection Agency*, U.S., 1275 S.Ct. 1438, 1462 (2007) and *Center for Biological Diversity v. National Highway Safety Administration*, 508 F.3d 508 (9th Cir. 2007)], the passage of California Assembly Bill 32 (AB 32), and slowly increasing scientific consensus have resulted in general guidance regarding appropriate GHG analysis during the environmental review of proposed projects and alternatives (**Section 3.0**).

Governmental agencies have provided some informal guidance on how to conduct GHG analysis for National Environmental Policy Act (NEPA) or California Environmental Quality Act (CEQA) documents; however, no official regulatory guidance has been issued. Therefore, the following method for assessing the impact levels of the project was developed in accordance with several approaches outlined in white papers provided by the California Air Pollution Control Officers Association, and the Association of Environmental Professionals (CAPCOA, 2008; AEP, 2007), and in consultation with EPA, CARB, and various local air pollution control districts. The approach used herein involves a combination of quantitative and qualitative analyses, focusing on the project's impact on California's efforts to reduce cumulative statewide GHG emissions, similar to the basic principles of the conformity analysis for CAP emissions. It is consistent with both the CEQ's draft NEPA guidance and the CEQA Guidelines.

Climate change is a global issue that is not being caused by any single development project, but by global increases in atmospheric GHG concentrations. Thus, global warming is most effectively addressed on a global or regional level. California's global warming policies and legislation (most notably Executive Order S-3-05 and AB 32) are intended to be regional approaches to ensure that statewide emissions are reduced substantially in the future.

CARB, the Climate Action Team (CAT), and the California Attorney General's Office have identified strategies and mitigation measures that may be utilized to meet the State's emissions reduction targets in 2010, 2020, and 2050. Most of these measures focus on statewide action meant to curb emissions by changes in statewide planning or policies rather than changes to individual development projects. However, some of the mitigation measures may be directly applicable to specific industries or individual commercial developments. Should a project comply with and/or include applicable measures, that project would support the State's efforts to significantly reduce its cumulative contribution to global climate change to levels recommended by the International Panel on Climate Change (IPCC). Thus, for the purposes of this analysis, cumulative contributions associated with a development alternative would be less-than-significant if the project complies with the strategies currently identified by CARB or CAT to comply with Executive Order S-3-05 or AB 32, provided that the strategies can be applied to proposed development alternatives.

CARBON DIOXIDE EQUIVALENT

Carbon dioxide equivalent (CO_2e) is a method by which emissions of individual GHGs are normalized in relation to heat-capturing abilities. As shown in **Table 4-3**, CO_2 is used as the baseline for GHG inventories and is given a CO_2e value of 1. Other GHGs are assigned a CO_2e ratio based on their ability to trap heat in comparison with that of CO_2. For example, CH_4 has the ability to capture 21 times more heat than CO_2 and therefore is given a CO_2e value of 21. To calculate total GHG emissions for a source, estimated emissions for each GHG are multiplied by the corresponding CO_2e value and then the converted values are summed for a total CO_2e emissions rate. Establishing a comparable total emissions rate provides a means for comparing emissions sources and presenting the relative overall effectiveness of emission reduction measures for reducing project contributions to global climate change.

TABLE 4-3
GREENHOUSE GAS CO_2 EQUIVALENT

Gas	CO_2e Value	Gas	CO_2e Value
CO_2	1	HFCs/PFCs[1]	6,500
CH_4	21	SF_6[1]	23,900
N_2O	310		

NOTES: CO_2e =Carbon dioxide equivalent
[1] High-global warming potential pollutants
CH_4 = methane; N_2O = nitrous oxide; HFCs/PFCs = hydroflourocarbons perflourocarbons; SF_6 = sulfur hexafluoride
SOURCE: IPCC, 2007; AES, 2007a/b.

STRATEGIES AND EMISSION ESTIMATES

URBEMIS 2007 emissions modeling software, which is approved by both EPA and CARB, was used to estimate operational emissions. **Table 4-4** shows the estimated operational emissions. CO_2 emissions from construction were amortized over thirty years and added to operational emission due to the atmospheric retention time of GHGs. Amortized construction emissions are 38.92 metric tons per year (MT/yr). Once construction is completed, the Proposed Project would emit approximately 859.86 MT/yr of CO_2 from mobile and area sources. CH_4 and N_2O emissions from mobile sources were estimated using emission factors established by the Climate Change Action Registry and converted to CO_2e. CH_4 and N_2O emissions from mobile sources are estimated to be 5.37 MT/yr of CO_2e. Indirect emissions were estimated using the Local Government Operations Protocol, September, 2008 emission factors (LGOP, 2008). Indirect emissions from electrical, water conveyance, and wastewater processing is estimated at 49.06 MT/yr of CO_2e. Total annual emissions during operation of the project are estimated at 947.84 MT/yr of CO_2e. Annual project GHG emissions would be approximately 0.00030 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.00000021 percent. While the Proposed Project's contributions to statewide and global emissions are miniscule, primarily because the Proposed Project would not emit GHGs with high CO_2e values (SF_6, HFCs/PFCs,

etc.), a contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. The applicable strategies and mitigation measures issued by CARB, CAT, and the Attorney General's Office are provided as mitigation in **Section 5.3**. Other strategies or mitigation measures do not apply because they either apply to state entities, such as CARB, or are planning-level measures or they apply to particular industries, such as the auto repair industry or are not applicable due to the small size of the project. With the incorporation of applicable State climate change strategies as mitigation measures, implementation of the Proposed Project would not adversely impact California GHG reduction goals**.**

TABLE 4-4
ESTIMATED OPERATIONAL GHG EMISSIONS

Proposed Project	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct[1]				
Construction	CO2	42.77	0.91	38.92[2]
Mobile	CO2	670.00	0.91	609.70
Mobile	CH4/N2O	5.90	0.91	5.37
Area	CO2	269.00	0.91	244.79
Indirect[3]				
Electricity Usage	CO2			36.18
Electricity Usage	CH4/N2O			0.32
Water Conveyance[4]	CO2e			4.57
Water Conveyance[4]	CH4/N2O			0.04
Wastewater Treatment[4]	CO2e			7.88
Wastewater Treatment[4]	CH4/N2O			0.07
Baseline Project-related GHG Emissions				**947.84**

ST = short tons; MT = metric tons; CO2e = carbon dioxide equivalent

1 GHG emissions estimated using URBEMIS air modeling program.

2 GHG emissions from construction were amortized over 30 years and added to operational emissions.

3 GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors.

SOURCE: URBEMIS, 2007; LGOP, 2008.

4.1.4 BIOLOGICAL RESOURCES

METHODOLOGY

Significant impacts to biological resources would occur if implementation of the Proposed Project would result in direct or indirect take of any federally listed species, including the destruction or degradation of any identified critical habitat. The analysis of potential effects to biological resources is based on the existing biological setting. Biological resources were evaluated based on a comprehensive examination of the existing project site and the anticipated extent of habitats, wetland features, and potential occurrences of special-status species that would be affected by the Proposed Project (**Appendix E**).

IMPACTS TO BIOLOGICAL RESOURCES

Habitats

There is no designated critical habitat on the project site. Direct and/or indirect habitat impacts may occur to:

- Grazed annual grassland and oak savanna from the construction of the proposed Tribal housing, Tribal school, domestic water storage tank, and road improvements on Parcels 9 and 10;
- Riparian woodland at the three proposed improvements to the existing road crossings on Parcel 9;
- Agricultural orchards from the proposed construction of the cultural education centers and associated parking areas on Parcels 1 and 2;
- Agricultural field from the proposed construction of the WWTP and recycled water reservoir on Parcel 8;
- Potentially jurisdictional waters of the U.S. via modification of the existing stock pond on Parcel 9 to also function for stormwater detention; and
- Potentially jurisdictional waters of the U.S. and adjacent seasonal wetlands from the proposed improvements to the existing road crossings on Parcel 9. These aquatic habitat types are discussed in detail under Waters of the U.S. in **Section 3.4**.

The riparian woodland located on Parcel 9 is considered a sensitive habitat type (refer to **Figure 3-7**). To the maximum extent possible, the Proposed Project has incorporated avoidance of the riparian woodland into the site design to minimize impacts. Potential impacts to riparian woodland would be limited to improvements to the three existing road crossings on Parcel 9. By using the existing crossings, the removal of native trees can be fully avoided at these locations and no native elderberry (*Sambucus* sp.) trees/shrubs would be removed. With implementation of

the mitigation measures described in **Section 5.4**, adverse effects to native trees and elderberry shrubs within the riparian woodland would be less-than-significant.

The Proposed Project would also impact agricultural and ruderal/developed areas on Parcels 1, 2, 7, and 8 through 10. However, these habitat types are of little biological value because they provide minimal resources for native plant and wildlife species, given that they are already notably altered and/or developed. Thus, adverse impacts to biological resources from the removal/alteration of the ruderal/developed and agricultural habitats on the project site would be minimal.

No additional terrestrial habitats would be directly impacted by the Proposed Project.

Waters of the U.S.

Direct impacts could include modifications to the outfall of the stock pond to improve drainage capabilities. Indirect impacts could include sedimentation and/or modification of existing water quality during construction of the road crossings. The Proposed Project has the potential to result in direct and/or indirect impacts to the potentially jurisdictional wetlands and other waters of the U.S. on the project site at the three existing road crossings and modification of the stock pond on Parcel 9 that are scheduled for improvement. The two existing low water drive-through crossings through the intermittent drainages on Parcel 9 would be bridged or otherwise improved to avoid the current practice of driving through the channels. The third road crossing occurs along the top of the stock pond impoundment that traverses through the spillway channel, which has been identified as a potential seasonal wetland (refer to **Figure 3-7**). The road improvements at this location would also minimize or avoid impacts to the current drive-through crossing by bridging or other appropriate means. The impoundment may need to be strengthened to allow its continued use as a roadway. Direct impacts would include modifications to the stock pond, which would allow it to also function as a detention pond, and modifications to the outfall of the stock pond to improve drainage capabilities. Indirect impacts may include sedimentation and/or modification of existing water quality during construction of the road crossings. The Proposed Project has been designed to avoid direct impacts to all other potentially jurisdictional waters of the U.S. by situating lots and structures away from these features. However, development activities within or adjacent to a jurisdictional water of the U.S. associated with roadway improvements are considered significant. With implementation of the recommended mitigation measures described in **Section 5.4**, adverse effects to potentially jurisdictional waters of the U.S. would be eliminated or fully mitigated.

Special-Status Species

Special-Status Plants

As discussed in **Section 3.4**, no federally listed plants occur within the project site; therefore, such plants would not be affected by the Proposed Project. Two state-listed special-status plants have the potential to occur on the project site: Brewer's western flax (*Hesperolinon brewerii*) and green jewel-flower (*Streptanthus breweri var. hesperidis*). Although these species were not observed within the project site, the biological surveys were conducted outside of their evident and identifiable blooming period. Therefore, the Proposed Project has the potential to adversely affect these species during the construction of the Tribal residences, Tribal school, domestic water storage tank, and road improvements on Parcels 9 and 10 within the annual grassland and oak savanna. Although these species were not observed during the biological surveys and there are no CNDDB records for these species within five miles of the project site, the implementation of the mitigation measures outlined in **Section 5.4** would eliminate potential adverse effects to these special-status plants.

Special-Status Wildlife

The Proposed Project has the potential to adversely affect three federally listed wildlife species: valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), California tiger salamander (CTS) (*Ambystoma californiense*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The Proposed Project has the potential to adversely affect the following state-listed wildlife species: western spadefoot toad (*Spea hammondii*), western pond turtle (*Actinemys marmorata*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadrius montanus*), American peregrine falcon (*Falco peregrines anatum*), bald eagle (*Haliaeetus leucocephalus*), and bank swallow (*Riparia riparia*). Potential impacts to the federally listed western yellow-billed cuckoo and the seven state-listed birds are discussed under **Section 5.4.5** "Nesting, Migratory, Raptor, and Special-Status Birds." With implementation of the mitigation measures in **Section 5.4.5**, these species would not likely be adversely affected.

The Proposed Project would not adversely affect the foothill yellow-legged frog (*Rana boylii*), a state-listed species of concern, because the project was designed to avoid impacts to Cache Creek and the surrounding riparian habitat. No mitigation measures are necessary for this species. The Proposed Project would not adversely affect pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillii*) because no trees within the riparian habitat would be removed and no structures would be demolished. No mitigation measures are necessary for this species.

Potential adverse effects to elderberry shrubs (*Sambucus* sp.), hosts for the federally listed VELB, may occur in the immediate vicinity of two of the three drainage crossings slated for

improvements on Parcel 9. Consultation with the U.S. Fish and Wildlife Service (USFWS) could be required for two crossings since work could occur within 100 feet of the elderberry shrubs. Updated, focused field surveys were conducted in April of 2011 at the sites of the two creek crossings proposed for improvement under the Proposed Project. The results of the surveys concluded that no bore holes or VELB were identified at these locations (**Appendix E**). Therefore, the Proposed Project is likely to affect but would not likely adversely affect VELB if encroachment of the 100-foot buffer is authorized by the USFWS. No elderberry shrubs would be removed. No direct impacts to elderberry shrubs in the vicinity of the crossings would occur since the improved loop road proposed in Parcels 9 and 10 would follow the existing road near the stock pond. Preconstruction surveys for VELB will be conducted prior to the start of construction of the drainage crossings in these areas. Mitigation measures have been included in **Section 5.4.4** to avoid and/or minimize adverse effects to elderberry shrubs to the maximum extent feasible. With implementation of these mitigation measures, the Proposed Project is not likely to adversely affect this species.

Limited breeding habitat for the federally listed CTS occurs on the site in the vicinity of the stock pond on Parcel 9. Potential upland habitat occurs within the annual grassland. Potential impacts would be minimized and limited to the improvements of the road crossings and modification of the outfall. The Proposed Project has the potential to adversely affect CTS breeding habitat through modification of the outfall structure within the stock pond. The Proposed Project has the potential to directly affect potential upland habitat through the removal of annual grassland as a result of the construction of the Tribal residences, Tribal school, and domestic water storage tank on Parcels 9 and 10. The only confirmed sighting for CTS within five miles of the project site is across Cache Creek approximately one mile southeast of the project site. Cache Creek is a barrier to CTS migration between the documented California Natural Diversity Database (CNDDB) record and the project site. Therefore, the likelihood of occurrence of CTS is minimal. With the implementation of the mitigation measures identified in **Section 5.4.4**, the Proposed Project would not likely adversely affect this species.

The Proposed Project has the potential to impact the state-listed western pond turtle and the state-listed western spadefoot toad through the installation of the culvert outfall within the stock pond, the ground disturbance associated with the road construction, and the development within the housing footprint. However, the mitigation measures identified in **Section 5.4** would minimize any potential adverse effects to western pond turtle and western spadefoot toad.

Nesting, Migratory, Raptor, and Special-Status Birds

The Proposed Project has the potential to adversely affect nesting habitat for migratory birds, raptors, and state or federally listed special-status birds including western yellow-billed cuckoo, golden eagle, burrowing owl, Swainson's hawk, mountain plover, American peregrine falcon, bald eagle, and bank swallow if construction activities occur during the nesting season (March

through September). Activities associated with the Proposed Project, such as ground disturbance and vegetation removal, could impact nesting birds if their nests are located within, or reasonably proximate to, development areas. Likewise, increased human activity and traffic, elevated noise levels, and operation of machinery could also impact nesting birds if their nests are located within the vicinity of development areas. Disturbances of this nature could cause nest abandonment or premature fledging of the young. With implementation of the mitigation measures in **Section 5.4**, potential adverse effects to migratory nesting birds would be less than significant.

4.1.5 CULTURAL RESOURCES

For historic properties, a significant impact would result if implementation of the Proposed Project resulted in one of the following effects to cultural resources that are listed, or eligible for listing, on the National Register of Historic Places (NRHP):

- Physical destruction of or damage to all or part of the resource;
- Alteration of a resource;
- Removal of the resource from its historic location;
- Change of the character of the resource's use or of physical features within the resource's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the resource's significant historic features;
- Neglect of a resource that causes its deterioration; or
- Transfer, lease, or sale of the property.

As a result of the records search and field survey, eight cultural resource sites were identified within the subject parcels. Documented resources include: the remains of a prehistoric/ ethnohistoric-period village with a historic component (CA-YOL-128/H), a prehistoric habitation site [County Road (CR)-1], the Tancred Truck Scale, and five single-family residences with associated outbuildings (18515 CR-71), one single-family residence and a foundation pad – Yolo County Assessor's parcel number (APN) 060-020-020 and two single-family residences (APN 048-230-001 and APN 060-030-017).

As mentioned in **Section 1.0**, the Canon School is located in the vicinity of the project site. Specifically, the Canon School is located to the south of Parcel 8, near the intersection of CR-76 and SR-16. The Canon School, which is listed on the NRHP, is located outside of the project site and will not be impacted by the Proposed Project.

As discussed in **Section 3.5**, the details of the cultural sites are considered sensitive information and the cultural resources study has been excluded from the public version of the EA to ensure

sensitive information is protected. While these eight resources are within the project area of potential effect (APE), all resources are outside the area of direct impact (ADI). Moreover, none of these properties would be impacted by the Proposed Project. For management purposes, all eight resources are considered eligible to the NRHP and should be treated accordingly until such time that they are formally evaluated and it can be demonstrated that they do not qualify as historic properties pursuant to the National Historic Preservation Act (NHPA).

There is always a possibility, however remote, that significant subsurface cultural resources may exist in the project site, as archaeological sites may be buried with no surface manifestation. In addition, there is a remote possibility that an unanticipated discovery of human remains could occur. Development of the Proposed Project may adversely affect previously unknown subsurface prehistoric or historic archaeological resources, including human remains. This would be a potentially significant impact.

Mitigation measures are presented in **Section 5.5** for the protection and treatment of unanticipated discoveries of archaeological resources and/or human remains. Implementation of these mitigation measures would reduce adverse impacts to cultural resources to less-than-significant levels.

PALEONTOLOGICAL RESOURCES

With respect to paleontological resources, an impact would be considered significant if it would directly or indirectly destroy such resources. As described in **Section 3.5.4**, indicators of paleontological resources on the project site are absent in the sources consulted, and no such resources were observed in the course of site reconnaissance visits in 2007 and 2009 by AES staff. Geologic formations that underlie the project site have a low probability of containing paleontological resources. Therefore, no impacts are expected.

There is always the possibility, however slight, that previously unknown paleontological resources could be encountered during construction activities. Mitigation measures are presented in **Section 5.5** for the protection and preservation of unanticipated discoveries of paleontological resources. Implementation of these mitigation measures would reduce adverse impacts to unknown paleontological resources to less-than-significant levels.

4.1.6 SOCIOECONOMIC CONDITIONS / ENVIRONMENTAL JUSTICE

SOCIOECONOMIC CONDITIONS

Alternative A would remove the 15 project parcels totaling 853± acres from the County's property tax rolls, which would result in a loss of tax revenues. For the 2008-2009 tax year, the property taxes for the 15 proposed trust parcels total $48,843 (refer to **Section 3.6**). According to the California State Controller's Office, Yolo County assessed approximately $254.2 million in

property taxes for the 2008-2009 year (CSCO, 2010). The tax on the project parcels was 0.019 percent of the county's total tax charge. The property taxes are primarily used to fund public services to County residents. Regardless of the minimal reduction of property taxes from the County's tax rolls under Alternatives A, since the Tribe will continue to fund many of the existing public services such as fire protection and emergency response in the Capay Valley this impact is considered to be less than significant. This area is discussed in detail under impacts to public services in **Section 4.1.9**.

ENVIRONMENTAL JUSTICE

This environmental justice analysis was prepared using guidance from the Council on Environmental Quality (CEQ) for compliance with Executive Order 12898. The intent of this evaluation is to determine whether the Bureau of Indian Affairs' (BIA) trust acquisition and development of the residences and Tribal facilities would impose disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

The project site is located in a rural area with no indentified low-income or minority populations, with the exception of the Tribe. Tribal members would not be subjected to disproportionately high or adverse human health or environmental impacts because the project is for their benefit. The Proposed Project would not create adverse impacts with regard to environmental justice, and no mitigation measures are warranted. Restoration of Tribal sovereignty to the project parcels would be a benefit to the Tribe.

4.1.7 TRANSPORTATION AND CIRCULATION

TRANSPORTATION NETWORKS

Development of the Proposed Project would result in the construction of new trip generators in the area. The trip generation rate is based on information published in *Trip Generation* [Institute of Transportation Engineers (ITE), 2007]. **Table 4-5** summarizes the estimated daily and peak hour trip generation of the Proposed Project.

TABLE 4-5
PROPOSED PROJECT TRIP GENERATION ESTIMATES

Land Use	Size	ITE Land Use	Trip Generation Rate	Trips
			Peak Hour Trips/ Residence	Peak Hour
Single-Family Residential	25 Units	210	1.01	25.25
Tribal Office	84.6 ksqft	--	--	20[1]

[1] Based on estimated number of employees. ksqft = 1,000 square feet.
SOURCE: Institute of Transportation Engineers, 2008

The Proposed Project is estimated to generate a total of 25.25 peak hour trips from the 25 proposed residences on Parcels 9 and 10 and 20 peak hour trips from up to 20 new employees (**Section 2.0**), for a total of 45.25 peak hour trips (**Table 4-5**). Those trips would make use of SR-16, a state highway. Based on the standards in the Caltrans' Guide to the Preparation of Traffic Impact Studies, additional analysis of roadway segments and freeway facilities is not required. Caltrans requirements state that an environmental review should include any state highway facility where more than 100 peak hour trips would be added; therefore, no quantitative traffic impact report is needed (Caltrans, 2002). A qualitative traffic analysis is provided below.

IMPACT CRITERIA

The Yolo County General Plan identifies an acceptable level of service (LOS) for SR-16 as LOS C (Yolo County, 2009a). The 2003 Highway Capacity Manual (HCM) defines a LOS C on a two-lane state highway as having a capacity of 748 passenger cars per hour. The HCM definition is comprised of a 50/50 split and a 20-percent truck allowance.

BACKGROUND PLUS PROJECT TRAFFIC

Traffic counts conducted in 2008 (refer to **Section 3.7**) showed that the current hourly traffic on SR-16 near the project site is 101 vehicles per peak hour. The project would generate an estimated 45.25 trips during the peak hour; therefore, the total trips traveling on SR-16 would be approximately 147 vehicles per peak hour. This is far less than the 748 passenger cars per peak hour that would comprise a LOS C on SR-16. Therefore, implementation of the Proposed Project would not result in significant effects to traffic flow on SR-16 that would result in a LOS C. Further, it should be noted that access to the proposed Tribal residences would occur primarily via CR-76 and access to the converted Tribal community/government buildings would occur primarily via Puhkum Road (formerly CR-75A); thus, traffic associated with the proposed developments would not be concentrated during peak hours at a single intersection.

BICYCLE, PEDESTRIAN, AND TRANSIT NETWORKS

The project would not generate an appreciable number of new pedestrian trips, bicycling activity, or transit riders along SR-16 sufficient to require dedicated crossings for the new development. Thus, no impacts are projected to these networks as a result of the Proposed Project.

4.1.8 LAND USE

LOCAL PLANNING AND LAND USE COMPATIBILITY

The Proposed Project would result in the removal of 853± acres from County jurisdiction and placement of the land into federal trust for the benefit of the Tribe. The project site is designated "Agriculture" in the County's General Plan and is zoned "Agricultural Preserve" in the County's zoning ordinance (Yolo County, 2009a; 2009b). With implementation of the Proposed Project, Yolo County would no longer retain land use jurisdiction over the project site after it is taken into trust, and the current zoning and General Plan designations given to the project site would no longer apply. The proposed residential and educational/cultural land uses and associated water supply and wastewater treatment infrastructure on Parcels 1, 2, 7, and 8 through 10 would be compatible with the current operations on the Tribe's existing trust parcel and would not impact agricultural uses to the north and south of the project site. As discussed in **Section 2.0**, the majority of Parcels 1, 2, 7 and 8 as well as the entirety of Parcels 3 though 6 and 11 through 15 would remain in agricultural use and would retain existing conditions, which would be consistent with County land use designations. As shown in **Figure 2-1**, implementation of Alternative A would result in some conversion of agricultural lands but it would leave a majority of the project site in agricultural use.

As described under *Land Use* in **Section 3.8**, the intent of the Capay Valley Area Plan is to preserve agriculture lands within the valley. The Tribe shares this intent and by placing the project parcels into trust, the County subdivision entitlements on the unimproved roads of the antiquated subdivision located in Parcels 12 and 13 would be removed from County jurisdiction and placed under the control of the Tribal government. As stated in **Section 2.0**, these parcels would remain in agricultural production under the Proposed Project and would not be developed. Originally, there were 30 housing units planned for the subdivision development, which encompasses Parcels 12 and 13. The 30 housing units would not be developed under the Proposed Project once these parcels are placed into trust, which is consistent with Land Use Policy 5 of the Capay Valley Area Plan (Yolo County, 2010) (refer to **Section 3.8**). For clarification, a map of the antiquated subdivision development is attached as **Appendix I**. The County accessor's parcel numbers 060-011-001 and 060-012-001, which are contained within the antiquated subdivision, are not Tribally owned nor a part of the Proposed Action.

Development of the cultural/education facilities on Parcels 1 and 2 would minimally impact prime agricultural land, since Parcel 1 is a diseased orchard and Parcel 2 as the only viable orchard between the two parcels. Impacts due to the development of the proposed Tribal residences, school, and domestic water storage tank on Parcels 9 and 10 would all be to grazing lands, which would minimize impacts to prime farmland. This development will enable the Tribe to increase agricultural economic returns and still provide needed housing and Tribal community, education, and government facilities to its members and their families.

The impacts to farmland on Parcels 7 and 8 would only be for the development of the WWTP, recycled water storage reservoir, and supporting infrastructure. The WWTP and recycled water reservoir would be located near the easternmost boundary of Parcel 8 near the base of the adjacent foothills and would not significantly impact agricultural uses on the parcel. Recycled water from the reservoir would be used for agricultural irrigation. On Parcels 7 and 8, temporary impacts associated with the construction of the proposed pipeline infrastructure for the WWTP would occur, as the proposed pipelines would be designed to connect the existing Tribal housing and community/government buildings on existing trust land across SR-16 to the east to the WWTP facility. Impacts to agricultural uses on Parcels 7 and 8 would be minimal as any proposed pipeline infrastructure would be placed in existing edges and utility corridors along the periphery of project parcels and along farm roads.

Mitigation measures in **Section 5.8** would fully offset the limited impacts to agricultural lands described above. Therefore, the Proposed Project would not have an overall adverse significant impact on local land use planning and zoning designations.

AGRICULTURE

The project site is zoned Agricultural Preserve. As discussed in **Section 3.8.3**, the project site did not receive a Farmland Conversion Impact Rating (FCIR) of 160 or above, and therefore further assessment is not required.

In relation to County-wide impacts, the most recent Agricultural Crop Report (ACR) for 2008 identified over 480,000 acres of harvested agricultural land under the County's jurisdiction (YCAD, 2008). Implementation of Alternative A would result in the conversion of a statistically insignificant percentage of harvested agricultural land for the proposed WWTP, recycled water reservoir, and supporting pipeline infrastructure on Parcels 7 and 8 and the proposed cultural education facilities on Parcels 1 and 2. Conversion of the existing former residence to the Cultural Education Center and development of an associated parking area along the western edge of Parcel 1 would result in the removal of a small portion of a diseased orchard, which has not been harvested since the Tribe purchased the property and was not included in the ACR for 2008 (YCAD, 2008). Development of the Outdoor Cultural Activity Center in the southeast corner of Parcel 2 and possible future development of a third cultural/education facility on the southwest

corner of Parcel 2 would result in the conversion of a small portion of an existing viable orchard. The estimated development envelope for the land conversion for the cultural education centers is approximately 3 acres out of the 148 total acres of Parcels 1 and 2. Thus, impacts to prime farmland under the Proposed Project would be minimal.

Development of the proposed Tribal residences, Tribal school and domestic water well and storage tank on Parcels 9 and 10 would remove grazing land from the jurisdiction of Yolo County. This land is considered to be non prime farmland and was not included in the harvest data of the ACR. Therefore, the impact to agriculture on Parcels 9 and 10 would be less than significant.

Williamson Act

At present, all of the project parcels except for Parcels 9 and 10 are under Williamson Act contracts (Yolo Co. GIS, 2010; C. Lee, pers. comm., 2010). The project parcels represent approximately 423± acres (0.09 percent) of the 450,000± acres under Yolo County Williamson Act contracts (SACOG, 2008). The Tribe's use of the project parcels subject to the Williamson Act would be consistent with the permitted and conditionally-permitted uses identified in the County's Agricultural Preserve zoning. Therefore, impacts would be less than significant.

4.1.9 PUBLIC SERVICES

WATER SUPPLY

There are no public water supply systems in the Proposed Project region. Individual groundwater wells or water service contracts for surface water are the sources of potable and irrigation water for the region. Adverse impacts to surface water and groundwater resources from the development of the Proposed Project are addressed under Water Resources (**Section 4.1.2**). Water demand for the Proposed Project would be provided by the Tribe and supplied by groundwater.

WASTEWATER SERVICE

No municipal wastewater treatment facilities provide service in the Proposed Project region. Alternative A includes construction of a wastewater treatment plant, recycled water storage reservoir, and supporting pipeline infrastructure on Parcels 7 and 8. The current Tribal housing on the existing trust land uses septic systems; however, the existing and proposed Tribal residences, Tribal school, and cultural education facilities would be tied into the new WWTP as part of the Proposed Project.

Overall, eliminating the need for septic systems would be environmentally beneficial, and the new WWTP would provide for the use of recycled water to reduce irrigation water demands. No

impacts to municipal wastewater facilities would occur nor would any wastewater-related impacts resulting in physical adverse impacts to the environment occur.

SOLID WASTE

Potential solid waste streams from construction of the Proposed Project would include: paper, wood, glass, aluminum and plastics from packing materials; waste lumber; insulation; empty non-hazardous chemical containers; concrete; metal, including steel from welding/cutting operations; and electrical wiring. The temporary generation of such waste would be collected by Waste Management, Inc. or another similar company and transported to Yolo County Central Landfill (YCCL). The Tribe would recycle as much of the construction waste as possible; therefore, the non-recyclable construction waste would be minimal and would not cause significant impacts to trash collection or disposal facilities.

Assuming a disposal rate of 2.53 pounds/person/day (EPA, 2007) and 25 residences with an average household size of 2.61 persons (U.S. Census, 2006), approximately 165 pounds of solid waste per day (or 30 tons per year) would be disposed of by the residential component of the Proposed Project. It is estimated that up to 20 full-time equivalent employees could be hired as a result of the Proposed Project. Public administration facilities typically dispose of 0.4 tons of solid waste per employee per year (CIWMB, 2007). Therefore, the community/government buildings, cultural/education facilities, housing, and related support facilities under the Proposed Project are estimated to dispose of no greater than approximately 8 tons of solid waste per year. YCCL is permitted to receive approximately 1,800 tons per day (or 657,000 tons per year) of solid waste. Currently, the landfill receives a maximum of 1,300 tons per day, providing a minimum remaining daily capacity of 500 tons per day (YCPWD, 2009). The Proposed Project would generate approximately 0.1 tons per day, which represents less than 0.0002 percent of the landfill's minimum remaining permitted daily capacity. No significant impacts would therefore occur.

As discussed in **Section 4.1.2** above, biosolids produced by the proposed WWTP (**Section 2.0**) would be dewatered and trucked off-site to be disposed at a licensed landfill (**Appendix C**).

ELECTRICITY, NATURAL GAS, AND TELECOMMUNICATIONS

Electrical and telephone infrastructure facilities are currently located on and near the project site. The Tribe would coordinate with Pacific Gas & Electric (PG&E) and Evans Telephone regarding the extension of services to the project site. No utility service impacts would occur that would result in physical adverse impacts to the environment.

LAW ENFORCEMENT

Under Public Law 280, 18 United States Code [U.S.C.] 1162, the State of California and other local law enforcement agencies have criminal enforcement authority on Tribal lands. The Yolo County Sheriff's Department (Sheriff's Department) would provide law enforcement services to the project site. The Sheriff's Department currently employs over 270 people countywide, including 95 sworn deputies (Yolo County, 2009a). The Capay Augmented Patrol (CAP) program was established over a decade ago as a partnership between the Tribe and the Sheriff's Department. CAP, which is unique within the state of California, is funded solely by the Tribe and employs three full-time deputies and a fully equipped patrol vehicle, allowing the Sheriff's Department to serve the Capay Valley 24-hours a day, five days a week (Yolo County Sheriff's Department, 2010). The CAP program, and the fees paid by the Tribe to support the program, will continue after the subject parcels are taken into trust.

The Sheriff's Department's station closest to the Resort is located in the City of Woodland, approximately 26 miles from the Tribe's Resort.

The proposed Tribal residences, school, cultural/education facilities and wastewater treatment plant facility would result in a negligible increase in demands on the Department. Calls for service would not be disproportionate to other residential or commercial development in the County; therefore, no significant law enforcement impacts would occur that would result in physical adverse impacts to the environment.

Except for the Capay Valley, law enforcement services in the County are currently funded by property taxes. In the Capay Valley, law enforcement services are currently largely funded by the Tribe through the CAP program. Under the Proposed Project, the Tribe will continue to fund the CAP program and therefore there will be no change in or impacts to these services.

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Construction-related impacts include the potential for fire threat associated with equipment and vehicles coming into contact with wildland areas. Construction vehicles and equipment such as welders, torches, and grinders may accidentally spark and ignite vegetation or building materials. The increased risk of fire during the construction of the proposed facilities would be similar to that found at other construction sites. Since the project site is in an area classified as a Moderate Fire Hazard Zone (CAL FIRE, 2007), construction activities may result in adverse impacts related to fire and medical responses services. With the implementation of the protective measures and mitigation measures described in **Section 2.1.9** and **Section 5.9**, respectively, construction-related adverse impacts would be less-than-significant.

The Tribe's building ordinance, which is designed to meet or exceed the CBC, would be adhered to in relation to fire safety. Use of the site for residential purposes could create additional demand for fire protection, and could require more frequent responses from local fire-fighting agencies. The Proposed Project would be primarily served by the Yocha Dehe Fire Department (YDFD), which is headquartered at the YDFD station on the Tribe's Cache Creek Casino Resort property, approximately two miles south of the project site. The YDFD is fully equipped with state-of-the-art equipment, a full-time, well-trained staff and at least four on-duty paramedics at any given time. The YDFD maintains an Automatic Aid Agreement with the Capay Valley Fire Department and the Esparto Fire Department. The YDFD would be capable of accommodating the increased demand for fire protection and emergency medical response services that would occur as a result of the Proposed Project.

For trust land, the YDFD will be the primary responder, which will reduce impacts to the Capay Valley Fire Department. Currently, the Capay Valley Fire Department is the lead responder for structural fires whereas Cal Fire is the lead responder for wildfires. The BIA currently has an agreement with Cal Fire statewide to help fund their response services for trust lands. This agreement will continue once the subject parcels are taken into trust under the Proposed Project. Therefore, there will be no significant impact to the County, Capay Valley Fire Department, or Cal Fire under the Proposed Project pertaining to law enforcement services.
Additionally, the project site is located in a State Responsibility Area, and the California Department of Forestry and Fire Protection (CAL FIRE) is compensated for wildland protection services as specified in the Statewide Annual Operating Plan between the BIA and CAL FIRE, as provided for in the Cooperative Wildland Fire Management and Stafford Act Response Agreement. The Cooperative Agreement commenced in December 2007 and is active through December 2012. Adverse impacts related to fire protection services would be minimal. No significant impacts would occur from the implementation of the Proposed Project.

Emergency calls to 911 could increase as a result of the Proposed Project; however, the Tribe currently pays for dispatch services in an amount based on 1,000 calls per year (including calls associated with the Cache Creek Casino Resort), but has yet to generate more than 700 calls per year. New demands would be minimal, and the potential increased demand for emergency medical services would result in less-than-significant impacts to emergency response dispatch services. Furthermore, the Tribe's funding for 911 response will continue once the subject parcels are taken into trust under the Proposed Project. This service is largely funded by property taxes for the remainder of the County.

Overall, in terms of law enforcement and fire/emergency services, the Capay Valley is a net beneficiary from the ongoing fiscal support provided by the Tribe. The Tribe's funding of the CAP program provides the primary source of law enforcement in the Capay Valley. In general, the YDFD provides the only professional fire department in western Yolo County, which

provides significant benefits to local residents and not just Tribal members. Once the subject parcels are taken into trust under the Proposed Project, the Tribe will continue to fund the CAP program and the YDFD which benefit the local community. Once the subject parcels are taken into trust, this will reduce the acreage of land for which local fire departments in the area are the lead responders.

PUBLIC SCHOOLS

While the Tribe's Yocha Dehe Wintun Academy would be positively impacted through expansion of facilities and programs by the Proposed Project, no public schools would be affected, as the Proposed Project would not cause an increase in the regional population. The Proposed Project would include the development of 25 housing units and virtually all of the Tribal members and their children are likely to attend the Tribal school. There would be no significant net increase in enrollment in local schools. The impact of families relocating to the Tribal community after the development would be negligible. Therefore, no significant impacts to local school districts would occur. Under the Proposed Project, the development of a Tribal school to accommodate Tribal members' children will reduce costs to local public schools since all Tribal members' children will attend the new Tribal school and will therefore not attend local public schools.

PARKS AND RECREATION

Because the Proposed Project would cause a minimal increase in regional population, no significant impacts would occur to local parks or recreational facilities. Further, the existing recreation facilities of the Tribe would be expanded as part of the Proposed Project to better serve the Tribal community.

4.1.10 NOISE

Guidance regarding the significance of noise is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels. Annoyance is a summary measure of the general adverse reaction of people to noise that generates speech interference; sleep disturbance, or interference with the desire for a tranquil environment.

It is possible to consistently describe the annoyance of people exposed to noise in terms of a day-night equivalent level (L_{dn}) or community noise equivalent level (CNEL). The changes in construction and operational noise exposure that are shown in **Tables 4-6** and **4-7** would result in equal changes in annoyance levels at sensitive land uses.

TABLE 4-6
ACCEPTABLE / UNACCEPTABLE NOISE LEVELS DURING CONSTRUCTION

Ambient Noise Level With Construction (Ldn or CNEL)	Noise Standards
<65 dB	Acceptable
65-75 dB	Normally Unacceptable
>75 dB	Unacceptable

SOURCE: FICON, 1992

TABLE 4-7
THRESHOLDS OF SIGNIFICANCE FOR OPERATIONAL NOISE EXPOSURE

Ambient Noise Level Without Project (Ldn or CNEL)	Change in Ambient Noise Level Due to Project
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

SOURCE: FICON, 1992

CONSTRUCTION NOISE

Grading and construction activities associated with the Proposed Project would be intermittent and temporary in nature. The closest sensitive receptors that would be exposed to noise during construction of the Proposed Project are the Tribal residences located approximately 700 feet east and northeast of where the proposed construction activities for the expansion and conversion of the existing former residence and associated outbuildings into the Cultural Education Center would occur on Parcel 1. Construction on Parcels 9 and 7 would not impact the sensitive receptors.

Construction noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips may raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 4-8** shows typical noise equivalence levels (L_{eq}) at 50 feet from the sources during different construction stages.

Construction sources of noise attenuate at a rate of 6 to 7.5 decibels adjusted (dBA) per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions, topography and type of ground surfaces, noise barriers, etc.). The maximum construction noise would be 89 dBA at 50 feet, 82.5 dBA at 100 feet and 75 dBA at 200 feet. According to the FICON 1992 guidelines, a 75 dBA noise level is normally unacceptable and noise mitigation is required. Mitigation presented in **Section 5.10** would reduce the noise levels to acceptable levels.

TABLE 4-8
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, L_{eq})[1]	Construction Phase	Noise Level (dBA, L_{eq})[1]
Ground Clearing	84	Erection	85
Excavation	89	Finishing	89
Foundations	78		

NOTES: [1] Noise levels correspond to a reference distance of 50 feet. $L_{eq=}$ Equivalent sound level
SOURCE: FHWA Handbook, 2006.

OPERATIONAL NOISE

The primary noise source during operation is generated by traffic. As discussed in **Section 3.10.1,** an increase of 200 peak-hour vehicle trips on a roadway would be necessary to cause a noticeable increase in the ambient noise level. As shown in **Section 4.1.7** project-related traffic would be approximately 45± vehicles per hour during peak hours; therefore, operation of the Proposed Project would not increase the existing ambient noise level. There would be no significant impact to the ambient noise level during operation of the Proposed Project.

4.1.11 HAZARDOUS MATERIALS

Three 55-gallon drums of waste oil were observed on Parcel 1 (APN 060-030-016). A debris pile containing tires, an empty 55-gallon drum, scrap metal, and an air conditioning unit was observed on Parcel 4 (APN 060-030-008). No additional hazardous materials have been identified on the project site or within a distance that would adversely affect implementation of the Proposed Project through exposing people or the environment to hazardous materials at adverse levels (AES, 2007a; 2007a; 2008; 2009a). As discussed in the mitigation measures in **Section 5.11**, the removal of the three 55-gallon drums and contents of the debris pile on Parcels 1 and 4, respectively, will be completed before the fee-to-trust acquisition of the project parcels. Implementation of the mitigation measures listed in **Section 5.11** would minimize adverse impacts from existing hazardous materials conditions.

During grading and construction it is possible that hazardous substances such as gasoline, diesel fuel, and hydraulic fluid would be transported to the site. Temporary bulk aboveground storage tanks as well as storage sheds/trailers would likely be used by various contractors for fueling and maintenance purposes. Additionally, the proposed WWTP may use hazardous materials such as sodium hypochlorite and citric acid. As with any liquid and solid, the potential for an accidental release exists during handling and transfer from one container to another. Depending on the relative hazard of the material, the accidental release could pose both a hazard to construction employees as well as the environment. Although typical management practices limit and often eliminate the impact of such accidental releases, the potential exists with the temporary onsite

storage of hazardous materials that a significant release could occur. Mitigation measures are listed in **Section 5.11** that would reduce impacts to less-than-significant levels.

4.1.12 VISUAL RESOURCES

Impacts related to visual resources would be considered significant if the Proposed Project were to substantially alter or interrupt locally important scenic vistas, introduce visual elements that would conflict with the Capay Valley's rural atmosphere, or create sources of inappropriate or excessive glare or nighttime illumination.

The Proposed Project would result in the construction of Tribal residences, a Tribal school, cultural education facilities, a domestic water storage tank, a WWTP and recycled water reservoir, as well as supporting infrastructure and amenities such as roads. Signage for all roads and facilities would be subtly incorporated into the landscape. The Tribal housing and school on Parcels 9 and 10 would be similar in nature to what is present in this part of the Capay Valley: isolated rural houses scattered singly or in small blocks across the landscape. The proposed Tribal housing community ~~and Tribal~~ would be located near the western edge of the project site, and would not lie in the view shed of SR-16. The proposed cultural education facilities, on Parcels 1 and 2, would be designed to be visually compatible with the existing Tribal buildings on trust land nearby and the surrounding rural view shed of SR-16. The proposed wastewater treatment facility and recycled water reservoir would include landscape buffers and would be similar in architectural design to similar agricultural structures in the area.

The Proposed Project would incorporate understated signage and safety lighting within public areas. All lighting at roadway intersections and parking areas for the proposed Tribal residences, Tribal school, cultural education facilities, and wastewater treatment plant would be downcast and shielded, in accordance with "dark sky" principles. As stated in **Section 2.1.9**, light poles would be no more than 18 feet high and would be required to have cut-off lenses.

The Proposed Project would not interrupt or substantially alter local views, or create any sources of glare or excessive nighttime illumination. Development would be compatible with existing local conditions. Visual impacts would be less-than-significant.

4.2 ALTERNATIVE B – REDUCED ACREAGE

4.2.1 LAND RESOURCES

Impacts related to topography, seismicity, soils, and mineral resources under Alternative B would be the same as those described for Alternative A, as the proposed development is identical for both alternatives although lesser acreage would be taken into trust. With the implementation of

the protective measures listed in **Section 2.1.9** and the mitigation measures listed in **Section 5.1**, development of Alternative B would result in no significant impacts to land resources.

4.2.2 WATER RESOURCES

Impacts to water resources under Alternative B would be identical to those under Alternative A. The grading and drainage plan included as **Appendix C** addresses the development on Parcels 1 and 2, and Parcels 7 through 10 which would be the same under either Alternative A or Alternative B. The same mitigation for Alternative A would be required to reduce the impacts associated with Alternative B. Treated effluent would be recycled or applied to land on the parcels to be taken into trust and so impacts to water quality would less than significant.

4.2.3 AIR QUALITY

Under Alternative B, the methodologies used to analyze impacts to air quality are the same as those under Alternative A. Implementation of Alternative B would result in less acreage transferred to the BIA to be held in trust for the Tribe. However, agricultural operations on these parcels and development on the trust parcels would be the same as identified under Alternative A. Project components of Alternative B that would result in emissions of CAPs and greenhouse gases would be same as for Alternative A. As discussed in **Section 3.1.3**, both construction and operational emissions under Alternative A are considerably less than Clean Air Act *de minimis* levels for federal projects, and these emissions would be the same for Alternative B. With implementation of the mitigation measures listed in **Section 5.3**, the implementation of Alternative B would result in no significant impacts to air quality.

4.2.4 BIOLOGICAL RESOURCES

Under Alternative B, the significance criteria and methodology used to analyze impacts to biological resources are the same as those utilized for Alternative A. Impacts to biological resources under Alternative B would be the same as those described for Alternative A and, with implementation of the protective measures and recommended mitigation measures provided in **Sections 2.1.9** and **5.4**, would be less-than-significant.

4.2.5 CULTURAL RESOURCES

The development proposed under Alternative B is the same as that which is proposed for Alternative A. Therefore, the same analysis of impacts to cultural resources applies. With implementation of the mitigation measures listed in **Section 5.5**, impacts to cultural resources would be less-than-significant.

4.2.6 SOCIOECONOMIC CONDITIONS / ENVIRONMENTAL JUSTICE

SOCIOECONOMIC CONDITIONS

Alternative B is similar to the Proposed Project. Under this alternative the socioeconomic benefits to the Tribe would be similar, when compared to Alternative A. Overall the Tribe would benefit from the construction of 25 Tribal residences, Tribal school, cultural education facilities, wastewater treatment plant, domestic water storage tank and supporting infrastructure. Due to approximately 98 fewer acres taken in to trust, Alternative B would result in a slightly smaller property tax loss (of approximately $13,576) for Yolo County. As with Alternative A, this loss of revenue would be a small fraction of total County tax revenues, would not lead to any adverse effects, and would be less-than-significant.

ENVIRONMENTAL JUSTICE

The impacts to low-income and minority populations for Alternative B are the same as for Alternative A. No adverse health or environmental impacts to low-income and minority populations would occur as a result of Alternative B. Low-income and minority populations would not be disproportionately adversely affected and there would be no effect with regards to environmental justice for adjacent and close-proximity residents. Alternative B would result is less-than-significant impacts with regard to environmental justice. Under Alternative B, less land would be subject to restored Tribal sovereignty than under Alternative A, resulting in a reduced benefit to the Tribe.

4.2.7 TRANSPORTATION AND CIRCULATION

Under Alternative B, the methodologies used to analyze impacts to traffic are the same as those used for Alternative A. Project components of Alternative B that would generate new trips would be the same as those proposed under Alternative A. Impacts to transportation for Alternative B would be less-than-significant.

4.2.8 LAND USE

LOCAL PLANNING AND LAND USE COMPATIBILITY

Alternative B would result in the removal of 751± acres from County jurisdiction, placing the land into federal trust for the benefit of the Tribe. Alternative B would remove fewer acres of land from the County's jurisdiction than would Alternative A and, therefore, would result in fewer impacts on local land use planning and zoning designations.

The development proposed under Alternative B is identical to that which is proposed under Alternative A, and would be compatible with the Tribe's existing housing and governmental

facilities located adjacent to the project site (**Figure 2-1**). Impacts to surrounding land use from the implementation of Alternative B would be less-than-significant.

AGRICULTURE

Although the development proposed for Alternative B is identical to that which is proposed for Alternative A, less acreage would be removed from County jurisdiction. Implementation of Alternative B would result in less-than-significant impacts to agriculture.

Williamson Act

Alternative B would have similar impacts to Alternative A, though fewer Williamson Act parcels would be taken into trust.

4.2.9 PUBLIC SERVICES

The development proposed under Alternative B is the same as that proposed for Alternative A. Therefore, development of the Tribal residences, Tribal school, cultural education facilities, WWTP, and domestic water storage tank would result in the same demand for public services as addressed under Alternative A. Under Alternative B, Parcels 3-6 and 11-15 would remain held in fee title by the Tribe and under the jurisdiction of local law enforcement, fire protection, health services, water authorities, and other state public service entities. Impacts to public services would be slightly reduced compared to Alternative A, as the Tribe would continue to pay property taxes for the parcels that would be excluded from the trust application in Alternative B. As shown in **Section 3.9**, the Tribe will still be a net provider of law enforcement and fire/emergency response services in the Capay Valley regardless of the minimal reduction of property taxes from the County's tax rolls under Alternatives A or B. With implementation of the protective measures and mitigation measures described in **Section 2.1.9** and **Section 5.9**, impacts to public services from the implementation of Alternative B would be less-than-significant.

4.2.10 NOISE

Under Alternative B, the methodologies used to analyze noise impacts are the same as those used for Alternative A. Although fewer parcels would be taken into trust by the BIA, the same Tribal development is proposed as described under Alternative A. Accordingly, both construction and operational noise sources under Alternative B would be the same as those under Alternative A. Although new noise sources would be introduced to the area, implementation of Alternative B would result in less-than-significant impacts to noise.

4.2.11 HAZARDOUS MATERIALS

As discussed in **Section 4.1.11**, three 55-gallon drums containing waste oil were observed on Parcel 1. A debris pile containing tires, an empty 55-gallon drum, scrap metal, and an air conditioning unit was observed on Parcel 4. No additional hazardous materials have been identified on site or within a distance that would affect the environment or public health from the implementation of Alternative B. As discussed in **Section 5.11**, the removal of the three 55-gallon drums and contents of the debris pile on Parcels 1 and 4, respectively, will be completed before the fee-to-trust acquisition of the project parcels. The mitigation measures for hazardous materials under Alternative B are the same as those for Alternative A, listed in **Section 5.11**, which would reduce adverse impacts from the implementation of Alternatives B to a less-than-significant level.

4.2.12 VISUAL RESOURCES

Alternative B would result in the construction of the same residential development and community facilities as Alternative A. The visual character of the development would be consistent with existing Tribal facilities and, therefore, would not adversely affect the visual character of the area. Therefore, as with Alternative A, Alternative B would not result in significant impacts to visual resources.

4.3 ALTERNATIVE C – NO ACTION

4.3.1 LAND RESOURCES

Under the No-Action Alternative, none of the project parcels would be taken into trust and the proposed development would not occur. The project site would remain primarily agricultural; however, the Tribe's existing trust parcel located adjacent to the project site would be subject to increased development density, including the possible need to increase the height of existing buildings in order to accommodate the housing and governmental needs of the Tribe. Development would adhere to the Tribe's building ordinance, which meets or exceeds CBC requirements, and land resources would not be adversely impacted. ~~Since all but two of the subject parcels are currently under Williamson Act contract, Alternative C would make the placement of additional housing virtually impossible.~~ New development (outside of the very limited space available on the Tribe's current trust land) would conflict with the terms of the Williamson Act contracts on Parcels 1-8 and 11-15. Development on Parcels 9 and 10 (not under Williamson Act contract) would still be required to conform with the County's Zoning Ordinance for Agricultural Preserve (A-P), which provides for only one single family dwelling per parcel (refer to **Section 3.8.1**). These County land use restrictions prohibit the Tribe from achieving its purpose and need for the Proposed Project, which is to provide housing and expanded

governmental, educational, and cultural facilities/services under the direct control of the Tribal government to accommodate the Tribe's current members and anticipated growth (**Section 1.3**).

4.3.2 WATER RESOURCES

Under the No-Action Alternative, none of the project parcels would be taken into trust and the proposed development would not occur. Existing drainage patterns would remain and potential flooding of Parcels 1 and 2 for those areas within the floodplain of Cache Creek would remain consistent with existing conditions. Tribal growth would still occur on the Tribe's existing trust parcel and the anticipated impacts to surface water and groundwater resources addressed under Alternative A would still occur. Impacts under the No-Action Alternative may be greater as the Tribe would continue to rely on leach beds for wastewater treatment and recycled water would not be available to reduce irrigation demands of potable water resources. Therefore, the No-Action Alternative may result in greater impacts to water resources than implementation of Alternatives A or B.

4.3.3 AIR QUALITY

Under the No-Action Alternative, the project site would continue to remain in agricultural production with a few scattered former residences on various parcels. The construction or operational air quality impacts identified for Alternatives A and B would not occur. However, the Tribe may develop/expand housing units and additional structures on their existing trust parcel to meet the growing needs of the Tribe. Any future construction or development on the Tribe's existing trust parcel may introduce a source of emissions of pollutants of concern. However, any future development would likely incorporate protective measures and BMPs for air quality. Therefore, these impacts would likely be less-than-significant.

4.3.4 BIOLOGICAL RESOURCES

Under the No-Action Alternative, no additional acreage would be taken into trust. Therefore, development would take place on the Tribe's existing trust parcel. This would significantly reduce potential impacts to biological resources, but impacts to nesting bird and roosting bat species could occur. For example, impacts to existing buildings and trees on the existing trust property could disturb nest and/or roost sites; however, biological resources on existing trust lands are under the jurisdiction of the Tribe and the USFWS, and so Tribal projects on trust lands are not subject to NEPA review unless a discretionary decision by a federal agency is required. Although, all Tribal projects would be subject to Tribal environmental ordinances with oversight from appropriate federal agencies such as the the EPA, the USFWS and the USACE.

4.3.5 CULTURAL RESOURCES

Under the No-Action Alternative, the project site would continue to remain in agricultural production with a few scattered homes on various parcels and the development density on the Tribe's existing trust parcel would increase. Because that parcel has been previously developed, there would likely be no adverse impacts to any unknown archaeological or paleontological resource.

4.3.6 SOCIOECONOMIC CONDITIONS/ ENVIRONMENTAL JUSTICE

Under the No-Action Alternative, the project site would not be placed in trust for the benefit of the Tribe and the associated Tribal residences, Tribal school, cultural education facilities and supporting water and wastewater infrastructure would not be constructed. The Tribe would not receive any of the socioeconomic and environmental justice benefits associated with the Proposed Project. The 15 parcels comprising the project site would remain on Yolo County's property tax rolls.

4.3.7 TRANSPORTATION AND CIRCULATION

Under the No-Action Alternative, the project site would continue to remain in agricultural production with a few scattered homes on various parcels and none of the construction or operational traffic impacts identified for Alternatives A and B would occur. The Tribe's existing trust parcel would likely be developed in the future to accommodate the needs of the Tribe, which would create similar indirect traffic impacts as addressed under Alternatives A and B. However, all generated trips would be funneled through the existing access and egress driveways on the Tribe's existing trust parcel from SR-16 and CR-75A.

4.3.8 LAND USE

Under the No-Action Alternative, the project site would remain under the jurisdiction of Yolo County and would not be developed as proposed under Alternative A and Alternative B. However, the Tribe's existing trust parcel located adjacent to the project site would be subject to increased development density in order to accommodate the housing and governmental needs of the Tribe. Higher-density development on the existing trust property could createconflict with surrounding County land use and zoning.

4.3.9 PUBLIC SERVICES

Under the No-Action Alternative, the Tribe's existing trust parcel contains housing and governmental facilities, so there would likely be no adverse impacts to most public services. However, future development on the Tribe's existing trust parcel, to accommodate the Tribe's

needs, may lead to increased development density. This increased development density could pose a potentially adverse impact with regard to fire protection and other emergency services due to the limited access and egress to the project site.

4.3.10 NOISE

Under the No-Action Alternative, Alternatives A and B would not be developed. Instead, the Tribe might develop housing units on Tribal lands already in trust to accommodate the Tribe's needs. Such development would create similar indirect noise impacts as those addressed under Alternatives A and B.

4.3.11 HAZARDOUS MATERIALS

No impacts due to hazardous materials would occur under the No-Action Alternative. Additional facilities could be developed on the Tribe's existing trust parcel which would require the use of hazardous materials during construction. Storage and use of hazardous materials on the existing trust parcel would be subject to Tribal environmental ordinances with oversight from the EPA.

4.3.12 VISUAL RESOURCES

Under the No-Action Alternative, the project site would remain in agricultural production with a few scattered homes on various existing trust parcels. Additional residences as well as community and government facilities could be placed on the Tribe's existing trust property, where space is limited. This would increase the development density of the Tribe's existing trust property to levels well beyond the surrounding landscape. In addition, it is likely that sufficient space would not be found between existing structures, which would require any new development to increase in elevation up to several stories. This would greatly impact the Capay Valley skyline. Therefore, the No-Action Alternative would potentially have a significant adverse impact on the visual resources of the Capay Valley.

4.4 CUMULATIVE EFFECTS

Potential cumulative impacts for each environmental issue area under Alternatives A and B are discussed below. Alternative C, the No-Action Alternative, would not have any cumulative effects and therefore is not discussed further in this section. Cumulative impacts are defined in 40 Code of Federal Regulations (C.F.R.) 1508.7 as the impacts:

> *… on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless what agency (federal or non-federal) or person undertakes such other*

actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

No known projects are currently planned in the immediate vicinity of the project site. Nevertheless, the following regional future projects have been considered for the cumulative impact analysis.

ESPARTO DEVELOPMENT PROJECTS

The following development projects are proposed in the town of Esparto (Yolo County, 2010). Each project's current status is noted in parentheses.

- Orciluoli Subdivision/Castle Homes, 180 residential units along SR-16 (approved);
- Storey Subdivision/Emerald Homes, 78 residential units (approved);
- Capay Cottages/John Deterding, 20 residential units (approved);
- E. Parker Subdivision/Emerald Homes, 68 residential units (approved); and
- Lopez Subdivision/Emerald Homes, 72 residential units (approved).

YOLO COUNTY GENERAL PLAN

The Yolo County General Plan anticipates up to 70 new housing units in the Capay Valley, as approved under the current plan (Yolo County, 2009a).

CALTRANS SAFETY IMPROVEMENT PROJECT

Caltrans has proposed the State Route 16 Safety Improvement Project (SR-16 SIP) to address highway safety issues on SR-16, between the town of Brooks and Interstate 505 (excluding the towns of Capay and Esparto). Implementation of the SR-16 SIP will bring the roadway design to current Caltrans standards by improving sight distances. The environmental review process has been completed and the project is funded. Construction is anticipated to begin in the fall of 2012 (pending current litigation) and to be completed in the fall of 2014.

Improvements planned for this project include:

- 8-foot standard shoulders and provisions for a 20-foot clear recovery zone;
- Left-turn pockets and right-turn lanes at various public roads;
- Horizontal and vertical curve improvements at several locations;
- Improved sight distances; and
- Improved flood protection for SR-16 and the Madison area.

4.4.1 LAND RESOURCES

Potential project impacts to land resources (topography, soils, seismicity, and mineral resources) are minimized by measures required to ensure proper design for site conditions. With no planned projects and no reasonably foreseeable projects in the area immediately surrounding existing and proposed Tribal trust lands, implementation of the Alternatives A or B would not lead to cumulatively considerable impacts to land resources.

4.4.2 WATER RESOURCES

Construction and operation of either Alternatives A or B would create new potential for off-site erosion and/or siltation. It would also create new impervious surfaces, potentially resulting in additional off-site flows. With incorporation of the grading and drainage plan (**Appendix B**) and mitigation measures in **Section 5.2**, the impacts of either development alternative would be reduced to less than significant. There are no other foreseeable projects located off of the Tribe's existing trust parcel that would cause drainage, flooding, or water quality impacts that may interact cumulatively with those of the development alternatives. Additionally, the Tribe would be required by the EPA to file for coverage under its NPDES Construction General Permit that would reduce potential impacts to water quality. Moreover, other projects elsewhere in the County would be required by the CWA to obtain NPDES permits, which require the implementation of BMPs as mitigation to protect water quality, and would be required to meet the County drainage standards. Implementation of Alternatives A or B would not lead to cumulatively considerable impacts to regional drainage and surface water quality. Implementation of Alternative A or B would result in increased potable water demand. This increase in potable water demand will not result in cumulative potable water impacts related to any of the other proposed projects either in Esparto or on existing trust lands (WRIME 2010).

4.4.3 AIR QUALITY

Cumulative impacts to the air basin are addressed within the requirements of the CAA and the General Conformity Rule. Significance levels under the General Conformity Rule are *de minimis* levels shown in **Table 4-9**. The Proposed Project does not reach the *de minimis* levels or exceed 10 percent of Yolo County's total emission of CAPs (see **Table 4-2**). Therefore, the development alternatives would not result in a change in the basin's air quality designation. With no planned projects and no reasonably foreseeable projects in the immediate area, implementation of Alternatives A or B would not lead to cumulatively considerable impacts to air quality.

4.4.4 BIOLOGICAL RESOURCES

Potential adverse impacts to biological resources on the project site, including sensitive habitats, potentially jurisdictional waters of the U.S., native trees, special-status species, and migratory

birds, would be minimized through measures incorporated into project construction, design (**Section 2.1.9**), and mitigation (**Section 5.4**). Any cumulative developments affecting jurisdictional waters of the U.S. or special-status species would be required to mitigate according to the applicable provisions of the CWA and the FESA, and migratory birds would be protected from take subject to the Migratory Bird Treaty Act (MBTA). Additionally, with no planned projects and no reasonably foreseeable projects in the immediate area, implementation of Alternatives A or B would not lead to cumulatively considerable impacts to biological resources.

TABLE 4-9
ALTERNATIVES A AND B CUMULATIVE EMISSIONS

CAPs	**ROG**	**NOx**	**$PM_{2.5}$**
	tons per year		
Area	0.43	0.22	0.13
Mobile	0.33	0.30	0.23
Total Emissions	**0.76**	**0.52**	**0.36**
De Minimis Levels	*100*	*100*	*100*
10% of County Emission Inventory?	No	No	No
Significant?	**No**	**No**	**No**

SOURCE: URBEMIS, 2007.

4.4.5 SOCIOECONOMIC CONDITIONS / ENVIRONMENTAL JUSTICE

Implementation of Alternatives A or B would improve the socioeconomic conditions of the Tribe and would have minimal adverse impacts to the socioeconomics of the County as a whole. Additionally, other than the Tribe, there are no minority populations in the project area. Since no planned projects and no reasonably foreseeable projects would occur in the immediate area, implementation of Alternatives A or B would not lead to cumulatively considerable impacts to socioeconomic conditions or environmental justice.

4.4.6 TRANSPORTATION/CIRCULATION

Concurrent operation of the Proposed Project and other relevant projects identified in **Section 4.4** would increase traffic on local roadways, thereby increasing potential safety hazards and adverse effects to levels of service.

In 2030, the Proposed Project is estimated to generate a total of 45± peak hour trips, which assumes full build-out of the project. The 45± peak hour trips distributed amongst the Proposed Project will not result in any cumulative impacts based on the CCCR Event Center Project Traffic

Impact Study (TIS) (Kimley-Horn, 2010). As indicated in the TIS, all cumulative impacts are negligible (Kimley-Horn, 2010).

4.4.7 LAND USE

If taken into federal trust, the project site would not be subject to County jurisdiction regarding land uses. Any surrounding cumulative projects off Tribal trust lands, however, would be subject to existing local land use regulations. Neither Alternative A nor B would result in changes to local land use patterns, and any changes to area resource use patterns would be attributable to County policies only. Since no planned projects and no reasonably foreseeable projects are anticipated to occur in the vicinity of the project site on non-Tribal trust lands, implementation of the Proposed Project or Alternative B would not lead to cumulatively considerable impacts to land use management in the region.

AGRICULTURE

The proposed development of residential and governmental uses on land that is currently zoned for agriculture would not contribute to the conversion of surrounding agricultural land. Considering no known agricultural conversions are proposed for the area, cumulatively significant impacts to agricultural land would not occur. Implementation of Alternatives A or B would not lead to cumulatively considerable impacts to agriculture in the region.

4.4.8 NOISE

Traffic noise and agricultural operations are minor noise sources in the area surrounding the project site under cumulative conditions. With a majority of the project site remaining under existing agricultural operations and no reasonably foreseeable projects within the immediate area, implementation of Alternatives A or B would not lead to cumulatively considerable impacts to the ambient noise environment.

4.4.9 HAZARDOUS MATERIALS

There is the potential for impacts related to hazardous materials during construction of Alternatives A or B, as well as the other cumulative projects. All Tribal developments have implemented mitigation measures similar to those listed in **Section 5.11** regarding hazardous materials storage and use. Any new non-Tribal developments would be required to adhere to state and municipal regulations regarding the delivery, handling, and storage of hazardous materials, thereby reducing the risk to the public's health and welfare due to accidental exposure. However, with no planned projects and no reasonably foreseeable projects in the immediate area due to land use and zoning restrictions, implementation of Alternatives A or B would not lead to cumulatively considerable impacts related to storage, use, or release of hazardous materials.

4.4.10 VISUAL RESOURCES

Surrounding lands are subject to local land use regulations and ordinances regulating lighting and signage. Both the Alternatives A and B would result in minimal impacts to visual resources. Because there are no planned projects and no reasonably foreseeable projects in the immediate area, implementation of Alternatives A or B would not lead to cumulatively considerable impacts to visual resources.

4.5 GROWTH-INDUCING EFFECTS

Under NEPA, growth-inducing effects of a proposed project must be analyzed [40 Code of Federal Regulations (CFR) 1508.8(b)]. Growth-inducing effects are defined as effects that foster economic or population growth, either directly or indirectly. Direct growth inducement could result, for example, if a project includes the construction of a new residential development. Indirect growth inducement could result if a project establishes substantial new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if it removes obstacles to population growth (e.g., expansion of a wastewater treatment plant to increase the service availability). As stated above in **Section 4.4**, this section focuses on growth-inducing effects of Alternatives A and B. Alternative C, the No-Action Alternative, would not result in growth-inducing effects and is therefore not discussed further.

Growth inducement may constitute an adverse impact if the increased growth is not consistent with or accommodated by the land use and growth management plans and policies for the area affected. Local land use plans provide for development patterns and growth policies that allow for orderly development supported by adequate public services and utilities such as water supply, roadway infrastructure, sewer services, and solid waste disposal services. A project that would induce "disorderly" growth (i.e., would conflict with local land use plans) could indirectly cause adverse environmental or public service impacts.

Alternatives A and B would include new housing for Tribal members. All current Tribal members have homes on the Tribe's existing trust property, and the new housing development proposed under both the Proposed Project and Alternative B would accommodate growth that is anticipated in the coming years. Few long-term or permanent employment opportunities (approximately 20) would be created with development of the Tribal community/government facilities. Therefore, it is anticipated that the net direct local population growth resulting from the Proposed Project would be minimal.

Analyses of the adequacy of local infrastructure and services are included in the discussion of environmental consequences for each proposed alternative. No significant, unmitigated impacts have been identified that would result from the implementation of the Proposed Project or

Alternative B. Additionally, as discussed in **Section 2.1.9**, the proposed infrastructure improvements would be sized to meet the proposed development and existing Tribal residences and facilities. The WWTP would not provide excess capacity that could lead to growth within the region. No indirect growth impacts are expected from expansion of the Tribal facilities, as few long-term or permanent employment opportunities would be created. Utility infrastructure would not be significantly improved or expanded to increase service availability to any surrounding areas. Growth-inducing impacts would be less than significant for all of the proposed alternatives.

SECTION 5.0

MITIGATION MEASURES

SECTION 5.0
MITIGATION MEASURES

In addition to the design provisions included in **Section 2.1.9**, the following mitigation measures shall be incorporated into the project design, construction, and operation as applicable to reduce potentially adverse impacts of the project alternatives under the Proposed Project.

5.1 LAND RESOURCES

Implementation of the protective measures and Best Management Practices (BMPs) described in **Section 2.1.9**, along with the mitigation measures below, shall minimize potential impacts related to soils. These measures are recommended for Alternatives A and B.

- The Tribe shall obtain a National Pollutant Discharge Elimination System permit (NPDES Construction General Permit) from the United States Environmental Protection Agency (EPA) for construction site runoff during the construction phase in compliance with the Clean Water Act (CWA). A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared, implemented, and maintained throughout the construction phase of the development, consistent with Construction General Permit requirements. The SWPPP would detail the BMPs to be implemented during construction and post-construction operation of the selected project alternative to reduce impacts related to soil erosion and water quality. The BMPs shall include, but are not limited to, the following:
    - Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction and remediation.
    - Temporary erosion control measures (such as silt fences, fiber rolls, vegetated swales, a velocity dissipation structure, staked straw bales, temporary re-vegetation, rock bag dams, erosion control blankets, and sediment traps) shall be employed for disturbed areas during the wet season.
    - No disturbed surfaces shall be left without erosion control measures in place during the winter and spring months.
    - Construction activities shall be scheduled to minimize land disturbance during peak runoff periods. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff.

- Creating construction zones and grading only one area or part of a construction zone at a time shall minimize exposed areas. If possible during the wet season, grading on a particular zone shall be delayed until protective cover is restored on the previously graded zone.
- Disturbed areas shall be re-vegetated following construction activities.
- Construction area entrances and exits shall be stabilized with crushed aggregate.
- Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.
- A spill prevention and countermeasure plan shall be developed, which identifies proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site.
- Petroleum products shall be stored, handled, used, and disposed of properly in accordance with provisions of the Clean Water Act [33 United States Code (U.S.C.) 1251 to 1387].
- During the wet season, construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of surface and groundwater.
- Fuel and vehicle maintenance areas shall be established away from all drainage courses and designed to control runoff.
- Sanitary facilities shall be provided for construction workers.
- Disposal facilities shall be provided for soil wastes, including excess asphalt during construction and demolition.

- The Tribe shall require all workers to be trained in the proper handling, use, cleanup, and disposal of all chemical materials used during construction activities and shall provide appropriate facilities to store and isolate contaminants.
- The Tribe shall require all contractors involved in the project to be trained on the potential environmental damages resulting from soil erosion prior to development by conducting a pre-construction conference. Copies of the project's erosion control plan shall be distributed at this time. All construction bid packages, contracts, plans, and specifications shall contain language that requires adherence to the plan.

5.2 WATER RESOURCES

Implementation of the protective measures and BMPs described in **Section 2.1.9**, along with the recommended mitigation measures below, would minimize potential impacts related to the construction of Alternatives A or B.

- Development and implementation of a SWPPP under **Section 5.1** would reduce impacts to stormwater quality.
- Construction within floodplains, for the Outdoor Cultural Center on Parcel 2, designated on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps 0604230225B and 0604230350B shall occur only during the dry season.
- Construction on Parcels 1 and 2 shall entail equalization of cut and fill within the same floodplain as described in the preliminary grading and drainage plan (**Appendix C**).
- Construction activities pertaining to proposed underground utilities, pipeline improvements, detention basins, house pads, roads, etc. shall entail balance of cut and fill material so that post-construction areas shall emulate pre-construction conditions (**Appendix C**).
- The Tribe shall monitor recycled water application areas to ensure off-site runoff does not occur. Provisions included within monitoring requirements to reduce the potential for off-site flow shall include:
    - The Tribe shall apply recycled water to confined areas (such as landscaped areas) only during periods of dry weather. The Tribe shall not apply recycled water 24 hours prior to a forecasted rain event and shall wait 24 hours after the rain event to apply recycled water.
    - Recycled water shall not be applied during periods of winds exceeding 30 miles per hour (mph).
    - Recycled water shall not be applied within 100 feet of a water of the U.S.

5.3 AIR QUALITY

Implementation of the protective measures and BMPs described in **Section 2.1.9**, along with the recommended Climate Action Team and California Air Resource Board strategies and Attorney General mitigation measures below, would minimize potential impacts related to the construction of Alternative A or B and climate change-related impacts.

- The Tribe shall plant trees and other carbon-sequestering vegetation on site. The addition of photosynthesizing plants would reduce atmospheric carbon dioxide (CO_2) because plants use CO_2 for elemental carbon and energy production. Trees planted near buildings would result in additional benefits by providing shade to the buildings, reducing heat absorption and the need for air conditioning.
- The Tribe shall use materials with minimal impact to the environment to the extent practical for construction of facilities. These materials may include low volatile organic compound paints and sealants and sustainable and recyclable building materials.

- The Tribe shall use energy efficient lighting, which would reduce the project's energy usage, thereby reducing indirect greenhouse gas (GHG) emissions.
- The Tribe shall provide recycling bins in accessible areas on the project site. Recycling reduces GHG emissions from indirect energy use, landfills, and manufacturing of raw materials.
- The Tribe shall incorporate advanced lighting design, including daylighting, where feasible. Advanced lighting design and daylighting would reduce project-related GHG emissions by reducing electrical energy usage.

5.4 BIOLOGICAL RESOURCES

Implementation of the protective measures and BMPs described in **Section 2.1.9**, along with the mitigation measures below, shall minimize potential impacts to biological resources. These measures are recommended for Alternatives A and B.

5.4.1 HABITAT TYPES

The following mitigation measures are required for Alternatives A and B to avoid and/or reduce impacts to native trees within the riparian woodland on the project site:

- Any riparian woodland habitat temporarily disturbed by construction activities associated with the road crossing improvements shall be restored back to its natural state immediately following completion of construction.

5.4.2 WATERS OF THE U.S.

The following mitigation measures are required for Alternatives A and B to identify and avoid and/or reduce impacts to waters of the U.S. (including wetlands) within the project site:

- Any proposed construction activities that would occur within the vicinity of potentially jurisdictional waters of the U.S. will be conducted during the dry season (i.e., April 15 through October 15) to further reduce the quantity of potential sedimentation within the watershed.
- For the proposed improvements to the roadway crossings, stock pond's outfall structure, and proposed modification of the stock pond to also function as a detention pond on Parcel 9, authorization from the United States Army Corps of Engineers (USACE) is required. A wetland delineation would be conducted, a jurisdictional determination would be acquired, and a Section 404 CWA permit shall be obtained from the USACE if necessary. If a permit is necessary, mitigation ratios defined within

the permit conditions shall be implemented. A CWA Section 401 Water Quality Certification from the EPA would also be required. Any impacts would be mitigated by following the joint regulations of the USACE and the EPA for mitigation to waters of the U.S.as they pertain to Section 404 permits published in the Federal Register Volume 73 Number 70 (USACE and EPA, 2008). Consistent with Section 404 of the CWA, impacts to jurisdictional features shall be avoided to the maximum extent practicable through design and construction techniques. If impacts to jurisdictional features cannot be avoided, then the project shall comply with the USACE's no net loss policy. Consistent with 33 CFR Chapter 11 Part 332, compensatory mitigation shall be obtained for each prorated acre of jurisdictional features impacted. The USACE and the EPA require in Part 332.8 that mitigation credits be obtained from a USACE-approved mitigation bank. If mitigation credits are not available, then the Tribe shall coordinate with the USACE during the Section 404 CWA permitting process to create in-kind jurisdictional features either on or off-site and shall be preserved in perpetuity with a conservation grant deed easement or similar legal vehicle.

5.4.3 SPECIAL-STATUS PLANTS

Although federal agencies are only required to consider and not mitigate for non-federally listed special-status species, the Tribe has agreed to mitigate for them regardless. The following mitigation measures are required for Alternatives A and B to avoid and/or reduce impacts to the following potentially occurring California Native Plant Society (CNPS)-listed special-status plant species within the annual grassland of Parcel 9 where the residences and school buildings construction and road improvements are anticipated:

- A botanical survey shall be conducted within the evident and identifiable blooming period (between May and July) for Brewer's western flax and green jewel-flower prior to any ground breaking construction activities.
- If Brewer's western flax and/or green jewel-flower is observed within the project site, then the California Department of Fish and Game (CDFG) will be contacted at least ten days prior to commencement of construction activities to provide them with the opportunity to salvage and relocate these plants.
- If Brewer's western flax and/or green jewel-flower is found within the project footprint and should the CDFG decide not to initiate relocation, then under the Tribe's guidance a biologist will relocate either of these plants to similar, suitable habitat outside of the construction areas.

5.4.4 SPECIAL-STATUS ANIMALS

The following mitigation measures are required for Alternatives A and B to avoid direct impacts to valley elderberry longhorn beetle (VELB). Indirect impacts to VELB could occur when constructing the stream crossings on Parcel 9 under Alternatives A or B. Upon implementation of the mitigation measures identified below, potential impacts to VELB would be reduced to a less-than-significant level.

The Tribe shall comply with all avoidance measures including protective measures identified in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines) (USFWS, 1999), to the maximum extent feasible. A copy of the Guidelines is provided with the Biological Assessment in **Appendix E**. Pre-construction surveys for VELB will be conducted by a biologist prior to the start of construction activities within the proposed drainage crossing areas of Parcel 9.

As stated in the Guidelines, complete avoidance (i.e. no adverse effects) may be assumed when a 100-foot buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. Firebreaks shall not be included in the buffer zone. In buffer areas, construction-related disturbance should be minimized, and any damaged area should be promptly restored following construction. The USFWS must be consulted before any disturbances within the buffer area are considered. In addition, the USFWS must be provided with a map identifying the avoidance area and written details describing avoidance measures (USFWS, 1999).

Included below is a list of Protective Measures (USFWS, 1999) and additional mitigation measures for preventing adverse effects to VELB under Alternatives A and B.

- All areas to be avoided shall be fenced and flagged during construction activities. In areas where encroachment on the 100-foot buffer has been approved by the USFWS, a minimum setback of at least 20 feet from the drip line of each elderberry shall be implemented. USFWS guidelines will be followed, and consultation will occur, for work within the 100 foot buffer to prevent impacts to VELB.
- Signs shall be erected every 50 feet along the edge of avoidance areas with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Federal Endangered Species Act (FESA), as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs shall be clearly readable from a distance of 20 feet and shall be maintained for the duration of construction.
- Work crews shall be instructed on the status of the VELB and the need to protect its elderberry host plant.

- Equipment operators shall access the project site via existing roads. The operators shall minimize access on existing roads in the vicinity of the elderberry shrubs to the maximum extent feasible.
- Staging areas shall be located at least 100 feet from elderberry shrubs containing stems at least one inch in diameter at ground level. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be used onsite or disposed of at a regional landfill or other appropriate facility.
- Standard precautions shall be employed by the construction contractor to prevent the accidental release of fuel, oil, lubricant, or other hazardous materials.
- A litter control program shall be instituted within the project site. The contractor shall provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scraps). All garbage shall be removed daily from the project site.

If work is to be done within the buffer area (within 100 feet of elderberry plants with stem(s) 1.0 inch or greater in diameter), upon the prior discretion and approval of USFWS, then the following list of Restoration and Maintenance measures as well as any additional mitigation required by USFWS will be applicable under Alternatives A and B (USFWS, 1999).

- Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.
- Buffer areas must continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.
- No insecticides, herbicides, fertilizers, or other chemicals that might harm the VELB or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.
- The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.
- Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g. stripping away bark through careless use of moving/trimming equipment).

The following mitigation measures identified below are required for Alternatives A and B to reduce the potential of significant impacts to the federally threatened California tiger salamander (CTS) and the state-listed western pond turtle and western spadefoot toad:

- A pre-construction survey shall be conducted by a qualified biologist within two weeks of any work near the stock pond or on the annual grassland on Parcel 9 to ensure that no CTS, western pond turtle, or western spadefoot toad are present.
- Worker awareness training for CTS, western pond turtle, and western spadefoot toad shall be conducted by the qualified biologist for all construction crew members. The training shall include the following: a description and an identification of these species and their habitat needs; an explanation of the status of the species and their protection under the FESA and/or the California Endangered Species Act (CESA); and a list of measures being taken to reduce impacts to these species during project construction. A fact sheet conveying this information should be prepared for distribution to the crew members and anyone else who may enter the project site.
- A qualified biologist shall be present during all construction activities conducted in the vicinity of the stock pond.
- While it is not anticipated that they will be present, if at any time a CTS is observed within the project site, then all work shall stop until the USFWS is consulted. Should western pond turtle or western spade foot toad be observed within the construction area, then these activities shall be halted until the individual exits the project site or until the qualified biologist relocates it away from the construction site.

5.4.5 NESTING MIGRATORY BIRDS AND SPECIAL-STATUS BIRDS

Migratory, Raptor, and Special-Status Birds

The following mitigation measures are required for Alternatives A and B to avoid and/or reduce impacts to any potentially occurring migratory, raptor, and special-status bird species (including golden eagle, burrowing owl, Swainson's hawk, mountain plover, western yellow-billed cuckoo, American peregrine falcon, bald eagle, and bank swallow) nesting within the project site:

- If any construction activities (e.g., building, grading, ground disturbance, removal of vegetation) are scheduled to occur during the nesting season, pre-construction bird surveys shall be conducted. Pre-construction surveys for any nesting bird species shall be conducted by a qualified wildlife biologist throughout all areas of suitable habitat that are within 500 feet of any proposed construction activity. The surveys shall occur no more than 14 days prior to the scheduled onset of construction activities. If construction is delayed or halted for more than 14 days, another pre-construction survey for nesting bird species shall be conducted. If no nesting birds are detected during the pre-construction surveys, no additional surveys or mitigation measures are required.

- If nesting bird species are observed within 500 feet of construction areas during the surveys, appropriate avoidance setbacks shall be established. The size and scale of nesting bird avoidance setbacks shall be determined by a qualified wildlife biologist and shall be dependent upon the species observed and the location of the nest. Avoidance setbacks shall be established around all active nest locations via stakes and high visibility fencing. The nesting bird setbacks shall be completely avoided during construction activities and the fencing must remain intact. The qualified wildlife biologist shall also determine an appropriate monitoring plan and decide if construction monitoring is necessary during construction activities. Again, monitoring requirements are dependent upon the species observed, the location of the nests, and the number of nests observed. The setback fencing may be removed when the qualified wildlife biologist confirms that the nest(s) is no longer occupied and all birds have fledged.
- If impacts (i.e., take) to migratory nesting bird species are unavoidable, consultation with USFWS shall be initiated. Through consultation, an appropriate and acceptable course of action shall be established.

5.5 CULTURAL RESOURCES

The following mitigation measures are recommended for Alternatives A and B to reduce the potential for significant construction-related impacts to previously unknown cultural resources, including archaeological sites, human remains, and/or paleontological resources:

- In the event that any prehistoric or historic cultural resources, or paleontological resources, are discovered during ground-disturbing activities, all work within 50 feet of the resources shall be halted and the Tribal Historic Preservation Officer (THPO) and the Bureau of Indian Affairs (BIA) archaeologist shall be consulted to assess the significance of the find. If any find is determined to be significant by the qualified professionals, then appropriate agency and Tribal representatives shall meet to determine the appropriate course of action.
- If human remains are encountered, work shall halt in the vicinity of the find and the Yolo County Coroner shall be notified immediately. Pursuant to 36 Code of Federal Regulations (C.F.R.) Part 800.13 of the National Historic Preservation Act (NHPA): *Post-Review Discoveries*, and 43 C.F.R. § 10.4 (2006) of the Native American Graves Protection and Repatriation Act (NAGPRA): *Inadvertent Discoveries*, the THPO and BIA archaeologist will also be contacted immediately. No further ground disturbance shall occur in the vicinity of the find until the County Coroner, THPO, and BIA archaeologist have examined the find and agreed on an appropriate course of action. If the remains are determined to be of Native American origin, the BIA representative shall notify a Most Likely Descendant (MLD). The MLD is responsible for recommending the appropriate disposition of the remains and any grave goods.

5.6 SOCIOECONOMIC CONDITIONS/ ENVIRONMENTAL JUSTICE

Impacts to socioeconomic conditions and regional environmental justice would be less-than-significant for Alternative A or B, and no mitigation is necessary.

5.7 TRANSPORTATION AND CIRCULATION

Traffic generated by the project alternatives would not result in adverse impacts to the existing roadway network, and no mitigation is required.

5.8 LAND USE

Impacts to land use would be less than significant for Alternative A and B, no mitigation is necessary.

5.9 PUBLIC SERVICES

Implementation of the protective measures and BMPs described in **Section 2.1.9**, along with the mitigation measures below, would ensure that the construction and operation of Alternatives A or B would have a less-than-significant impact on fire and emergency services.

- To minimize the risk of fire and the need for fire protection services during construction, any construction equipment that normally includes a spark arrester shall be equipped with a spark arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.
- During construction, staging areas, welding areas, and areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.
- Fire extinguishers shall be maintained onsite and inspected on a regular basis.
- An evacuation plan shall be developed for the project alternatives in the event of a fire emergency.

5.10 NOISE

Implementation of the following mitigation measures would ensure that the construction of Alternative A or B would reduce adverse impacts with respect to noise.

- The Tribe shall develop a Construction Noise Mitigation Plan that shall include

construction schedules developed in consultation with the Wintun Academy Administration and Tribal Administrators.

- The Tribe shall ensure that construction equipment used at the project site is equipped with the best available noise reduction technology feasible.

5.11 HAZARDOUS MATERIALS

The mitigation measures listed below are recommended to reduce potential impacts associated with construction and operation of Alternatives A and B.

- Potentially hazardous materials, including fuels, shall be stored away from drainages and secondary containment shall be provided for all hazardous materials during construction.
- A spill prevention and countermeasure plan shall be developed which shall identify proper storage, collection, and disposal measures for potential pollutants (such as fuel storage tanks) used onsite, as well as the proper procedures for cleaning up and reporting spills.
- Vehicles and equipment used during construction shall be provided proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill. Maintenance and fueling shall be conducted in an area that meets the criteria set forth in the spill prevention plan.
- Before the fee-to-trust acquisition of the project parcels, the three 55-gallon drums and the contents of the debris pile on Parcels 1 and 4, respectively, shall be removed from the site and properly disposed of or recycled at a permitted disposal facility.
- A hazardous materials storage and disposal plan shall be prepared. The plan shall provide a detailed inventory of hazardous materials to be stored and used onsite, provide appropriate procedures for disposal of unused hazardous materials, and detail training requirements for employees that handle hazardous materials as a normal part of their employment. The plan shall also include emergency response procedures in the event of an accidental release of hazardous materials.

5.12 VISUAL RESOURCES

With implementation of the protective measures and BMPs described in **Section 2.1.9**, no further mitigation is necessary for Alternative A or B.

SECTION 6.0

CONSULTATION, COORDINATION, AND LIST OF PREPARERS

SECTION 6.0

CONSULTATION, COORDINATION, AND LIST OF PREPARERS

6.1 FEDERAL AGENCIES CONSULTED

United States Department of Interior – Bureau of Indian Affairs

John Rydzik, Chief, Division of Environmental, Cultural Resource Management and Safety, Pacific Regional Office

United States Department of Interior – U.S. Fish and Wildlife Service

Kellie Berry, Chief, Sacramento Valley Division

Natural Resources Conservation Service

Phil Hogan

6.2 STATE AGENCIES CONSULTED

California Department of Parks and Recreation, Office of Historic Preservation

Native American Heritage Commission

Debbie Pilas-Treadway

6.3 TRIBES CONSULTED

Yocha Dehe Wintun Nation

Marshall McKay, Chair

Jim Etters, Farm and Landscape Manager

Emily Reeves, Environmental Manager

Phoebe Bender, Cultural Resources Information Specialist

Reno Keoni Franklin, Director of Cultural Resources and Tribal Historic Preservation Officer (THPO)

Leland Kinter, Cultural Committee Chair

6.4 LOCAL AGENCIES CONSULTED

County of Yolo Planning Department

County of Yolo Public Works Department

Yolo County Flood Control and Water Conservation District

Yolo County Administrator's Office

Christopher Lee, County-Tribe Coordinator

6.5 PREPARERS OF ENVIRONMENTAL ASSESSMENT

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Ryan Jolley and Ashley Wells – Socioeconomics

Melissa Oberti – Hazardous Materials

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SECTION 7.0

BIBLIOGRAPHY

SECTION 7.0

BIBLIOGRAPHY

Abrams Associates, 2008. Traffic Impact Study: Cache Creek Destination Resort Project, Yolo County. April 2008.

Analytical Environmental Services (AES), 2007a. Phase I Environmental Site Assessment, Burnett Property. August 2007. Sacramento, California.

Analytical Environmental Services (AES), 2007b. Phase I Environmental Site Assessment, Davis and Yates Properties. June 2007. Sacramento, California.

Analytical Environmental Services (AES), 2008. Phase I Environmental Site Assessment, Farnham Property. June 2008. Sacramento, California.

Analytical Environmental Services (AES), 2009a. Phase I Environmental Site Assessment, Yocha Dehe Housing Project. September 2009. Sacramento, California.

Analytical Environmental Service (AES), 2011. Biological Assessment, Yocha Dehe Housing Project. May 2011. Sacramento, California.

Association of Environmental Professionals (AEP), 2007. "Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents." Available online at: http://www.csac.counties.org/images/public/Advocacy/ag_natres/AEP_Global_Climate_Change_June_29_Final%5B1%5D.pdf. Accessed on June 29, 2007.

Beck, J.L., 1971. "A Chipped Stone Crescent from Tracy Lake, California." The Masterkey 45(4):154-156.

Bencomo, 2006. Communication between John Bencomo (Director of the Yolo County Planning, Resources and Public Works Department) and the Yolo County Board of Supervisors. August 1, 2006. Yolo County, California.

Butler, Joel, 2010. Yolo County Assessor. Assessor Inquiry. Available at: https://common1.mptsweb.com/megabytecommonsite/(bsvdcl45zdsqxs55wdr2ilb5)/PublicInquiry/Inquiry.aspx?CN=yolo&SITE=Public&DEPT=Asr&PG=Search. Accessed on April 8, 2010.

California Air Pollution Control Officers Association (CAPCOA), 2008. "CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act." January 2008. Available online at: http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf. Accessed on April 9, 2010.

California Air Resource Board (CARB), 2007a. "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration." Available online at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf. Accessed on October 2007.

California Air Resource Board (CARB), 2007b. "Climate Change Scoping Plan, 2007." Available online at: http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed on January 1, 2008.

California Air Resource Board (CARB), 2009. Monitoring data. Available online at: http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/start. Accessed on August 18, 2009.

California Air Resource Board (CARB), 2010. "Emission Projections by Summary Category, 2010." Available online at: http://www.arb.ca.gov/app/emsinv/fcemssumcat2009.php. Accessed on April 13, 2010.

California Climate Action Team (CAT), 2007. "Climate Action Team Proposed Early Actions to Mitigate Climate Change in California." Draft for Public Review. April 20, 2007. U.S. Environmental Protection Agency. Available at: http://www.climatechange.ca.gov/climate_action_team/reports/2007-04-20_CAT_REPORT.PDF. Accessed on April 9, 2010.

California Department of Conservation (CDC), 2004. "A Guide to the Farmland Mapping and Monitoring Program." Available online at: http://www.consrv.ca.gov/dlrp/fmmp/Documents/fmmp_guide_2004.pdf/ Accessed on September 1, 2009.

California Department of Conservation (CDC), 2008. "Yolo County Important Farmland 2006." Map published April 2008. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2006/yol06.pdf/ Accessed on September 1, 2009.

California Department of Conservation (CDC), 2009. Williamson Act Questions and Answers. Available online at: http://www.conservation.ca.gov/dlrp/lca/Documents/WA%20fact%20sheet%2006.pdf/ Accessed on October 9, 2009.

California Department of Finance (CDF), 2007a. "E-4 Historical Population Estimates for City, County and the State, 1991-2000, with 1990 and 2000 Census Counts." August 2007. Sacramento, California.

California Department of Finance (CDF), 2007b. "E-8 Historical Population and Housing Estimates for Cities, Counties and the State, 1990-2000." August 2007. Sacramento, California.

California Department of Finance (CDF), 2009a. "E-1 population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2008 and 2009." May 2009. Sacramento, California.

California Department of Finance (CDF), 2009b. "E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark." May 2009. Sacramento, California.

California Department of Fire and Forestry (CAL FIRE), 2007. "Fire Hazard Severity Zones in SRA." Available online at: http://frap.cdf.ca.gov/webdata/maps/yolo/fhszs_map.57.pdf/ Adopted November 7, 2007. Accessed on October 9, 2009.

California Department of Fish and Game (CDFG), 2003. RareFind Version 3.1.0, California Natural Diversity Data Base. Sacramento, California.

California Department of Transportation (Caltrans), 2002. "Caltrans' Guide to the Preparation of Traffic Impact Studies, December 2002." Available online at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf. Accessed on September 8, 2009.

California Department of Water Resources (DWR), 2004. "California's Groundwater Bulletin 118: Sacramento Valley Groundwater Basin, Capay Valley Subbasin, February 27, 2004." Available online at: http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/5-21.68.pdf . Accessed on August 1, 2009.

CaliforniaHerps.com, 2009. "Spea hammondii – Western spadefoot toad." Available online at: http://www.californiaherps.com/frogs/pages/s.hammondii.html. Accessed on September 2, 2009.

California Integrated Waste Management Board (CIWMB). 2007. "Waste Disposal Rates for Business Types." Available online at: http://www.ciwmb.ca.gov/WASTECHAR/DispRate.htm/. Accessed on October 12, 2009.

California Native Plant Society (CNPS), 2011. "Inventory of Rare and Endangered Plants" (online edition). Rare Plant Scientific Advisory Committee, David P. Tibor, convening editor. California Native Plant Society. Sacramento, California. Accessed on January 3, 2011.

California State Board of Equalization (BOE), 2005. "California Property Tax, An Overview." Publication 29. September 2005.

California State Controller's Office (CSCO), 2010. "Yolo County Property Tax Collection Statistical Reports." Available online at: http://www.sco.ca.gov/Files-ARD-Tax-Info/TaxDelinq/county_yolo.pdf . Accessed on January 6, 2010.

Central Valley Regional Water quality Control Board (CVRWQCB), 2007. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region*. Fourth Edition. Revised February 2007 (with approved amendments).

Chandler, Mike, 2010. Personal Communication with YDFD Chief on recent CFAI accreditation. December 15, 2010.

Climate Change Action Registry, 2007. "The Greenhouse Effect and California, CARB, 2007." Available online at: http://www.arb.ca.gov/cc/facts/facts.htm. Accessed on September 20, 2008.

Council on Environmental Quality (CEQ). 1997a. "Draft memorandum, Guidance Regarding Considering of Global Climatic Changes in Environmental Documents Prepared Pursuant to the National Environmental Policy Act, 1997."

Council on Environmental Quality (CEQ). 1997b. "Considering Cumulative Effects Under the National Environmental Policy Act." Documents Prepared by the Council on Environmental Quality, 1997.

Council on Environmental Quality (CEQ), 1997. "Environmental Justice Guidance Under the National Environmental Policy Act."

Environmental Protection Agency, U.S. (EPA), 1994. *Water Quality Standards Handbook*. Second Edition (August 2004).

Environmental Protection Agency, U.S. (EPA), 1998. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*. April 1998.

Environmental Protection Agency, U.S. (EPA), 2007. *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006*. Available online at: http://www.epa.gov/osw/nonhaz/ municipal/pubs/msw06.pdf/. Accessed on October 12, 2009.

Environmental Protection Agency, U.S. (EPA), 2009. EPA grants CARB for waiver of Clean Air Act. Available online at: http://www.epa.gov/EPA-AIR/2009/July/Day-08/a15943.htm. Accessed on October 12, 2009.

Etters, Jim. 2010. Personal Communication with Jim Etters, Yocha Dehe Farm and Landscape Manager. April 8, 2010.

Federal Emergency Management Agency (FEMA), 1980. Federal Insurance Rate Maps Number 0604230225B-1 and 0604230350B. Effective 1980. Available online at: http://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay?storeId=10001&catalogId=10001&langId=1&categoryId=12001&parent_category_rn=12001&type=1&stateId=&countyId=&communityId=&stateName=&countyName=&communityName=&dfirm_kit_id=&dfirmCatId=12009&isCountySelected=0&isCommSelected=0&userType=G&urlUserType=G&sfc=0&cat_state=13011. Accessed on August 20, 2009.

Federal Highway Administration (FHWA), 2006. *FHWA Highway Construction Noise Handbook*. Available online at: http://www.fhwa.dot.gov/environment/noise/ handbook/ index.htm. Accessed on August 12, 2009.

Federal Interagency Committee on Noise (FICON), 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues*. Available online at: http://www.wylelabs.com/content/ global/documents/FICON1.pdf. Accessed on September 9, 2009.

Heizer, R. F., and F. Fenenga, 1939. Archaeological Horizons in Central California. In American Anthropologist, 41(3) pp. 378-399.

Hickman, James C. (ed). 1993. *The Jepson Manual, Higher Plants of California*. University of California Press. Berkeley, CA.

Holland, R. F. 1986. *Preliminary descriptions of the terrestrial natural communities of California*. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish and Game, Sacramento, California..

Hydroscience Engineers, Inc. (HSE), 2007. *Cache Creek Destination Resort Water and Wastewater Feasibility Study*. Berkeley, CA.

Institute of Traffic Engineers (ITE), 2008. *Trip Generation Manual 8th Edition*.

Intergovernmental Panel on Climate Change (IPCC), 2007. *IPCC Fourth Assessment Report, 2007*. Available online at: http://www.ipcc.ch/ipccreports/ar4-syr.htm. Accessed March 15, 2010.

Jennings, M.R. and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. California Department of Fish and Game. Rancho Cordova, California.

Johnson, Patti. 1978. Patwin. In *California*, edited by Robert F. Heizer, pp. 350-359. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Kimley-Horn and Associates, Inc. 2010. *Cache Creek Casino Resort Event Center Project Draft Traffic Impact Study*. June 2010.

Lee, Christopher, 2010. Email communication. Subject: 12 digit APNs. November 23, 2010.

Lee, Christopher, 2011. Personal communication via conference call. Subject Williamson Act status of subject parcels. January 26, 2011.

Local Government Operations Protocol (LGOP), 2008. *For the Quantification and Reporting of Greenhouse Gas Emissions Inventories, 2008.* Available online at: http://www.climateregistry.org/resources/docs/protocols/industry/local-gov/lgo_protocol_september2008.pdf. Accessed on April 8, 2010.

Mayer, K. E., and W. F. Laudenslayer, Jr., eds. 1988. *A Guide to Wildlife Habitats of California*. California Department of Forestry and Fire Protection. Sacramento, California.

Milliken, R. and W. R. Hildebrandt, 1997. Culture Change Along the Eastern Sierra Nevada/ Cascade Front. Vol. V: Honey Lake Basin. Far Western Anthropological Research Group, Inc. Prepared for Tuscarora Gas Transmission Company.

Milliken, R. 2005. Ethnohistory. In *Archaeological Evaluation and Mitigative Data Recovery at CA-YOL-69, Madison Aggregate Plant, Yolo County, California*. Holman and Associates. Folsom, CA.

Moyle, Peter B. Inland Fishes of California . Revised and Expanded. Berkely and Los Angeles, CA: Regents of the University of California, 2002. Print.

Natural Resources Conservation Service (NRCS), 2009a. Soil Survey of Yolo County. *Natural Resources Conservation Service Web Soil Survey*. Available online at: http:// websoilsurvey.nrcs.usda.gov/. Accessed on August 31, 2009.

Natural Resources Conservation Service (NRCS), 2009b, *Farmland Protection Policy Act.* Available online at: http://www/nrcs.usda.gov/programs/fppa/. Accessed on September 1, 2009.

Reeves, Emily, 2009. Environmental Project Coordinator for the Yocha Dehe Wintun Nation. Personal communication via email. November 10, 2009.

Reeves, Emily, 2010. Environmental Project Coordinator for the Yocha Dehe Wintun Nation. Personal communication via email. October 27, 2010.

Sacramento Area Council of Governments (SACOG), 2008. *Yolo County Current Agricultural Policy Inventory*. Available online at: http://www.sacog.org/rucs/wiki/index.php/ Yolo_County_Current_Agricultural_ Policy_Inventory/ Last updated September 25, 2008. Accessed on October 20, 2009.

Sacramento Area Council of Governments (SACOG), 2009. *Yolo County Individualized Traffic Safety Report*. Available online at: http://www.sacog.org/rucs/working-group-documents.cfm/ Accessed on October 23, 2009.

Sawyer, J. O., and T. Keeler-Wolf, 1995. *A Manual of California Vegetation*. California Native Plant Society, Sacramento, California.

Small, Arnold. 1994. *California Birds: Their Status and Distribution*. Ibis Publishing Company. Vista, California.

Solid Waste Agency of Northern Cook County (SWANCC), 2001. SWANCC v. United States Army Corps of Engineers et al. United States Supreme Court Decision No.-99-1178, Argued October 31, 2000—Decided January 9, 2001. Available online at: http://www.epa.gov/wetlands/pdf/2001supremecourt.pdf. Accessed on April 9, 2010.

Strebow, Tim. 2007. Personal Communication regarding CDF. August 2007.

Traffic Noise Calculator. 2007. Application to calculate noise from traffic. Available online at: http://www.xs4all.nl/~rigolett/ENGELS/vlgcalc.htm. Accessed on August 12, 2009.

Urban Emissions (URBEMIS), 2007. California Air Resource Board approved air quality emissions model program, using EMFAC, 2007 emission factors.

U.S. Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA), 2007. *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*. Available online at: http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/jd_guidebook_ 051207final.pdf

U.S. Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA), 2008. Compensatory Mitigation for Losses of Aquatic Resources. Federal Register Volume 73 Number 70. April 10, 2008. Available online at: http://edocket.access.gpo.gov/2008/E8-6918.htm. Accessed on February 4, 2011.

U.S. Census Bureau (U.S. Census). 2000. American Fact Finder for 2000 Census. Available online at:. http://www.census.gov/main/www/cen2000.html. Accessed on September 2009.

U.S. Census Bureau (U.S. Census), 2003. Poverty: 1999. Issued May 2003. Available online at: http://www.census. gov/prod/2003pubs/c2kbr-19.pdf. Accessed on September 2009.

U.S. Census Bureau (U.S. Census), 2006. American Community Survey. Available online at: http://factfinder.census.gov/servlet/ADPTable?_bm=y&-context=adp&-qr_name=ACS_2006_EST_G00_DP2&-ds_name=ACS_2006_EST_G00_&-tree_id=306&-redoLog=false&-_caller=geoselect&-geo_id=01000US&-format=&-_lang=en/. Accessed on October 12, 2009.

U. S. Fish and Wildlife Service (USFWS), 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. July 9, 1999. Available online at: http://www.fws.gov/sacramento/es/documents/velb_conservation.pdf. Accessed April 9, 2010.

U.S. Fish and Wildlife Service (USFWS), 2001. Cache Creek Mercury Investigation USFWS Final Report. Sacramento Fish and Wildlife Office, Environmental Contaminants Division. July 2001.

U. S. Fish and Wildlife Service (USFWS), 2009. Species profile for California Red-Legged frog (Rana aurora draytonii). Available online at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D.

U. S. Fish and Wildlife Service (USFWS), 2011. Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or USGS 7 1/2 Minute Quads you requested. Document Number 110207100849. Database last updated April 29, 2010. USFWS Sacramento Fish and Wildlife Office. Available online at: http://www.fws/gov/sacramento/es/spp_lists/auto_list.cfm. Accessed on February 7, 2011.

Water Resources and Information Management Engineering (WRIME), 2010. "Impact Analysis of the Proposed Project and Reduced Intensity Alternative Using the Hydrological Model of Capay Valley." April 2010.

Western Regional Climate Center (WRCC), 2009. Western U.S. Climate Historical Summaries. Available online at: http://www.wrcc.dri.edu/. Accessed on August 17 and 29, 2009.

Yolo County, 2009a. *Yolo County General Plan*. Yolo County Board of Supervisors. October, 2009. Yolo County, California.

Yolo County, 2009b. *Yolo County Zoning Ordinance*. Available online at: http://www.yolocounty.org/Index.aspx?page=432#Title%208/ Website last updated September 30, 2009. Accessed on October 20, 2009.

Yolo County, 2010. Adoption of the updated 2010 Capay Valley Area Plan (no general fund impact). Yolo County Planning and Public Works Department. December 7, 2010. Available online at: http://yolo.granicus.com/MetaViewer.php?view_id=&clip_id=407&meta_id=98239. Accessed on December 14, 2010.

Yolo County Agriculture Department (YCAD), 2008. *Yolo County 2008 Agricultural Crop Report*. Available online at: http://www.yolocounty.org/Index.aspx?page=469/ Accessed on October 20, 2009.

Yolo County Assessor, 2009. Assessor Inquiry. Available at: https://common1.mptsweb.com/megabytecommonsite/(bsvdcl45zdsqxs55wdr2ilb5)/PublicInquiry/Inquiry.aspx?CN=yolo&SITE=Public&DEPT=Asr&PG=Search. Accessed September 2, 2009

Yolo County Counsel, 2010. Memorandum. Subject: Public Hearing regarding the potential implementation of Senate Bill 863 and related changes to existing Williamson Act contracts and property tax benefits (Potential general fund revenue of up to $500,000 in fiscal year 2011-12). From Robyn Truitt Drivon, County Counsel to Supervisor Helen M. Thomson, Chairwoman, and Members of the Board of Supervisors. Dated December 7, 2010.

Yolo County Flood Control and Water Conservation District (YCFCWCD), 2000. *Water Management Plan*. Available online at: http://ia311209.us.archive.org/1/items/watermanagementp00borcrich/watermanagementp00borcrich.pdf. Accessed on August 2009.

Yolo County Geographic Information Systems (Yolo Co. GIS), 2010. Yolo County Public Map Viewer. Available online at: http://www-gis2.yolocounty.org/website/public/viewer.htm. Accessed on December 14, 2010.

Yolo County Parks and Resources Department (YCPRD), 2009. Yolo County Parks. Available online at: http://www.yolocounty.org/Index.aspx?page=1569. Last updated July 21, 2009. Accessed on October 9, 2009.

Yolo County Parks and Resources Department (YCPRD), 2010a. Yolo County Parks, Camp Haswell. Available online at: http://www.yolocounty.org/Index.aspx?page=380. Last updated February 21, 2008. Accessed on December 14, 2010.

Yolo County Parks and Resources Department (YCPRD), 2010b. Yolo County Parks, Cache Creek Regional Park. Available online at: http://www.yolocounty.org/Index.aspx?page=379. Last updated on November 19, 2010. Accessed on December 14, 2010.

Yolo County Public Works Department (YCPWD), 2009. Personal telephone communication with Linda Sinderson from the Yolo County Landfill. November 14, 2009.

Yolo County Sheriff's Department, 2010. Sheriff's Department Website. Available online at http:// www.yolocountysheriff.com/ Accessed Mar 2010.

Yolo County Water Resources Association (WRA), 2004. Integrated Regional WaterManagement Plan. Yolo County Water Resources Association. Available online at: http://www.yolowra.org/irwmp_documents.html. Accessed on April 9, 2010.

Yolo Solano Air Quality Management District (YSAQMD), 2009. Attainment status. Available online at: http://www.ysaqmd.org/state-plans.php/ Accessed on August 18, 2009.

7.1 CULTURAL RESOURCES REFERENCES

Beardsley, R. K.

1948 Cultural Sequences in Central California Archaeology. *American Antiquity 14:1-28*.

1954 Temporal and Areal Relationships in Central California Archaeology. Berkeley: *University of California Archaeological Survey Reports* 24, 25.

Beck, J.L.

1971 A Chipped Stone Crescent from Tracy Lake, California. *The Masterkey* 45(4):154-156.

Bennyhoff, J. A.

1994 Central California Augustine: Implications for Northern California Archaeology. In Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson, edited by E. E. Hughes, pp. 65-74. *Contributions of the University of California Archaeological Research Facility* No 52, Berkeley.

Butler, Joel

2010 Yolo County Assessor. Assessor Parcel Number (APN) Inquiry. Electronic Document, https://common1.mptsweb.com/megabytecommonsite/(bsvdcl45zdsqxs55wdr2ilb5)/PublicInquiry/Inquiry.aspx?CN=yolo&SITE=Public&DEPT=Asr&PG=Search, accessed on April 2010.

California Office of Historic Preservation.

1976 *California Inventory of Historical Resources*. State of California Department of Parks and Recreation, Sacramento.

1988 *Five Views: An Ethnic Historic Site Survey for California*. State of California Department of Parks and Recreation, Sacramento.

1990 *California Historical Landmarks*. State of California Department of Parks and Recreation, Sacramento.

1992 *California Points of Historical Interest.* State of California Department of Parks and Recreation, Sacramento.

2009 *Historic Properties Directory*, Listing by City through February 2009. State of California Office of Historic Preservation, Sacramento.

Castillo, E. D.

1978 The Impact of Euro-American Exploration and Settlement. In *Handbook of the North American Indians,* Volume 8, *California*, edited by R. F. Heizer, pp. 99-127. Smithsonian Institution, Washington, D.C.

Caughey, J.W.

1940 *California.* Prentice-Hall, Englewood Cliffs, NJ.

Cook, S. F.

1955 The Aboriginal Population of the San Joaquin Valley, California. *University of California Anthropological Records* 16: 31-80. Berkeley.

Davis, E. L.

1978 The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country. Natural History Museum of Los Angeles County, Science Series 29, Los Angeles.

Davis, E.L. and J. Richard Shutler

1969 Recent Discoveries of Fluted Points in California and Nevada. *Nevada State Museum Anthropological Papers 14.* Miscellaneous Papers on Nevada Archaeology 1-8:155-177.

Fredrickson, D.

1973 *Early Cultures of the North Coast Ranges, California.* Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology 1(1):41-53.*

Greenway, Gregory.

1978 *An Archaeological Survey and Cultural Resource Evaluation of Six Northern California Rancherias (Susanville, Cortina, Colusa, Rumsey, Laytonville, and Sherwood Valley Rancherias).* Report on file, Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Gregory, Thomas

1913 *History of Yolo County, California*. Historic Record Company, Los Angeles.

Harrington, J. P.

1948 An ancient site at Borax Lake, California. Los Angeles: *Southwest Museum Papers* 16:1-126.

Heizer, R. F.
1949 California, I: The Early Horizon. University of California Anthropological Records 12(1).

Heizer, R. F., and F. Fenenga
1939 Archaeological Horizons in Central California. In American Anthropologist, 41(3) pp. 378-399.

Hoover, M.B., H.E. Rensch, E.G. Rensch, and W.N. Abeloe.
2002 *Historic Spots in California*. Fourth edition, revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Johnson, Patti
1978 Patwin. In *California*, edited by Robert F. Heizer, pp. 350-359. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Kroeber, Alfred L.
1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C. Reprinted by Dover, New York.
1932 Patwin and Their Neighbors. *University of California Publications in American Archaeology and Ethnology* 29(4)254-423. Berkeley.

Larkey, Joann L. and Shipley Walters
1987 *Yolo County: Land of Changing Patterns.* Windsor Publications, Northridge, California.

Les-Thomas Associates
1986 Primary Record, P-57-132. On file Northwest Information Center, Sonoma State University,

Lillard, J. B., R. F. Heizer, and F. Fenenga.
1939 Introduction to the Archaeology of Central California. Sacramento: Sacramento Junior College, Department of Anthropology Bulletin 2.

Lillard, J. B., and W. K. Purves.
1936 The Archaeology of the Deer Creek-Consumnes Area, Sacramento County, CA. Sacramento: Sacramento Junior College, Department of Anthropology Bulletin 1.

McKern, W. K.
1922 Functional Families of the Patwin. *University of California Publications in American Archaeology and Ethnology 13(7)235-258.* Berkeley.

1923 Patwin Houses. *University of California Publications in American Archaeology and Ethnology* 20(10)159-171. Berkeley.

Meighan, C. W. and C. V. Haynes
1970 *The Borax Lake site revisited*. Science 167 (3922):1213-1221

Meredith, H. C.
1900 The Archaeology in California: Central and Northern California. In W. K. Mooreland , ed., Prehistoric Implements:258-294. Cincinnati: Robert Clarke

Merhoff, Ada
1986 Capay Valley: The Land and the People, 1846-1900. Printed by Roger C. Frank, Woodland, CA.

Milliken, R.
2005 Ethnohistory. In Archaeological Evaluation and Mitigative Data Recovery at CA-YOL-69, Madison Aggregate Plant, Yolo County, California. Holman and Associates. Folsom, CA.

Moratto, Michael, J.
1984 California Archaeology. Second printing 2004. Reprinted with permission of the author by Coyote Press, Salinas, California.

National Park Service (compiler).
2009 National Register of Historic Places Index of Listed Properties (computer listing for June 2009). United States Department of the Interior, Washington, D.C. On file, Northwest Information Center, California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Powers, S.
1877 Tribes of California. Contributions to North American Ethnology 3. U.S. Geographical and Geological Survey of the Rocky Mountain Region, Washington. Reprinted 1976.

Riddell, F. A., and W.H. Olsen
1969 An Early man site in the San Joaquin Valley. *American Antiquity 34(2): 121-130.*

Riddell, F., J. Bingham, D. Bell, and C. Blount.

1978 *A Partial Cultural Resource Survey of the Capay-Lamb Valley Water Project Main Canal*. Report on file, Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Robertson, Donald B.

1998 *Encyclopedia of Western Railroad History, Volume IV: California.* Caldwell, ID: Caxton Printers, Ltd.

Sanchez, N. Van de Grift

1930 My Years with Chief Solano. Translated by Nellie Van de Grift Sanchez. *Touring Topics* 22(2):39, 52.

Schenk, W. E., and E. J. Dawson.

1929 Archaeology of the Northern San Joaquin Valley. University of California Publications in American Archaeology and Ethnology 25(4):289-413.

Wulf

2002 Historic Property Survey Report for the Proposed Culvert Replacement Project in 53 locations on 6 routes in five counties within District 3, Caltrans EA03-2A0500. On file, Northwest Information Center, Sonoma State University, Rohnert Park, CA.